



THEORY OF COST

- a) There are many force behind the process of price determination for a good.
- b) One such force is supply, which is directly determined by the costs of the company
- c) Theory of cost explores the cost concepts, costs in the long and short run and economies of scale.

- d) Cost is best described as a sacrifice made in order to get something. In business, cost is usually a monetary valuation of all efforts, materials, resources, time and utilities consumed, risk incurred and opportunities foregone in production and delivery of goods and services.
- e) More explicitly, the costs attached to resources that a firm uses to produce its product are divided into explicit costs and implicit costs.
- f) All expenses are costs but not all costs are expenses.
- g) Those costs incurred in the acquisition of income generating assets are not considered as expenses.
- h) The theory of costs is better categorized under the traditional and modern theory of cost.

14. Types of costs

1. Accounting cost / explicit cost.

- a. Accounting cost / explicit cost are that cost which is incurred on those factors that are not owned by entrepreneur. He has to purchase from outside.
- b. Recorded in books of account
- c. Out of the pocket expenditure
e.g:- Raw material, Rent paid, Printing & Stationary cost.

2. Implicit cost

- a. Implicit cost is that cost which is incurred by an entrepreneur on those factor which are owned by him
- b. Not recorded in books of account
- c. They are not out of the pocket expenditure
- d. Also known as opportunity cost.
Eg:- owned property, owned capital

3. Economic cost

Explicit cost + implicit cost = Economic cost

4. Outlay cost

It involves actual outlay of funds on wages material, rent known as "Financial expenditure"

5. Opportunity cost

- a. Opportunity cost is a sacrifice or loss of alternative
- b. Value of next best alternative
- c. Known as Trade off, Forgone cost, Implicit cost.

6. Direct cost

- a. Direct cost is also known as "Traceable cost".
- b. Cost which can be easily identified called as direct cost.
E.g., In production of shoes cost of leather is a direct cost.

7. Indirect cost

- a. Indirect cost is also known as non-traceable cost.
- b. Cost which cannot be easily identified called non-traceable / indirect cost.
E.g., Electricity, Power charges

8. Incremental cost

- a. Incremental cost is related to concept of marginal cost.
- b. It refers to the total additional cost incurred by the business.
E.g., purchase of new equipment, expansion of production capacity.

9. Sunk cost

Sunk cost refers to that cost which has been already incurred for one purpose in the past & cannot be recovered.
E.g., expense on advertisement.

10. Historical cost

Historical cost are those cost which are incurred on the purchase of an asset in the past, may or may not be recovered.
E.g., Machinery, Tools.

11. Replacement cost

Replacement cost refers to expenditure to be made for replacing an old asset.

12. Private cost

Private cost are those cost which are incurred or provided by the firm or organisation.
E.g., cost of manufacturing a product.

13. Social cost

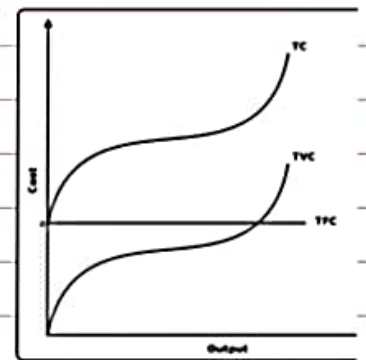
Social cost refers to the total cost to the society due to business activities it includes both private & external cost.
E.g., Pollution of all types.

14. Fixed cost

- Fixed cost do not change with output
 - It is independent of output
 - It cannot become zero also known as supplementary cost or overhead cost.
- E.g., Rent, Property tax, Interest on Capital, Depreciation

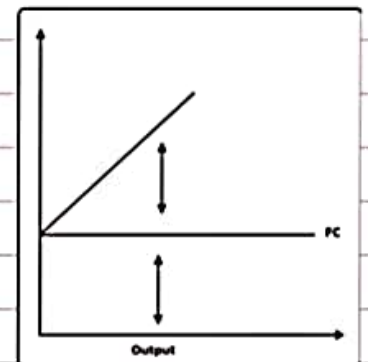
15. Variable cost

- Variable cost changes with change in output
 - Dependent on output
 - It can become zero also known as prime cost.
- E.g., Wages, Raw Material etc.,



16. Semi variable cost

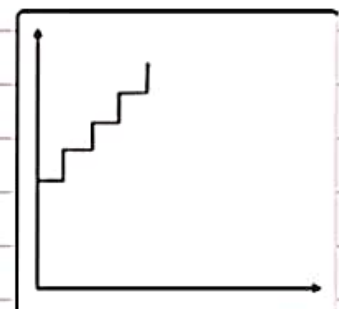
It is a mixture of fixed cost & variable cost.
E.g., Electricity charges , Post paid Mobile connection



17. Stair step cost

A salary or Remuneration give to a foreman or extra helper represent stair step cost.

Accounting profit = Revenue - Accounting cost
Economic Loss = Accounting profit is less than
(<) implicit cost.



	INTERNAL ECONOMICS	EXTERNAL ECONOMICS
1.	Internal economies are the benefits which accrue to a firm when it expands the scale of production.	External economies are those benefits which accrue to all the firms operating in a given industry from the growth and expansion of that industry.
2.	<p>a. Internal economies are called 'internal' because these arise due to the internal efforts of the firm.</p> <p>b. These economies are specific to the individual firm and are different for different firms depending upon the size of the firm.</p>	External economies are called 'external' because they accrue to a firm as a result of factors that are entirely outside the firm i.e. from the expansion of the industry.
3.	<p>a. Internal economies are the result of the firm's OWN EFFORTS INDEPENDENT OF THE ACTIONS OF OTHER FIRMS.</p> <p>b. These economies are peculiar to each firm.</p> <p>c. It reflects the working pattern of the firm.</p>	<p>a. External economies are independent of firm's own efforts and output.</p> <p>b. They are dependent on the general development of the industry.</p> <p>c. They are not restricted to a single firm but are shared by a number of firms.</p>
4.	<p>a. Internal economies cause the long-run average cost to fall in the initial stage and internal diseconomies cause the long-run average cost to rise at the later stage.</p>	<p>a. External economies and diseconomies cause the LAC curve to shift down or up as the case may be.</p> <p>b. When external economies increase, the cost per unit of output falls.</p> <p>c. So, LAC curve shift downwards.</p> <p>d. When external diseconomies are more, the cost per unit of output rises.</p> <p>e. So, LAC curve shift upwards.</p>
5.	If every thing is effectively managed, internal economies can be of long term in nature.	<p>External economies depend upon the conditions of the entire industry and economy.</p> <p>Thus, it can be of short term in nature.</p>

6.	Internal economies are in the form of technical economies like superior techniques, use of by-products, etc., managerial economies; commercial economies; financial economies and risk-bearing economies.	External economies are in the form of cheaper inputs; discovery of new technical knowledge; development of skilled labour; economies of information; growth of ancillary units; better transport and marketing facilities.
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15. SHORT RUN AVERAGE COST

For the purpose of making decision about operations, unit cost functions or average costs are more useful than the total cost functions.

We examine here three of these unit cost functions namely

- Average Fixed Cost (AFC)
- Average Variable Cost (AVC)
- Average Total Cost (ATC)

a. Average Fixed Cost

➤ Average Fixed Cost is the fixed cost per unit of output. Thus,

➤ Average fixed cost = $\frac{\text{Total Fixed Cost}}{\text{Total Input}}$

➤ OR $AFC = \frac{TFC}{Q}$

Table: Average Fixed Cost

Fig: Average Fixed Cost Curve

Output (units)	T F C (Rs.)	A F C (Rs.)
0	60	-
1	60	60
2	60	30
3	60	20
4	60	15
5	60	12
6	60	10

The graph shows a downward-sloping curve labeled 'AFC' on a coordinate system. The vertical axis is labeled 'Y' and the horizontal axis is labeled 'X' with 'Quantity' written below it. The origin is marked 'O'. The curve starts high on the Y-axis and slopes downwards as it moves to the right, illustrating that average fixed cost decreases as quantity increases.

- The above table shows that as the output increases, AFC goes on falling.
- The reason being TFC is spread over larger quantities of output.
- When graphed, the AFC curve slopes downwards from left to right throughout its length.
- The AFC curve comes closer and closer to the X-axis but not touch the X-axis as TFC can never be zero.
- AFC curve will not touch Y-axis also because at zero level of output, TFC is a POSITIVE VALUE. Any positive value divided by zero will provide infinite value.
- The AFC curve is a RECTANGULAR HYPERBOLA

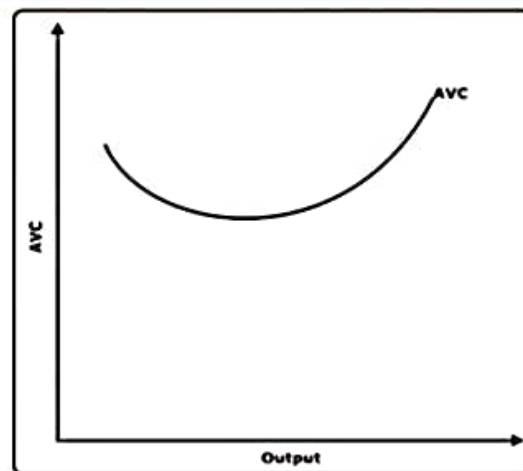
b. Average Variable Cost

- Average Variable Cost is the variable cost per unit of output. Thus,
- Average variable cost = $\frac{\text{Total Variable Cost}}{\text{Total Output}}$
- OR $AVC = \frac{TVC}{Q}$

Table: Average Variable Cost

Fig: Average Variable cost Curve

Output (units)	TVC (Rs.)	AVC (Rs.)
0	0	-
1	40	60
2	76	38
3	102	34
4	132	33
5	170	34
6	22	37



- The above table shows that as the output expands, average variable cost falls initially due to increasing returns to the variable factor.
- It is minimum at the optimum capacity output.
- Beyond optimum capacity average variable cost rises very sharply due to diminishing returns to variable factor.
- Thus, AVC and AVERAGE PRODUCT of variable factor are inversely related.
- Thus, AVC curve is U-shaped indicating three phases decreasing phase, constant phase and increasing phase.

c. Average Total Cost: (or Simply Average Cost):

- Average Total Cost is the cost per unit of output. Thus,
- Average total cost or Average cost = $\frac{\text{Total Cost}}{\text{Total Output}}$

- $ATC \text{ OR } AC = \frac{TC}{Q}$

- $ATC \text{ OR } AC = \frac{TFC}{Q} + \frac{TVC}{Q}$

- $ATC \text{ or } AC = AFC + AVC$

Table: Average Fixed Cost

Fig: Average Total Cost Curve

Output (units)	TC (Rs.)	ATC (Rs.)
0	60	-
1	100	100
2	136	68
3	162	54
4	192	48
5	230	46
6	282	47

The above table shows that as output increases. ATC falls initially, reach its minimum and then rises due to the law of variable proportions.

d. **Marginal Cost.**

- Marginal cost is addition to the total cost caused by producing one more unit of output.
- Thus, marginal cost is the cost of the additional unit of output.
- It is measured by the change in total cost resulting from a unit increase in output.

$$\text{Thus, } MC_n = TC_n - TC_{n-1} \quad \text{Or } MC = \frac{\Delta TC}{\Delta Q}$$

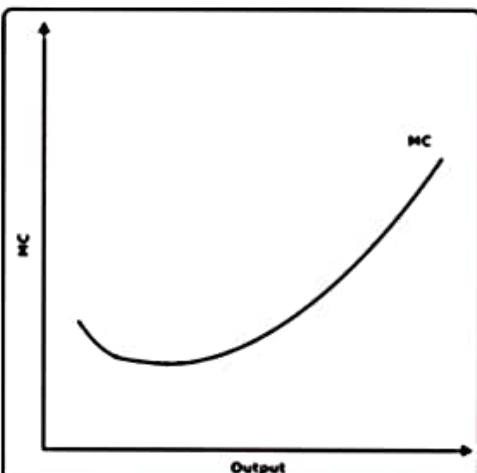
where, Δ = Change

- The Marginal Cost is INDEPENDENT OF FIXED COST
- In the short period, total fixed cost are constant for all levels of output.
- The only change in total cost when output changes is CHANGE IN VARIABLE COST. Hence, marginal cost is affected only by the variable cost.
- Therefore marginal cost can also be defined as a change in TVC as a result of a unit change in output.

Table: Marginal Cost

Fig: marginal Cost Curve

Output (units)	TFC (Rs.)	TVC (Rs.)	TC (Rs.)	MC (Rs.)
1	30	50	80	-
2	30	90	120	40
3	30	120	150	30
4	30	170	200	50
5	30	250	280	80
6	30	360	390	110

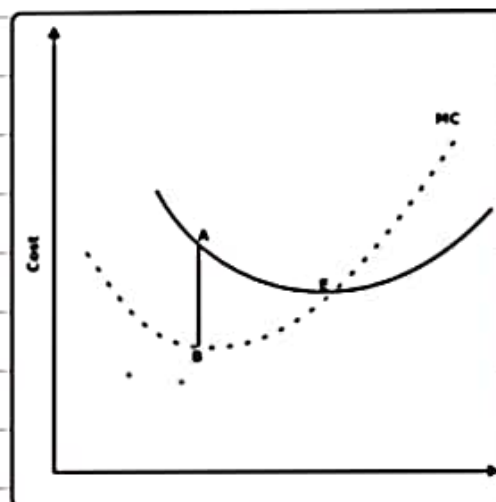


- The above table shows that as the output increases, MC initially falls due to increasing returns to factor but finally MC rises due to diminishing returns to factor.
- Thus, marginal cost is the inverse of the marginal product of the variable factor.

16. RELATIONSHIP BETWEEN AC AND MC

From the figure given below, following relation can be explained:

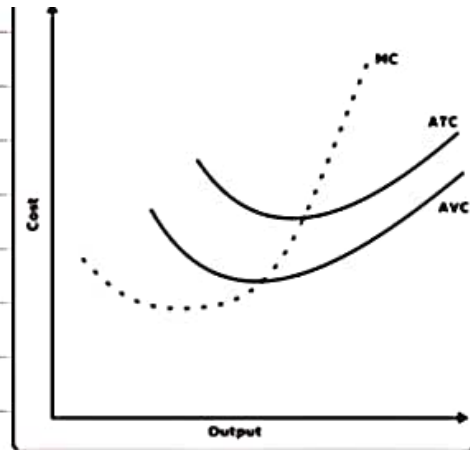
- MC and AC both can be calculated by TC.
- When AC falls, MC also falls, but $AC > MC$.
- When AC rises, MC also rises, but now $MC > AC$.
- When AC is minimum, then $MC = AC$. In other words, MC curve cuts to AC curve at its minimum point (i.e., optimum point).
- There is also abnormal situation when AC falls and MC rises. In the figure given, from 'A' to 'E' AC falls but from 'B' to 'E' MC rises. But, opposite never happened.



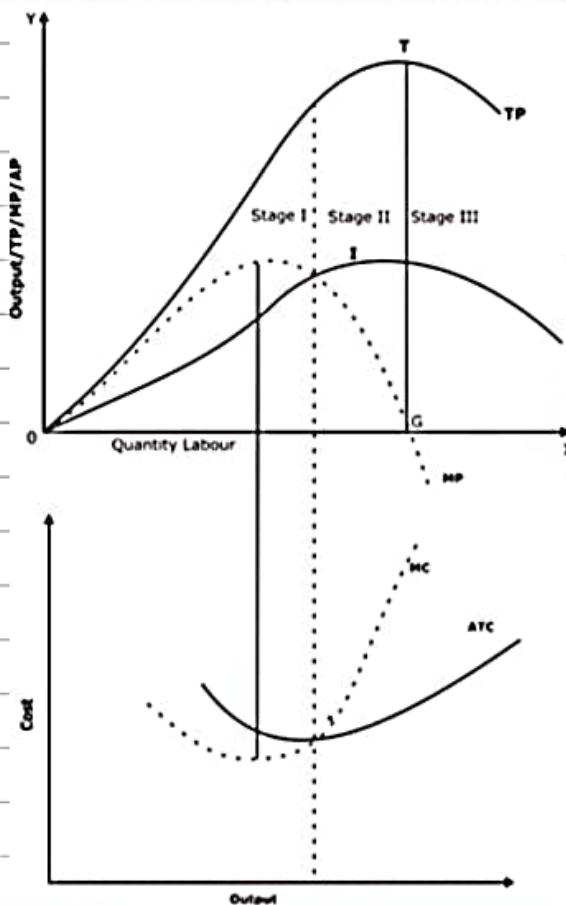
17. RELATIONSHIP BETWEEN ATC, AVC AND MC

From the figure given, following relation can be explained.

- $ATC = AVC + AFC$, but $ATC \neq AVC$, so AVC curve can never touch to ATC curve.
- MC cuts to ATC and AVC's minimum points.



18. WHY ARE AVC, ATC AND MC CURVES U-SHAPED?



Production and Cost function

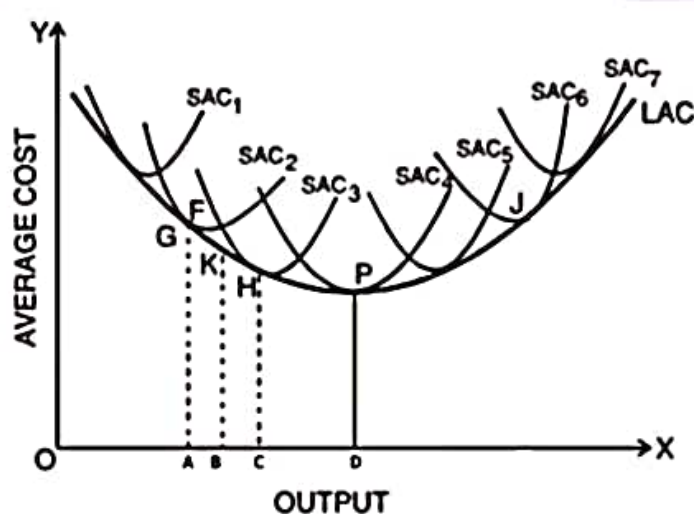
It is due to Law of Variable proportions, law of variable proportions diminishing returns states that as the units of variable factor is increased, MP first rises and then falls. When MP rises, MC falls and when MP falls, MC rises. It is the behaviour of MC, which determines the behaviour of AC.

In the above figure when MP is maximum, then MC is minimum, and when AP is maximum, then AC is minimum. Under IInd stage, MC and AC both raises.

19. LONG RUN AVERAGE COST CURVE

- Long run is a period of time during which the firm can vary all inputs.
- In short run we have seen that, some inputs are fixed and others can be varied to increase the level of output.

- But in long run all inputs are variable.
- In the short run, the size of the plant is fixed. The size of plant cannot be increased or reduced.
- However, in the long run the firm has sufficient time to bring about changes in the size of plant (i.e., machinery building etc.) in order to expand or contract output.
- Thus, in the long run the firm moves from one plant to another. It can increase the size of plant to increase its output or can have smaller plant if it has to reduce output.
- The long run average cost curve shows the minimum possible average cost for producing various levels of output.
- Consider the following figure:



- In the Fig., a smooth long run average cost curve has been shown which has been labelled as LAC.
- The LAC curve envelopes infinite short run average cost curves each representing a plant. Hence, SACs are also called plant curves.
- The Fig., shows that LAC curve is not tangent to the minimum points of the SAC curves.

- When LAC curve is sloping downwards, it is tangent to falling portions of SACs.
- When LAC curve is rising upwards, it is tangent to rising portions of SACs.
- LAC curve is also called planning curve. This is because a firm plans output in the long run but operates in the short run i.e., by choosing a plant on LAC corresponding to the given output.
- Thus, LAC helps the firm to make choice about the size of plant for producing a particular output at minimum cost.
- However, modern firms face 'L' shaped cost curve.

20. WHY LONG RUN AVERAGE COST CURVE IS OF U-SHAPE?

- As seen in the Fig., LAC curve is U-shaped.
- The shape of LAC curve depends on the Law of Returns to Scale.
- As the firm expands, there is increasing returns to scale which means fall in long run average cost due to economies of scale.
- When decreasing returns to scale occur it means rise in long run average cost due to diseconomies of scale.
- This explains why LAC curve is U-shaped.

21 Modern cost curves are L shaped curves

(As technology changes)