Dr.SNS RAJALAKSHMI COLLEGE OF ARTS AND SCIENCE
(Autonomous)
Accredited by NAAC – UGC with 'A+ Grade (Cycle IV)
(Recognised by UGC, Approved by AICTE & Affiliated to Bharathiar University)
Coimbatore- 49

DEPARTMENT OF MATHEMATICS

21UCR304: BUSINESS CALCULUS AND FINANCIAL COMPUTATION

AVERAGE COST

Ms.P.DEVIE ABIRAMI M.Sc., M.Phil., B.Ed
Assistant Professor,
Department of Mathematics

Average Cost

What is Average Cost?

Average Costs are the per unit costs which explain the relationship between the cost and output in a realistic manner. These per-unit costs are obtained from Total Fixed Cost, Total Variable Cost, and Total Cost. The three different types of *per-unit costs* are as follows:

1. Average Fixed Cost (AFC):

The per unit fixed cost of production is known as Average Fixed Cost. The formula for calculating Average Fixed Cost is:

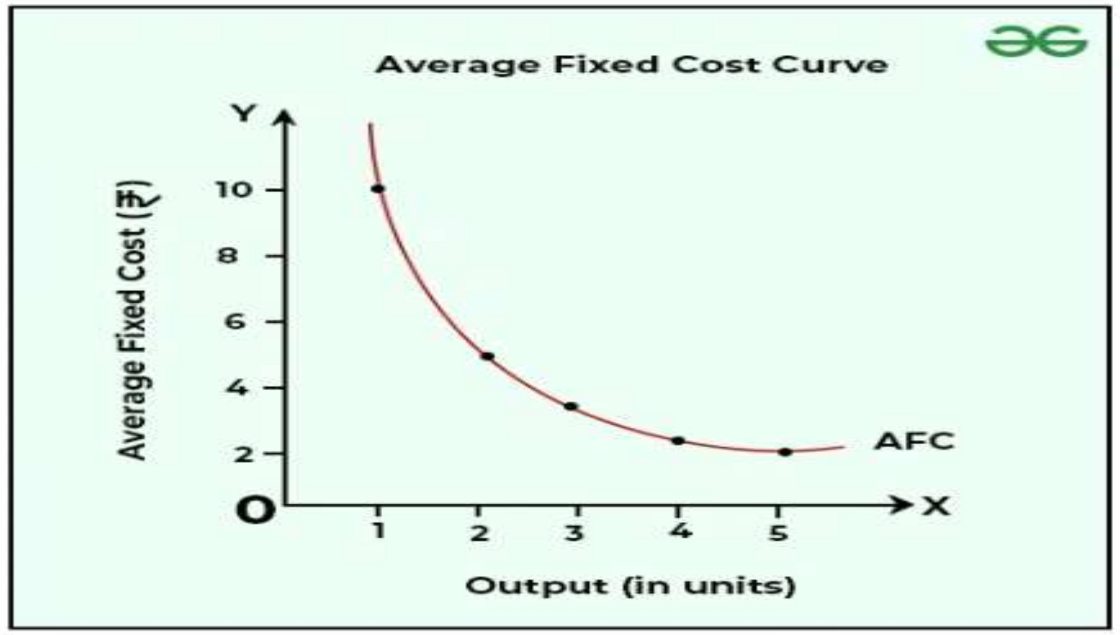
$$Average\ Fixed\ Cost\ (AFC) = \frac{Total\ Fixed\ Cost\ (TFC)}{Quantity\ of\ Output\ (Q)}$$

Average Cost

Example:

Output (in units)	Total Fixed Cost (TFC) (₹)	Average Fixed Cost (AFC) (₹) AFC = TFC/Q
0	10	10/0 = ∞
1	10	10/1 = 10
2	10	10/2 = 5
3	10	10/3 = 3.3
4	10	10/4 = 2.5
5	10	10/5 = 2

It can be seen in the above schedule that with the increase in output level, AFC falls. It is because the constant TFC; i.e., ₹10 is divided by the increasing output.



2. Average Variable Cost (AVC):

The per unit variable cost of production is known as Average Variable Cost. The formula for calculating Average Variable Cost is:

$$Average\ Variable\ Cost\ (AVC) = \frac{Total\ Variable\ Cost\ (TVC)}{Quantity\ of\ Output\ (Q)}$$

Initially, Average Variable Cost falls with an increase in output. Once the output increases till the optimum level, the average variable cost starts to rise.

Average Cost

Example:

Output (in units)	Total Variable Cost (TVC) (₹)	Average Variable Cost (AVC) (₹) TVC/Output = AVC
0	0	-
1	5	5/1 = 5
2	8	8/2 = 4
3	12	12/3 = 4
4	20	20/4 = 5
5	30	30/5 = 6

Average Cost

3. Average Total Cost (ATC) or Average Cost (AC):

The per unit total cost of production is known as Average Total Cost or Average Cost. The formula for calculating Average Total Cost is:

$$Average\ Cost\ (AC) = \frac{Total\ Cost\ (TC)}{Quantity\ of\ Output\ (Q)}$$

Another way to define Average Total Cost is by the sum of Average Fixed Cost and Average Variable Cost; i.e., AC = AFC + AVC.

Just like Average Variable Cost, average cost also initially falls with an increase in output. Once the output increases till the optimum level, the average cost starts to rise.

Average Cost

Example:

Output (in units)	Average Fixed Cost (AFC) (₹)	Average Variable Cost (AVC) (₹)	Average Cost (AC) (₹) AFC + AVC = AC
0	∞	-	-
1	10	5	10 + 5 = 15
2	5	4	5 + 4 = 9
3	3.3	4	3.33 + 4 = 7.3
4	2.5	5	2.5 + 5 = 7.5
5	2	6	2 + 6 = 8

AVERAGE TOTAL COST

The total cost of a firm includes fixed and variable costs. Fixed costs are those that do not change with any corresponding change in the output, while variable costs, as the name suggests, vary or change depending on the change in the output.

The average total cost can be calculated following these simple steps

1.Determine the total quantity

2. Determine the total cost

3. Divide the total cost by total quantity

Mathematically, the average cost formula can be expressed as

ATC = TC / Q

Where,

ATC = Average total cost

TC = Total cost (Fixed + Variable Costs)

Q = Total Quantity

Average Cost

Conclusion

Every company incurs two types of costs: variable and fixed costs. Unlike fixed costs, which do not change per each unit of production, variable costs are related directly related to each product a company produces or service it delivers. Understanding the difference between variable and fixed costs will allow you to price your product appropriately or provide better business advice.

THANK YOU