# 📘 Chapter 6 – Cost

Cost in economics refers to the monetary value of all the inputs used in the production of goods and services. It plays a crucial role in decision-making for businesses, as it directly affects pricing, output levels, and profitability. Understanding cost concepts helps in analyzing production efficiency and determining optimal resource allocation.

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## 1. Meaning of Cost

Cost is the expenditure incurred by a producer to acquire factors of production and other inputs required for producing goods and services. In economics, cost includes both **explicit** and **implicit** costs.

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## 2. Types of Costs

### A. On the Basis of Nature

1. **Money Cost** – The actual expenditure in monetary terms on production (e.g., wages, rent, raw materials).
2. **Real Cost** – The mental and physical efforts of labor and the sacrifice of resources.

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### B. On the Basis of Time Period

1. **Short-run Costs** – Costs when at least one factor is fixed. Includes:
   - **Fixed Costs (TFC)** – Do not change with output (e.g., rent, salaries).
   - **Variable Costs (TVC)** – Change with output (e.g., raw materials, wages).
2. **Long-run Costs** – All inputs are variable; no fixed cost exists.

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### C. On the Basis of Cost Behavior

1. **Fixed Costs** – Constant at all levels of output.

2. **Variable Costs** – Vary directly with output.

3. **Semi-variable Costs** – Partly fixed, partly variable.

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## 3. Important Cost Concepts in Economics

1. **Total Fixed Cost (TFC)** – Total cost of fixed inputs; remains constant.

2. **Total Variable Cost (TVC)** – Total cost of variable inputs; changes with output.

3. **Total Cost (TC)** –
   TC=TFC+TVCTC = TFC + TVCTC=TFC+TVC
4. **Average Fixed Cost (AFC)** –
   AFC=TFCQAFC = \frac{TFC}{Q}AFC=QTFC
   Decreases as output increases.

5. **Average Variable Cost (AVC)** –
   AVC=TVCQAVC = \frac{TVC}{Q}AVC=QTVC
   U-shaped curve in the short run.

6. **Average Total Cost (ATC)** –
   ATC=TCQorATC=AFC+AVCATC = \frac{TC}{Q} \quad \text{or} \quad ATC = AFC + AVCATC=QTCorATC=AFC+AVC
7. **Marginal Cost (MC)** – The addition to total cost by producing one more unit:
   MC=ΔTCΔQMC = \frac{\Delta TC}{\Delta Q}MC=ΔQΔTC

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## 4. Short-run Cost Curves

- **AFC** – Always downward sloping.

- **AVC & ATC** – U-shaped due to law of variable proportions.

- **MC** – U-shaped and intersects AVC & ATC at their minimum points.

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## 5. Long-run Cost Curves

- In the long run, all costs are variable.

- The **Long-run Average Cost (LAC)** curve is U-shaped due to economies and diseconomies of scale.
- **Economies of Scale** – Lower average cost with increased production.
- **Diseconomies of Scale** – Higher average cost when scale becomes too large.

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## 6. Opportunity Cost

The value of the next best alternative foregone when a choice is made.

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## 7. Relationship Between Cost and Output

- At low output, costs are high due to fixed costs being spread over fewer units.
- At optimal output, average costs are minimized.
- Beyond this point, costs rise due to inefficiencies.