ECO 2220, Principles of Microeconomics - Section 1C

Class Presentation for

March 29 & 31, 2016

Chapter #25

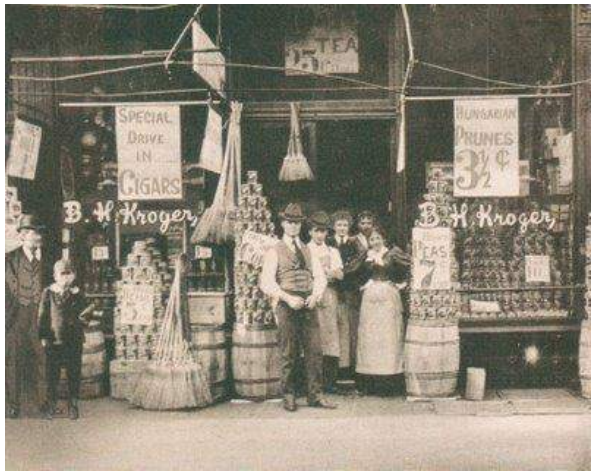
"Courage doesn't always roar, sometimes it's the quiet voice at the end of the day whispering 'I will try again tomorrow"

Mary Anne Radmacher

Looking Forward:

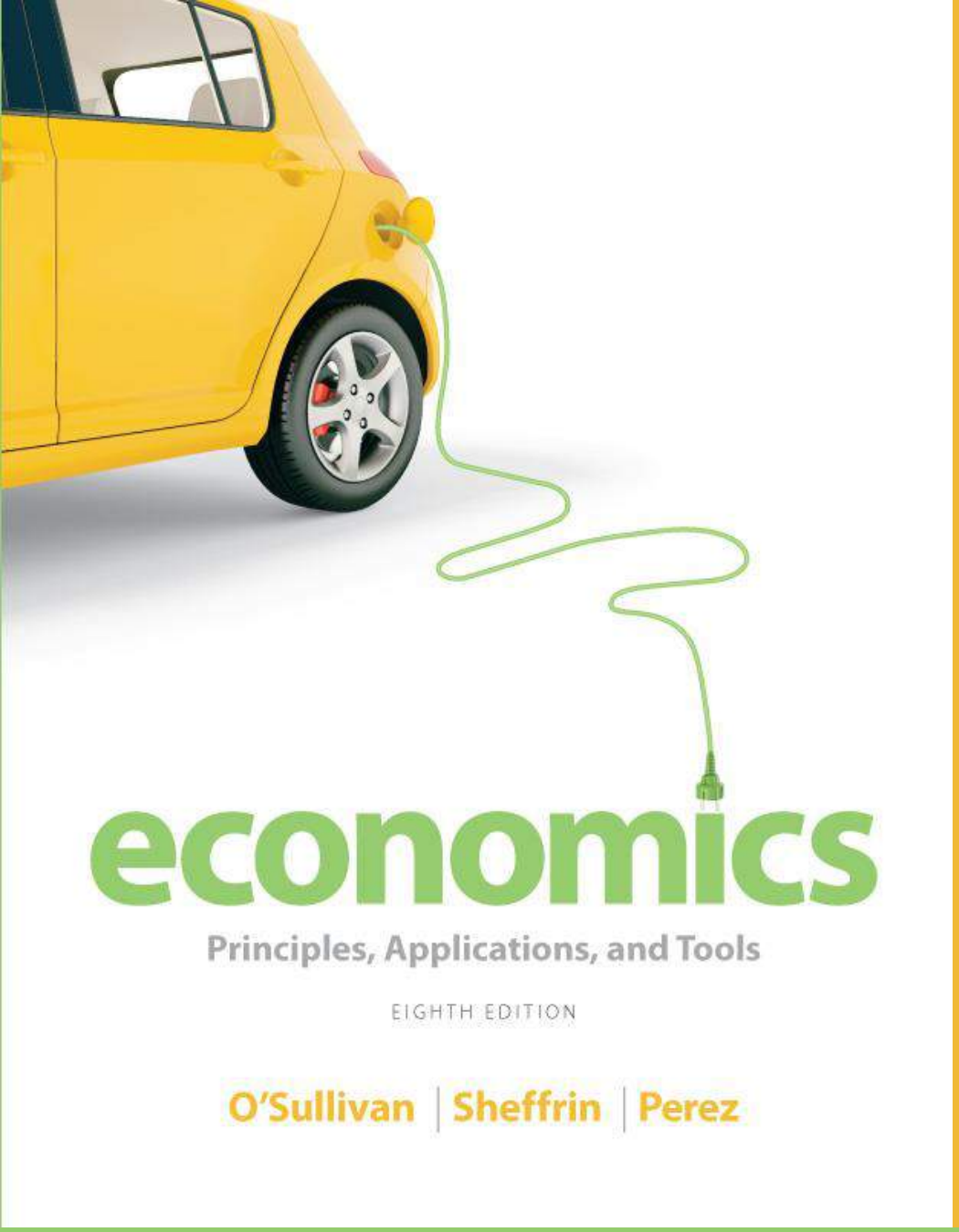
- March 29, 2016 – Journal #8 due.
- April 5, 2016 – Journal #9 due.
- April 7, 2016 – Test #3
  - Chapters # 24, 25, 26, & 27
- April 12, 2016 – Journal #10 due.
- April 19, 2016 – Project Paper Due
- April 28, 2016 – Test #4
  - Chapters # 29, 30, & 32

2,625 Locations;
343,000 Employees;
Revenue $108.5 Billion (2014)
Total Assets $24.652 Billion (2013)
Total Equity $4.207 Billion (2013)



1st Kroger Store 1883

Bernard Henry "Barney" Kroger Sr.
18860 – 1938
Founder & Owner
Kroger Stores



Chapter 25

Monopoly and Price Discrimination

On college campuses across the country, beverage companies like Coca Cola and Pepsi pay cash in exchange for monopoly power--exclusive rights to sell beverages on campus.

Prepared By Brock Williams

Learning Objectives

1. Describe and explain a monopolist's output decision
2. Explain why a monopoly is socially inefficient
3. Identify the tradeoffs associated with a patent
4. Describe the practice of price discrimination

Monopoly and Price Discrimination

- **monopoly**
  A market in which a single firm sells a product that does not have any close substitutes. *(definition)*

- **market power**
  The ability of a firm to affect the price of its product. *(characteristic)*

- **barrier to entry**
  Something that prevents firms from entering a profitable market. *(condition/characteristic)*

Monopoly and Price Discrimination

- **patent**
  The exclusive right to sell a new good for some period of time. *(tool –barrier to entry)*

- **network externalities**
  The value of a product to a consumer increases with the number of other consumers who use it. *(condition/characteristic)*

- **natural monopoly**
  A market in which the economies of scale in production are so large that only a single large firm can earn a profit. *(Cable TV service; electricity transmissions; water systems & other utilities)*

Perfect Competition

Recall from Chapter 24 -

Here are the five features of a perfectly competitive market:

1. **There are many sellers.**
2. **There are many buyers.**
3. **The product is homogeneous.**
4. **There are no barriers to market entry.**
5. **Both buyers and sellers are price takers.**

TYPES OF COMPETITION

KIND OF COMPETITION	# OF PRODUCERS & DEGREE OF PRODUCT DIFFERTIATION	PART OF ECONOMY WHERE PREVELENT	DEGREE OF CONTROL OVER PRICE	METHODS OF MARKETING
Perfect Competition	Many producers; identical products	A few agricultural industries	None	Market exchange or auction
Imperfect Competition				
Many differentiated sellers	Many producers; many real or fancied difference in product	Toothpaste, retail trade; conglomerates		
Oligopoly	Few producers: little or no difference in product	Steel, aluminum	- Some	Advertising and quality rivalry; administered prices
	Few producers; some differentiation of products	Autos, machinery		
Complete monopoly	Single producer; unique product without close substitutes	A few utilities	Considerable	Promotional and "institutional" public-relations advertising

YouTube Video – ACA (2013)

https://www.youtube.com/watch?v=vju70I6qSKk

Obomacare Website Facts

http://obamacarefacts.com/howdoes-obamacare-work/

Perfect Competition and the Affordable Care Act

Perfect Competition		Affordable Care Act
There are many sellers.		Open to all private health insurance providers (HIP) in America
There are many buyers.		All citizens who do not currently have health insurance (employers or other means) must join exchanges
The product is homogeneous.		Act establishes minimum standards for policies
There are no barriers to market entry.		Large barriers for market entry – economies of scale
Both buyers and sellers are price takers.		Act establishes market prices for participating HIP's

Perfect Competition, Monopoly and the Affordable Care Act

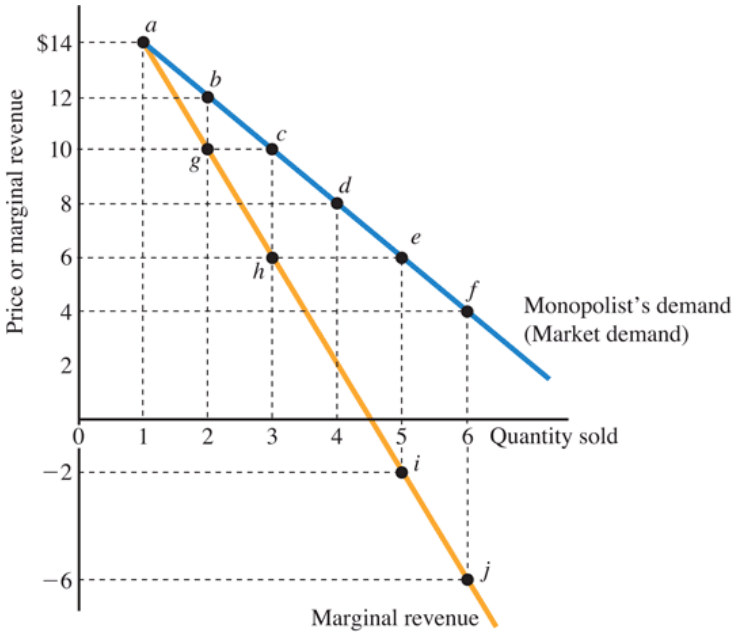
Perfect Competition	Monopoly	Affordable Care Act
There are many sellers.	A single firm sells a product.	Open to all private health insurance providers (HIP) in America
There are many buyers.	There are many buyers.	All citizens who do not currently have health insurance (employers or other means) must join exchanges
The product is homogeneous.	The product has no close substitutes.	Act establishes minimum standards for policies
There are no barriers to market entry.	There are many barriers to market entry.	Large barriers for market entry – economies of scale
Both buyers and sellers are price takers.	The seller has market power to affect price.	Act establishes market prices for participating HIP's

Monopoly and Price Discrimination

- A monopoly is inefficient from society's perspective because it produces too little output.

25.1 THE MONOPOLIST'S OUTPUT DECISION

Total Revenue and Marginal Revenue



▼FIGURE 25.1

The Demand Curve and the Marginal-Revenue Curve

Marginal revenue equals the price for the first unit sold, but is less than the price for additional units sold. To sell an additional unit, the firm cuts the price and receives less revenue on the units that could have been sold at the higher price.

The marginal revenue is positive for the first four units, and negative for larger quantities.

(1) Price (P)	(2) Quantity Sold (Q)	(3) Total Revenue ($TR = P \times Q$)	(4) Marginal Revenue $MR = \Delta TR / \Delta Q$
$16	0	0	—
14	1	$14	$14
12	2	24	10
10	3	30	6
8	4	32	2
6	5	30	–2
4	6	24	–6

25.1 THE MONOPOLIST'S OUTPUT DECISION (cont.)

A Formula for Marginal Revenue

marginal revenue
= new price + (slope of demand curve × old quantity)

- The first part of the formula is the good news, the money received for the extra unit sold.
- The second part is the bad news from selling one more unit, the revenue lost by cutting the price for the original customers. *(chap 22)*
- The revenue change equals the price change required to sell one more unit—the slope of the demand curve, which is a negative number—times the number of original customers who get a price cut.

25.1 THE MONOPOLIST'S OUTPUT DECISION (cont.)

Using the Marginal Principle

A monopolist can use the marginal principle to decide how much output to produce.

MARGINAL PRINCIPLE

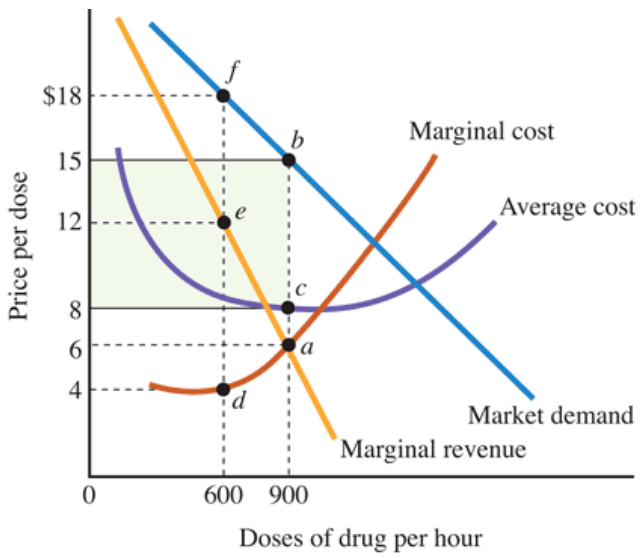
Increase the level of an activity as long as its marginal benefit exceeds its marginal cost. Choose the level at which the marginal benefit equals the marginal cost.

25.1 THE MONOPOLIST'S OUTPUT DECISION (cont.)

Using the Marginal Principle

▶ **FIGURE 25.2**

The Monopolist Picks a Quantity and a Price



To maximize profit, the monopolist picks point *a*, where marginal revenue equals marginal cost.

The monopolist produces 900 doses per hour at a price of $15 (point *b*).

The average cost is $8 (point *c*), so the profit per dose is $7 (equal to the $15 price minus the $8 average cost) and the total profit is $6,300 (equal to $7 per dose times 900 doses).

The profit is shown by the shaded rectangle.

(1) Price (*P*)	(2) Quantity Sold (*Q*)	(3) Marginal Revenue	(4) Marginal Cost	(5) Total Revenue ($TR = P \times Q$)	(6) Total Cost (*TC*)	(7) Profit ($TR - TC$)
$18	600	$12	$4.00	$10,800	$5,710	$5,090
17	700	10	4.60	11,900	6,140	5,760
16	800	8	5.30	12,800	6,635	6,165
15	900	6	6.00	13,500	7,200	6,300
14	1,000	4	6.70	14,000	7,835	6,165
13	1,100	2	7.80	14,300	8,560	5,740
12	1,200	0	9.00	14,400	9,400	5,000

25.1 THE MONOPOLIST'S OUTPUT DECISION (cont.)

Using the Marginal Principle

The three-step process explaining how a monopolist picks a quantity and how to compute the monopoly profit is as follows:

1. Find the quantity that satisfies the marginal principle, that is, the quantity at which marginal revenue equals marginal cost.
2. Using the demand curve, find the price associated with the monopolist's chosen quantity.
3. Compute the monopolist's profit. The profit per unit sold equals the price minus the average cost, and the total profit equals the profit per unit times the number of units sold.

APPLICATION 1

MARGINAL REVENUE FROM A BASEBALL FAN

APPLYING THE CONCEPTS #1: How does a monopolist maximize profit?

- We expect the owner of a major-league baseball team to choose the quantity (the number of fans at the game) at which MR = MC. The marginal cost of an additional fan is close to zero, so the profit-maximization rule simplifies to MR = 0. And yet for the typical team, it appears that MR is actually negative: adding fans by selling more tickets actually decreases total revenue from tickets. What explains this puzzling behavior?

- We can illustrate the puzzle with a simple example. Suppose that with a ticket price of $24, the team sells 20,000 tickets. If the slope of the demand curve is -0.002, marginal revenue is -$16: MR = $24 - 0.002 x 20,000 = -$16. In this case, cutting the price to sell one more ticket generates good news ($24 collected from the new fan) that is less than the bad news (the $40 lost on the 20,000 fans who would have paid the higher price). The marginal revenue is negative, so the team could increase its total revenue from tickets by increasing the price and decreasing the quantity of tickets sold. Why don't MLB teams increase their ticket prices?

- The solution to this puzzle is concessions. Suppose the average MLB fan spends $20 per game on merchandise that costs the owner about $4 to provide. In this case, each ticket sold generates an additional $16 in net concession revenue to the owner, just enough to offset the $16 revenue loss on ticket sales. Once we expand the definition of marginal revenue to include the net revenue from concessions, the owner's choice is consistent with the profit-maximization. What appears to be too low a price could be just about right.

25.2 THE SOCIAL COST OF MONOPOLY

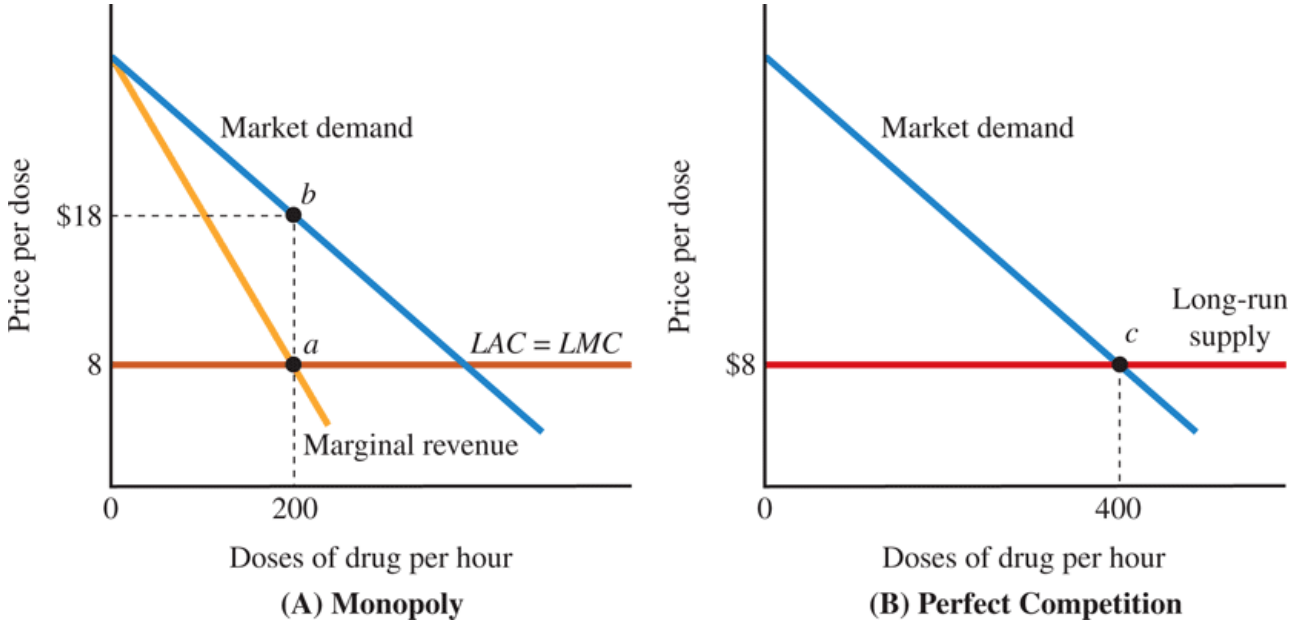
Deadweight Loss from Monopoly

▼ **FIGURE 25.3**

Monopoly versus Perfect Competition: Its Effect on Price and Quantity

(A) The monopolist picks the quantity at which the long-run marginal cost equals marginal revenue—200 does per hour, as shown by point a. As shown by point b on the demand curve, the price required to sell this quantity is $18 per dose.

(B) The long-run supply curve of a perfectly competitive, constant-cost industry intersects the demand curve at point c. The equilibrium price is $8, and the equilibrium quantity is 400 doses.



Example page 552

25.2 THE SOCIAL COST OF MONOPOLY (cont.)

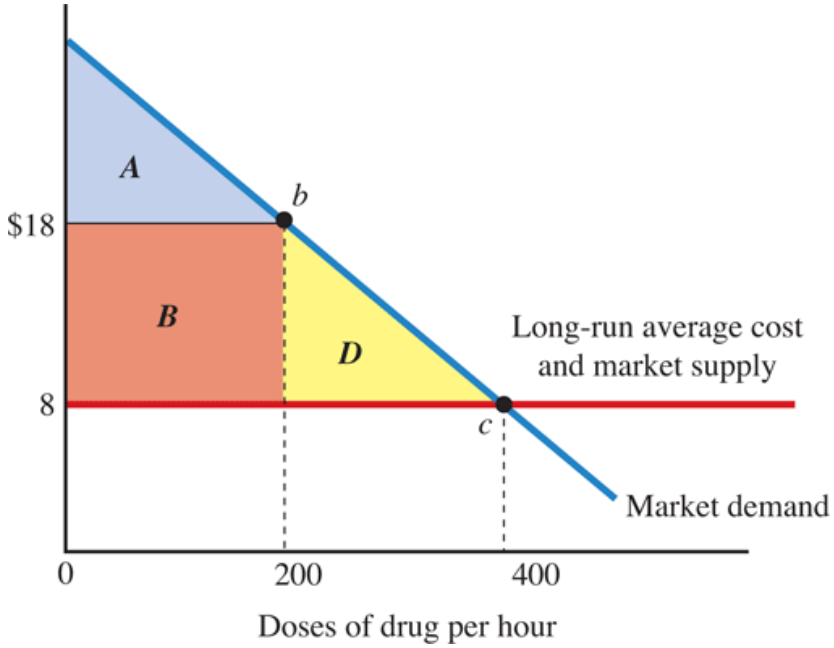
Deadweight Loss from Monopoly

▶ **FIGURE 25.4**

The Deadweight Loss from a Monopoly

A switch from perfect competition to monopoly increases the price from $8 to $18 and decreases the quantity sold from 400 to 200 doses.

Consumer surplus decreases by an amount shown by the areas *B* and *D*, while profit increases by the amount shown by rectangle *B*. The net loss to society is shown by triangle *D*, the deadweight loss from monopoly.



The formula for the area of a rectangle is

area of rectangle = base × height

The formula for the area of a triangle is

area of triangle = 1/2 × base × height

deadweight loss from monopoly
A measure of the inefficiency from monopoly; equal to the decrease in the market surplus.

25.2 THE SOCIAL COST OF MONOPOLY (cont.)

Rent Seeking: Using Resources to Get Monopoly Power

- **rent seeking**
  The process of using public policy to gain economic profit.

Monopoly and Public Policy

Given the social costs of monopoly, the government uses a number of policies to intervene in markets dominated by a single firm or likely to become a monopoly.

APPLICATION 2

A CASINO MONOPOLY IN CRESWELL OREGON?

APPLYING THE CONCEPTS #2: What is the value of a monopoly?

- A developer interested in building a casino in Creswell, Oregon, placed a curious announcement in the local newspaper. If local voters approved the casino, the developer promised to give citizens a total of $2 million per year.
- With an adult population of about 1,600, each adult in Creswell would receive a cash payment of $1,250 per year. Why did the developers propose this deal?
- This is an example of rent seeking: The casino developer was seeking the profits that would come from having a monopoly in the casino market, and was willing to pay at least $2 million to get it.

25.3 PATENTS AND MONOPOLY POWER

Incentives for Innovation (page #555)

Let's use the arthritis drug to show why a patent encourages innovation. Suppose a firm called Flexjoint hasn't yet developed the drug but believes the potential benefits and costs of doing so are as follows:

- The economic cost of research and development will be $14 million, including all the opportunity costs of the project.
- The estimated annual economic profit from a monopoly will be $2 million (in today's dollars).
- Flexjoint's competitors will need three years to develop and produce their own versions of the drug, so if Flexjoint isn't protected by a patent, its monopoly will last only three years.

Based on these numbers, Flexjoint won't develop the drug unless the firm receives a patent that lasts at least 7 years. That's the length of time the firm needs to recover the research and development costs of $14 million ($2 million per year times 7 years). If there is no patent and the firm loses its monopoly in 3 years, it will earn a profit of $6 million, which is less than the cost of research and development. In comparison, with a 20-year patent the firm will earn $40 million, which is more than enough to recover its $14 million cost.

25.3 PATENTS AND MONOPOLY POWER (cont.)

Trade-Offs from Patents

- It is sensible for a government to grant a patent for a product that would otherwise not be developed, but it is not sensible for other products.
- Unfortunately, no one knows in advance whether a particular product would be developed without a patent, so the government can't be selective in granting patents.
- In some cases, patents lead to new products, while in other cases they merely prolong monopoly power.

APPLICATION 3

BRIBING THE MAKERS OF GENERIC DRUGS

APPLYING THE CONCEPTS #3: What happens when a patent expires and a monopoly ends?

When the patent for a brand-name drug expires, other firms introduce generic versions of the drug. The generics are virtually identical to the original branded drug, but they sell at a much lower price. The producers of branded drugs have an incentive to delay the introduction of generic drugs and sometimes use illegal means to do so.

- In recent years, the Federal Trade Commission (FTC) has investigated allegations that the makers of branded drugs made deals with generic suppliers to keep generics off the market.
- Alleged practices included cash payments and exclusive licenses for new versions of the branded drug.
- In 2003, the FTC ruled that two drug makers had entered into an illegal agreement when Schering-Plough paid Upsher-Smith Laboratories $60 million to delay the introduction of a low-price alternative to its prescription drug K- Dur 20, which is used to treat people with low potassium.
- Another tactic is to claim that generics are not as good as the branded drug. Because generic versions are virtually identical to the branded drugs, such claims are not based on science.

25.4 PRICE DISCRIMINATION

- **price discrimination**

  The practice of selling a good at different prices to different consumers.

Although price discrimination is widespread, it is not always possible. A firm has an opportunity for price discrimination if three conditions are met:

1. **Market power.** *(control over its price; neg sloped demand curve.)*
2. **Different consumer groups.** *(must be willing to pay; prices measured by elasticity of demand)*
3. **Resale is not possible.**

Examples: Discounts on airline tickets; Coupons for groceries & restaurants; manufactures rebates, etc.

25.4 PRICE DISCRIMINATION (cont.)

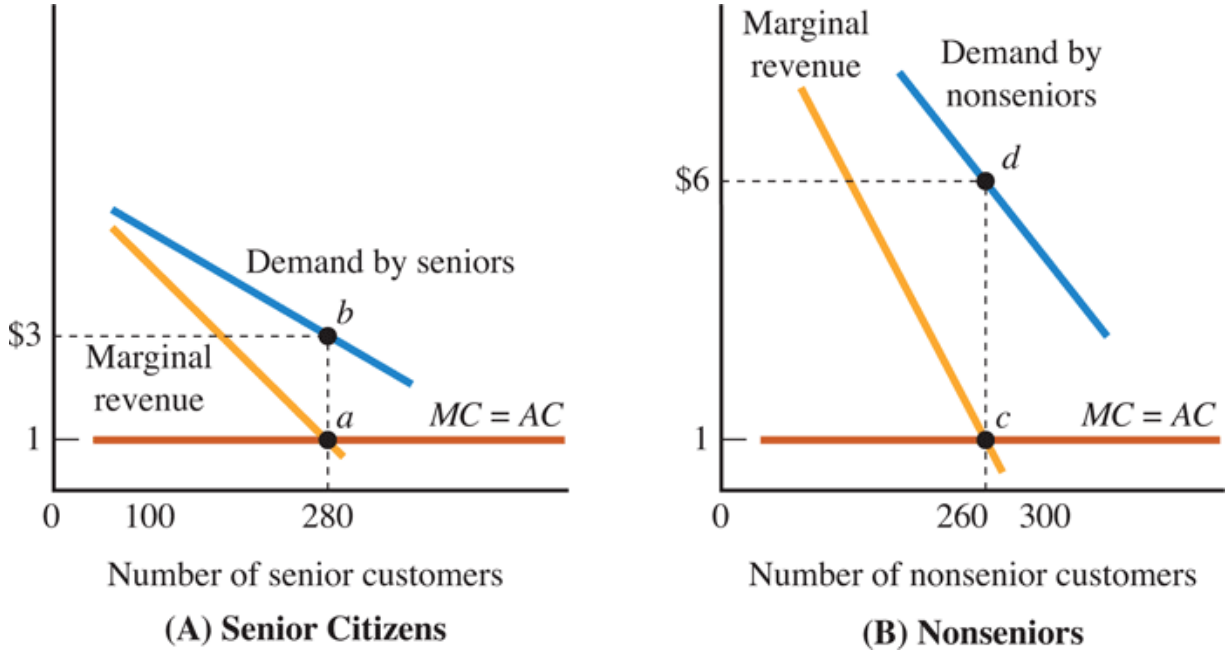
Senior Discounts in Restaurants

▼ **FIGURE 25.5**

The Marginal Principle and Price Discrimination

To engage in price discrimination, the firm divides potential customers into two groups and applies the marginal principle twice—once for each group.

Using the marginal principle, the profit-maximizing prices are $3 for seniors (point *b*) and $6 for nonseniors (point *d*).



25.4 PRICE DISCRIMINATION (cont.)

Price Discrimination and the Elasticity of Demand

- We can use the concept of price elasticity of demand to explain why price discrimination increases the restaurant's profit.
- From the chapter on elasticity [20], we know that when demand is elastic ($E_d > 1$), there is a negative relationship between price and total revenue: When the price decreases, total revenue (price times quantity sold) increases because the percentage increase in the quantity demanded exceeds the percentage decrease in price.

25.4 PRICE DISCRIMINATION (cont.)

Examples: Movie Admission versus Popcorn, and Hardback versus Paperback Books

- Why do senior citizens pay less than everyone else for admission to a movie, but the same as everyone else for popcorn? As we've seen, a senior discount is not an act of generosity by a firm, but an act of profit maximization. Senior citizens are typically willing to pay less than other citizens for movies, so a theater divides its consumers into two groups—seniors and others—and offers a discount to seniors. This price discrimination in favor of senior citizens increases the theater's profit.
- Why are hardback books so much more expensive than paperback books? Most books are published in two forms—hardback and paperback. Although the cost of producing a hardback book is only about 20 percent higher than producing a paperback, the hardback price is typically three times the paperback price. Booksellers use hardbacks and paperbacks to distinguish between two types of consumers: those who are willing to pay a lot and those who are willing to pay a little.
- The pricing of hardback and paperback books is another example of price discrimination, under which consumers with less elastic demand pay a higher price.

APPLICATION 4

WHY DOES MOVIE POPCORN COST SO MUCH?

APPLYING THE CONCEPTS #4: When do firms have an opportunity to charge different prices to different consumers?

- That $4 bucket of popcorn you get in the movie theater costs less than $0.10 to produce. What explains the 4,000 percent markup?

- Moviegoers vary in their willingness to pay for seeing a movie, and a movie theater has an incentive to identify the high demanders and charge them more, while keeping the price low for the low demanders. A reliable predictor of the willingness to pay for a movie is the consumption of movie popcorn: The people who buy a lot of popcorn are the consumers who are willing to pay the most for a movie experience. So a convenient way for the theater to charge more to the consumers who are willing to pay more is to jack up the price of popcorn. As a result, the low demanders simply pay the admission price, while the high demanders pay the admission price plus the jacked-up price of a bucket of popcorn.

- We can illustrate with a simple example. Suppose a low demander is willing to pay $11 for a movie, while a high demander is willing to pay $15 for a movie and popcorn. If the theater charges $10 for admission and $4 for popcorn, each consumer will get a consumer surplus of $1 (equal to $11 – $10 for the low demander and $15 – $14 for the high demander), so both consumers will see the movie. If instead the theater charged $12 for admission and $0.10 for popcorn, the high demander will see the movie, but the low demander won't.

KEY TERMS

barrier to entry

deadweight loss from monopoly

market power

monopoly

natural monopoly

network externalities

patent

price discrimination

rent seeking

"Courage doesn't always roar, sometimes it's the quiet voice at the end of the day whispering 'I will try again tomorrow"

Mary Anne Radmacher