BETWEEN MONOPOLY AND PERFECT COMPETITION

- The previous two chapters analyzed markets with many competitive firms and markets with a single monopoly firm. In Chapter 14, we saw that the price in a perfectly competitive market always equals the marginal cost of production. We also saw that, in the long run, entry and exit drive economic profit to zero, so the price also equals average total cost. In Chapter 15, we saw how monopoly firms can use their market power to keep prices above marginal cost, leading to a positive economic profit for the firm and a deadweight loss for society. Competition and monopoly are extreme forms of market structure. Competition occurs when there are many firms in a market offering essentially identical products; monopoly occurs when there is only one firm in a market.

TABLE 1

Monopolistic Competition: Between Perfect Competition and Monopoly

	Market Structure		
	Perfect Competition	Monopolistic Competition	Monopoly
Features that all three market structures share			
Goal of firms	Maximize profits	Maximize profits	Maximize profits
Rule for maximizing	$MR = MC$	$MR = MC$	$MR = MC$
Can earn economic profits in the short run?	Yes	Yes	Yes
Features that monopolistic competition shares with monopoly			
Price taker?	Yes	No	No
Price	$P = MC$	$P > MC$	$P > MC$
Produces welfare-maximizing level of output?	Yes	No	No
Features that monopolistic competition shares with competition			
Number of firms	Many	Many	One
Entry in long run?	Yes	Yes	No
Can earn economic profits in long run?	No	No	Yes

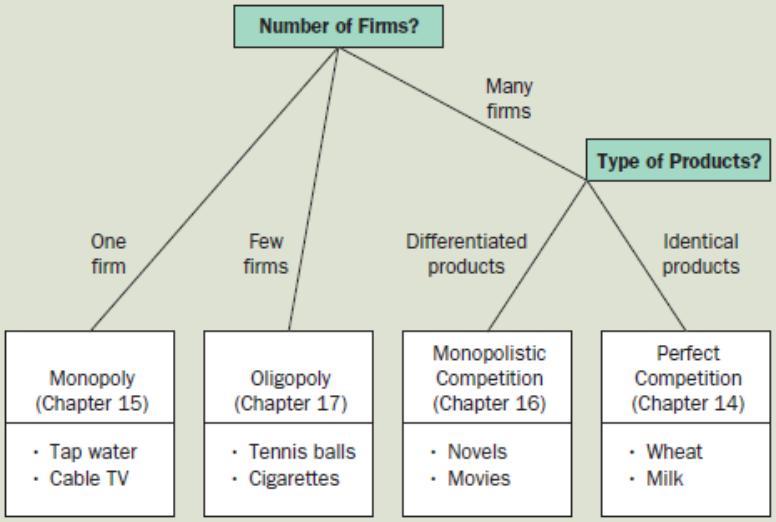
- Although the cases of perfect competition and monopoly illustrate some important ideas about how markets work, most markets in the economy include elements of both these cases and, therefore, are not completely described by either of them. The typical firm in the economy faces competition, but the competition is not so rigorous as to make the firm a price taker like the firms analyzed in Chapter 14.
- The typical firm also has some degree of market power, but its market power is not so great that the firm can be described exactly by the monopoly model presented in Chapter 15. In other words, many industries fall somewhere between the polar cases of perfect competition and monopoly. Economists call this situation *imperfect competition*.
- One type of imperfectly competitive market is an **oligopoly**, which is a market with only a few sellers, each offering a product that is similar or identical to the products offered by other sellers. Economists measure a market's domination by a small number of firms with a statistic called the *concentration ratio*, which is the percentage of total output in the market supplied by the four largest firms.
- In the U.S. economy, most industries have a four-firm concentration ratio under 50 percent, but in some industries, the biggest firms play a more dominant role.
- Highly concentrated industries include breakfast cereal (which has a concentration ratio of 83 percent), aircraft manufacturing (85 percent), electric lamp bulbs (89 percent), household laundry equipment (90 percent), and cigarettes (99 percent).
- These industries are best described as oligopolies.

- A second type of imperfectly competitive market is called **monopolistic competition**.
- This describes a market structure in which there are many firms selling products that are similar but not identical. In a monopolistically competitive market, each firm has a monopoly over the product it makes, but many other Firm make similar products that compete for the same customers.
- To be more precise, monopolistic competition describes a market with the following attributes:
  - *Many sellers:* There are many firms competing for the same group of customers.
  - *Product differentiation:* Each firm produces a product that is at least slightly different from those of other firms. Thus, rather than being a price taker, each firm faces a downward-sloping demand curve.
  - *Free entry and exit:* Firms can enter or exit the market without restriction.
- A moment's thought reveals a long list of markets with these attributes: books, music CDs, movies, computer games, restaurants, piano lessons, cookies, furniture, and so on.
- Monopolistic competition, like oligopoly, is a market structure that lies between the extreme cases of competition and monopoly. But oligopoly and monopolistic competition are quite different. Oligopoly departs from the perfectly competitive ideal of Chapter 14 because there are only a few sellers in the market.
- The small number of sellers makes rigorous competition less likely and strategic interactions among them vitally important. By contrast, under monopolistic competition, there are many sellers, each of which is small compared to the market. A monopolistically competitive market departs

from the perfectly competitive ideal because each of the sellers offers a somewhat different product.

- Figure 1 summarizes the four types of market structure. The first question to ask about any market is how many firms there are. If there is only one firm, the market is a monopoly. If there are only a few firms, the market is an oligopoly. If there are many firms, we need to ask another question: Do the firms sell identical or differentiated products?

FIGURE 1



The Four Types of Market Structure
Economists who study industrial organization divide markets into four types—monopoly, oligopoly, monopolistic competition, and perfect competition.

- If the many firms sell differentiated products, the market is monopolistically competitive. If the many firms sell identical products, the market is perfectly competitive.
- Because reality is never as clear-cut as theory, at times you may find it hard to decide what structure best describes a market. There is, for instance, no magic number that separates "few" from "many" when counting the number of firms.

COMPETITION WITH DIFFERENTIATED PRODUCTS

- To understand monopolistically competitive markets, we first consider the decisions facing an individual firm. We then examine what happens in the

long run as firms enter and exit the industry. Next, we compare the equilibrium under monopolistic competition to the equilibrium under perfect competition that we examined in Chapter 14. Finally, we consider whether the outcome in a monopolistically competitive market is desirable from the standpoint of society as a whole.

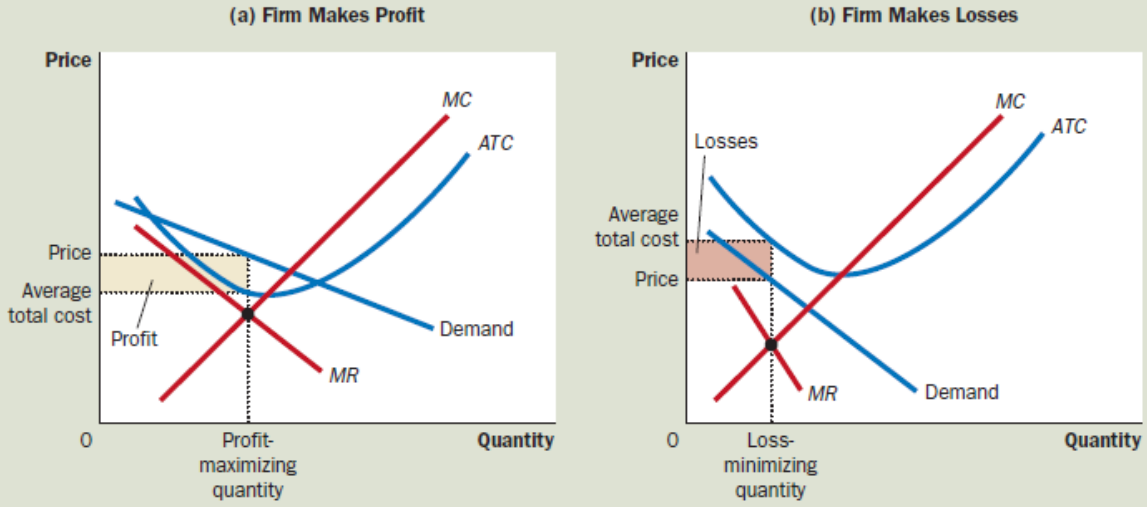
THE MONOPOLISTICALLY COMPETITIVE FIRM IN THE SHORT RUN

- Each firm in a monopolistically competitive market is, in many ways, like a monopoly.
- Because its product is different from those offered by other firms, it faces a downward-sloping demand curve. (By contrast, a perfectly competitive firm faces a horizontal demand curve at the market price.) Thus, the monopolistically competitive firm follows a monopolist's rule for profit maximization: It chooses to produce the quantity at which marginal revenue equals marginal cost and then uses its demand curve to find the price at which it can sell that quantity.
- Figure 2 shows the cost, demand, and marginal-revenue curves for two typical firms, each in a different monopolistically competitive industry. In both panels of this figure, the profit-maximizing quantity is found at the intersection of the marginal-revenue and marginal-cost curves. The two panels in this figure show different outcomes for the firm's profit. In panel (a), price exceeds average total cost, so the firm makes a profit. In panel (b), price is below average total cost. In this case, the firm is unable to make a positive profit, so the best the firm can do is to minimize its losses.

Monopolistic competitors, like monopolists, maximize profit by producing the quantity at which marginal revenue equals marginal cost. The firm in panel (a) makes a profit because, at this quantity, price is above average total cost. The firm in panel (b) makes losses because, at this quantity, price is less than average total cost.

FIGURE 2

Monopolistic Competitors in the Short Run



- All this should seem familiar. A monopolistically competitive firm chooses its quantity and price just as a monopoly does. In the short run, these two types of market structure are similar.

THE LONG-RUN EQUILIBRIUM

- The situations depicted in Figure 2 do not last long. When firms are making profits, as in panel (a), new firms have an incentive to enter the market. This entry increases the number of products from which customers can choose and, therefore, reduces the demand faced by each firm already in the market. In other words, profit encourages entry, and entry shifts the demand curves faced by the incumbent firms to the left. As the demand for incumbent firms' products falls, these firms experience declining profit.
- Conversely, when firms are making losses, as in panel (b), firms in the market have an incentive to exit. As firms exit, customers have fewer

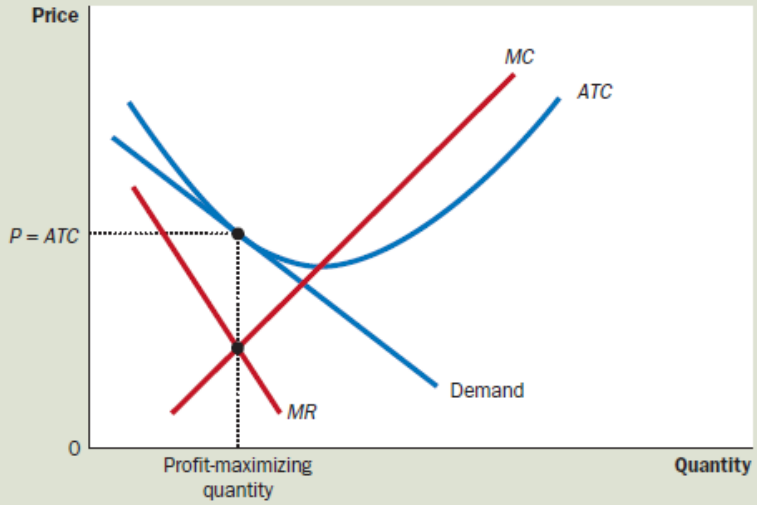
products from which to choose. This decrease in the number of firms expands the demand faced by those firms that stay in the market. In other words, losses encourage exit, and exit shifts the demand curves of the remaining firms to the right. As the demand for the remaining firms' products rises, these firms experience rising profit (that is, declining losses).

- This process of entry and exit continues until the firms in the market are making exactly zero economic profit. Figure 3 depicts the long-run equilibrium. Once the market reaches this equilibrium, new firms have no incentive to enter, and existing firms have no incentive to exit.

3 FIGURE

A Monopolistic Competitor in the Long Run

In a monopolistically competitive market, if firms are making profit, new firms enter, and the demand curves for the incumbent firms shift to the left. Similarly, if firms are making losses, old firms exit, and the demand curves of the remaining firms shift to the right. Because of these shifts in demand, a monopolistically competitive firm eventually finds itself in the long-run equilibrium shown here. In this long-run equilibrium, price equals average total cost, and the firm earns zero profit.



- Notice that the demand curve in this figure just barely touches the average total- cost curve. Mathematically, we say the two curves are *tangent* to each other.
- These two curves must be tangent once entry and exit have driven profit to zero. Because profit per unit sold is the difference between price (found on the demand curve) and average total cost, the maximum profit is zero only if

these two curves touch each other without crossing. Also note that this point of tangency occurs at the same quantity where marginal revenue equals marginal cost. That these two points lineup is not a coincidence: It is required because this particular quantity maximizes profit and the maximum profit is exactly zero in the long run.

- To sum up, two characteristics describe the long-run equilibrium in a monopolistically competitive market: As in a monopoly market, price exceeds marginal cost. This conclusion arises because profit maximization requires marginal revenue to equal marginal cost and because the downward-sloping demand curve makes marginal revenue less than the price.
- As in a competitive market, price equals average total cost. This conclusion arises because free entry and exit drive economic profit to zero. The second characteristic shows how monopolistic competition differs from monopoly. Because a monopoly is the sole seller of a product without close substitutes, it can earn positive economic profit, even in the long run. By contrast, because there is free entry into a monopolistically competitive market, the economic profit of a firm in this type of market is driven to zero.

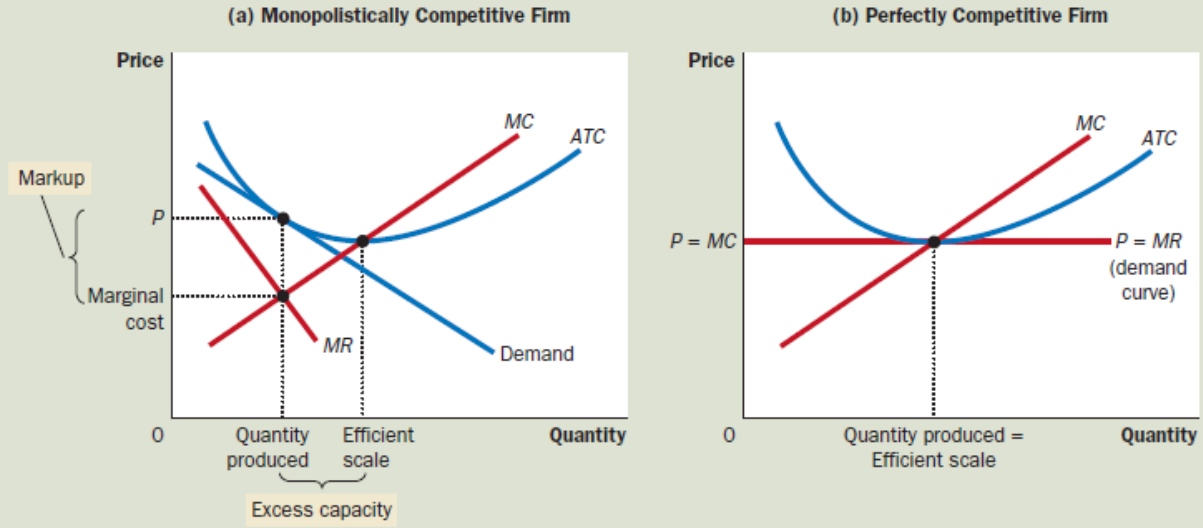
MONOPOLISTIC VERSUS PERFECT COMPETITION

- Figure 4 compares the long-run equilibrium under monopolistic competition to the long-run equilibrium under perfect competition. (Chapter 14 discussed the equilibrium with perfect competition.)

Panel (a) shows the long-run equilibrium in a monopolistically competitive market, and panel (b) shows the long-run equilibrium in a perfectly competitive market. Two differences are notable. (1) The perfectly competitive firm produces at the efficient scale, where average total cost is minimized. By contrast, the monopolistically competitive firm produces at less than the efficient scale. (2) Price equals marginal cost under perfect competition, but price is above marginal cost under monopolistic competition.

FIGURE 4

Monopolistic versus Perfect Competition



- There are two noteworthy differences between monopolistic and perfect competition: excess capacity and the markup.
- **Excess Capacity** As we have just seen, entry and exit drive each firm in a monopolistically competitive market to a point of tangency between its demand and average-total-cost curves. Panel (a) of Figure 4 shows that the quantity of output at this point is smaller than the quantity that minimizes average total cost.
- Thus, under monopolistic competition, firms produce on the downward-sloping portion of their average-total-cost curves. In this way, monopolistic competition contrasts starkly with perfect competition. As panel (b) of Figure 4 shows, free entry in competitive markets drives firms to produce at the minimum of average total cost.

- The quantity that minimizes average total cost is called the *efficient scale* of the firm. In the long run, perfectly competitive firms produce at the efficient scale, whereas monopolistically competitive firms produce below this level. Firms are said to have *excess capacity* under monopolistic competition. In other words, a monopolistically competitive firm, unlike a perfectly competitive firm, could increase the quantity it produces and lower the average total cost of production.
- The firm forgoes this opportunity because it would need to cut its price to sell the additional output. It is more profitable for a monopolistic competitor to continue operating with excess capacity.
- **Markup over Marginal Cost** A second difference between perfect competition and monopolistic competition is the relationship between price and marginal cost.
- For a competitive firm, such as that shown in panel (b) of Figure 4, price equals marginal cost. For a monopolistically competitive firm, such as that shown in panel (a), price exceeds marginal cost because the firm always has some market power.
- How is this markup over marginal cost consistent with free entry and zero profit? The zero-profit condition ensures only that price equals average total cost. It does *not* ensure that price equals marginal cost.
- Indeed, in the long-run equilibrium, monopolistically competitive firms operate on the declining portion of their average-total-cost curves, so marginal cost is below average total cost. Thus, for price to equal average total cost, price must be above marginal cost.
- In this relationship between price and marginal cost, we see a key behavioral difference between perfect competitors and monopolistic competitors.

Imagine that you were to ask a firm the following question: “Would you like to see another customer come through your door ready to buy from you at your current price?” A perfectly competitive firm would answer that it didn’t care. Because price exactly equals marginal cost, the profit from an extra unit sold is zero.

- By contrast, a monopolistically competitive firm is always eager to get another customer. Because its price exceeds marginal cost, an extra unit sold at the posted price means more profit.
- According to an old quip, monopolistically competitive markets are those in which sellers send Christmas cards to the buyers. Trying to attract more customers makes sense only if price exceeds marginal cost.

ADVERTISING

- It is nearly impossible to go through a typical day in a modern economy without being bombarded with advertising. Whether you are reading a newspaper, watching television, or driving down the highway, some firm will try to convince you to buy its product. Such behavior is a natural feature of monopolistic competition (as well as some oligopolistic industries). When firms sell differentiated products and charge prices above marginal cost, each firm has an incentive to advertise to attract more buyers to its particular product. The amount of advertising varies substantially across products. Firms that sell highly differentiated consumer goods, such as over-the-counter drugs, perfumes, soft drinks, razor blades, breakfast cereals, and dog food, typically spend between 10 and 20 percent of revenue for advertising.

Firms that sell industrial products, such as drill presses and communications satellites, typically spend very little on advertising. And firms that sell homogeneous products, such as wheat, peanuts, or crude oil, spend nothing at all.

- For the economy as a whole, about 2 percent of total firm revenue is spent on advertising. This spending takes many forms, including commercials on television and radio, space in newspapers and magazines, direct mail, the yellow pages, billboards, and the Internet.

THE DEBATE OVER ADVERTISING

- Is society wasting the resources it devotes to advertising? Or does advertising serve a valuable purpose? Assessing the social value of advertising is difficult and often generates heated argument among economists. Let's consider both sides of the debate.
- **The Critique of Advertising** Critics of advertising argue that firms advertise to manipulate people's tastes. Much advertising is psychological rather than informational.
- Consider, for example, the typical television commercial for some brand of soft drink. The commercial most likely does not tell the viewer about the product's price or quality. Instead, it might show a group of happy people at a party on a beach on a beautiful sunny day. In their hands are cans of the soft drink. The goal of the commercial is to convey a subconscious (if not subtle) message: "You too can have many friends and be happy, if only you drink our product." Critics of advertising argue that such a commercial creates a desire that otherwise might not exist.

- Critics also argue that advertising impedes competition. Advertising often tries to convince consumers that products are more different than they truly are. By increasing the perception of product differentiation and fostering brand loyalty, advertising makes buyers less concerned with price differences among similar goods. With a less elastic demand curve, each firm charges a larger markup over marginal cost.
- **The Defense of Advertising** Defenders of advertising argue that firms use advertising to provide information to customers. Advertising conveys the prices of the goods offered for sale, the existence of new products, and the locations of retail outlets. This information allows customers to make better choices about what to buy and, thus, enhances the ability of markets to allocate resources efficiently.
- Defenders also argue that advertising fosters competition. Because advertising allows customers to be more fully informed about all the firms in the market, customers can more easily take advantage of price differences. Thus, each firm has less market power. In addition, advertising allows new firms to enter more easily because it gives entrants a means to attract customers from existing firms.
- Over time, policymakers have come to accept the view that advertising can make markets more competitive. One important example is the regulation of Advertising for certain professions, such as lawyers, doctors, and pharmacists.
- In the past, these groups succeeded in getting state governments to prohibit advertising in their fields on the grounds that advertising was "unprofessional."

- In recent years, however, the courts have concluded that the primary effect of these restrictions on advertising was to curtail competition. They have, therefore, overturned many of the laws that prohibit advertising by members of these professions.

ADVERTISING AS A SIGNAL OF QUALITY

- Many types of advertising contain little apparent information about the product being advertised. Consider a firm introducing a new breakfast cereal.
- A typical advertisement might have some highly paid actor eating the cereal and exclaiming how wonderful it tastes. How much information does the advertisement really provide?
- The answer is more than you might think. Defenders of advertising argue that even advertising that appears to contain little hard information may in fact tell consumers something about product quality. The willingness of the firm to spend a large amount of money on advertising can itself be a *signal* to consumers about the quality of the product being offered. Consider the problem facing two firms—Post and Kellogg. Each company has just come up with a recipe for a new cereal, which it would sell for $3 a box.
- To keep things simple, let's assume that the marginal cost of making cereal is zero, so the $3 is all profit. Each company knows that if it spends $10 million on advertising, it will get 1 million consumers to try its new cereal. And each company knows that if consumers like the cereal, they will buy it not once but many times.
- First consider Post's decision. Based on market research, Post knows that its cereal is only mediocre. Although advertising would sell one box to each of

1 million consumers, the consumers would quickly learn that the cereal is not very good and stop buying it. Post decides it is not worth paying $10 million in advertising to get only $3 million in sales. So it does not bother to advertise. It sends its cooks back to the test kitchen to find another recipe.

- Kellogg, on the other hand, knows that its cereal is great. Each person who tries it will buy a box a month for the next year. Thus, the $10 million in advertising will bring in $36 million in sales. Advertising is profitable here because Kellogg has a good product that consumers will buy repeatedly. Thus, Kellogg chooses to advertise.
- Now that we have considered the behavior of the two firms, let's consider the behavior of consumers. We began by asserting that consumers are inclined to try a new cereal that they see advertised.
- But is this behavior rational?
- Should a consumer try a new cereal just because the seller has chosen to advertise it?
- In fact, it may be completely rational for consumers to try new products that they see advertised. In our story, consumers decide to try Kellogg's new cereal because Kellogg advertises. Kellogg chooses to advertise because it knows that its cereal is quite good, while Post chooses not to advertise because it knows that its cereal is mediocre. By its willingness to spend money on advertising, Kellogg signals to consumers the quality of its cereal. Each consumer thinks, quite sensibly, "Boy, if the Kellogg Company is willing to spend so much money advertising this new cereal, it must be really good."
- What is most surprising about this theory of advertising is that the content of the advertisement is irrelevant. Kellogg signals the quality of its product by

its willingness to spend money on advertising. What the advertisements say is not as important as the fact that consumers know ads are expensive. By contrast, cheap advertising cannot be effective at signaling quality to consumers.

- In our example, if an advertising campaign cost less than $3 million, both Post and Kellogg would use it to market their new cereals. Because both good and mediocre cereals would be advertised, consumers could not infer the quality of a new cereal from the fact that it is advertised. Over time, consumers would learn to ignore such cheap advertising.
- This theory can explain why firms pay famous actors large amounts of money to make advertisements that, on the surface, appear to convey no information at all. The information is not in the advertisement's content but simply in its existence and expense.

BRAND NAMES

- Advertising is closely related to the existence of brand names. In many markets, there are two types of firms. Some firms sell products with widely recognized brand names, while other firms sell generic substitutes. For example, in a typical drugstore, you can find Bayer aspirin on the shelf next to generic aspirin.
- In a typical grocery store, you can find Pepsi next to less familiar colas. Most often, the firm with the brand name spends more on advertising and charges a higher price for its product.

- Just as there is disagreement about the economics of advertising, there is disagreement about the economics of brand names. Let's consider both sides of the debate.
- Critics argue that brand names cause consumers to perceive differences that do not really exist. In many cases, the generic good is almost indistinguishable from the brand-name good. Consumers' willingness to pay more for the brand-name good, these critics assert, is a form of irrationality fostered by advertising.
- Economist Edward Chamberlin, one of the early developers of the theory of monopolistic competition, concluded from this argument that brand names were bad for the economy. He proposed that the government discourage their use by refusing to enforce the exclusive trademarks that companies use to identify their products.
- More recently, economists have defended brand names as a useful way for consumers to ensure that the goods they buy are of high quality. There are two related arguments.
- First, brand names provide consumers with *information* about quality when quality cannot be easily judged in advance of purchase.
- Second, brand names give firms an *incentive* to maintain high quality because firms have a financial stake in maintaining the reputation of their brand names.
- To see how these arguments work in practice, consider a famous brand name: McDonald's hamburgers. Imagine that you are driving through an unfamiliar town and want to stop for lunch. You see a McDonald's and a local restaurant next to it.

- Which do you choose? The local restaurant may in fact offer better food at lower prices, but you have no way of knowing that. By contrast, McDonald's offers a consistent product across many cities. Its brand name is useful to you as a way of judging the quality of what you are about to buy.
- The McDonald's brand name also ensures that the company has an incentive to maintain quality. For example, if some customers were to become ill from bad food sold at a McDonald's, the news would be disastrous for the company.
- McDonald's would lose much of the valuable reputation that it has built up with years of expensive advertising. As a result, it would lose sales and profit not just in the outlet that sold the bad food but in its many outlets throughout the country.
- By contrast, if some customers were to become ill from bad food at a local restaurant, that restaurant might have to close down, but the lost profits would be much smaller. Hence, McDonald's has a greater incentive to ensure that its food is safe.
- The debate over brand names thus centers on the question of whether consumers are rational in preferring brand names to generic substitutes. Critics argue that brand names are the result of an irrational consumer response to advertising.
- Defenders argue that consumers have good reason to pay more for brand-name products because they can be more confident in the quality of these products.