



10

Production, Firms, and the Market

Learning Goals

Once you have completed this chapter, you should be able to:

- Determine how much to produce of a product and the best way to do it
- Explain the importance of the role profit plays in production decisions
- Understand the nature and importance of productivity and efficiency
- Identify the importance and nature of competition in different markets
- Understand the economic thinking behind a firm's plan to maximize profit



Key Terms

- explicit costs
 - implicit costs
 - economic profit
 - Firm
 - Efficiency
 - cost per unit
 - unit labour cost
 - gross domestic product (GDP)
 - labour-intensive production
 - capital-intensive production
 - technology-intensive production
 - social (third-party) costs
 - Regulation
 - accounting profit
 - theory of the firm
 - total revenue
 - total cost
 - fixed costs
 - variable costs
 - short run
 - long run
 - marginal cost
 - marginal revenue
 - black market
 - perfect competition
 - monopolistic competition
 - product differentiation
 - Oligopoly
 - Monopoly
 - copyright law
 - patent law
 - natural monopoly
 - Deregulation
- 

Production Choices and Issues

Profit

- Businesses use production to process and transform economic resources into goods and/or services with economic value.
- The resources used in production (land, labour, capital, and entrepreneurship) are called *inputs*.
- The firm is a business that sells its goods or services for a profit, and its main objective is to maximize its profit.

$$\text{Total Profit} = \text{Total Revenue} - \text{Total Costs}$$



Production Costs and Issues

- **Explicit Costs:** Costs that appear on a business's accounting statements, such as payment for material, machines, rent, utilities, and taxes.
- **Implicit Costs:** Costs not included among expenses on the income statement of a business, such as the amount of owner's time spent devoted to his or her business and the money invested in the business that could have earned interest if invested somewhere else.

Accounting Profit: Total Revenue – Explicit Costs

Economic Profit: Total Revenue - (Explicit Costs + Implicit Costs)



Production Choices

Controlling the Costs of Production

- The company, business, or **firm** that is able to produce the desired product at the lowest possible cost has the best chance of maximizing profits.
 - **Firm:** A privately owned organization engaged in business activities.
- This is why *productivity* (maximizing the output from the resources used) and **efficiency** (producing at the lowest possible cost) are of such importance to a firm.
 - **Efficiency:** A firm's ability to produce at the lowest possible cost, measured by either its cost per unit or its unit labour cost.
- **Cost Per Unit:** A measure of a firm's efficiency, obtained by dividing total costs by the number of units produced.
- **Unit Labour Cost:** A measure of a firm's efficiency, obtained by dividing its total labour costs by the number of units it produces.



Production Choices

Choosing Production Methods

- With the goal of keeping production costs to a minimum, firms will try to produce goods or services in a way that makes the most productive use of available resources.
- **Labour-intensive Production:** Industry in which labour, rather than machinery, dominates the production process.
- **Capital-intensive Production:** Production in which machinery rather than labour dominates the process, characteristic of the factory system.
- **Technology-intensive Production:** Manufacturing goods or providing services that involve the extensive use of highly specialized technology, such as medical research laboratories and computer software design and engineering facilities.
- **Economies of scale:** The greater efficiency a firm can achieve when it produces very large amounts of output.



Production Issues

- **Is Bigger Always Better?** When a few very large firms are involved, normal market behaviour may result in less competition, and without the pressure of competition to keep prices down, they can more easily float upward.
- **Third Party Costs** Profit-seeking producers try to reduce their costs of production to a minimum. Markets are not always good at internalizing or passing on all the costs of production to those who consume the product. Pollution is an example. These non-monetary costs are called **social costs** or **third-party costs**.
 - **social (third-party) costs** Production costs that are not paid by either the product's producer or consumer but passed on to others; for example, environmental pollution, garbage disposal, and resource depletion.
- **The Public-Private Balance** The Canadian government has also been found wanting as an efficient provider of goods and services.
- **Is Regulation the Answer?** Markets cannot exist without **regulations** that define contracts, protect private property and competition, and require certain production standards.
 - **Regulation:** Government rules that oversee, standardize, and control markets, industries, and business practices.



Theory of the Firm

- **Theory of the firm:** The relationships that exist between a firm's revenues, costs, and profits.

$$\text{Total Profit} = \text{Total Revenue} - \text{Total Costs}$$

- **Total Revenue:** The price of a product multiplied by the quantity demanded of the product.

$$\text{Total Profit} = (\text{Price} \times \text{Quantity Sold}) - \text{Total Costs}$$



Theory of the Firm

- **Total Costs:** A firm's **total cost** of production refers to the money the firm spends to purchase the productive resources it needs to produce its good or service. It includes both **fixed costs and variable costs**.
 - **total cost:** The total of a firm's fixed and variable costs, which includes all the purchases made by a firm for productive resources to produce a good or service.
 - **fixed costs:** Costs (such as rent and property taxes) that remain the same at all levels of output and must be paid whether the firm produces or not.
 - **variable costs:** Costs that change or vary with the level of output, such as labour and raw materials.

$$\text{Total Profit} = (\text{Price} \times \text{Quantity Sold}) - (\text{Fixed Costs} + \text{Variable Costs})$$



Theory of the Firm

- **Short Run:** The **short run** is a period over which the firm's maximum capacity becomes fixed because of a shortage of at least one resource. The costs of some resources, such as labour, fuel, and raw materials, are relatively flexible and can be quickly adjusted.
 - **short run:** A time period in which the firm's maximum capacity is fixed by the shortage of at least one resource.
- **Long Run:** In a firm's long run, there are no fixed costs of production. All costs become variable, from staffing to location. The long run is considered the planning period when the firm has enough time to enlarge its productive capacity, shift production to generate other goods or services, or, if necessary, shut down completely.
 - **long run:** A time period in which the firm can adjust both its fixed and variable costs to increase its maximum capacity.



Theory of the Firm

- If a firm wishes to maximize its profit, it should always produce up to the point at which there is no added benefit (that is, profit) from producing any more.
- In other words, it should keep producing to the point at which the **marginal cost** (that is, additional cost) of producing one more unit equals the **marginal revenue** (that is, additional revenue) received from the unit's sale. At the point when the marginal cost exceeds the marginal revenue that results from producing one more unit, the firm would waste resources and reduce its profit.
 - **marginal cost:** The additional cost for a firm of producing one more unit of its product
 - **marginal revenue:** The additional revenue gained by a firm from producing one more unit of its product.

**Profits are maximized at a production level when
Marginal revenue = Marginal cost**



Key Terms

1. **Marginal Cost (MC):** The extra cost incurred by producing one additional unit of a product.
 - Example: If producing 10 units costs \$100 and producing 11 units costs \$110, the marginal cost of the 11th unit is \$10.
2. **Marginal Revenue (MR):** The additional revenue earned from selling one more unit of a product.
 - Example: If selling 10 units generates \$150 and selling 11 units generates \$160, the marginal revenue from the 11th unit is \$10.

Profit maximization Rule

A firm maximizes its profit when it produces up to the point where:

Marginal Revenue (MR)=Marginal Cost (MC)
Marginal Revenue (MR)=Marginal Cost (MC)

1. Why stop here?

- If **MR > MC**, producing more units increases profit because the revenue from each additional unit is greater than its cost.
- If **MC > MR**, producing more units decreases profit because the cost of each additional unit is higher than the revenue it generates.
- When **MR = MC**, the firm is making the most profit it can without wasting resources.

Example

Suppose a firm produces and sells widgets:

- **Cost of production:** Producing the 10th widget costs \$15.
- **Revenue from sales:** Selling the 10th widget earns \$15.
 - Here, **MR = MC**, so this is the profit-maximizing level of production.

If the firm produces an 11th widget:

- **Cost of production:** \$18.
- **Revenue from sales:** \$15.
 - Here, **MC > MR**, so producing the 11th widget reduces profit.

Intuition

Intuition

Producing too much or too little can lead to inefficiency:

- Producing less than the $MR = MC$ point means the firm is missing opportunities to earn more profit.
- Producing beyond the $MR = MC$ point wastes resources because the cost of additional production exceeds the revenue it brings.

This principle helps firms allocate resources efficiently to achieve the highest possible profit.