

Quadrant II – Transcript and Related Materials

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Paper Title: Major III. Techniques of Costing

Unit: I. Marginal Costing

Module Name: Marginal Costing Equation / Cost Volume Profit Analysis

Module No: 04

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Notes:

COST, VOLUME , PROFIT ANALYSIS :

Cost, Volume profit analysis is called CVP analysis. It is more helpful for the managerial decision making especially in controlling cost and profit planning. It determines the effect of change in cost, volume , price or product mix on profit.

Some important Terms used in CVP Analysis are :

1. Fixed cost :

It is also called as time cost. Total fixed cost remains constant even if the production increases or decreases . It remains constant for a certain period of time. Fixed cost per unit changes according to the level of production. Eg. Rent of a building, salaries etc.

Fixed cost = Contribution - profit

2. Variable cost :

It is a cost where the total cost changes according to the change in the level of production. It is also called as product cost. Variable cost per unit remains constant. Eg. Commission paid to a salesmen as percentage of sales, raw material, labour, power etc.

Variable cost = sales – contribution or Sales (100% - P/V Ratio)

Contribution :

Contribution is the excess of sales over variable cost. Total contribution may be obtained by multiplying the per unit contribution to the volume of sales. Higher the contribution higher will be the profit since fixed overheads remains constant. contribution helps to determine the break-even point, profitability of products, departments, etc., to select product mix for profit maximization, and to fix selling prices under different circumstances such as trade depression, export sales, price discrimination, etc. The aim of every organization is to maximize the amount of contribution. The same is possible either by

1. Reducing marginal cost
2. Increasing sales volume
3. Increasing the selling price per unit.

Profit may also be increased by reducing the fixed overheads.

Sales – Variable cost = contribution = Fixed cost + Profit

Contribution = sales – variable cost OR

Contribution = Fixed cost + Profit

Advantages of contribution :

1. It supplies the information to the management to take decision whether a particular product may be purchased from outside or the same may be manufactured by a firm.
2. It helps the management to know BEP
3. It helps the management to select the best component of production.
4. Selling price of the product may reasonably and justifiably be determined on the basis of contribution so ascertained.

PROFIT VOLUME RATIO :

It is commonly known as P/V Ratio. **Profit-volume ratio** indicates the relationship between contribution and sales and is usually expressed in percentage. It is expressed as

$$\text{P/V Ratio} = \frac{\text{contribution}}{\text{Sales}} \times 100$$

It is also expressed as
$$\text{P/V Ratio} = \frac{\text{Change in profit}}{\text{Change in sales}}$$

P/V ratio helps us to find out contribution, sales, BEP, Sales required for a desired profit and profit against a particular amount of sales, ascertain sales mix in order to earn minimum profit. A

high P/V Ratio indicates high profitability. A low P/V ratio which indicates low profitability can be improved by increasing selling price, reducing marginal costs or selling products having high P/V ratio.

BREAK EVEN ANALYSIS:

Break even chart and break even point are the two by products of break even analysis. Break even analysis is also known as cost volume profit analysis. The analysis is a tool of financial analysis whereby the impact on profit of the changes in volume, price, cost and mix can be estimated with reasonable accuracy. Break Even Chart is a graphical representation of Cost, volume, profit.

Break even chart :

1. It will show the variable cost, fixed cost and total cost
2. Sales value or unit can be known
3. Profit or loss can be known
4. Angle of incidence can also be known.
5. Margin of safety can be known.

Assumptions of Break-Even Charts:

- (i) All costs can be separated into fixed and variable costs.
- (ii) Fixed costs remain constant at all levels of activity.
- (iii) Variable cost fluctuates directly in proportion to changes in the volume of output.
- (iv) Selling prices per unit remain constant at all levels of activity.
- (v) There is no opening or closing stock.
- (vi) There will be no change in operating efficiency.
- (vii) Product mix remains unchanged or there is only one product.
- (viii) The volume of output or production is the only factor which influences the cost.

Advantages of Break-Even Charts:

- i. Information provided by the break-even chart is in a simple form and is clearly understandable even to a layman. The whole idea of the problem is presented at a glance.
- ii. The break-even chart is very useful to the management for taking managerial decisions because the chart studies the relationship of cost, volume and profit at various levels of output. The effects of changes in fixed costs and variable costs at various levels of output and that of changes in the selling price on the profits can be depicted very clearly by way of break-even charts.
- iii. The break-even charts help in knowing and analysing the profitability of different products under various circumstances.
- iv. A break-even chart is very useful for forecasting (the costs and profits), planning and growth.
- v. The break-even chart is a managerial tool for control of costs as it shows the relative importance of fixed cost in the total cost of a product.
- vi. Besides determining the break-even point, profits at various levels of output can also be determined with the help of break-even charts.
- vii. The break-even charts can also be used to study the comparative plant efficiencies

Limitations of Break-Even Charts:

A break-even chart suffers from the following limitations:

- i. A break-even chart is based upon a number of assumptions, discussed above, which may not hold good under all circumstances. For example, fixed costs do not remain constant after a certain level of activity; variable costs do not always vary in direct proportion to changes in the volume of output because of the laws of diminishing and increasing returns; selling prices do not remain the same forever and for all levels of output due to competition and changes in the general price level; etc.
- ii. A break-even chart provides only a limited information. We have to draw a number of charts to study the effects of changes in the fixed costs, variable costs and selling prices on the profitability. In such cases, it becomes rather more complicated and difficult to understand.
- iii. Break-even charts present only cost-volume profit relationships but ignore other important considerations such as the amount of capital investment, marketing problems and government policies, etc.

iv. A break-even chart does not suggest any action or remedies to the management as a tool of management decisions.

v. More often, a break-even chart presents only a static view of the problem under consideration.

BREAK EVEN POINT:

BEP is a point which breaks the total cost and the selling price evenly in order to show the level of sales or where there is no profit no loss is made. It is a point where income is equal to expenditure. If production is increased beyond this level there will be profit or vice versa. Every organisation use BEP as a base to take various decisions in regard to its sales volume and tries to increase it so that total fixed costs can be covered as early as possible and more profits can be earned.

$$\text{BEP (Units)} = \frac{\text{Fixed Cost}}{\text{Contribution per unit}}$$

$$\text{BEP (Sales Value)} = \frac{\text{Fixed Cost}}{\text{P/V Ratio}}$$