

## MARGINAL COSTING

### Marginal Costing and Absorption Costing

#### Learning Objectives

- To understand the meanings of marginal cost and marginal costing
- To distinguish between marginal costing and absorption costing
- To ascertain income under both marginal costing and absorption costing

#### Introduction

The costs that vary with a decision should only be included in decision analysis. For many decisions that involve relatively small variations from existing practice and/or are for relatively limited periods of time, fixed costs are not relevant to the decision. This is because either fixed costs tend to be impossible to alter in the short term or managers are reluctant to alter them in the short term.

#### Marginal costing - definition

Marginal costing distinguishes between fixed costs and variable costs as conventionally classified.

*The marginal cost of a product* – “is its variable cost”. This is normally taken to be; direct labour, direct material, direct expenses and the variable part of overheads.

*Marginal costing is formally defined as:*

‘the accounting system in which variable costs are charged to cost units and the fixed costs of the period are written-off in full against the aggregate contribution. Its special value is in decision making’. (Terminology.)

The term ‘contribution’ mentioned in the formal definition is the term given to the difference between Sales and Marginal cost. Thus

$$\begin{aligned} \text{MARGINAL COST} &= \text{VARIABLE COST DIRECT LABOUR} \\ &+ \\ &\text{DIRECT MATERIAL} \\ &+ \\ &\text{DIRECT EXPENSE} \\ &+ \\ &\text{VARIABLE OVERHEADS} \end{aligned}$$

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## MARGINAL COSTING

### CONTRIBUTION SALES - MARGINAL COST

The term marginal cost sometimes refers to the marginal cost per unit and sometimes to the total marginal costs of a department or batch or operation. The meaning is usually clear from the context.

#### Note

Alternative names for marginal costing are the contribution approach and direct costing. In this lesson, we will study marginal costing as a technique quite distinct from absorption costing.

### Theory of Marginal Costing

The theory of marginal costing as set out in “A report on Marginal Costing” published by CIMA, London is as follows:

In relation to a given volume of output, additional output can normally be obtained at less than proportionate cost because within limits, the aggregate of certain items of cost will tend to remain fixed and only the aggregate of the remainder will tend to rise proportionately with an increase in output. Conversely, a decrease in the volume of output will normally be accompanied by less than proportionate fall in the aggregate cost.

The theory of marginal costing may, therefore, be understood in the following two steps:

1. If the volume of output increases, the cost per unit in normal circumstances reduces. Conversely, if an output reduces, the cost per unit increases. If a factory produces 1000 units at a total cost of \$3,000 and if by increasing the output by one unit the cost goes up to \$3,002, the marginal cost of additional output will be \$.2.
2. If an increase in output is more than one, the total increase in cost divided by the total increase in output will give the average marginal cost per unit. If, for example, the output is increased to 1020 units from 1000 units and the total cost to produce these units is \$1,045, the average marginal cost per unit is \$2.25. It can be described as follows:

$$\frac{\text{Additional cost}}{\text{Additional units}} = \frac{\$ 45}{20} = \$2.25$$

The ascertainment of marginal cost is based on the classification and segregation of cost into fixed and variable cost. In order to understand the marginal costing technique, it is essential to understand the meaning of marginal cost.

*Marginal cost* means the cost of the marginal or last unit produced. It is also defined as the cost of one more or one less unit produced besides existing level of production. In this

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## MARGINAL COSTING

connection, a unit may mean a single commodity, a dozen, a gross or any other measure of goods.

For example, if a manufacturing firm produces X unit at a cost of \$ 300 and X+1 units at a cost of \$ 320, the cost of an additional unit will be \$ 20 which is marginal cost. Similarly if the production of X-1 units comes down to \$ 280, the cost of marginal unit will be \$ 20 (300–280).

The marginal cost varies directly with the volume of production and marginal cost per unit remains the same. It consists of prime cost, i.e. cost of direct materials, direct labor and all variable overheads. It does not contain any element of fixed cost which is kept separate under marginal cost technique.

*Marginal costing* may be defined as the technique of presenting cost data wherein variable costs and fixed costs are shown separately for managerial decision-making. It should be clearly understood that marginal costing is not a method of costing like process costing or job costing. Rather it is simply a method or technique of the analysis of cost information for the guidance of management which tries to find out an effect on profit due to changes in the volume of output.

There are different phrases being used for this technique of costing. In UK, marginal costing is a popular phrase whereas in US, it is known as direct costing and is used in place of marginal costing. Variable costing is another name of marginal costing.

Marginal costing technique has given birth to a very useful concept of contribution where contribution is given by: Sales revenue less variable cost (marginal cost)

Contribution may be defined as the profit before the recovery of fixed costs. Thus, contribution goes toward the recovery of fixed cost and profit, and is equal to fixed cost plus profit ( $C = F + P$ ).

In case a firm neither makes profit nor suffers loss, contribution will be just equal to fixed cost ( $C = F$ ). this is known as break even point.

The concept of contribution is very useful in marginal costing. It has a fixed relation with sales. The proportion of contribution to sales is known as P/V ratio which remains the same under given conditions of production and sales.

### The principles of marginal costing

The principles of marginal costing are as follows.

- a. For any given period of time, fixed costs will be the same, for any volume of sales and production (provided that the level of activity is within the 'relevant range').

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Therefore, by selling an extra item of product or service the following will happen.

- § Revenue will increase by the sales value of the item sold.
  - § Costs will increase by the variable cost per unit.
  - § Profit will increase by the amount of contribution earned from the extra item.
- b. Similarly, if the volume of sales falls by one item, the profit will fall by the amount of contribution earned from the item.
  - c. Profit measurement should therefore be based on an analysis of total contribution. Since fixed costs relate to a period of time, and do not change with increases or decreases in sales volume, it is misleading to charge units of sale with a share of fixed costs.
  - d. When a unit of product is made, the extra costs incurred in its manufacture are the variable production costs. Fixed costs are unaffected, and no extra fixed costs are incurred when output is increased.

### Features of Marginal Costing

The main features of marginal costing are as follows:

1. *Cost Classification*  
The marginal costing technique makes a sharp distinction between variable costs and fixed costs. It is the variable cost on the basis of which production and sales policies are designed by a firm following the marginal costing technique.
2. *Stock/Inventory Valuation*  
Under marginal costing, inventory/stock for profit measurement is valued at marginal cost. It is in sharp contrast to the total unit cost under absorption costing method.
3. *Marginal Contribution*  
Marginal costing technique makes use of marginal contribution for marking various decisions. Marginal contribution is the difference between sales and marginal cost. It forms the basis for judging the profitability of different products or departments.

### Advantages and Disadvantages of Marginal Costing Technique

#### Advantages

1. Marginal costing is simple to understand.
2. By not charging fixed overhead to cost of production, the effect of varying charges per unit is avoided.
3. It prevents the illogical carry forward in stock valuation of some proportion of current year's fixed overhead.

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## MARGINAL COSTING

4. The effects of alternative sales or production policies can be more readily available and assessed, and decisions taken would yield the maximum return to business.
5. It eliminates large balances left in overhead control accounts which indicate the difficulty of ascertaining an accurate overhead recovery rate.
6. Practical cost control is greatly facilitated. By avoiding arbitrary allocation of fixed overhead, efforts can be concentrated on maintaining a uniform and consistent marginal cost. It is useful to various levels of management.
7. It helps in short-term profit planning by breakeven and profitability analysis, both in terms of quantity and graphs. Comparative profitability and performance between two or more products and divisions can easily be assessed and brought to the notice of management for decision making.

### Disadvantages

1. The separation of costs into fixed and variable is difficult and sometimes gives misleading results.
2. Normal costing systems also apply overhead under normal operating volume and this shows that no advantage is gained by marginal costing.
3. Under marginal costing, stocks and work in progress are understated. The exclusion of fixed costs from inventories affect profit, and true and fair view of financial affairs of an organization may not be clearly transparent.
4. Volume variance in standard costing also discloses the effect of fluctuating output on fixed overhead. Marginal cost data becomes unrealistic in case of highly fluctuating levels of production, e.g., in case of seasonal factories.
5. Application of fixed overhead depends on estimates and not on the actuals and as such there may be under or over absorption of the same.
6. Control affected by means of budgetary control is also accepted by many. In order to know the net profit, we should not be satisfied with contribution and hence, fixed overhead is also a valuable item. A system which ignores fixed costs is less effective since a major portion of fixed cost is not taken care of under marginal costing.
7. In practice, sales price, fixed cost and variable cost per unit may vary. Thus, the assumptions underlying the theory of marginal costing sometimes becomes unrealistic. For long term profit planning, absorption costing is the only answer.

### Presentation of Cost Data under Marginal Costing and Absorption Costing

Marginal costing is not a method of costing but a technique of presentation of sales and cost data with a view to guide management in decision-making.

The traditional technique popularly known as total cost or absorption costing technique does not make any difference between variable and fixed cost in the calculation of

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**MARGINAL COSTING**

profits. But marginal cost statement very clearly indicates this difference in arriving at the net operational results of a firm.

Following presentation of two Performa shows the difference between the presentation of information according to absorption and marginal costing techniques:

**MARGINAL COSTING PRO-FORMA**

	£	£
Sales Revenue		xxxxx
<u>Less Marginal Cost of Sales</u>		
Opening Stock (Valued @ marginal cost)	xxxx	
Add Production Cost (Valued @ marginal cost)	xxxx	
Total Production Cost	xxxx	
Less Closing Stock (Valued @ marginal cost)	(xxx)	
Marginal Cost of Production	xxxx	
Add Selling, Admin & Distribution Cost	xxxx	
Marginal Cost of Sales		(xxxx)
Contribution		xxxxx
Less Fixed Cost		(xxxx)
Marginal Costing Profit		xxxxx

**ABSORPTION COSTING PRO-FORMA**

	£	£
Sales Revenue		xxxxx
<u>Less Absorption Cost of Sales</u>		
Opening Stock (Valued @ absorption cost)	xxxx	
Add Production Cost (Valued @ absorption cost)	xxxx	
Total Production Cost	xxxx	
Less Closing Stock (Valued @ absorption cost)	(xxx)	
Absorption Cost of Production	xxxx	
Add Selling, Admin & Distribution Cost	xxxx	
Absorption Cost of Sales		(xxxx)
Un-Adjusted Profit		xxxxx
Fixed Production O/H absorbed	xxxx	
Fixed Production O/H incurred	(xxxx)	
(Under)/Over Absorption		xxxxx
Adjusted Profit		xxxxx

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**MARGINAL COSTING****Reconciliation Statement for Marginal Costing and Absorption Costing Profit**

	\$
Marginal Costing Profit	xx
ADD	xx
(Closing stock – opening Stock) x OAR	
= Absorption Costing Profit	xx

Where OAR( overhead absorption rate) =  $\frac{\text{Budgeted fixed production overhead}}{\text{Budgeted levels of activities}}$

**Marginal Costing versus Absorption Costing**

After knowing the two techniques of marginal costing and absorption costing, we have seen that the net profits are not the same because of the following reasons:

**1. Over and Under Absorbed Overheads**

In absorption costing, fixed overheads can never be absorbed exactly because of difficulty in forecasting costs and volume of output. If these balances of under or over absorbed/recovery are not written off to costing profit and loss account, the actual amount incurred is not shown in it. In marginal costing, however, the actual fixed overhead incurred is wholly charged against contribution and hence, there will be some difference in net profits.

**2. Difference in Stock Valuation**

In marginal costing, work in progress and finished stocks are valued at marginal cost, but in absorption costing, they are valued at total production cost. Hence, profit will differ as different amounts of fixed overheads are considered in two accounts.

The profit difference due to difference in stock valuation is summarized as follows:

- When there is no opening and closing stocks, there will be no difference in profit.
- When opening and closing stocks are same, there will be no difference in profit, provided the fixed cost element in opening and closing stocks are of the same amount.
- When closing stock is more than opening stock, the profit under absorption costing will be higher as comparatively a greater portion of fixed cost is included in closing stock and carried over to next period.

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- d. When closing stock is less than opening stock, the profit under absorption costing will be less as comparatively a higher amount of fixed cost contained in opening stock is debited during the current period.

### **The features which distinguish marginal costing from absorption costing are as follows.**

- a. In absorption costing, items of stock are costed to include a 'fair share' of fixed production overhead, whereas in marginal costing, stocks are valued at variable production cost only. The value of closing stock will be higher in absorption costing than in marginal costing.
- b. As a consequence of carrying forward an element of fixed production overheads in closing stock values, the cost of sales used to determine profit in absorption costing will:
  - i. include some fixed production overhead costs incurred in a previous period but carried forward into opening stock values of the current period;
  - ii. exclude some fixed production overhead costs incurred in the current period by including them in closing stock values.

In contrast marginal costing charges the actual fixed costs of a period in full into the profit and loss account of the period. (Marginal costing is therefore sometimes known as period costing.)

- c. In absorption costing, 'actual' fully absorbed unit costs are reduced by producing in greater quantities, whereas in marginal costing, unit variable costs are unaffected by the volume of production (that is, provided that variable costs per unit remain unaltered at the changed level of production activity). Profit per unit in any period can be affected by the actual volume of production in absorption costing; this is not the case in marginal costing.
- d. In marginal costing, the identification of variable costs and of contribution enables management to use cost information more easily for decision-making purposes (such as in budget decision making). It is easy to decide by how much contribution (and therefore profit) will be affected by changes in sales volume. (Profit would be unaffected by changes in production volume).

In absorption costing, however, the effect on profit in a period of changes in both:

- i. production volume; and
  - ii. sales volume;
- is not easily seen, because behaviour is not analysed and incremental costs are not used in the calculation of actual profit.

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### Limitations of Absorption Costing

The following are the criticisms against absorption costing:

1. You might have observed that in absorption costing, a portion of fixed cost is carried over to the subsequent accounting period as part of closing stock. This is an unsound practice because costs pertaining to a period should not be allowed to be vitiated by the inclusion of costs pertaining to the previous period and vice versa.
2. Further, absorption costing is dependent on the levels of output which may vary from period to period, and consequently cost per unit changes due to the existence of fixed overhead. Unless fixed overhead rate is based on normal capacity, such changed costs are not helpful for the purposes of comparison and control.

The cost to produce an extra unit is variable production cost. It is realistic to the value of closing stock items as this is a directly attributable cost. The size of total contribution varies directly with sales volume at a constant rate per unit. For the decision-making purpose of management, better information about expected profit is obtained from the use of variable costs and contribution approach in the accounting system.

### Summary

Marginal cost is the cost management technique for the analysis of cost and revenue information and for the guidance of management. The presentation of information through marginal costing statement is easily understood by all managers, even those who do not have preliminary knowledge and implications of the subjects of cost and management accounting.

Absorption costing and marginal costing are two different techniques of cost accounting. Absorption costing is widely used for cost control purpose whereas marginal costing is used for managerial decision-making and control.

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