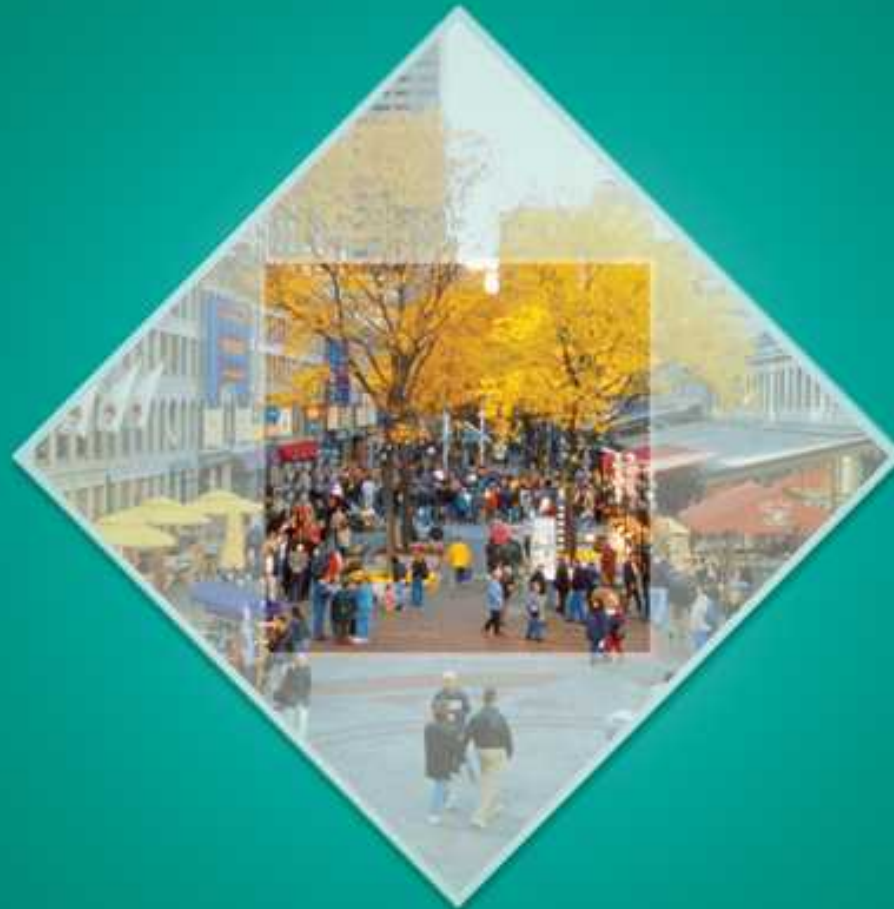


PARKIN
MICROECONOMICS
TENTH EDITION



10

ORGANIZING PRODUCTION



After studying this chapter,
you will be able to:

- ◆ Explain what a firm is and describe the economic problem that all firms face
- ◆ Distinguish between technological efficiency and economic efficiency
- ◆ Define and explain the principal–agent problem and describe how different types of business organizations cope with this problem
- ◆ Describe and distinguish between different types of markets in which firms operate
- ◆ Explain why markets coordinate some economic activities and why firms coordinate others

The invention of the World Wide Web has paved the way for the creation of thousands of profitable businesses, such as Facebook, Apple, and Google.

Most of the firms don't make the things they sell. They buy them from other firms. For example, Apple doesn't make the iPhone. Intel makes its memory chip and Foxconn assembles the iPhone.

Why doesn't Apple make its iPhone?

How do firms decide what to make themselves and what to buy from other firms?

How do the millions of firms around the world make their business decisions?

The Firm and Its Economic Problem

A **firm** is an institution that hires factors of production and organizes them to produce and sell goods and services.

The Firm's Goal

A firm's goal is to maximize profit.

If the firm fails to maximize its profit, the firm is either eliminated or taken over by another firm that seeks to maximize profit.

The Firm and Its Economic Problem

Accounting Profit

Accountants measure a firm's profit to ensure that the firm pays the correct amount of tax and to show it investors how their funds are being used.

Profit equals total revenue minus total cost.

Accountants use Internal Revenue Service rules based on standards established by the Financial Accounting Standards Board to calculate a firm's depreciation cost.

The Firm and Its Economic Problem

Economic Accounting

Economists measure a firm's profit to enable them to predict the firm's decisions, and the goal of these decisions is to maximize economic profit.

Economic profit is equal to total revenue minus total cost, with total cost measured as the opportunity cost of production.

The Firm and Its Economic Problem

A Firm's Opportunity Cost of Production

A firm's opportunity cost of production is the value of the best alternative use of the resources that a firm uses in production.

A firm's opportunity cost of production is the sum of the cost of using resources

- Bought in the market
- Owned by the firm
- Supplied by the firm's owner

The Firm and Its Economic Problem

Resources Bought in the Market

The amount spent by a firm on resources bought in the market is an opportunity cost of production because the firm could have bought different resources to produce some other good or service.

The Firm and Its Economic Problem

Resources Owned by the Firm

If the firm owns capital and uses it to produce its output, then the firm incurs an opportunity cost.

The firm incurs an opportunity cost of production because it could have sold the capital and rented capital from another firm.

The firm implicitly rents the capital from itself.

The firm's opportunity cost of using the capital it owns is called the **implicit rental rate** of capital.

The Firm and Its Economic Problem

The implicit rental rate of capital is made up of

1. Economic depreciation
2. Interest forgone

Economic depreciation is the change in the *market value* of capital over a given period.

Interest forgone is the return on the funds used to acquire the capital.

The Firm and Its Economic Problem

Resources Supplied by the Firm's Owner

The owner might supply both entrepreneurship and labor.

The return to entrepreneurship is profit.

The profit that an entrepreneur can expect to receive *on average* is called **normal profit**.

Normal profit is the cost of entrepreneurship and is an opportunity cost of production.

The Firm and Its Economic Problem

In addition to supplying entrepreneurship, the owner might supply labor but not take a wage.

The opportunity cost of the owner's labor is the wage income forgone by not taking the best alternative job.

Economic Accounting: A Summary

Economic profit equals a firm's total revenue minus its total opportunity cost of production.

The example in Table 10.1 on the next slide summarizes the economic accounting.

The Firm and Its Economic Problem

TABLE 10.1 Economic Accounting

Item	Amount	
Total Revenue		\$400,000
<i>Cost of Resources Bought In Market</i>		
Wool	\$80,000	
Utilities	20,000	
Wages	120,000	
Computer lease	5,000	
Bank interest	<u>5,000</u>	\$230,000
<i>Cost of Resources Owned by Firm</i>		
Economic depreciation	\$25,000	
Forgone interest	<u>15,000</u>	\$40,000
<i>Cost of Resources Supplied by Owner</i>		
Cindy's normal profit	\$45,000	
Cindy's forgone wages	<u>55,000</u>	\$100,000
Opportunity Cost of Production		<u>\$370,000</u>
Economic Profit		<u><u>\$30,000</u></u>

The Firm and Its Economic Problem

The Firm's Decisions

To maximize profit, a firm must make five basic decisions:

1. What to produce and in what quantities
2. How to produce
3. How to organize and compensate its managers and workers
4. How to market and price its products
5. What to produce itself and what to buy from other firms

The Firm and Its Economic Problem

The Firm's Constraints

The firm's profit is limited by three features of the environment:

- Technology constraints
- Information constraints
- Market constraints

The Firm and Its Economic Problem

Technology Constraints

Technology is any method of producing a good or service.

Technology advances over time.

Using the available technology, the firm can produce more only if it hires more resources, which will increase its costs and limit the profit of additional output.

The Firm and Its Economic Problem

Information Constraints

A firm never possesses complete information about either the present or the future.

It is constrained by limited information about the quality and effort of its work force, current and future buying plans of its customers, and the plans of its competitors.

The cost of coping with limited information limits profit.

The Firm and Its Economic Problem

Market Constraints

What a firm can sell and the price it can obtain are constrained by its customers' willingness to pay and by the prices and marketing efforts of other firms.

The resources that a firm can buy and the prices it must pay for them are limited by the willingness of people to work for and invest in the firm.

The expenditures that a firm incurs to overcome these market constraints limit the profit that the firm can make.

Technology and Economic Efficiency

Technological Efficiency

Technological efficiency occurs when a firm uses the least amount inputs to produce a given quantity of output.

Different combinations of inputs might be used to produce a given good, but only one of them is technologically efficient.

If it is impossible to produce a given good by decreasing any one input, holding all other inputs constant, then production is technologically efficient.

Technology and Economic Efficiency

Economic Efficiency

Economic efficiency occurs when the firm produces a given quantity of output at the least cost.

The economically efficient method depends on the relative costs of capital and labor.

The difference between technological and economic efficiency is that technological efficiency concerns the quantity of inputs used in production for a given quantity of output, whereas economic efficiency concerns the cost of the inputs used.

Technology and Economic Efficiency

An economically efficient production process also is technologically efficient.

A technologically efficient process may not be economically efficient.

Changes in the input prices influence the value of the inputs, but not the technological process for using them in production.

Table 10.3 on the next slide illustrates.

TABLE 10.3 The Costs of Different Ways of Making 10 TVs a Day

(a) Wage rate \$75 per day; Capital rental rate \$250 per day

Method	Inputs		Labor cost (\$75 per day)		Capital cost (\$250 per day)		Total cost
	Labor	Capital					
A	1	1,000	\$75	+	\$250,000	=	\$250,075
B	10	10	750	+	2,500	=	3,250
C	1,000	1	75,000	+	250	=	75,250

TABLE 10.3 The Costs of Different Ways of Making 10 TVs a Day

(a) Wage rate \$75 per day; Capital rental rate \$250 per day

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B	10	10	750	+	2,500	=	3,250
C	1,000	1	75,000	+	250	=	75,250

(b) Wage rate \$150 per day; Capital rental rate \$1 per day

Method	Inputs		Labor cost (\$150 per day)		Capital cost (\$1 per day)		Total cost
	Labor	Capital					
A	1	1,000	\$150	+	\$1,000	=	\$1,150
B	10	10	1,500	+	10	=	1,510
C	1,000	1	150,000	+	1	=	150,001

TABLE 10.3 The Costs of Different Ways of Making 10 TVs a Day

(a) Wage rate \$75 per day; Capital rental rate \$250 per day

Method	Inputs		Labor cost (\$75 per day)		Capital cost (\$250 per day)		Total cost
	Labor	Capital					
A	1	1,000	\$75	+	\$250,000	=	\$250,075
B	10	10	750	+	2,500	=	3,250
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(b) Wage rate \$150 per day; Capital rental rate \$1 per day

Method	Inputs		Labor cost (\$150 per day)		Capital cost (\$1 per day)		Total cost
	Labor	Capital					
A	1	1,000	\$150	+	\$1,000	=	\$1,150
B	10	10	1,500	+	10	=	1,510
C	1,000	1	150,000	+	1	=	150,001

(c) Wage rate \$1 per day; Capital rental rate \$1,000 per day

Method	Inputs		Labor cost (\$1 per day)		Capital cost (\$1,000 per day)		Total cost
	Labor	Capital					
A	1	1,000	\$1	+	\$1,000,000	=	\$1,000,001
B	10	10	10	+	10,000	=	10,010
C	1,000	1	1,000	+	1,000	=	2,000

Information and Organization

A firm organizes production by combining and coordinating productive resources using a mixture of two systems:

- Command systems
- Incentive systems

Information and Organization

Command Systems

A **command system** uses a managerial hierarchy.

Commands pass downward through the hierarchy and information (feedback) passes upward.

These systems are relatively rigid and can have many layers of specialized management.

Information and Organization

Incentive Systems

An **incentive system** is a method of organizing production that uses a market-like mechanism to induce workers to perform in ways that maximize the firm's profit.

Information and Organization

Mixing the Systems

Most firms use a mix of command and incentive systems to maximize profit.

They use commands when it is easy to monitor performance or when a small deviation from the ideal performance is very costly.

They use incentives whenever monitoring performance is impossible or too costly to be worth doing.

Information and Organization

The Principal–Agent Problem

The **principal–agent problem** is the problem of devising compensation rules that induce an agent to act in the best interests of a principal.

For example, the stockholders of a firm are the principals and the managers of the firm are their agents.

Information and Organization

Coping with the Principal–Agent Problem

Three ways of coping with the principal–agent problem are

- Ownership
- Incentive pay
- Long-term contracts

Information and Organization

Ownership, often offered to managers, gives the managers an incentive to maximize the firm's profits, which is the goal of the owners, the principals.

Incentive pay links managers' or workers' pay to the firm's performance and helps align the managers' and workers' interests with those of the owners, the principals.

Long-term contracts can tie managers' or workers' long-term rewards to the long-term performance of the firm. This arrangement encourages the agents work in the best long-term interests of the firm owners, the principals.

Information and Organization

Types of Business Organization

There are three types of business organization:

- Proprietorship
- Partnership
- Corporation

Information and Organization

Proprietorship

A *proprietorship* is a firm with a single owner who has *unlimited liability*, or legal responsibility for all debts incurred by the firm—up to an amount equal to the entire wealth of the owner.

The proprietor also makes management decisions and receives the firm's profit.

Profits are taxed the same as the owner's other income.

Information and Organization

Partnership

A *partnership* is a firm with two or more owners who have unlimited liability.

Partners must agree on a management structure and how to divide up the profits.

Profits from partnerships are taxed as the personal income of the owners.

Information and Organization

Corporation

A *corporation* is owned by one or more stockholders with *limited liability*, which means the owners who have legal liability only for the initial value of their investment.

The personal wealth of the stockholders is not at risk if the firm goes bankrupt.

The profit of corporations is taxed twice—once as a corporate tax on firm profits, and then again as income taxes paid by stockholders receiving their after-tax profits distributed as dividends.

Information and Organization

Pros and Cons of Different Types of Firms

Each type of business organization has advantages and disadvantages.

Table 10.4 and the following slides summarize the pros and cons of different types of firms.

Information and Organization

Proprietorships

- Are easy to set up
- Managerial decision making is simple
- Profits are taxed only once as owner's income
- But bad decisions made by the manager are not subject to review
- The owner's entire wealth is at stake
- The firm dies with the owner
- The cost of capital and labor can be high

Information and Organization

Partnerships

- Are easy to set up
- Employ diversified decision-making processes
- Can survive the withdrawal of a partner
- Profits are taxed only once
- But achieving a consensus about managerial decisions difficult
- Owners' entire wealth is at risk
- Capital is expensive

Information and Organization

Corporation

- Limited liability for its owners
- Large-scale and low-cost capital that is readily available
- Professional management
- Lower costs from long-term labor contracts
- But complex management structure may lead to slow and expensive
- Profits taxed twice—as corporate profit and shareholder income.

Markets and the Competitive Environment

Economists identify four market types:

1. Perfect competition
2. Monopolistic competition
3. Oligopoly
4. Monopoly

Markets and the Competitive Environment

Perfect competition is a market structure with

- Many firms and many buyers
- All firms sell an identical product
- No restrictions on entry of new firms to the industry
- Both firms and buyers are all well informed about the prices and products of all firms in the industry.

Examples include world markets in rice, wheat, corn and other grain crops.

Markets and the Competitive Environment

Monopolistic competition is a market structure with

- Many firms
- Each firm produces similar but slightly different products—called **product differentiation**
- Each firm possesses an element of market power
- No restrictions on entry of new firms to the industry

Markets and the Competitive Environment

Oligopoly is a market structure in which

- A small number of firms compete.
- The firms might produce almost identical products or differentiated products.
- Barriers to entry limit entry into the market.

Markets and the Competitive Environment

Monopoly is a market structure in which

- One firm produces the entire output of the industry.
- There are no close substitutes for the product.
- There are barriers to entry that protect the firm from competition by entering firms.

To determine the market structure of an industry economists measure the extent to which a small number of firms dominate the market.

Markets and the Competitive Environment

Measures of Concentration

Economists use two measures of market concentration:

- The four-firm concentration ratio
- The Herfindahl–Hirschman index (HHI)

Markets and the Competitive Environment

The Four-Firm Concentration Ratio

The **four-firm concentration ratio** is the percentage of the total industry sales accounted for by the four largest firms in the industry.

The Herfindahl–Hirschman Index

The **Herfindahl–Hirschman index** (HHI) is the square of percentage market share of each firm summed over the largest 50 firms in the industry.

The larger the measure of market concentration, the less competition that exists in the industry.

Markets and the Competitive Environment

Limitations of a Concentration Measure

The main limitations of only using concentration measure as determinants of market structure are

- The geographical scope of the market
- Barriers to entry and firm turnover
- The correspondence between a market and an industry



Produce or Outsource?

Firms and Markets

Firm Coordination

Firms hire labor, capital, and land, and by using a mixture of command systems and incentive systems organize and coordinate their activities to produce goods and services.



Produce or Outsource? Firms and Markets

Market Coordination

Markets coordinate production by adjusting prices and making the decisions of buyers and sellers of factors of production and components consistent.

Chapter 3 explains how demand and supply coordinate the plans of buyers and sellers.

Outsourcing—buying parts or products from other firms—is an example of market coordination of production.

But firms coordinate more production than do markets.

Why?



Produce or Outsource?

Firms and Markets

Why Firms?

Firms coordinate production when they can do so more efficiently than a market.

Four key reasons might make firms more efficient. Firms can achieve

- Lower transactions costs
- Economies of scale
- Economies of scope
- Economies of team production



Produce or Outsource?

Firms and Markets

Transactions costs are the costs arising from finding someone with whom to do business, reaching agreement on the price and other aspects of the exchange, and ensuring that the terms of the agreement are fulfilled.

Economies of scale occur when the cost of producing a unit of a good falls as its output rate increases.

Economies of scope arise when a firm can use specialized inputs to produce a range of different goods at a lower cost than otherwise.

Firms can engage in team production, in which the individuals specialize in mutually supporting tasks.