



# Need and Calculation Method of Marginal Cost

**Dr. Maruti Baburao Katkade,**

*Assistant Professor, Dept. of commerce, Shri Havagiswami college, Udgir, India.*

## ➤ Abstract

Marginal cost is an important concept in managerial accounting, as it can help an organization optimize its production through economies of scale. A company can maximize its profits by producing to where marginal cost (MC) equals marginal revenue (MR). Fixed costs are constant regardless of production levels, so higher production leads to a lower fixed cost per unit as the total is allocated over more units.

## ➤ Key Words:

Marginal Cost (MC), Profit Volume Ratio (P/V Ratio), Break Even Point, Margin of Safety.

## ➤ Introduction

Marginal cost is the extra cost acquired in the production of additional units of goods or services, most often used in manufacturing. It's calculated by dividing change in costs by change in quantity, and the result of fixed costs for items already produced and variable costs that still need to be accounted for.

The marginal cost of production includes all the expenses that change with that level of production. If the marginal cost of producing additional items is lower than the price per unit, then the manufacturer may be able to gain a profit.

When marginal costs are plotted on a graph, you should be able to see a U-shaped curve where costs begin high but they shift and go down as production increases. They then rise again at some point after this. In many manufacturing scenarios, the marginal costs of production decrease when the output volume increases.

## ➤ Understanding Marginal Cost

Marginal cost is an economics and managerial accounting concept most often used among manufacturers as a means of isolating an optimum production level. Manufacturers often examine the cost of adding one more unit to their production schedules.

At a certain level of production, the benefit of producing one additional unit and generating revenue from that item will bring the overall cost of producing the product line down. The key to optimizing manufacturing costs is to find that point or level as quickly as possible.

Marginal cost includes all of the costs that vary with that level of production. For example, if a company needs to build an entirely new factory in order to produce more goods, the cost of building the factory is a marginal cost. The amount of marginal cost varies according to the volume of the good being produced.

Marginal cost is an important factor in economic theory because a company that is looking to maximize its profits will produce up to the point where marginal cost (MC) equals marginal revenue (MR). Beyond that point, the cost of producing an additional unit will exceed the revenue generated.

### ➤ Marginal cost benefits

The marginal cost of production is important to businesses when they conduct a financial analysis and include these potential benefits:

1. Assists in concentrating resources where excess marginal revenue over marginal costs is at its highest.
2. Allows for increased and decreased costs of production, which helps a company evaluate how much they pay to produce more items.
3. Helps determine when a company can achieve cost advantages through more efficient production to optimize overall operations.
4. May decrease the overall cost of making a product line.
5. Indicates whether companies should continue additional production or increase prices depending on any losses incurred.

### ➤ How to calculate marginal cost

Before calculate marginal cost, understand change in costs and change in quantity:

**Change in costs:** During production, costs may increase or decrease. This will likely occur when manufacturing needs to increase or decrease output volume. For example, if production requires two more workers to be hired to meet the output volume, then a change in costs would occur. The change in costs is determined by subtracting production costs accrued during the first output run from production costs in the next output run.

**Change in quantity:** The amount of product can increase or decrease at various points in production, and the quantities should be sufficient in order to evaluate significant changes in cost. For example, if 3,000 pairs of shoes were made in an initial production run but 10,000 more need to be made, you could calculate the change in quantity by deducting the number of shoes made in the first run from the volume of output in the second.

### ➤ Marginal Cost and its Related terms Calculation Explain Throw Example:-

#### Example:

Take a look at the following data to calculate the marginal cost Related Terms:

Sale – 100 per unit

Sales – 50 Units, 100 Units, 200 Units, 300 Units

Fixed Cost Rs. 9000

Variable Cost Rs.10 per unit

Analytical and Comparative table

Particular/Sales in Unit	50	100	200	300
Sales in Rs. (Rs. 100/Unit)	5000	10000	20000	30000
- Variable cost Rs10/ Unit	(500)	(1000)	(2000)	(3000)
Contribution	4500	9000	18000	27000
- Fixed cost (Rs. 9000)	(9000)	(9000)	(9000)	(9000)
Profit or Loss	(4500)	Nil	9000	18000
	Loss	BEP (Break Even Point)	Profit	Profit
		Margin of Safety		

**1. Marginal Cost:- Change in costs / Change in quantity**

$$\begin{aligned}
 &= 20000 - 10000 / 200 - 100 \\
 &= 10000 / 100 \\
 &= 100
 \end{aligned}$$

**2. Profit Volume Ratio (P/V Ratio):- (50 units output/Sales)**

The Profit Volume (P/V) Ratio is the measurement of the rate of change of profit due to change in volume of sales. It is one of the important ratios for computing profitability as it indicates contribution earned with respect of sales.

$$\begin{aligned}
 &= \frac{\text{Sales-Variable Cost} \times 100}{\text{Sales}} \\
 &= \frac{5000 - 500}{5000} \times 100 \\
 &= \frac{4500}{5000} \times 100 \\
 &= 450000 / 5000 \\
 &= 90\%
 \end{aligned}$$

**3. Break Even Point(BEP) :-**

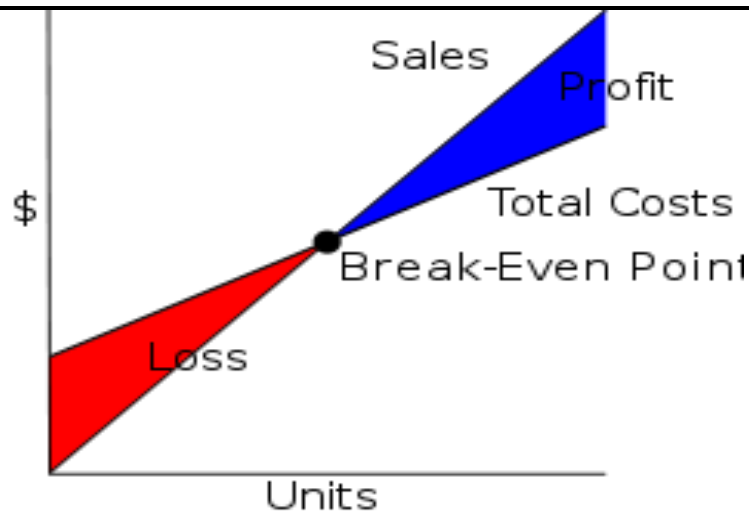
The break-even point (BEP) in economics, business—and specifically cost accounting—is the point at which total cost and total revenue are equal, i.e. "even". There is no net loss or gain, and one has "broken even", though opportunity costs have been paid and capital has received the risk-adjusted, expected return. In short, all costs that must be paid are paid, and there is no profit or no loss.

**Break Even Point (BEP) in Rupees (Sale) :- (100 units output/Sales)**

$$\begin{aligned}
 &= \text{Fixed Cost} / (\text{P/V Ratio}) \\
 &= 9000 / 90\% \\
 &= 10000
 \end{aligned}$$

**Break Even Point(BEP) in Units :- (100 units output/Sales)**

$$\begin{aligned}
 &= \text{BEP Sales in Rupees} / \text{selling price per unit} \\
 &= 10000 / 100 \\
 &= 100 \text{ Units}
 \end{aligned}$$



#### 4. Margin of Safety in Rupees (Sale) :- (300 units output/Sales)

Margin of safety represents the strength of the business. It enables a business to know what the exact amount it has gained or lost is and whether they are over or below the break-even point. In break-even analysis, margin of safety is the extent by which actual or projected sales exceed the break-even sales.

$$\begin{aligned}\text{Margin of safety (in Unit)} &= (\text{current output} - \text{breakeven output}) \\ &= 300 - 100 \\ &= 200 \text{ Units}\end{aligned}$$

#### Margin of safety (in Rupees):-

When dealing with budgets you would instead replace "Current output" with "Budgeted output." If P/V ratio is given then Formula is:-

$$\begin{aligned}&= \text{Profit} / (\text{P/V Ratio}) \\ &= 18000 / 90\% \\ &= 20000\end{aligned}$$

#### Margin of Safety in % (Sale) :- (300 units output/Sales)

$$\begin{aligned}&= \text{Margin of Safety} / \text{Sales} \times 100 \\ &= 20000 / 30000 \times 100 \\ &= 66.67\%\end{aligned}$$

$$\begin{aligned}\text{Margin of safety\% (Unit)} &= (\text{current output} - \text{breakeven output}) / \text{current output} \times 100 \\ &= (300 - 100) / 300 \times 100 \\ &= 200 / 300 \times 100 \\ &= 66.67 \%\end{aligned}$$

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