

# Principles of Economics

ECON F211



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# Imperfect Competition and Market Power

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## 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

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

# Price & Output Decisions in Pure Monopoly

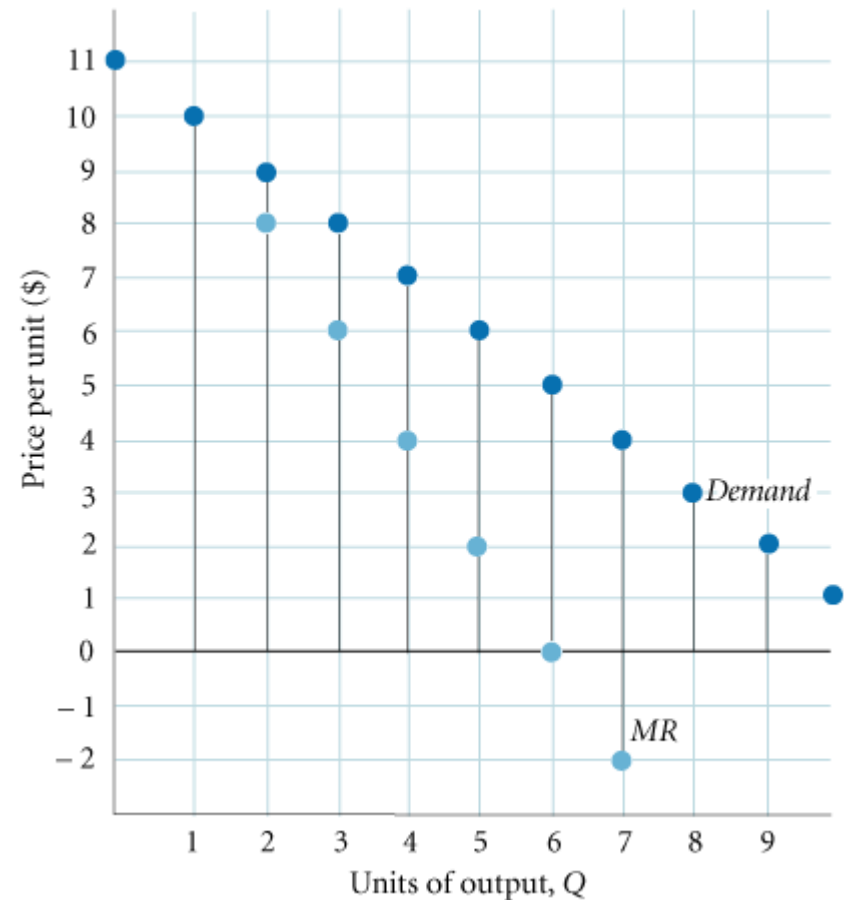
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- ❑ The decisions depends upon the associated costs and revenue
- ❑ From the cost side, it is similar to the perfectly competitive firm
- ❑ Monopolist differs from revenue aspect. How ?
  - ❑ Monopolist is a market itself
  - ❑ Can influence prices
  - ❑ Expectations to earn more profits can affect prices

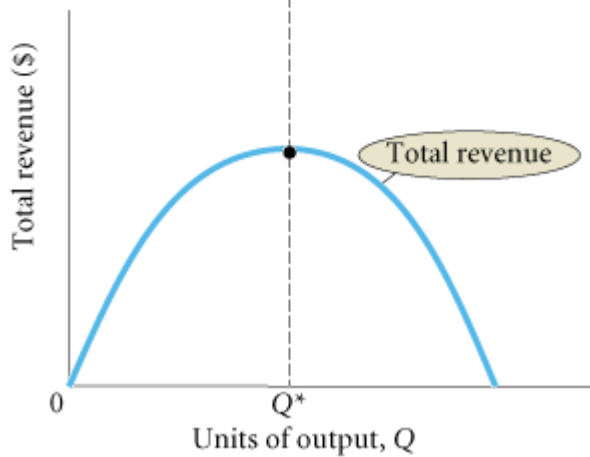
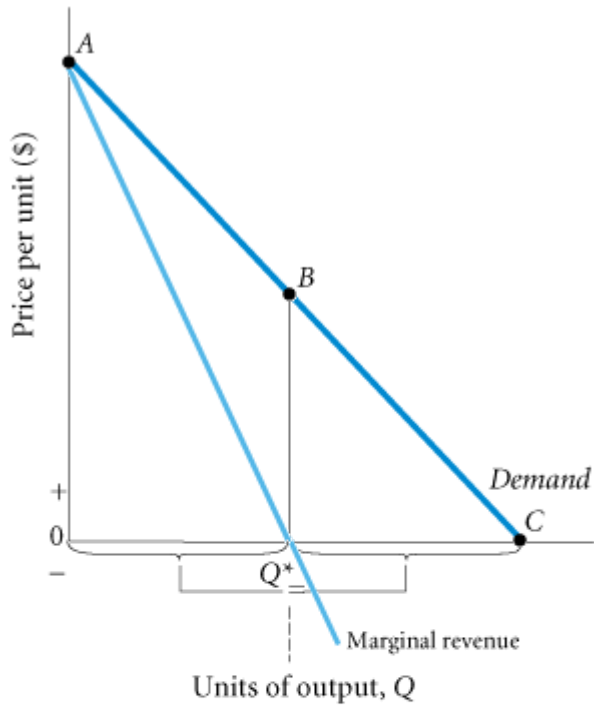
# Demand in Monopoly Markets

**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**



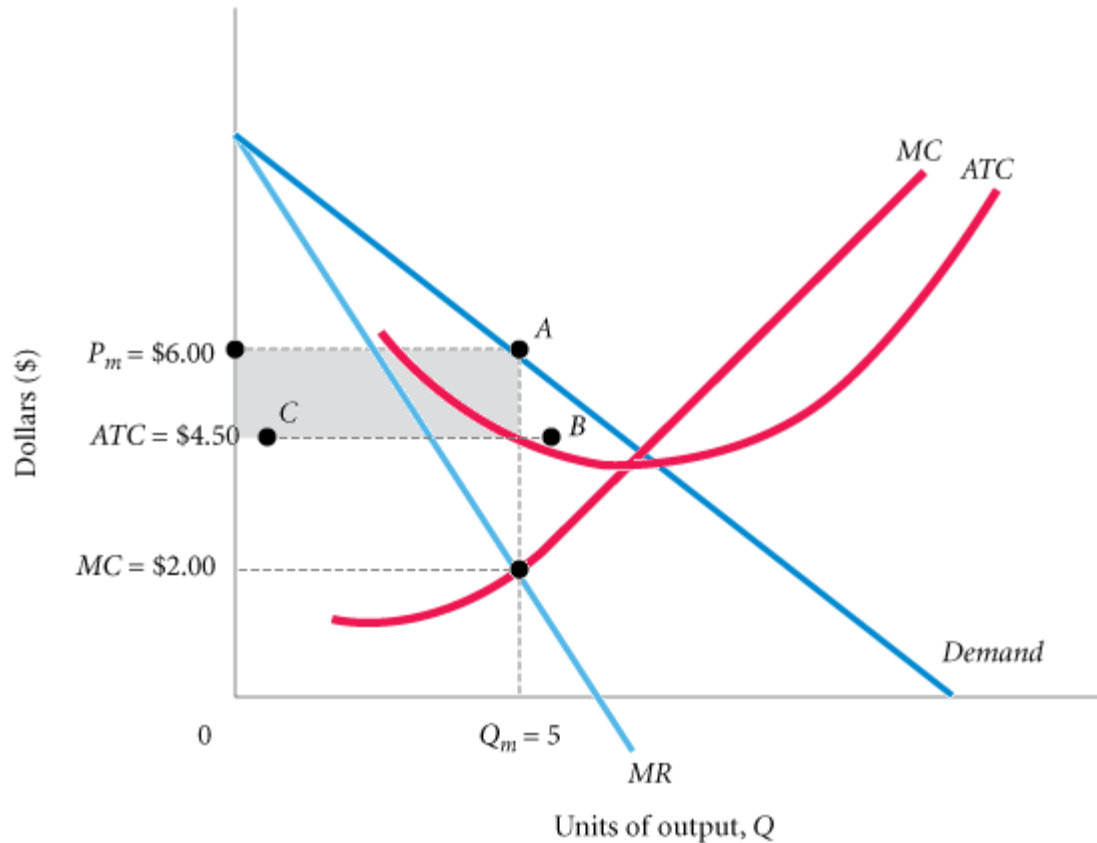
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**FIGURE 13.3 Marginal Revenue and Total Revenue:** A monopoly's marginal revenue curve bisects the quantity axis between the origin and the point where the demand curve hits the quantity axis.

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

# Monopolist's Profit Maximizing Price & 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,  $TR = P_m A Q_m 0$ ,  $TC = C B Q_m 0$ , and profit =  $P_m A B C$

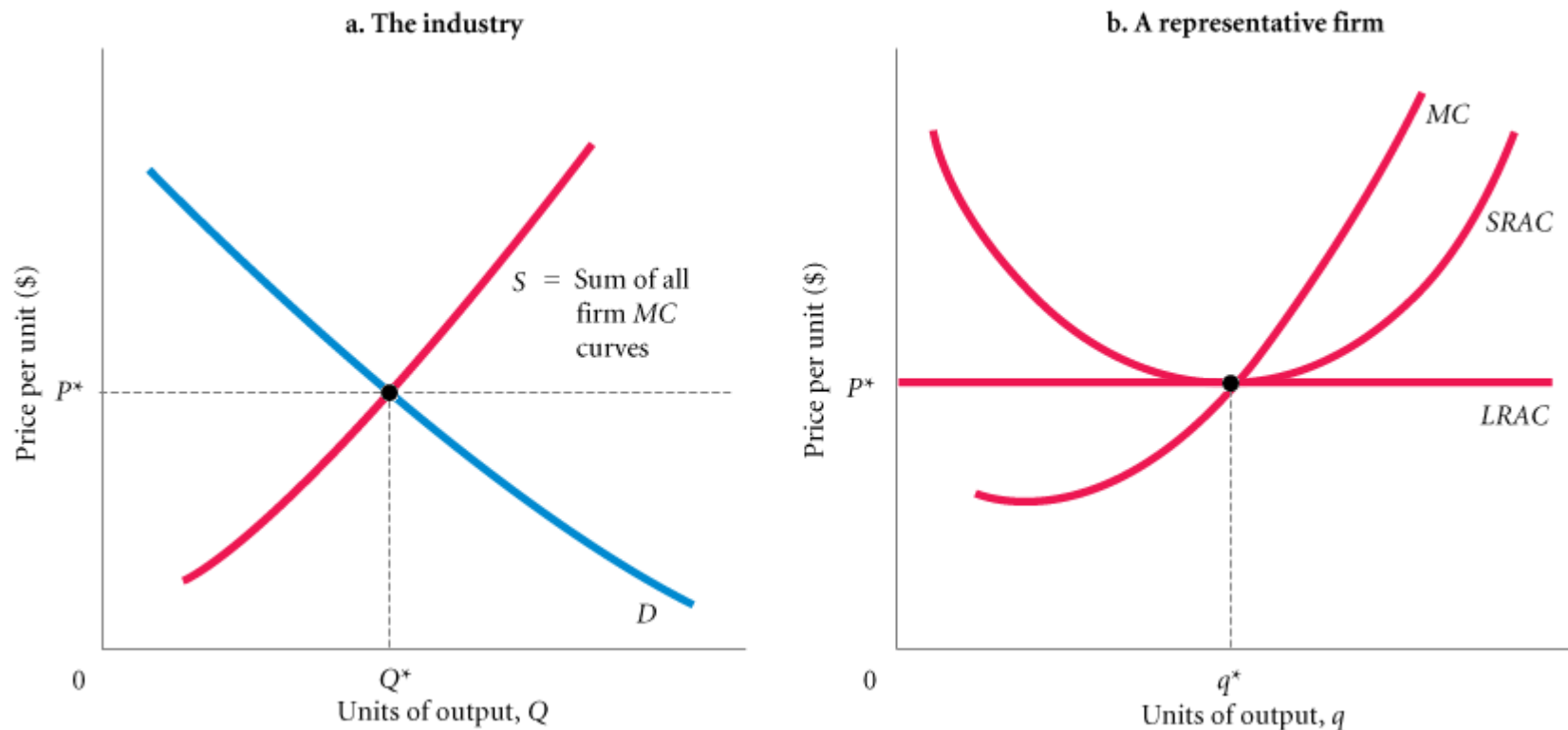
# Supply Curve in Monopoly

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- ❑ 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

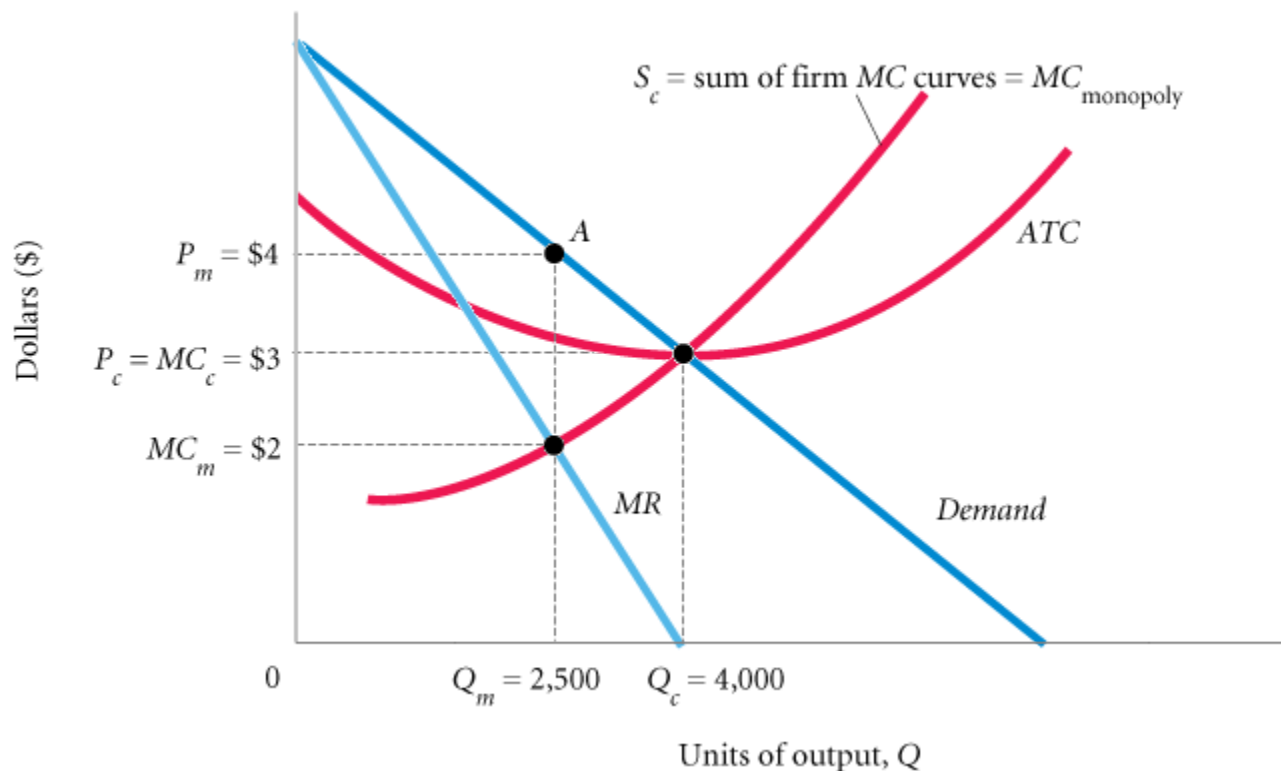


# Perfect Competition and Monopoly Compared



**FIGURE 13.5** A Perfectly Competitive Industry in Long-Run Equilibrium

# Perfect Competition and Monopoly Compared



**FIGURE 13.6** Comparison of Monopoly and Perfectly Competitive Outcomes for a Firm with Constant Returns to Scale

# Monopoly in the Long Run: Barriers to Entry

Factors that prevent new firms from entering and competing in imperfectly competitive industries

## **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.

# Long-Run Costs: Economies and Diseconomies of Scale

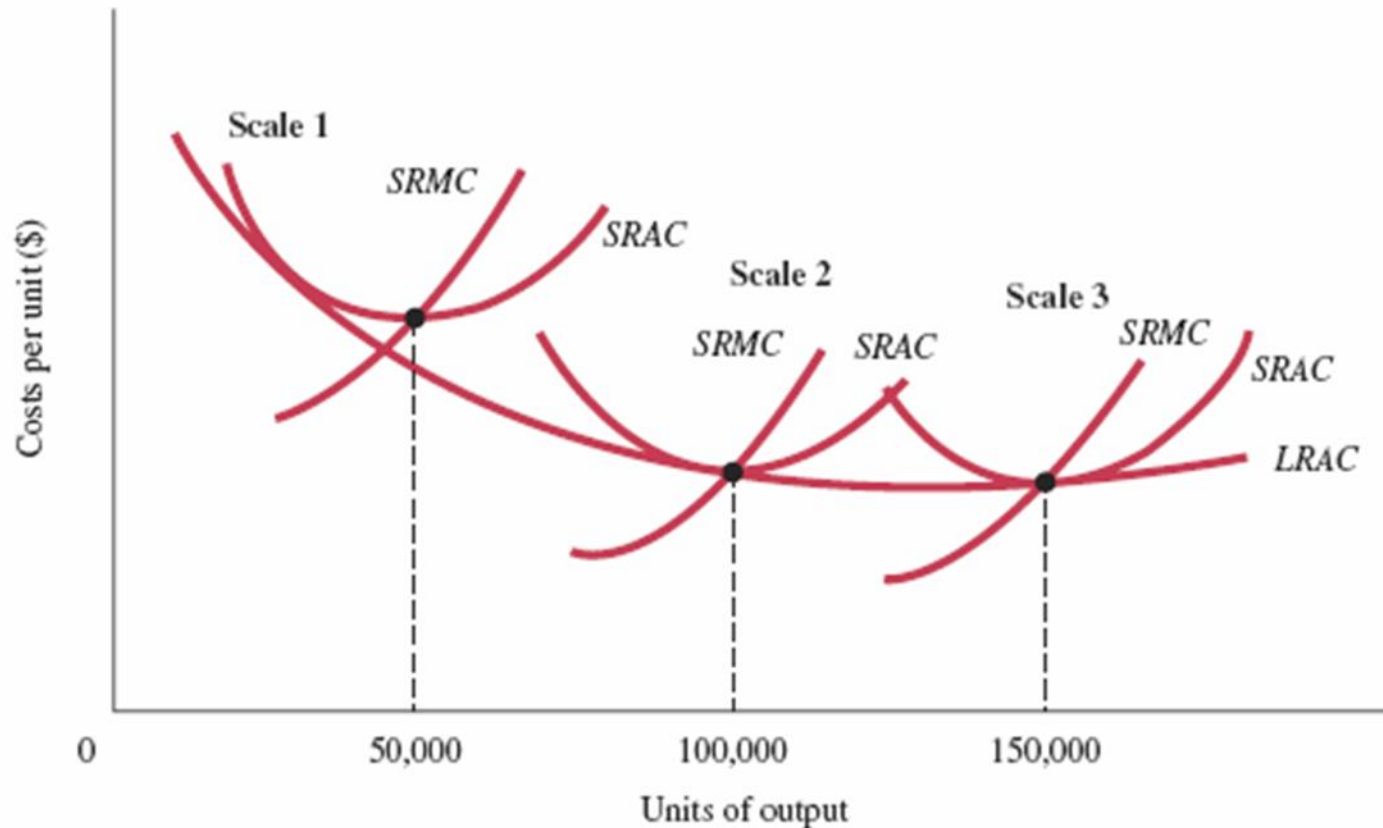
- **long-run average cost curve (*LRAC*)** Shows the way per-unit costs change with output in the long run.
- **increasing returns to scale** or **economies of scale** An increase in a firm's scale of production leads to lower costs per unit produced.
- **constant returns to scale** An increase in a firm's scale of production has no effect on costs per unit produced.
- **decreasing returns to scale** or **diseconomies of scale** An increase in a firm's scale of production leads to higher costs per unit produced.

# Increasing Returns to Scale

## The Sources of Economies of Scale

- Some economies of scale result not from technology but from firm-level efficiencies and bargaining power that can come with size.
- Economies of scale have come from advantages of larger firm size rather than gains from plant size.
- **minimum efficient scale (MES)** The smallest size at which the long-run average cost curve is at its minimum.

**FIGURE 9.4 A Firm Exhibiting Economies of Scale**



The long-run average cost curve of a firm shows the different scales on which the firm can choose to operate in the long run. Each scale of operation defines a different short run. Here we see a firm exhibiting economies of scale; moving from scale 1 to scale 3 reduces average cost.

# ECONOMICS IN PRACTICE

## Economies of Scale in the Search Business

Online search is a scale-driven business: The search behavior of one user can be used to improve the search of future users.

Google—the top search engine—has more than three times the searches of Microsoft’s Bing but employs only about twice as many engineers and spends less per search on its data centers.



### THINKING PRACTICALLY

1. Google was an early pioneer in the search business. How did that early lead interact with the fact of scale economies in Google’s favor?

# Constant Returns to Scale

- Technically, the term *constant returns* means that the quantitative relationship between input and output stays constant, or the same, when output is increased.
- Constant returns to scale means that the firm's long-run average cost curve remains flat.



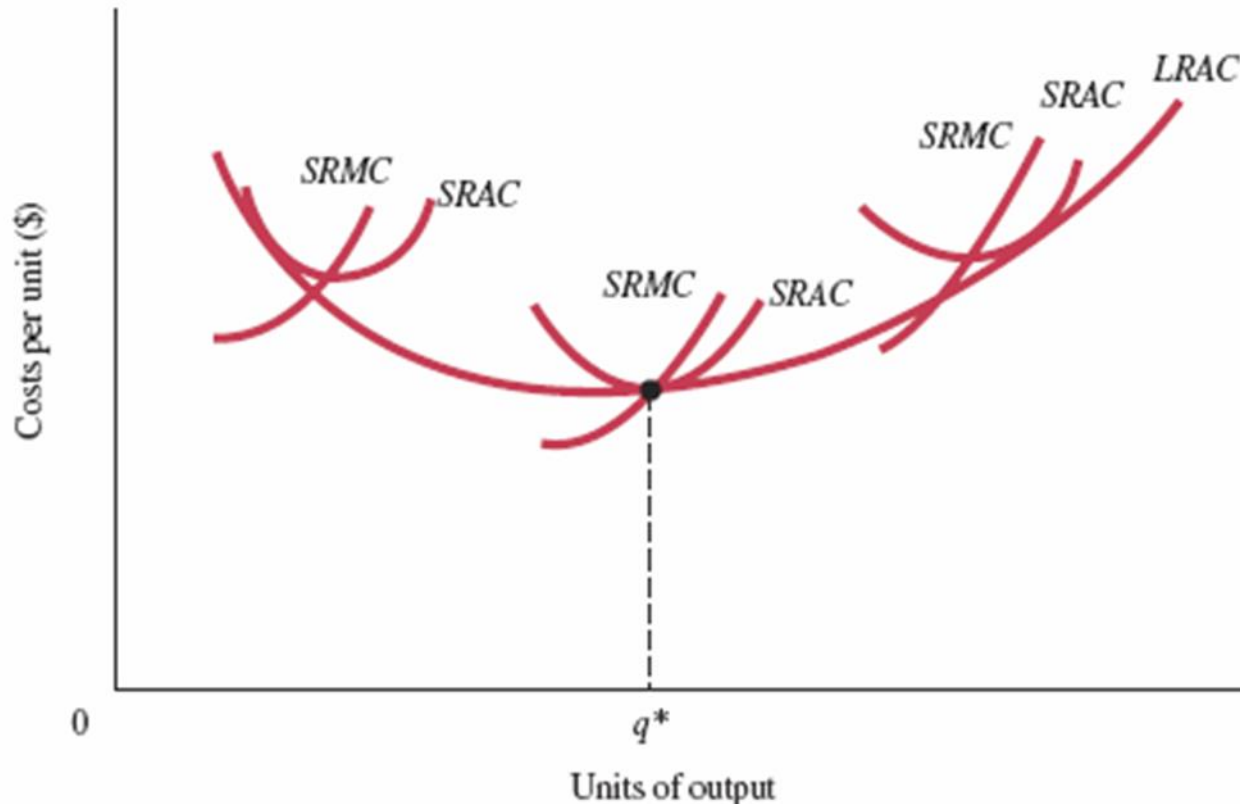
# Diseconomies of Scale

- When average cost increases with scale of production, a firm faces *decreasing returns to scale*, or *diseconomies of scale*.

# U-Shaped Long-Run Average Costs

- **optimal scale of plant** The scale of plant that minimizes long-run average cost.

**FIGURE 9.5 A Firm Exhibiting Economies and Diseconomies of Scale**



Economies of scale push this firm's average costs down to  $q^*$ .

Beyond  $q^*$ , the firm experiences diseconomies of scale;  $q^*$  is the level of production at lowest long-run average costs, using optimal scale.

# ECONOMICS IN PRACTICE

## The Long-Run Average Cost Curve: Flat or U-Shaped?

A long-run average cost curve was first drawn as the “envelope” of a series of short-run curves in 1931.

Jacob Viner drew the long-run curve through the minimum points of all the short-run average cost curves.

In 1986, Professor Herbert Simon of Carnegie-Mellon University explained that studies show that a firm’s cost curves are not U-shaped but instead slope down to the right and then level off.

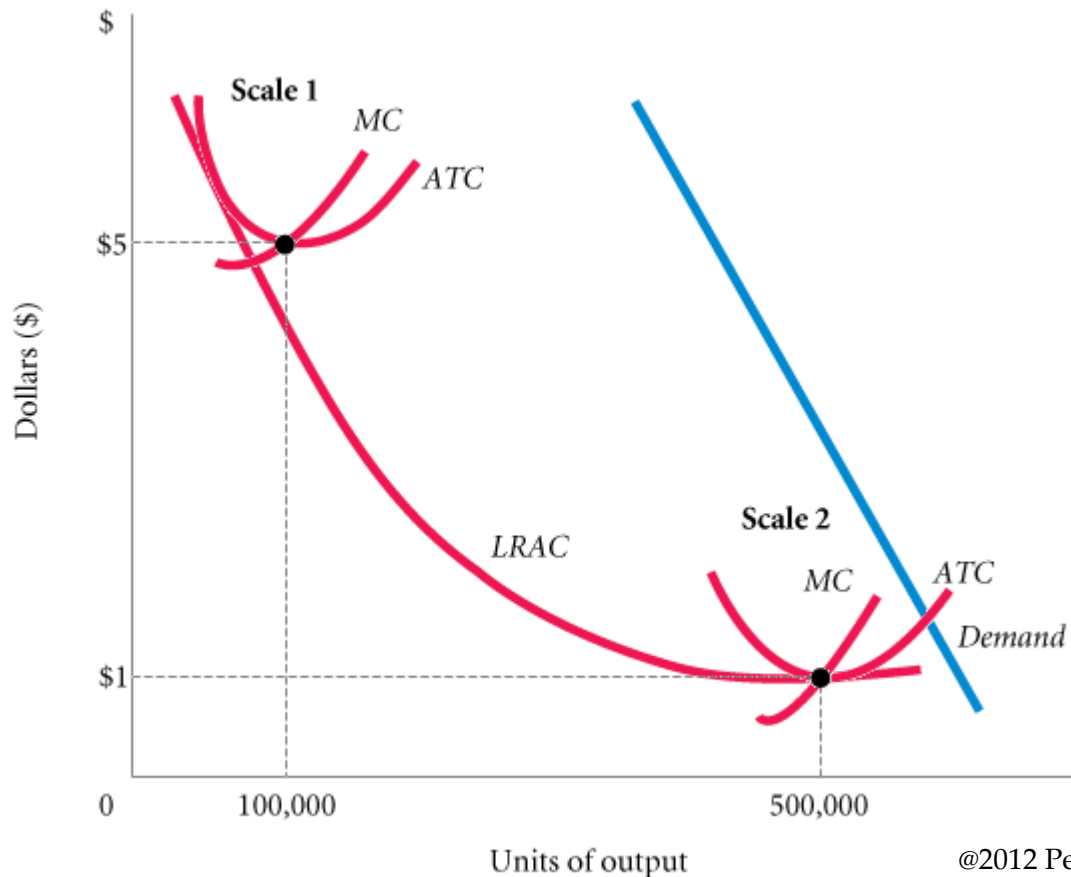


### THINKING PRACTICALLY

1. Some have argued that even if long-run  $AC$  curves do eventually slope up, we would not likely see many firms operating at this size. Why not?

# Natural monopoly

- ❑ An industry that realizes such large economies of scale in producing its product that single-firm production of that good or service is most efficient

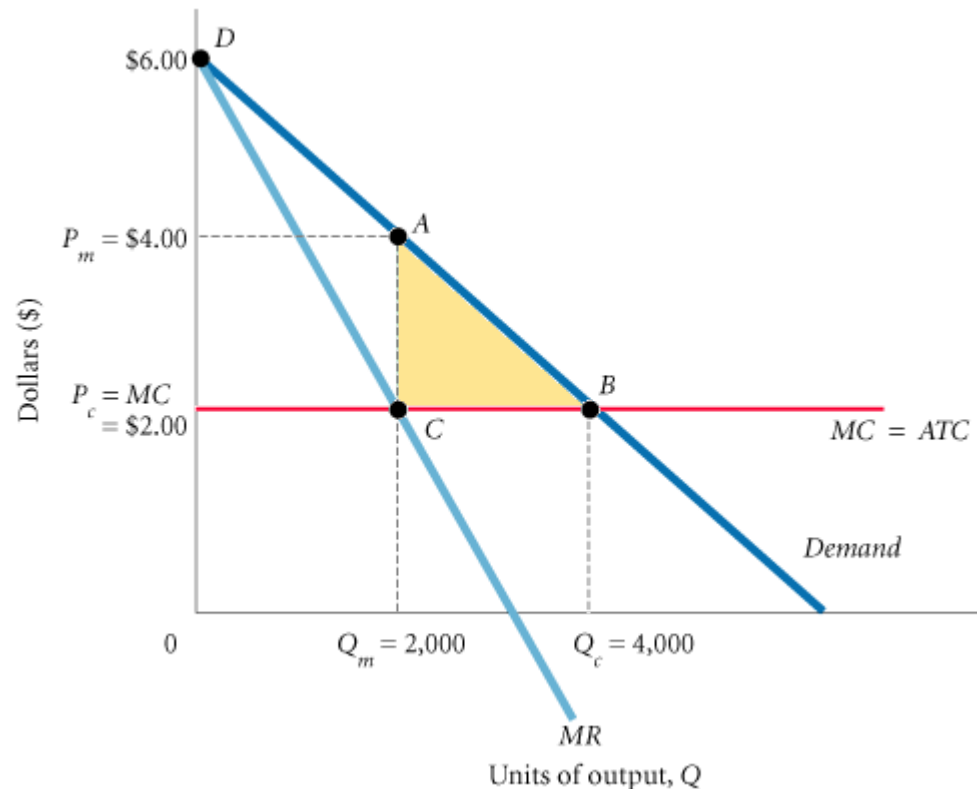


- A natural monopoly is a firm in which the most efficient scale is very large.
- Here, average total cost declines until a single firm is producing nearly the entire amount demanded in the market.
- With one firm producing 500,000 units, average total cost is \$1 per unit.
- With five firms each producing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

**FIGURE 13.7 A Natural Monopoly**

# Social Cost of Monopoly: Calculation of Dead-Weight Loss

- 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)
- This loss is known as Dead-Weight Loss which is neither recovered by the producer nor by the consumer

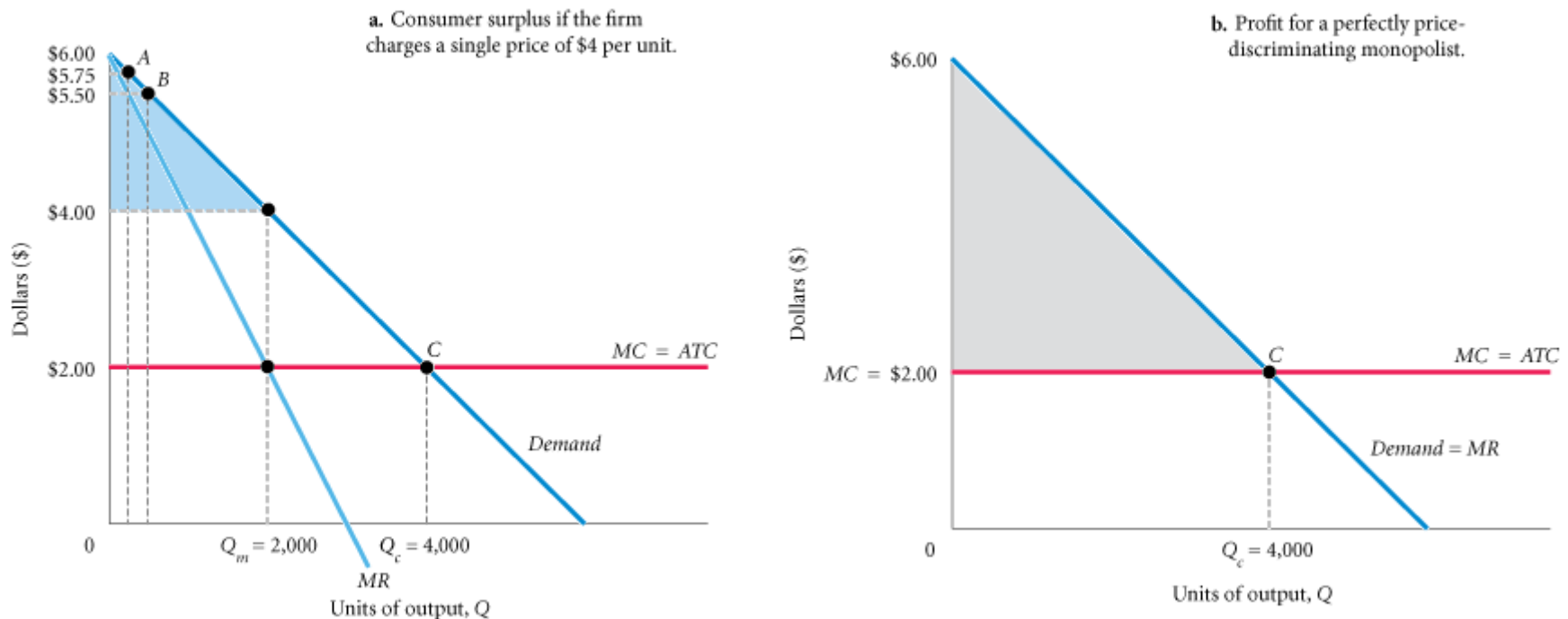


► **FIGURE 13.8** Welfare Loss from Monopoly

# Price Discrimination

Charging different prices to different buyers

**Perfect price discrimination** – It occurs when a firm charges the maximum amount that buyers are willing to pay for each unit



**FIGURE 13.9** Price Discrimination

# Examples of Price Discrimination

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- ❑ Airlines, 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.



# 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 illustrates the observation 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.

# Reference

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Case, K.E., Fair, R.C., & Oster, S.E. (2018). *Principles of Economics*. 12<sup>th</sup> Edition, Pearson India Education Services Pvt. Ltd.