

Quadrant II - Transcript

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Unit: IV Production and Costs

**Module Name: Production: Behaviour of Profit Maximising Firms and
Production Process**

Module No: 37

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Production

- It is the process of combining various material inputs and immaterial inputs (plans, know-how) in order to make something for consumption (output).
- It is the act of creating an output, a good or service which has value and contributes to the utility of individuals.
- In traditional economics, the term 'production' is used in a broad sense. It refers to the provision of goods and services for sale in the market with a view to satisfying human needs and wants.
- In managerial economics, however, the term is used in a narrow sense to refer to the processes of physical transformation of resources, such as the transformation of iron ore into steel or the production and assembly of components into a finished car.

Production Process

- Production is a process in which economic resources or inputs (composed of natural resources like land, labour and capital equipment) are combined by entrepreneurs to create economic goods and services (also referred to as outputs or products).

- Inputs are the beginning of the production process and output is the end of the process.

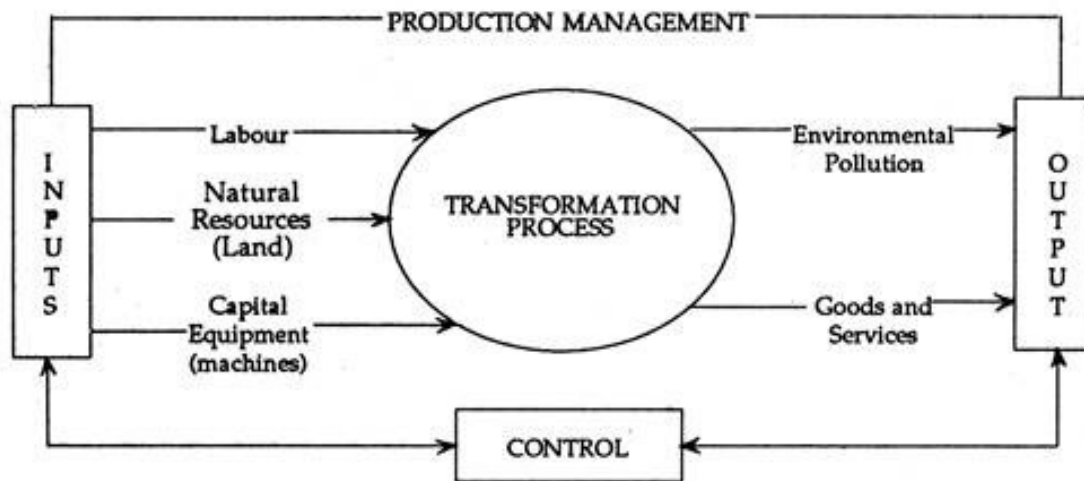


Figure 13.1 The Production Process

- The production system can be seen as consisting of three elements – **inputs, the production process and outputs.**
- The production system can be shown as a continuous, smooth flow of resources through the process ending in an outflow of a homogeneous product or two or more products (in fixed or variable proportions).

Behaviour of Profit Maximising Firms

There are two approaches to explain the profit maximising behaviour of a firm.

- Equilibrium of a Firm—The Total Revenue and Total Cost Approach**
- Equilibrium of a Firm—the Marginal Revenue and Marginal Cost Approach:**

1. Equilibrium of a Firm—The Total Revenue and Total Cost Approach

Profit becomes maximum irrespective of the market situation, when the difference between total revenue (TR) and total cost (TC) becomes the greatest.

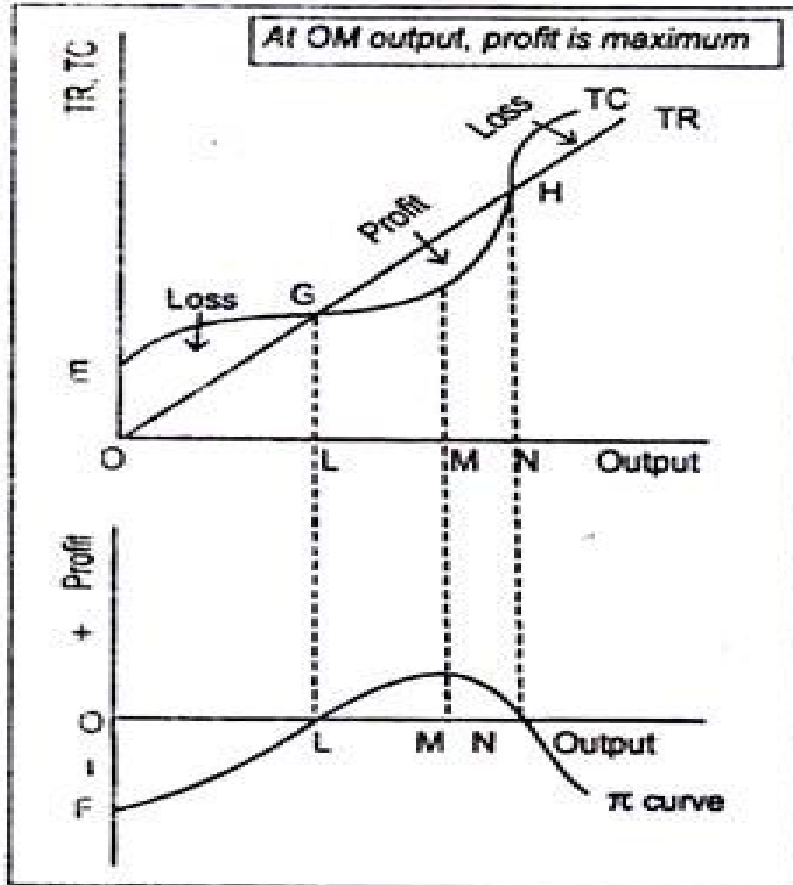


Fig. 3.37: Competitive Equilibrium : The TR-TC Approach

- In Fig, a TR curve for a perfectly competitive firm has been drawn.
- The TR curve starts from the origin and it rises in proportion to the rise in the volume of sales.
- The TC curve starts from point E which lies above the origin. This means that costs are positive even if no output is produced. Such costs are called fixed costs of a firm.
- The bottom part of the figure shows various amounts of profit enjoyed by a firm at various volumes of output.

- Below the level of output OL, the firm incurs a loss since TC exceeds TR. Only at the OL output level, TR equals TC and the **firm earns only normal profit**. Thus, point G is called **break-even point**.
- Now, if more than OL but less than ON output is produced, TR will exceed total cost and the firm will earn **supernormal profit**.
- However, at the output level OM, as the difference between TR and TC is the greatest, **profit is maximum**.
- This is clear from the bottom panel of the figure where π is the profit curve.
- Below OL output level, profit curve lies below the origin indicating **negative profit**.
- **Profit becomes zero** at OL output level.
- It becomes maximum at OM output level and, again, it reduces to zero (i.e., break-even point) when ON amount of output is produced.
- Beyond ON (or at ON), as TC exceeds TR, the firm incurs a loss.
- Now the profit curve has again entered the negative quadrant.
- Anyway, maximum profit is obtained at the output level OM, where the vertical distance between TR and TC curves is the maximum.

2. Equilibrium of a Firm—the Marginal Revenue and Marginal Cost Approach

- Irrespective of the market conditions, a firm will stop production if total revenue falls short of total variable cost.
- Profit will be maximized at that point where MR and MC are equal to each other.
- For any output $MR > MC$, the firm will expand output.

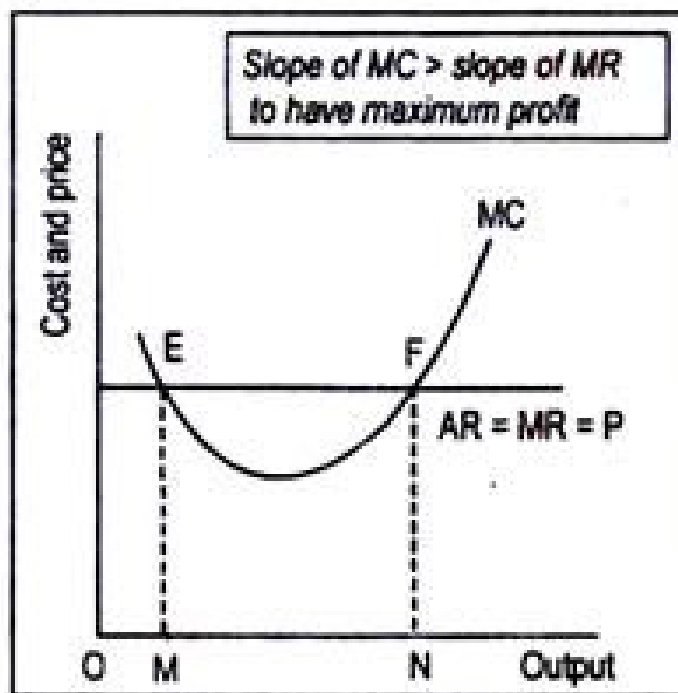


Fig. 3.38: Perfect Competition

- In Fig, equilibrium of a firm under perfect competition is shown.
- Under perfect competition, $AR = MR = P$.
- It has been drawn parallel to the horizontal axis.
- MC curve is U-shaped.
- **Profit is maximized when MR and MC are equal.**
- In Fig, equilibrium under imperfect competition is shown.
- In the figure $MC = MR$ at points E and F.

- Thus these are the two points where profit is maximized.
- One of the important properties of equilibrium is uniqueness.
- In other words, there cannot be more than one equilibrium point.
- At point E, though $MR = MC$, it does not correspond to profit-maximizing situation.
- If the firm expands output beyond OM, it will add more revenue than to its costs, since $MR > MC$.
- It will enjoy more profit by producing more output.
- Only at output ON will profit be maximized when $MR = MC$.
- Production beyond ON will entail a loss since $MC > MR$.
- So, a profit-maximizing firm always changes output toward the level at which $MR = MC$.
- On the basis of these discussion, one can conclude that there are **two conditions for profit-maximization**:
 - i. $MC = MR$, known as necessary condition or **first-order condition (FOC)**; and
 - ii. MC curve must cut MR curve from below.

This condition is modified in the following way:

- Slope of MC **must be greater than** the slope of MR or the **rate of change of MC must be greater than** the rate of change of MR.
- This condition is called **sufficient condition** or **second-order condition (SOC)**.

Summary

- Production is an act of creating an output, a good or service which has value and contributes to the utility of individuals.
- Production is a process in which economic resources or inputs (composed of natural resources like land, labour and capital equipment) are combined by entrepreneurs to create economic goods and services (also referred to as outputs or products).
- The production system can be seen as consisting of three elements – **inputs, the production process and outputs.**
- Total profit becomes maximum when the following two conditions (FOC and SOC) for equilibrium hold:
 - (i) $MC = MR$ and
 - (ii) Slope of $MC >$ slope of MR .