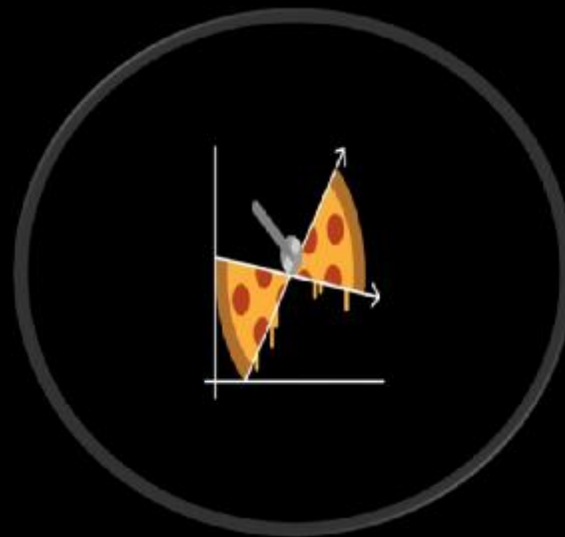




**F&B SERVICE MANAGEMENT**  
**UNIT- 8**  
**BREAK-EVEN ANALYSIS**



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**BREAK-EVEN ANALYSIS**





## UNIT- 8

### BREAK-EVEN ANALYSIS

### BREAK-EVEN ANALYSIS

Break-even analysis entails the calculation and examination of the margin of safety for an entity based on the revenues collected and associated costs. Analyzing different price levels relating to various levels of demand, an entity uses break-even analysis to determine what level of sales are needed to cover total fixed costs.

The **break-even** point (BEP) or **break-even** level represents the sales amount—in either unit (quantity) or revenue (sales) terms—that is required to cover total costs, consisting of both fixed and variable costs to the company. Total profit at the **break-even** point is zero.



## UNIT- 8

### BREAK-EVEN ANALYSIS

It is very common for food and beverage management to be faced with problems concerning the level of food and beverage cost that can be afforded, the prices that need to be set for food and beverages, the level of profit required at departmental and unit level and the number of customers required to cover specific costs or to make a certain level of profit. Typical questions raised are:

- ❖ What level of sales is needed to cover the fixed costs of a unit?
- ❖ What level of sales is required from a particular unit to achieve £x's net profit?
- ❖ What will the effect of increasing prices by 5% have on net profit?
- ❖ What will be the effect on net profit of increasing the average spend of customers by 50p per meal?



UNIT- 8  
BREAK-EVEN ANALYSIS

Here is a quick video to help you get started



<https://youtu.be/LDEyu1TR0Rs>



## UNIT- 8 BREAK-EVEN ANALYSIS

### ADVANTAGES OF BREAK-EVEN ANALYSIS

1. Profit planning
2. Product planning
3. Activity Planning
4. Lease Decisions
5. Make or buy decisions
6. Capital profit decisions
7. Distribution channel decisions
8. Price decisions
9. Choosing Promotion Mix
10. Decision regarding the profitability of products or department.

CH: 1  
BREAK-EVEN CHART





## CH: 1 BREAK-EVEN CHART

- ❖ Break even chart may be prepared in different forms and styles; but they all in addition to break-even point indicate revenues, costs, profits or losses on different output levels.

It is a graphical representation of the cost-volume-profit relationship.

- ❖ A **break even chart** is a **chart** that shows the sales volume level at which total costs equal sales. Losses will be incurred below this point, and profits will be earned above this point. The **chart** plots revenue, fixed costs, and variable costs on the vertical axis, and volume on the horizontal axis.





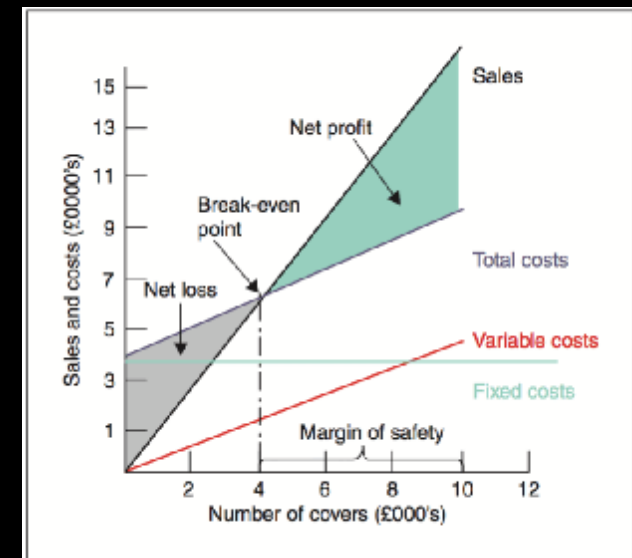
## CH: 1 BREAK-EVEN CHART

### Example

A restaurant has a seating capacity of 180 covers, enabling to serve a total of 10,080 customers per twenty-eight-day trading period over lunch and dinner. The ASP of the customers is £15 (total maximum sales of £151,200).

The fixed costs of the restaurant are

£35,000 per period and the variable costs are 40% of sales (maximum £60,480). The break-even chart of the restaurant would be prepared as shown.





## CH: 2 PV RATIO





## CH: 2 PV RATIO

The **Profit Volume (PV) Ratio** is the **ratio** of Contribution over Sales. It measures the Profitability of the firm and is one of the important **ratios** for computing profitability.

The Profit/volume ratio, which is also called the ‘contribution ratio’ or ‘marginal ratio’, expresses the relation of contribution to sales and can be expressed as under:

$$\text{P/V Ratio} = \text{Contribution/Sales}$$

The **profit volume ratio**, also called the contribution margin **ratio** or the variable profit **ratio**, is one of the tools accountants **use** to maximize the effectiveness of a business's production and ensure it makes and sells the most profitable mix of products.



## CH: 2 PV RATIO

Since  $\text{Contribution} = \text{Sales} - \text{Variable Cost} = \text{Fixed Cost} + \text{Profit}$ , P/V ratio can also be expressed as:

$\text{P/V Ratio} = \frac{\text{Sales} - \text{Variable cost}}{\text{Sales}}$  i.e.  $S - V/S$

or,  $\text{P/V Ratio} = \frac{\text{Fixed Cost} + \text{Profit}}{\text{Sales}}$  i.e.  $F + P/S$

**or, P/V Ratio = Change in profit or Contribution/Change in Sales**

This ratio can also be shown in the form of percentage by multiplying by 100. Thus, if selling price of a product is Rs. 20 and variable cost is Rs. 15 per unit, then

$$\text{P/V Ratio} = \frac{20 - 15}{20} \times 100 = \frac{5}{20} \times 100 = 25\%$$

The P/V ratio, which establishes the relationship between contribution and sales, is of vital importance for studying the profitability of operations of a business. It reveals the effect on profit of changes in the volume.



## CH: 3 CONTRIBUTION





## CH: 3 CONTRIBUTION

**Contribution margin** is a cost accounting concept that allows a company to determine the profitability of individual products. The phrase “**contribution margin**” can also refer to a per unit measure of a product’s gross operating **margin** calculated simply as the product’s price minus its total variable costs.

To determine the contribution margin, subtract all variable costs of a product from its revenues, and divide by its net revenue. Product variable costs typically include, at a minimum, the costs of direct materials and sales commissions. The calculation is:

$$(\text{Net product revenue} - \text{Product variable costs}) \div \text{Product revenue}$$



## CH: 3 CONTRIBUTION

Here is a nice quick video to help you understand better about the topic:-



<https://youtu.be/pm6Eo9qiUIY>



## CH: 3 CONTRIBUTION

**For example**, the Iverson Drum Company sells drum sets to high schools. In the most recent period, it sold \$1,000,000 of drum sets that had related variable costs of \$400,000. Iverson had \$660,000 of fixed costs during the period, resulting in a loss of \$60,000.

Revenue	\$1,000,000
Variable expenses	400,000
Contribution margin	600,000
Fixed expenses	660,000
Net loss	(\$60,000)

Iverson's contribution margin is 60%, so if it wants to break even, it needs to either reduce its fixed expenses by \$60,000 or increase its sales by \$100,000 (calculated as \$60,000 loss divided by 60% contribution margin).





CH: 4  
MARGINAL COST





## CH: 4 MARGINAL COST

Marginal cost of production is an economics term that refers to the change in production costs resulting from producing one more unit. It is most often used among manufacturers as a means of identifying an optimum production level.

The formula for marginal costs of production is:

**Change in total production costs/Change in total quantity produced**

The marginal cost of production is best used to determine when a company can reach an economy of scale to optimize production and overall operations.

Marginal costs of production will keep going down as production rises until the company has to incur more costs to produce more products. For instance, it may need to buy another machine, add warehouses or buy more materials. At that point, the next unit produced will have a higher marginal cost of production.



## CH: 4 MARGINAL COST

### UTILITY OF MARGINAL COSTING:

- ❖ Helps in determining the volume of production
- ❖ Helps in selection production lines
- ❖ Helps in deciding whether to continue or shut down.



Thank  
you.