PRINCIPLES OF

MICROECONOMICS

ELEVENTH EDITION

CASE · FAIR · OSTER

PEARSON

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PART III MARKET IMPERFECTIONS AND THE ROLE OF GOVERNMENT

Monopoly and Antitrust Policy

13

CHAPTER OUTLINE

Imperfect Competition and Market Power: Core Concepts

imperfectly competitive industry An industry in which individual firms have some control over the price of their output.

market power An imperfectly competitive firm's ability to raise price without losing all of the quantity demanded for its product.

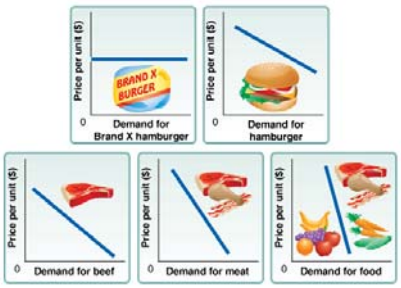
Forms of Imperfect Competition and Market Boundaries

A *monopoly* is an industry with a single firm in which the entry of new firms is blocked.

An *oligopoly* is an industry in which there is a small number of firms, each large enough so that its presence affects prices.

Firms that differentiate their products in industries with many producers and free entry are called *monopolistic competitors*.

pure monopoly An industry with a single firm that produces a product for which there are no close substitutes and in which significant barriers to entry prevent other firms from entering the industry to compete for profits.



▲ **FIGURE 13.1 The Boundary of a Market and Elasticity**

We can define an industry as broadly or as narrowly as we like. The broader we define the industry, the fewer substitutes there are; thus, the less elastic the demand for that industry's product is likely to be.

A monopoly is an industry with one firm that produces a product for which there are *no close substitutes*.

The producer of Brand X hamburger cannot properly be called a monopolist because this producer has no control over market price and there are many substitutes for Brand X hamburger.

When is a monopolist able to exercise market power?

a. When the market is more narrowly defined.
b. When the market is more broadly defined.
c. When competition in the market is substantial.
d. When the government encourages monopolies to exercise that power.

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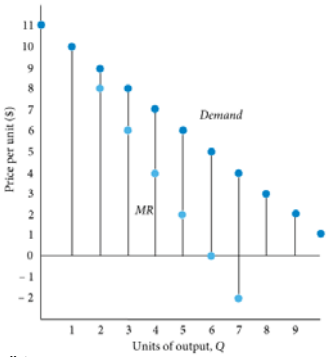
Price and Output Decisions in Pure Monopoly Markets

Demand in Monopoly Markets

Marginal Revenue and Market Demand

TABLE 13.1 Marginal Revenue Facing a Monopolist

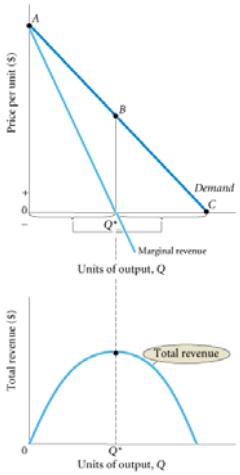
(1) Quantity	(2) Price	(3) Total Revenue	(4) Marginal Revenue
0	$11	0	–
1	10	$10	$10
2	9	18	8
3	8	24	6
4	7	28	4
5	6	30	2
6	5	30	0
7	4	28	−2
8	3	24	−4
9	2	18	−6
10	1	10	−8



▲ **FIGURE 13.2 Marginal Revenue Curve Facing a Monopolist**
At every level of output except 1 unit, a monopolist's marginal revenue (*MR*) is below price. This is so because (1) we assume that the monopolist must sell all its product at a single price (no price discrimination) and (2) to raise output and sell it, the firm must lower the price it charges. Selling the additional output will raise revenue, but this increase is offset somewhat by the lower price charged for all units sold. Therefore, the increase in revenue from increasing output by 1 (the marginal revenue) is less than the price.

▶ **FIGURE 13.3 Marginal Revenue and Total Revenue**

A monopoly's marginal revenue curve bisects the quantity axis between the origin and the point where the demand curve hits the quantity axis.
A monopoly's *MR* curve shows the change in total revenue that results as a firm moves along the segment of the demand curve that lies exactly above it.



When total revenue reaches its maximum, what is the value of marginal revenue?

a. Marginal revenue is also at its maximum value.
b. Marginal revenue is at its minimum.
c. Marginal revenue equals zero.
d. Marginal revenue is negative.

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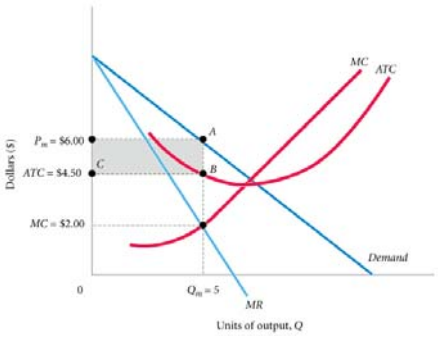
The Monopolist's Profit-Maximizing Price and Output

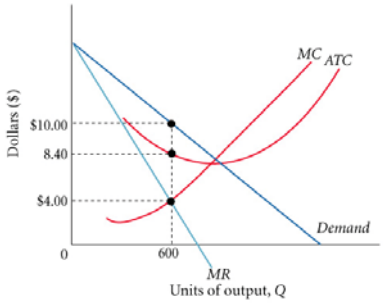
▶ **FIGURE 13.4 Price and Output Choice for a Profit-Maximizing Monopolist**

A profit-maximizing monopolist will raise output as long as marginal revenue exceeds marginal cost. Maximum profit is at an output of 5 units per period and a price of $6.
Above 5 units of output, marginal cost is greater than marginal revenue; increasing output beyond 5 units would reduce profit.
At 5 units, $TR = P_mAQ_m0$, $TC = CBQ_m0$, and profit = P_mABC.



Refer to the figure below. How much profit does the profit-maximizing monopoly earn?

a. $0
b. $6,000
c. $5,040
d. $10
e. $960



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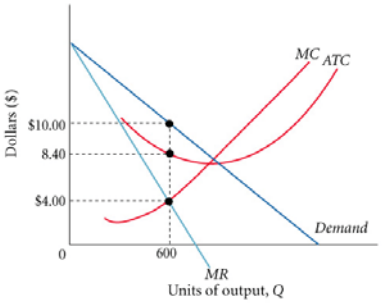
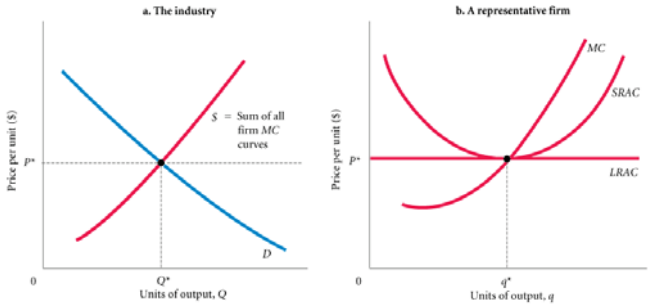


The Absence of a Supply Curve in Monopoly

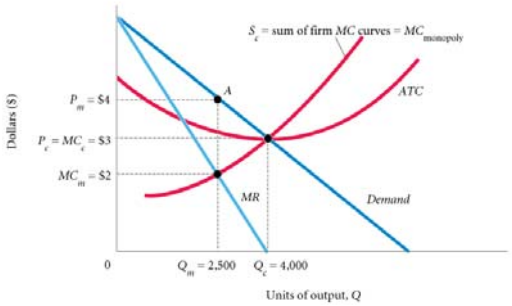
A monopoly firm has no supply curve that is independent of the demand curve for its product.

A monopolist sets both price and quantity, and the amount of output that it supplies depends on its marginal cost curve and the demand curve that it faces.

Perfect Competition and Monopoly Compared



▲ **FIGURE 13.5 A Perfectly Competitive Industry in Long-Run Equilibrium**
In a perfectly competitive industry in the long run, price will be equal to long-run average cost. The market supply curve is the sum of all the short-run marginal cost curves of the firms in the industry.
Here we assume that firms are using a technology that exhibits constant returns to scale: *LRAC* is flat.
Big firms enjoy no cost advantage.



▲ **FIGURE 13.6 Comparison of Monopoly and Perfectly Competitive Outcomes for a Firm with Constant Returns to Scale**
In the newly organized monopoly, the marginal cost curve is the same as the supply curve that represented the behavior of all the independent firms when the industry was organized competitively.
Quantity produced by the monopoly will be less than the perfectly competitive level of output, and the monopoly price will be higher than the price under perfect competition.
Under monopoly, $P = P_m = \$4$ and $Q = Q_m = 2{,}500$.
Under perfect competition, $P = P_c = \$3$ and $Q = Q_c = 4{,}000$.

Which of the following is among the most important distinctions between perfect competition and monopoly?

a. In a monopoly market, there is no distinction between the firm and the industry.
b. In a monopoly market, the market demand curve is the demand curve facing the firm.
c. In a monopoly market, the total quantity supplied in the market is what the firm decides to produce.
d. All of the above.

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d. All of the above.

Monopoly in the Long Run: Barriers to Entry

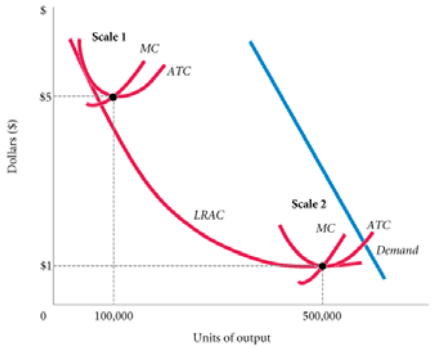
barriers to entry Factors that prevent new firms from entering and competing in imperfectly competitive industries.

Economies of Scale

natural monopoly An industry that realizes such large economies of scale that single-firm production of that good or service is most efficient.

▶ FIGURE 13.7 A Natural Monopoly

A natural monopoly is a firm in which the most efficient scale is very large.
Here, average total cost declines until a single firm is producing nearly the entire amount demanded in the market.
With one firm producing 500,000 units, average total cost is $1 per unit.
With five firms each producing 100,000 units, average total cost is $5 per unit.



Patents

patent A barrier to entry that grants exclusive use of the patented product or process to the inventor.

Government Rules

In some cases, governments impose entry restrictions on firms as a way of controlling activity.

Ownership of a Scarce Factor of Production

If production requires a particular input and one firm owns the entire supply of that input, that firm will control the industry.

Network Effects

network externalities The value of a product to a consumer increases with the number of that product being sold or used in the market.

ECONOMICS IN PRACTICE

Managing the Cable Monopoly

In the last 20 years, the cable system has grown to a multibillion dollar industry covering most of the country, consisting of a network of local monopolies.

Cities negotiate with the various cable companies to give one of them the right to be the monopoly supplier of cable service in return for a fee. Once a firm has bought the right to be a local cable company, it must follow a set of rules.

Once a television show is produced, distributing it to another customer has a zero marginal cost up to the capacity level of the cable. When the cost of distributing a good with high fixed costs is zero, bundling is often a way to make both producers and consumers better off.

THINKING PRACTICALLY

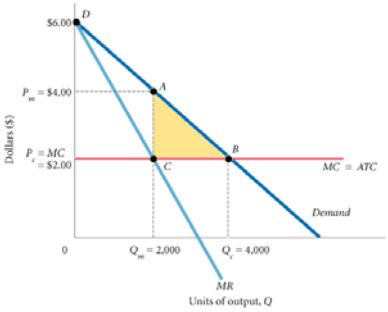
1. If all customers were *exactly* alike, would there be any gain from bundling? Try an example or two.

The Social Costs of Monopoly

Inefficiency and Consumer Loss

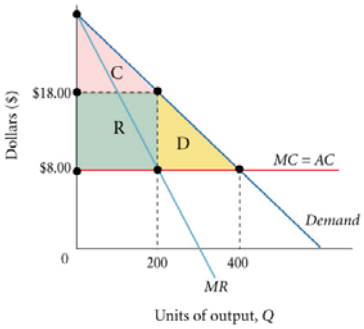
▶ FIGURE 13.8 Welfare Loss from Monopoly

A demand curve shows the amounts that people are willing to pay at each potential level of output.
Thus, the demand curve can be used to approximate the benefits to the consumer of raising output above 2,000 units.
MC reflects the marginal cost of the resources needed.
The triangle *ABC* roughly measures the net social gain of moving from 2,000 units to 4,000 units (or the loss that results when monopoly decreases output from 4,000 units to 2,000 units).



Refer to the figure below. How much is *consumer surplus* in the monopoly outcome?

a. Area C
b. Area R
c. Area D
d. Area C + D
e. Area C + R + D



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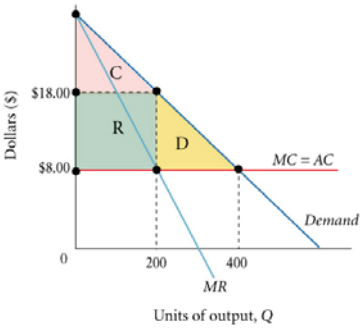
a. Area C
b. Area R
c. Area D
d. Area C + D
e. Area C + R + D



Rent-Seeking Behavior

rent-seeking behavior Actions taken by households or firms to preserve economic profits.

government failure Occurs when the government becomes the tool of the rent seeker and the allocation of resources is made even less efficient by the intervention of government.

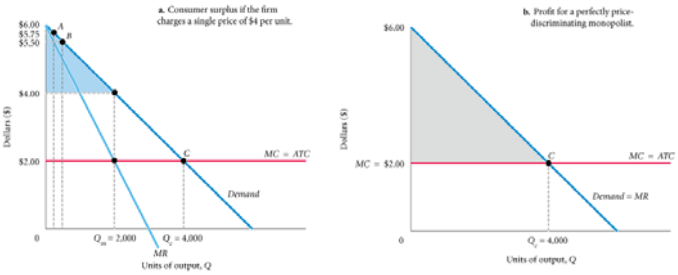
public choice theory An economic theory that the public officials who set economic policies and regulate the players act in their own self-interest, just as firms do.

Price Discrimination

price discrimination Charging different prices to different buyers for identical products.

perfect price discrimination Occurs when a firm charges the maximum amount that buyers are willing to pay for each unit.

▼ **FIGURE 13.9 Price Discrimination**



In panel (a), consumer A is willing to pay $5.75.
If the price-discriminating firm can charge $5.75 to A, profit is $3.75.
A monopolist who cannot price discriminate would maximize profit by charging $4.
At a price of $4.00, the firm makes $2.00 in profit and consumer A enjoys a consumer surplus of $1.75.

In panel (b), for a perfectly price-discriminating monopolist, the demand curve is the same as marginal revenue.
The firm will produce as long as $MR > MC$, up to Q_c.
At Q_c, profit is the entire shaded area and consumer surplus is zero.

Examples of Price Discrimination

Movie theaters, hotels, and many other industries routinely charge a lower price for children and the elderly.

In each case, the objective of the firm is to segment the market into different identifiable groups, with each group having a different elasticity of demand.

The optimal strategy for a firm that can sell in more than one market is to charge higher prices in markets with low demand elasticities.

Remedies for Monopoly: Antitrust Policy

Major Antitrust Legislation

The Sherman Act of 1890

The substance of the Sherman Act is contained in two short sections:

> *Section 1.* Every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared to be illegal....
>
> *Section 2.* Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

rule of reason The criterion introduced by the Supreme Court in 1911 to determine whether a particular action was illegal ("unreasonable") or legal ("reasonable") within the terms of the Sherman Act.

The Clayton Act and the Federal Trade Commission, 1914

Clayton Act Passed by Congress in 1914 to strengthen the Sherman Act and clarify the rule of reason, the act outlawed specific monopolistic behaviors such as tying contracts, price discrimination, and unlimited mergers.

Federal Trade Commission (FTC) A federal regulatory group created by Congress in 1914 to investigate the structure and behavior of firms engaging in interstate commerce, to determine what constitutes unlawful "unfair" behavior, and to issue cease-and-desist orders to those found in violation of antitrust law.

Which of the following pieces of antitrust legislation banned tying contracts, limited mergers, and banned price discrimination?

a. The Sherman Act.
b. The Wheeler-Lea Act.
c. The Clayton Act.
d. The same legislation that created the Interstate Commerce Commission (ICC).

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ECONOMICS IN PRACTICE

What Happens When You Google: The FTC Case against Google

In January 2012 the Federal Trade Commission settled a suit against Google.

A core part of the case was an allegation that Google had abused its monopoly behavior in some of its practices.

While there are other search engines, Microsoft's Bing for example, Google clearly has the bulk of the market.

In the Google case the charge was that Google manipulated its search results to favor its own subsidiaries.

THINKING PRACTICALLY

1. Why would Google want to manipulate its search results, particularly on cell phone searches?

Imperfect Markets: A Review and a Look Ahead

A firm has *market power* when it exercises some control over the price of its output or the prices of the inputs that it uses. The extreme case of a firm with market power is the pure monopolist. In a pure monopoly, a single firm produces a product for which there are no close substitutes in an industry in which all new competitors are barred from entry.

Our focus in this chapter on pure monopoly (which occurs rarely) has served a number of purposes.

First, the monopoly model describes a number of industries quite well.

Second, the monopoly case shows that imperfect competition leads to an inefficient allocation of resources.

Finally, the analysis of pure monopoly offers insights into the more commonly encountered market models of monopolistic competition and oligopoly, which we discussed briefly in this chapter and will discuss in detail in the next two chapters.

REVIEW TERMS AND CONCEPTS

barrier to entry
Clayton Act
Federal Trade Commission (FTC)
government failure
imperfectly competitive industry
market power
natural monopoly
network externalities
patent
perfect price discrimination
price discrimination
public choice theory
pure monopoly
rent-seeking behavior
rule of reason