

## >> Monopolistic Competition and Product Differentiation

### FAST-FOOD DIFFERENTIATION

A recent best-selling book titled *Fast Food Nation* offered a fascinating if rather negative report on the burgers, pizza, tacos, and fried chicken that make up so much of the modern American diet. According to the book, all fast-food chains produce and deliver their food in pretty much the same way. In particular, a lot of the taste of your fast food—whatever kind of fast food it is—comes from food additives manufactured in New Jersey.

But each fast-food provider goes to great lengths to convince you that it has something special to offer. Everyone recognizes Ronald McDonald the clown, a symbol of McDonald's carefully cultivated image as the place kids love. Rival Wendy's took a bite out of McDonald's market share with a little old lady yelling "Where's the beef?," a campaign that emphasized Wendy's somewhat bigger burgers.

So how would you describe the fast-food industry? On the one hand it clearly isn't a monopoly. When you go to a fast-food court, you have a choice among vendors, and there is real competition between the different burger outlets and between the burgers and

the fried chicken. On the other hand, in a way each vendor *does* have a monopoly: at one point McDonald's had the slogan "Nobody does it like McDonald's." That was literally true—though McDonald's competitors would say that they did it *better*. In any case, the point is that each fast-food provider offers a product that is *differentiated* from its rivals' products.



Competing for your tastebuds.

In the fast-food industry, many firms compete to satisfy more or less the same demand—the desire of consumers for something tasty but quick. But each firm offers to satisfy that demand with a distinctive, differentiated product—products that consumers typically view as close but not perfect substitutes. When there are many firms offering competing, differentiated products, as there are in the fast-food industry, economists say that the industry

#### What you will learn in this chapter:

- ▶ The meaning of **monopolistic competition**
- ▶ Why oligopolists and monopolistically competitive firms differentiate their products
- ▶ How prices and profits are determined in monopolistic competition in the short run and the long run
- ▶ Why monopolistic competition poses a trade-off between lower prices and greater product diversity
- ▶ The economic significance of advertising and brand names

is characterized by *monopolistic competition*. This is the fourth and final market structure that we will discuss, after perfect competition, monopoly, and oligopoly.

We'll start by defining *monopolistic competition* more carefully and explain its characteristic features. Then we'll explore *how*

firms differentiate their products; this will put us in a position to analyze how monopolistic competition works. The chapter concludes with a discussion of some ongoing controversies about product differentiation—in particular, the question of why advertising is effective.

## The Meaning of Monopolistic Competition

Joe manages the Wonderful Wok stand in the food court of a big shopping mall. He offers the only Chinese food there, but there are more than a dozen other alternatives, from Bodacious Burgers to Pizza Paradise. When deciding what to charge for a meal, Joe knows that he must take those alternatives into account: even people who normally prefer stir-fry won't order a \$15 lunch from Joe when they can get a burger, fries, and drink for \$4.

But Joe also knows that he won't lose all his business even if his lunches cost a bit more than the alternatives. Chinese food isn't the same thing as burgers or pizza. Some people will really be in the mood for Chinese that day, and they will buy from Joe even if they could have dined more cheaply on burgers. Of course, the reverse is also true: even if Chinese is a bit cheaper, some people will choose burgers instead. In other words, Joe does have some market power: he has *some* ability to set his own price.

So how would you describe Joe's situation? He definitely isn't a price-taker, so he isn't in a situation of perfect competition. But you wouldn't exactly call him a monopolist, either. Although he's the only seller of Chinese food in that food court, he does face competition from other food vendors.

Yet it would also be wrong to call him an oligopolist. Oligopoly, remember, involves competition between a small number of firms in an industry protected by some—albeit limited—barriers to entry whose profits are highly interdependent. This interdependence provides an incentive for oligopolists to try to find a way to collude, if only tacitly. But in Joe's case there are *lots* of vendors in the shopping mall, too many to make tacit collusion feasible.

Economists describe Joe's situation as one of **monopolistic competition**. Monopolistic competition is particularly common in service industries like restaurants and gas stations, but it also exists in some manufacturing industries. It involves three conditions: large numbers of competing producers, differentiated products, and free entry into and exit from the industry in the long run. In a monopolistically competitive industry, each producer has some ability to set the price of her differentiated good. But exactly how high she can set it is limited by the competition she faces from other existing and potential producers that produce close, but not identical, products.

### Large Numbers

In a monopolistically competitive industry there are many producers. So such an industry does not look either like a monopoly, where the firm faces no competition, or an oligopoly, where each firm has only a few rivals. Instead, each seller has many competitors. There are many vendors in a big food court, many gas stations along a major highway, and many hotels in a popular beach resort.

### Differentiated Products

In a monopolistically competitive industry, each producer has a product that consumers view as somewhat distinct from the products of competing firms but at the same time are considered close substitutes. If Joe's food court contained 15 vendors

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**Monopolistic competition** is a market structure in which there are many competing producers in an industry, each producer sells a differentiated product, and there is free entry into and exit from the industry in the long run.

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selling exactly the same kind and quality of food, there would be perfect competition: any seller who tried to charge a higher price would have no customers. But suppose that Wonderful Wok is the only Chinese food vendor, Bodacious Burgers is the only hamburger stand, and so on. The result of this differentiation is that each seller has some ability to set his own price: each producer has some—albeit limited—market power.

## Free Entry and Exit in the Long Run

In monopolistically competitive industries, new producers, with their own distinct products, can enter the industry. For example, other food vendors would open outlets in the shopping mall if they thought it would be profitable to do so. In addition, firms will exit the industry if they find they are not covering their costs in the long run.

Monopolistic competition, then, differs from the three market structures we have examined so far. It's not the same as perfect competition: firms have some power to set prices. It's not pure monopoly: firms face some competition. And it's not the same as oligopoly: because there are many firms and free entry, the tacit collusion so important in oligopoly is no longer possible.

We'll see in a moment how prices, output, and the number of products available are determined in monopolistically competitive industries. But first, let's look a little more closely at what it means to have differentiated products.

## Product Differentiation

We pointed out in Chapter 15 that product differentiation often plays an important role in oligopolistic industries. In such industries, product differentiation reduces the intensity of competition between firms when tacit collusion cannot be achieved. Product differentiation plays an even more crucial role in monopolistically competitive industries. Because tacit collusion is virtually impossible when there are many producers, product differentiation is the only way monopolistically competitive firms can acquire some market power.

How do firms in the same industry—such as fast-food vendors, gas stations, or chocolate companies—differentiate their products? Sometimes the difference is mainly in the minds of consumers rather than in the products themselves. We'll discuss the role of advertising and the importance of brand names in achieving this kind of product differentiation later in the chapter. But in general firms differentiate their products by—surprise!—actually making them different.

The key to product differentiation is that consumers have different preferences and that each producer can carve out a market niche by producing something that caters to the particular preferences of some group of consumers better than the products of other firms. There are three important forms of product differentiation: differentiation by style or type, differentiation by location, and differentiation by quality.

## Differentiation by Style or Type

The sellers in Joe's food court offer different types of fast food: hamburgers, pizza, Chinese food, Mexican food, and so on. Each consumer arrives at the food court with some preference for one or another of these offerings. This preference may depend on the consumer's mood, her diet, or what she has already eaten that day. These preferences will not make consumers indifferent to price: If Wonderful Wok were to charge \$15 for an egg roll, everybody would go to Bodacious Burgers or Pizza Paradise instead. But as we've seen, some people will choose a more expensive meal if that type of food is closer to their preference. So the products of the different vendors are substitutes, but they aren't *perfect* substitutes—they are *imperfect substitutes*.

## FOR INQUIRING MINDS

## BUCKS FOR STARBUCKS

The coffee shop industry has always been monopolistically competitive, with each local shop selling a somewhat differentiated product. Until the middle of the 1980s, however, products were mainly differentiated by location: customers chose a coffee shop because it was near their workplace or on the way to work. There was also a bit of differentiation by quality—some places made better coffee than others—but that was it. After all, coffee was coffee.

That is, coffee was coffee until it started becoming cappuccino, latte, frappuccino, and other more or less Italian-style beverages. Call it the Starbucks revolution: the Seattle-based chain led the transformation of America's caffeine intake, growing from 15 stores in Seattle in 1987 to more than 7,500 around the world by 2004.

Is this a true expansion of the choices available to consumers? Are the coffee varieties now available really different? Yes, they are. The authors are old enough to remember what typical coffee shop coffee tasted like in the dark ages: things really have improved. Is the



AP/Wide World Photos

Mocha lattes served here—the Starbucks revolution comes to Beijing.

improvement worth the price of a Starbucks latte? Well, people are willing to pay those prices, and the customer is always right.

Vendors in a food court aren't the only sellers who differentiate their offerings by type. Clothing stores concentrate on women's or men's clothes, on business attire or sportswear, on trendy or classic styles, and so on. Auto manufacturers offer sedans, minivans, sport-utility vehicles, and sports cars, each type aimed at drivers with different needs and tastes.

Books offer yet another example of differentiation by type and style. Mysteries are differentiated from romances; among mysteries, we can differentiate among hard-boiled detective stories, whodunits, and police procedurals. And no two writers of hard-boiled detective stories are exactly alike: Raymond Chandler and Sue Grafton each have their devoted fans.

In fact, product differentiation is characteristic of most consumer goods. As long as people differ in their tastes, producers find it possible and profitable to produce a range of varieties.

## Differentiation by Location

Gas stations along a road offer differentiated products. True, the gas may be exactly the same. But the location of the stations is different, and location matters to consumers: it's more convenient to stop for gas near your home, near your workplace, or near wherever you are when the gas gauge gets low.

In fact, many monopolistically competitive industries supply goods differentiated by location. This is especially true in service industries, from dry cleaners to hairdressers, where customers often choose the seller who is closest rather than cheapest.

## Differentiation by Quality

Do you have a craving for chocolate? How much are you willing to spend on it? You see, there's chocolate and then there's chocolate: although ordinary chocolate may not be very expensive, gourmet chocolate can cost dollars for every bite.

With chocolate, as with many goods, there is a range of possible qualities. You can get a usable bicycle for less than \$100; you can get a much fancier bicycle for 10 times as much. It all depends on how much the additional quality matters to you and how much you will miss the other things you could have purchased with that money.

Because consumers vary in what they are willing to pay for higher quality, producers can differentiate their products by quality—some offering lower-quality, inexpensive products and others offering higher-quality products at a higher price.

Product differentiation, then, can take several forms. Whatever form it takes, however, there are two important features of industries with differentiated products: *competition among sellers* and *value in diversity*.

Competition among sellers means that even though sellers of differentiated products are not offering identical goods, they are to some extent competing for a limited market. If more businesses enter the market, each will find that it sells less quantity at any given price. For example, if a new gas station opens along a road, each of the existing gas stations will sell a bit less.

Value in diversity refers to the gain to consumers from the proliferation of differentiated products. A food court with eight vendors makes consumers happier than one with only six vendors, even if the prices are the same, because some customers will get a meal that is closer to what they had in mind. A road on which there is a gas station every two miles is more convenient for motorists than a road where gas stations are five miles apart. When a product is available in many different qualities, fewer people are forced to pay for more quality than they need or to settle for lower quality than they want. There are, in other words, benefits to consumers from a greater diversity of available products.

As we'll see next, competition among the sellers of differentiated products is the key to understanding how monopolistic competition works.

## *economics in action*

### Any Color, So Long as It's Black

The early history of the auto industry offers a classic illustration of the power of product differentiation.

The modern automobile industry was created by Henry Ford, who first introduced assembly-line production. This technique made it possible for him to offer the famous Model T at a far lower price than anyone else was charging for a car; by 1920, Ford dominated the automobile business.

Ford's strategy was to offer just one style of car, which maximized his economies of scale but made no concessions to differences in taste. He supposedly declared that customers could get the Model T in "any color, so long as it's black."

This strategy was challenged by Alfred P. Sloan, who had merged a number of smaller automobile companies into General Motors. Sloan's strategy was to offer a range of car types, differentiated by quality and price. Chevrolets were basic cars that directly challenged the Model T, Buicks were bigger and more expensive, and so on up to Cadillacs. And you could get each model in several different colors.

By the 1930s the verdict was clear: customers preferred a range of styles, and General Motors, not Ford, became the dominant auto manufacturer for the rest of the twentieth century. ■

### >> QUICK REVIEW

- In *monopolistic competition* there are many competing producers, each with a differentiated product and free entry and exit in the long run.
- Product differentiation can occur in oligopolies that fail to achieve tacit collusion as well as in monopolistic competition. It takes three main forms: by style or type, location, or quality. The product of competing sellers are considered imperfect substitutes
- Producers compete for the same market, so entry by more producers reduces the quantity each existing producer sells at any given price. In addition, consumers gain from the increased diversity of products.



**>>CHECK YOUR UNDERSTANDING 16-1**

1. Each of the following goods and services are differentiated products. Which are differentiated as the result of monopolistic competition and which are not? Explain.
  - a. Ladders
  - b. Soft drinks
  - c. Department stores
  - d. Steel
2. You must determine which of two types of market structure exists in an industry, but you are allowed to ask only one question about the industry. What question should you ask to determine if a firm is:
  - a. Perfectly competitive or monopolistically competitive?
  - b. Monopoly or monopolistically competitive?

Solutions appear at back of book.

## Understanding Monopolistic Competition

Suppose an industry is monopolistically competitive: it consists of many producers, all competing for the same consumers but offering differentiated products. How does such an industry behave?

As the term *monopolistic competition* suggests, this market structure combines some features typical of monopoly with others typical of perfect competition. Because each firm is offering a distinct product, it is in a way like a monopolist: it faces a downward-sloping demand curve and has some market power—the ability within limits to determine the price of its product. However, unlike a pure monopolist, a monopolistically competitive firm does face competition: the amount of its product it can sell depends on the prices and products offered by other firms in the industry.

The same, of course, is true of an oligopoly. In a monopolistically competitive industry, however, there are *many* producers, as opposed to the small number that defines an oligopoly. This means that the “puzzle” of oligopoly—will firms collude or will they behave noncooperatively?—does not arise in the case of monopolistically competitive industries. True, if all the gas stations or all the restaurants in a town could agree—explicitly or tacitly—to raise prices, it would be in their mutual interest to do so. But such collusion is virtually impossible when the number of firms is large. So in situations of monopolistic competition, we can safely assume that firms behave noncooperatively and ignore the issue of collusion.

### Monopolistic Competition in the Short Run

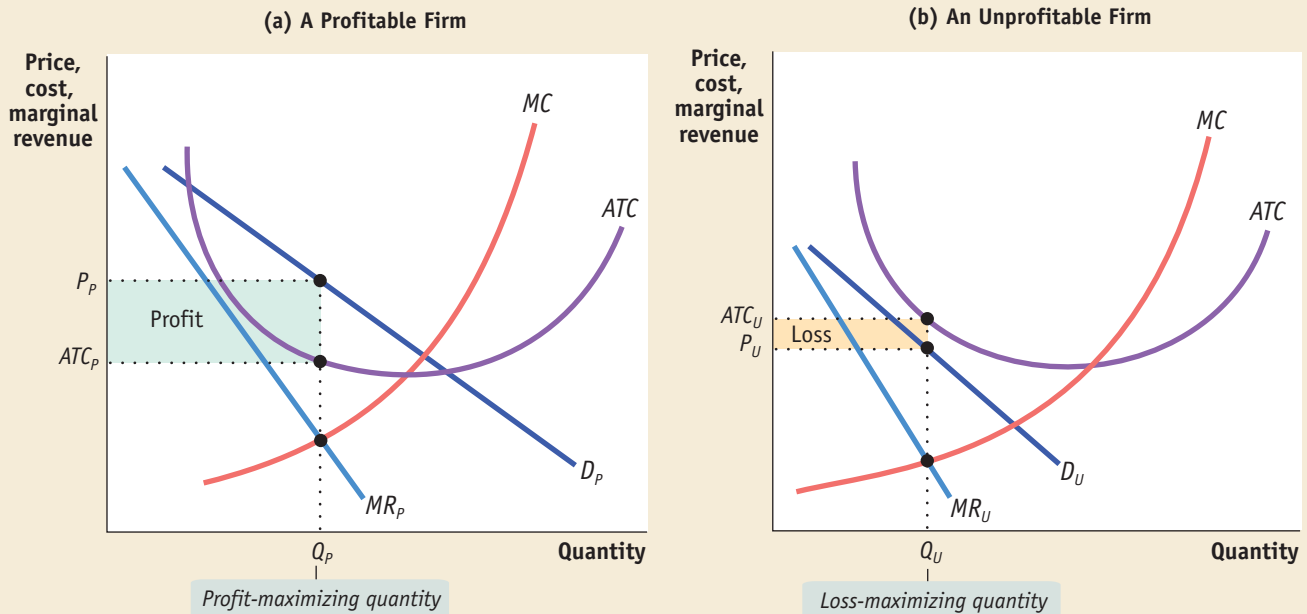
We introduced the distinction between short-run and long-run equilibrium back in Chapter 9. The short-run equilibrium of an industry takes the number of firms as given. The long-run equilibrium, by contrast, is reached only after firms have had a chance to enter or exit the industry, a choice that depends on profitability.

To analyze monopolistic competition, we focus first on the short run and then on how the industry moves from the short run to the long run.

Panels (a) and (b) of Figure 16-1 on page 394 show two possible situations that a typical firm in a monopolistically competitive industry might face in the short run. In each case the firm looks like any monopolist: it faces a downward-sloping demand curve, which implies a downward-sloping marginal revenue curve.

We assume that every firm has an upward-sloping marginal cost curve but that it also faces some fixed costs, so that its average total cost curve is U-shaped. This assumption doesn't matter in the short run, but, as we'll see shortly, it is crucial to understanding long-run equilibrium.

In each case the firm, in order to maximize profits, should set marginal revenue equal to marginal cost. So how do these two figures differ? In panel (a) the firm is profitable; in panel (b) it is unprofitable.

**Figure 16-1** The Monopolistically Competitive Firm in the Short Run

The firm in panel (a) can be profitable for some output levels: the levels at which its average total cost curve,  $ATC$ , lies below its demand curve,  $D_p$ . The profit-maximizing output level is  $Q_p$ , the output at which marginal revenue,  $MR_p$ , is equal to marginal cost,  $MC$ . The firm charges price  $P_p$  and earns a profit, represented by the area of the shaded rectangle. The firm in

panel (b), however, can never be profitable because its average total cost curve lies above its demand curve,  $D_u$ , for every output level. The best that it can do is to produce output  $Q_u$  and charge price  $P_u$ . This generates a loss, indicated by the area of the shaded rectangle. Any other output level results in a greater loss.

In panel (a) the firm faces the demand curve  $D_p$  and the marginal revenue curve  $MR_p$ . It produces the profit-maximizing output  $Q_p$ , the output level at which marginal revenue is equal to marginal cost, and sells it at the price  $P_p$ . This price is above the average total cost, at this output,  $ATC_M$ . The firm's profit is indicated by the area of the shaded rectangle.

In panel (b) the firm faces the demand curve  $D_u$  and the marginal revenue curve  $MR_u$ . It also chooses the output level  $Q_u$  at which marginal revenue is equal to marginal cost. However, in this case the price  $P_u$  is below the average total cost  $ATC_u$ , so at this output the firm loses money. Its loss is equal to the area of the shaded rectangle.

Since  $Q_u$  is the profit-maximizing level of output—which means, in this case, the loss-minimizing level of output—there is no way for a firm in this situation to make a profit. We can confirm this by noting that at any level of output, the average total cost curve in panel (b) lies above the demand curve  $D_u$ . Because  $ATC > P$  at all levels of output, the firm suffers a loss.

As this comparison suggests, the key to whether a firm with market power is profitable or unprofitable in the short run lies in the relationship between the demand curve and the average total cost curve. In panel (a) the demand curve  $D_p$  crosses the average total cost curve, meaning that some of the demand curve lies above the average total cost curve. So there are some price-quantity combinations available at which price is higher than average total cost, indicating that the firm can choose a level of output at which it makes positive profits.

In panel (b), by contrast, the demand curve  $D_u$  does not cross the average total cost curve—it always lies below it. So the price corresponding to each quantity

demand is always less than the average total cost of producing that quantity. There is no level of output at which the firm can avoid losing money.

These figures, showing firms facing downward-sloping demand curves and their associated marginal revenue curves, look just like ordinary monopoly analysis. The “competition” aspect of monopolistic competition comes into play, however, when we move from the short to the long run.

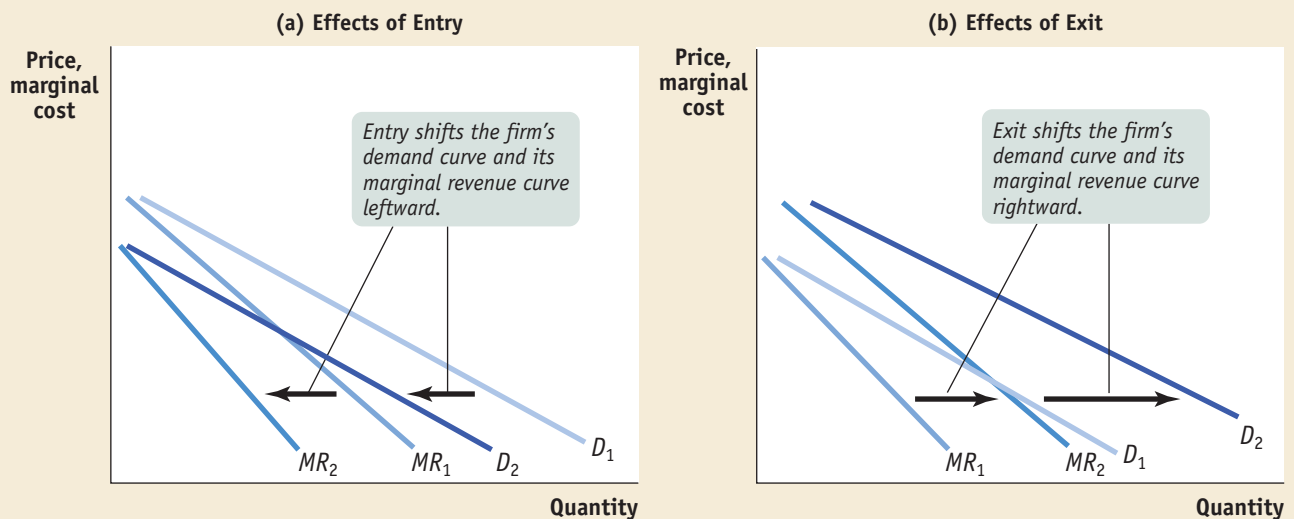
## Monopolistic Competition in the Long Run

Obviously, an industry in which every firm is losing money, like the one in panel (b) of Figure 16-1, is not in long-run equilibrium. When every firm is losing money, some firms will *exit* the industry. The industry will not be in long-run equilibrium until the persistent losses have been eliminated by the exit of some existing firms.

It may be less obvious that an industry in which every firm is earning profits, like the one in panel (a) of Figure 16-1, is also not in long-run equilibrium. Given there is *free entry* into the industry, persistent profits by the firms already existing will lead to the entry of additional producers. The industry will not be in long-run equilibrium until the persistent profits have been eliminated by the entry of a new producer.

How will entry or exit by other firms affect the profits of a typical firm? Because the differentiated products offered by firms in a monopolistically competitive industry compete for the same set of customers, entry or exit by other firms will affect the demand curve facing every producer. If new gas stations open along a highway, each of the existing gas stations will sell less gas at any given price. So, as illustrated in part (a) of Figure 16-2, entry of additional producers into a monopolistically competitive industry will lead to a *leftward* shift in the demand curve and the marginal revenue curve facing a typical producer.

**Figure 16-2** Entry and Exit into the Industry Shift the Demand Curve of Each Firm



Entry will occur in the long run when existing firms are profitable. In panel (a), entry causes each firm's demand curve and marginal revenue curve to shift to the left. The firm receives a lower price for every unit it sells, and its profit falls. Entry will cease when remaining firms make zero profit.

Exit will occur in the long run when existing firms are unprofitable. In panel (b), exit out of the industry shifts each remaining firm's demand curve and marginal revenue curve to the right. The firm receives a higher price for every unit it sells, and profit rises. Exit will cease when the remaining firms make zero profit.

In the long run, a monopolistically competitive industry ends up in **zero-profit equilibrium**: each firm makes zero profit at its profit-maximizing output level.

Conversely, suppose that some of the gas stations along the highway close. Then each of the remaining stations will sell more gasoline at any given price. So as illustrated in part (b), exit of firms from an industry leads to a *rightward* shift in the demand curve and marginal revenue curve facing a typical remaining producer.

The industry will be in long-run equilibrium when there is neither entry nor exit. This will occur only when every firm earns zero profit. So in the long run, a monopolistically competitive industry will end up in **zero-profit equilibrium**, in which firms just manage to cover their costs at their profit-maximizing output levels.

We have seen that a firm facing a downward-sloping demand curve will earn positive profits if any part of that demand curve lies above its average total cost curve; it will have negative profits if the demand curve lies everywhere below the average total cost curve. So in zero-profit equilibrium, the firm must be in a borderline position between these two cases; the demand curve must just touch the average total cost curve. That is, it must be just *tangent* to it at the firm's profit-maximizing output level—the output level at which marginal revenue equals marginal cost.

If this is not the case, the firm operating at its profit-maximizing output level will find itself making either a profit or loss, as illustrated in the panels of Figure 16-1. But we also know that free entry and exit means that this cannot be a long-run equilibrium. Why? In the case of a profit, new firms will enter the industry, shifting the demand curve of every existing firm leftward until all profits are extinguished. In the case of a loss, some existing firms exit and so shift the demand curve of every remaining firm to the right until all losses are extinguished. All entry and exit ceases only when every firm makes zero profit at its profit-maximizing output level.

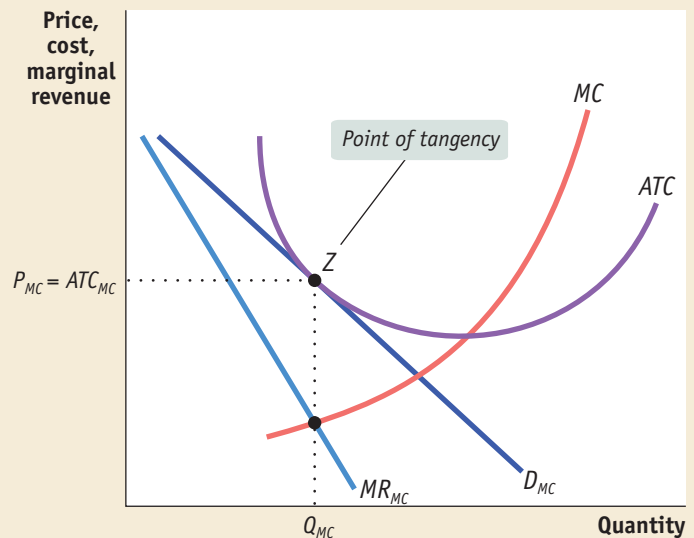
Figure 16-3 shows a typical monopolistically competitive firm in such a zero-profit equilibrium. The demand curve faced by the firm  $D_{MC}$  is just tangent to its average total cost curve at the profit-maximizing output level, point Z. If the firm sets output at  $Q_{MC}$ , the output at which  $MR = MC$ , and charges the price  $P_{PC}$ , which is equal to  $ATC$  at that quantity ( $ATC_{MC}$ ), it earns zero profit.

The normal long-run condition of a monopolistically competitive industry, then, is that each producer is in the situation shown in Figure 16-3. Each producer acts like a monopolist, setting marginal cost equal to marginal revenue so as to maximize profits. But this is just enough to achieve zero economic profit. The producers in the industry are monopolists without monopoly profits.

**Figure 16-3**

### The Long-Run Zero-Profit Equilibrium

If existing firms are profitable, entry will occur and shift each firm's demand curve leftward. If existing firms are unprofitable, each firm's demand curve shifts rightward as some firms exit the industry. Entry and exit will cease when every existing firm makes zero profit at its profit-maximizing output level. So, in long-run zero-profit equilibrium, the demand curve of each firm is tangent to its average total cost curve at its profit-maximizing output level: at the profit-maximizing output level,  $Q_{MC}$ , price,  $P_{MC}$ , equals average total cost,  $ATC_{MC}$ . A monopolistically competitive firm is like a monopolist without monopoly profits.



## FOR INQUIRING MINDS

## HITS AND FLOPS

On the face of it, the movie business seems to meet the criteria for monopolistic competition. Movies compete for the same consumers; each movie is different from the others; new companies can and do enter the business. But where's the zero-profit equilibrium? After all, some movies are enormously profitable.

The key is to realize that for every successful blockbuster, there are several flops—and that the movie studios don't know in advance which will be which. (One observer of Hollywood summed up his conclusions as follows: "Nobody knows anything.") And by the time it becomes clear that a movie will be a flop, it's too late to cancel it.

The difference between movie-making and the type of monopolistic competition we model in this chapter is that the fixed costs of

making a movie are also *sunk costs*—once they've been incurred, they can't be recovered.

Yet there is still, in a way, a zero-profit equilibrium. If movies on average were highly profitable, more studios would enter the business and more movies would be made. If movies on average lost money, few movies would be made. In fact, as you might expect, the movie business on average earns just about enough to cover the cost of production—that is, it earns roughly zero economic profits.

This kind of situation—in which firms earn zero profits on average but have a mixture of highly profitable hits and money-losing flops—can be found in other industries, characterized by high, up-front sunk costs. A notable example is the pharmaceutical industry, where many research projects lead nowhere, but some lead to highly profitable drugs.

## economics in action

### Bagels from Boom to Bust

Bagels have always been big in New York, but in the mid-1990s they suddenly became popular across the entire country. Nobody was quite sure why. One factor may have been health consciousness (bagels are low in fat and cholesterol—until you smother them in cream cheese); another may have been the popularity of New York-based TV shows, like *Seinfeld*. In any case, bagel consumption surged. Those who already owned bagel shops suddenly found their businesses highly profitable.

The fresh-bagel sector fits the definition of monopolistic competition quite well: there are many shops, all competing with each other, but the shops are differentiated by location as well as by style (some shops offer traditional bagels; others offer new items like bagels with blueberries and jalapenos). Each has some market power—it will not lose all its business if it charges slightly higher prices than other shops. And the industry is also characterized by free entry; sure enough, once bagel shops became highly profitable, many new competitors entered the business. This, in turn, reduced the profitability of every bagel shop. By the end of the 1990s bagels were no longer a highly profitable business; indeed, quite a few companies dropped out of the business or went bankrupt.

Meanwhile, a similar story seems to be emerging among specialty coffee shops: Starbucks is the most visible company but by no means the only one. When Americans developed a taste for espresso-based drinks like lattes, the business became highly profitable, and many firms entered the industry. In 1991 there were only 500 high-end coffee shops in the United States, but today there are more than 10,000. Demand for specialty coffee is still going up, but thanks to the rapid growth in the number of coffee shops, experts no longer think that the business offers easy opportunities for high profits. ■

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### >> QUICK REVIEW

- ▶ Like a monopolist, each firm in a monopolistically competitive industry, faces a downward-sloping demand curve and marginal revenue curve. In the short run, it may earn a profit or incur a loss at its profit-maximizing output.
- ▶ If the typical firm earns positive profits, new firms will enter the industry in the long run, shifting each existing firm's demand curve to the left. If the typical firm incurs losses, some existing firms will exit the industry in the long run, shifting the demand curve of each remaining firm to the right.
- ▶ In the long run, equilibrium of a monopolistically competitive industry, the *zero-profit-equilibrium*, firms just break even. The typical firm's demand curve is just tangent to its average total cost curve at its profit-maximizing output.

**>>CHECK YOUR UNDERSTANDING 16-2**

- Currently a monopolistically competitive industry, composed of firms with U-shaped total average cost curves, is in long-run equilibrium. Describe how the industry adjusts, in both the short and long run, in each of the following situations.
  - A technology change that increases fixed cost for every firm in the industry
  - A technology change that decreases marginal cost for every firm in the industry
- Why, in the long run, is it impossible for firms in a monopolistically competitive industry to create a monopoly by joining together to form a single firm?

Solutions appear at back of book.

## Monopolistic Competition versus Perfect Competition

In a way, long-run equilibrium in a monopolistically competitive industry looks a lot like long-run equilibrium in a perfectly competitive industry. In both cases, there are many firms; in both cases, profits have been competed away; in both cases, the price received by every firm is equal to the average total cost of production.

However, the two versions of long-run equilibrium are different—in ways that are economically significant.

### Price, Marginal Cost, and Average Total Cost

Figure 16-4 compares the long-run equilibrium of a typical firm in a perfectly competitive industry with that of a typical firm in a monopolistically competitive industry. Panel (a) shows a perfectly competitive firm facing a market price just equal to its minimum average total cost; panel (b) reproduces Figure 16-3.

Comparing the panels, we see two important differences.

First, in the case of the perfectly competitive firm shown in panel (a), the price,  $P_C$ , received by the firm at the profit-maximizing level of output,  $Q_C$ , is equal to the firm's marginal cost of production,  $MC_C$ , at that level of output. By contrast, at the output level chosen by the monopolistically competitive firm in panel (b),  $Q_{MC}$ , the price,  $P_{MC}$ , is *higher* than the marginal cost of production  $MC_{MC}$ .

This difference translates into a difference in the attitude of firms toward consumers. A wheat farmer, who can sell as much wheat as he likes at the going market price, would not get particularly excited if you offered to buy some wheat at the market price. Since he has no desire to produce more at that price and can sell the wheat to someone else, you are not doing him a favor.

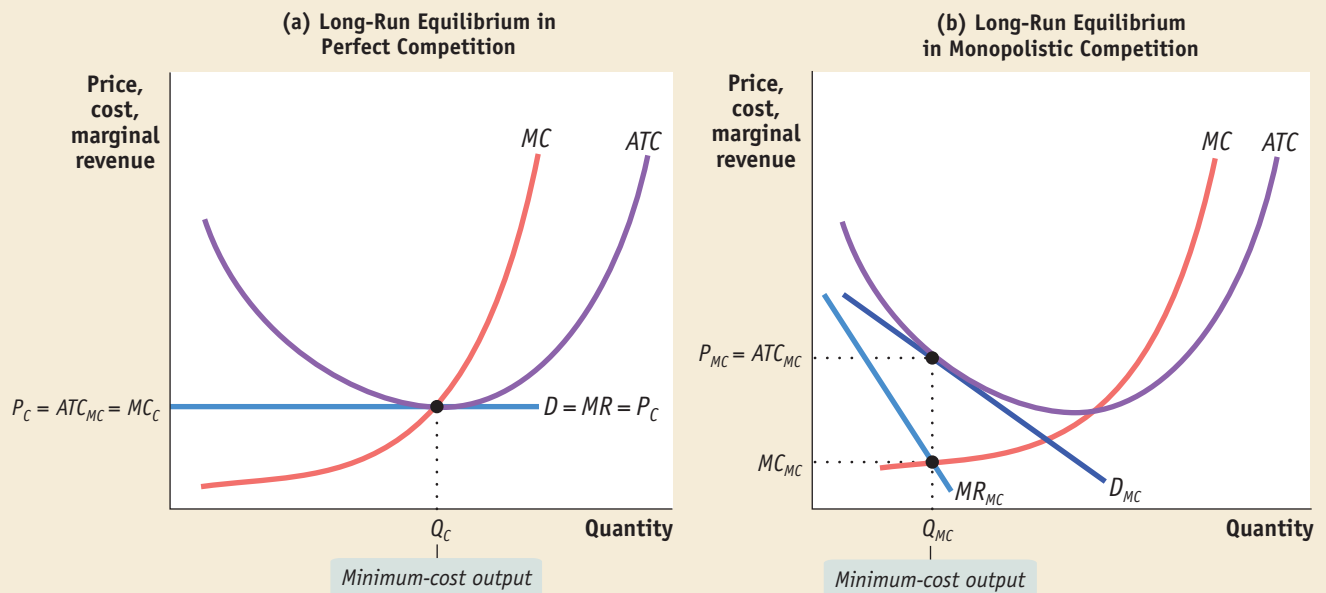
But if you decide to fill up your tank at Jamil's gas station rather than at Katy's, you are doing Jamil a favor. He is not willing to cut his price to get more customers—he's already made the best of that trade-off. But if he gets a few more customers than he expected at the *posted* price, that's good news: an additional sale at the posted price increases his revenue more than it increases his costs because the posted price exceeds marginal cost.

The fact that monopolistic competitors, unlike perfect competitors, want to sell more at the going price is crucial to understanding why they engage in activities like advertising that help increase sales.

The other difference between monopolistic competition and perfect competition that is visible in Figure 16-4 involves the position of every firm on its average total cost curve. In panel (a), the perfectly competitive firm produces at point  $Q_C$ , at the bottom of the U-shaped average total cost curve. That is, each firm produces at the level of output at which average total cost is minimized—the *minimum-cost output*. As a consequence, the total cost of industry output is also minimized.

Under monopolistic competition, in panel (b), the firm produces at  $Q_{MC}$ , on the *downward-sloping* part of the U-shaped ATC curve: it produces less than the quantity

**Figure 16-4** Comparing Long-Run Equilibrium in Perfect Competition and Monopolistic Competition



Panel (a) shows the situation of the typical firm in long-run equilibrium in a perfectly competitive industry. The firm operates at the minimum-cost output  $Q_c$ , sells at the competitive market price  $P_c$ , and makes zero profit. It is indifferent to selling another unit of output because  $P_c$  is equal to its marginal cost,  $MC_c$ . Panel (b) shows the situation of the typical firm in long-run equilibrium in a

monopolistically competitive industry. At  $Q_{MC}$  it makes zero profit because its price,  $P_{MC}$ , just equals average total cost. At  $Q_{MC}$  the firm would like to sell another unit at price  $P_{MC}$ , since  $P_{MC}$  exceeds marginal cost,  $MC_{MC}$ . But it is unwilling to lower price to make more sales. It therefore operates to the left of the minimum-cost output and has excess capacity.

that would minimize average total cost. This failure to produce enough to minimize average total cost is sometimes described as the **excess capacity** issue. The typical vendor in a food court or gas station along a road is not big enough to take maximum advantage of available cost savings. So, the total cost of industry output is not minimized in the case of a monopolistically competitive market.

Some people have argued that, because every monopolistic competitor has excess capacity, monopolistically competitive industries are inefficient. But the issue of efficiency under monopolistic competition turns out to be a subtle one that does not have a clear answer.

## Is Monopolistic Competition Inefficient?

A monopolistic competitor, like a monopolist, charges a price that is above marginal cost. As a result, there are some people willing to pay more for an egg roll at Wonderful Wok than it costs to produce but who are deterred from doing so. In monopolistic competition, some mutually beneficial transactions go unexploited.

Furthermore, it is often argued that monopolistic competition is subject to a further kind of inefficiency: that the excess capacity of every monopolistic competitor implies *wasteful duplication*, that monopolistically competitive industries offer too many varieties. According to this argument, it would be better if there were only two or three vendors in the food court, not six or seven. If there were fewer vendors, they would each have lower average total costs and so could offer food more cheaply.

Firms in a monopolistically competitive industry have **excess capacity**: they produce less than the output at which average total cost is minimized.

**>> QUICK REVIEW**

- ▶ In the long-run equilibrium of a monopolistically competitive industry, there are many firms, all earning zero profit.
- ▶ Price exceeds marginal cost so some mutually beneficial *trades are exploited*.
- ▶ Monopolistically competitive firms have excess capacity because they do not minimize average total cost. But it is not clear that this is actually a source of inefficiency since consumers gain from product diversity.

Is this argument against monopolistic competition right—that it lowers total surplus by causing inefficiency? Not necessarily. It's true that if there were fewer gas stations along a highway, each gas station would sell more gasoline and so would have lower costs per gallon. But there is a drawback: motorists would be inconvenienced because gas stations were farther apart. The point is that the diversity of products offered in a monopolistically competitive industry is itself beneficial to consumers. So the higher price consumers pay because of excess capacity is offset to some extent by the value they receive from greater diversity.

There is, in other words, a trade-off: more producers means higher average total costs but also greater product diversity. Does a monopolistically competitive industry arrive at the socially optimal point on this trade-off? Probably not—but it is hard to say whether there are too many firms or too few! Most economists now believe that duplication of effort and excess capacity in monopolistically competitive industries are not important issues in practice.

**>> CHECK YOUR UNDERSTANDING 16-3**

1. True or false? Explain your answer.
  - a. Like a firm in a perfectly competitive industry, a firm in a monopolistically competitive industry is willing to sell a good at any price that equals or exceeds marginal cost.
  - b. Suppose there is a monopolistically competitive industry in long-run equilibrium that possesses economies of scale in the long run. All the firms in the industry would be better off if they merged into a single firm, but whether consumers are made better off by this is ambiguous.
  - c. Fads and fashions are more likely to arise in monopolistic competition or oligopoly than in monopoly or perfect competition.

Solutions appear at back of book.

## Controversies about Product Differentiation

Up to this point, we have assumed that products are differentiated in a way that corresponds to some real desire of consumers. There is real convenience in having a gas station in your neighborhood; Chinese food and Mexican food are really different from each other.

In the real world, however, some instances of product differentiation can seem puzzling if you think about them. What is the real difference between long-distance phone service of ATT versus MCI? Between Energizer versus Duracell batteries? Or a Marriot versus a Ramada hotel room? Most people would be hard-pressed to answer any of these questions. Yet the producers of these goods make considerable efforts to convince consumers that their products are different from and better than those of their competitors.

No discussion of product differentiation is complete without spending at least a bit of time on the two related issues—and puzzles—of *advertising* and *brand names*.

### The Role of Advertising

Wheat farmers don't advertise their wares on TV; car dealers do. That's not because farmers are shy and car dealers are outgoing; it's because advertising is worthwhile only in industries in which firms have at least some market power. The purpose of advertisements is to get people to buy more of a seller's product at the going price. A perfectly competitive firm, which can sell as much as it likes at the going market price, would have no incentive to spend money convincing consumers to buy more. Only a firm that has some market power, and which therefore charges a price that is above marginal cost, can gain from advertising. (Industries that are more or less perfectly competitive, like the milk industry, do advertise—but these ads are sponsored

by an association on behalf of the industry as a whole, not on behalf of the milk that comes from the cows on a particular farm.)

Given that advertising “works,” it’s not hard to see why firms with market power would spend money on it. But the big question about advertising is *why* it works; a related question is whether advertising is, from society’s point of view, a waste of resources.

Not all advertising poses a puzzle. Much of it is straightforward: it’s a way for sellers to inform potential buyers about what they have to offer (or, occasionally, for buyers to inform potential sellers about what they want). Nor is there much controversy about the economic usefulness of ads that provide information: the real estate ad that declares “sunny, charming, 2 br, 1 ba, a/c” tells you things you need to know (even if a few euphemisms are involved—“charming,” of course, means “small”).

But what information is being conveyed when a TV actress proclaims the virtues of one or another long-distance service or a sports hero declares that some company’s batteries are better than those inside that pink mechanical rabbit? Surely nobody believes that the sports star is an expert on batteries—or that he chose the company that he personally believes makes the best batteries, as opposed to the company that offered to pay him the most. Yet companies believe, with good reason, that money spent on such promotion increases their sales—and that they would be in big trouble if they stopped advertising but their competitors continued to do so.

Why are consumers influenced by ads that do not really provide any information about the product? One answer is that consumers are not as rational as economists typically assume. Perhaps consumers’ judgments, or even their tastes, can be influenced by things that ought to be irrelevant, such as which company has hired the most charismatic celebrity to endorse its product. And there is surely some truth to this. Consumer rationality is a useful working assumption; it is not an absolute truth.

However, another answer is that consumer response to advertising is not entirely irrational, because ads can serve as indirect “signals” in a world where consumers don’t have good information about products. Suppose, to take a common example, that you need to avail yourself of some local service that you don’t use regularly—body work on your car, say, or furniture moving. You turn to the Yellow Pages, where you see a number of small listings and several large display ads. You know that those display ads are large because the firms paid extra for them; still, it may be quite rational to call one of the firms with a big display ad. After all, the big ad probably means that it’s a relatively large, successful company—otherwise, the company wouldn’t have found it worth spending the money for the larger ad.

The same principle may partly explain why ads feature celebrities. You don’t really believe that the supermodel prefers that watch; but the fact that the watch manufacturer is willing and able to pay her fee tells you that they are a major company that is likely to stand behind its product. According to this reasoning, an expensive advertisement serves to establish the quantity of a firm’s products in the eyes of the consumers.

The possibility that it is rational for consumers to respond to advertising also has some bearing on the question of whether advertising is a waste of resources. If ads only work by manipulating the weak-minded, the \$128 billion U.S. businesses spent on advertising in 2003 would have been an economic waste—except to the extent that ads sometimes provide entertainment. To the extent that advertising conveys important information, however, it is an economically productive activity after all.



## Brand Names

You've been driving all day, and you decide that it's time to find a place to sleep. On your right, you see a sign for the Bates Motel; on your left, you see a sign for a Motel 6, or a Best Western, or some other national chain. Which one do you choose?

Unless they were familiar with the area, most people would probably head for the chain. In fact, most motels in the United States are parts of major chains; the same is true of most fast-food restaurants and many, if not most, stores in shopping malls.

Motel chains and fast-food restaurants are only one aspect of a broader phenomenon: the role of **brand names**, names owned by particular companies that differentiate their products in the minds of consumers. In many cases, a company's brand name is the most important asset it has: clearly, McDonald's is worth far more than the sum of the deep-fat fryers and hamburger grills the company owns.

In fact, companies often go to considerable lengths to defend their brand names, suing anyone else who uses them without permission. You may talk about blowing your nose on a Kleenex or xeroxing a term paper, but unless the product in question comes from Kleenex or Xerox, the seller must describe it as a facial tissue or a photocopier.

As with advertising, with which they are closely linked, the social usefulness of brand names is a source of dispute. Does the preference of consumers for known brands reflect consumer irrationality? Or do brand names convey real information? That is, do brand names create unnecessary market power, or do they serve a real purpose?

As in the case of advertising, the answer is probably some of both. On one side, brand names often do create unjustified market power. Consumers often pay more for brand-name goods in the supermarket even though consumer experts assure us that the cheaper store brands are equally good. Similarly, many common medicines, like aspirin, are cheaper—with no loss of quality—in their generic form.

On the other hand, for many products the brand name does convey information. A traveler arriving in a strange town can be sure of what awaits in a Holiday Inn or a McDonald's; a risk-averse traveler may find this preferable to trying an independent hotel or restaurant that might be better—but might be worse.

In addition, brand names offer some assurance that the seller is engaged in repeated interaction with its customers and so has a reputation to protect. If a traveler eats a bad meal at a restaurant in a tourist trap and vows never to eat there again, the restaurant owner may not care, since the chance is small that the traveler will be in the same area again in the future. But if that traveler eats a bad meal at McDonald's and vows never to eat at a McDonald's again, that matters to the company. This gives McDonald's an incentive to provide consistent quality and so gives travelers some assurance that quality controls will be in place.

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A **brand name** is a name owned by a particular firm that distinguishes its products from those of other firms.

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## *economics in action*

### Absolut Irrationality

Advertising often serves a useful function. Among other things, it can make consumers aware of a wider range of alternatives, which leads to increased competition and lower prices. Indeed, in some cases the courts have viewed industry agreements *not* to advertise as violations of antitrust law. For example, in 1995 the California Dental Association was convicted of conspiracy to prevent competition by discouraging its members from advertising. It had, according to the judge, “withheld from the public information about prices, quality, superiority of service, guarantees, and the use of procedures to allay patient anxiety.”

Conversely, advertising sometimes creates product differentiation and market power where there is no real difference in the product.

Consider, in particular, the spectacularly successful advertising campaign of Absolut vodka.

In *Twenty Ads That Shook the World*, James B. Twitchell puts it this way: “The pull of Absolut’s magnetic advertising is curious because the product itself is so bland. Vodka is aquavit, and aquavit is the most unsophisticated of alcohols. . . . No taste, no smell. . . . In fact, the Swedes, who make the stuff, rarely drink Absolut. They prefer cheaper brands such as Explorer, Renat Brannwinn, or Skane. That’s because Absolut can’t advertise in Sweden, where alcohol advertising is against the law.”

But here’s a metaphysical question: if Absolut doesn’t really taste any different from other brands, but advertising convinces consumers that they are getting a distinctive product, who are we to say that they aren’t? Isn’t distinctiveness in the mind of the beholder? ■

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### >> CHECK YOUR UNDERSTANDING 16-4

- In which of the following cases is advertisement likely to be socially useful? socially wasteful? Explain.
  - Advertisements on the benefits of aspirin
  - Advertisements for Bayer aspirin
  - Advertisements on the benefits of drinking orange juice
  - Advertisements for Tropicana orange juice
  - Advertisements that state how long a plumber, say, or an electrician has been in business
- Some industry analysts have stated that a successful brand name is like a barrier to entry by a rival firm. Explain.

Solutions appear at back of book.

### • A LOOK AHEAD •

Over the last three chapters we have taken the basic analysis of a perfectly competitive economy and extended it in one important direction: to include other kinds of market *structures*. Next we turn to a different kind of extension: to different kinds of *markets*. We begin by asking how economic analysis changes when a national economy can exchange goods and services with other national economies. Next stop: international trade.

## SUMMARY

- Monopolistic competition** is a market structure in which there are many competing producers, each producing a differentiated product and there is free entry and exit in the long-run. Product differentiation takes three main forms: by style or type, by location, or by quality. Products of competing sellers are considered imperfect substitutes, and each firm has its own downward-sloping demand curve and marginal revenue curve.
- Short-run nonprofits will attract entry of new firms. This reduces the quantity each existing producer sells at any given price by shifting its demand curve to the left. Short-run losses will induce exit by some firms. This shifts the demand curve of each remaining firm to the right.
- In the long run, a monopolistically competitive industry is in a **zero-profit equilibrium**: at its profit-maximizing output level, the demand curve for each existing firm is tangent to its average total cost curve. There are zero profits in the industry and no entry or exit.
- Firms in a monopolistically competitive industry sell at a price greater than marginal cost. They also have **excess capacity** because they produce less than the **minimum-cost output**; as a result, they have higher costs than a firm in a competitive industry. Whether monopolistic competition is inefficient because consumers value the diversity of products that it creates.
- A monopolistically competitive firm will always prefer to make an additional sale at the going price, so it will engage in advertising to increase demand for its product and enhance its market power. Advertising and **brand names** that provide useful information to consumers is socially valuable. But they are socially wasteful when their only purpose is to create market power. In reality, advertising and brand names are likely to be some of both: socially valuable and socially wasteful.

### >> QUICK REVIEW

- In industries with product differentiation, firms advertise in order to increase the demand for their products.
- Advertising is not a waste of resources when it gives consumers useful information about products.
- Advertising that simply touts a product is harder to explain. Either consumers are irrational, or expensive advertising communicates that the firm’s products are of high quality.
- Some firms create *brand names*. As with advertising, the social value of brand names can be ambiguous. They names convey real information when they assure consumers of the quality of a product.

## KEY TERMS

Monopolistic competition, p. 000  
Zero-profit equilibrium, p. 000

Excess capacity, p. 000

Brand name, p. 000

## PROBLEMS

- Use the three conditions for monopolistic competition discussed in the chapter to decide which of the following firms are likely to be operating as monopolistic competitors. If they are not monopolistically competitive firms, are they monopolists, oligopolists, or perfectly competitive firms?
  - A local band that plays for weddings, parties, and so on
  - Budweiser, a brand of beer
  - Your local dry cleaner
  - A farmer who produces soybeans
- You are thinking of setting up a coffee shop. The market structure for coffee shops is monopolistic competition. There are three Starbucks shops, and two other coffee shops very much like Starbucks, in your town already. In order for you to have some degree of market power, you may want to differentiate your coffee shop. Thinking about the three different ways in which products can be differentiated, explain how you would decide whether you should copy Starbucks or whether you should sell coffee in a completely different way.
- The restaurant business in town is a monopolistically competitive industry in long-run equilibrium. One restaurant owner asks for your advice. She tells you that, each night, not all tables in her restaurant are full. She also tells you that if she lowered the prices on her menu, she would attract more customers and that doing so would lower her average total cost. Should she lower her prices? Draw a diagram showing the demand curve, marginal revenue curve, marginal cost curve, and average total cost curve for this restaurant to explain your advice. Show in your diagram what would happen to the restaurant owner's profit if she were to lower the price so that she sells the minimum-cost output.
- The structure of the automotive fuel retail market is monopolistic competition. Suppose that currently each gas station incurs a loss. Draw a diagram for a typical gas station to show this short-run situation. Then, in a separate diagram, show what will happen to the typical gas station in the long run. Explain your reasoning.
- The market for hairdressers in your town has the structure of monopolistic competition: there is a large number of hairdressers who differentiate themselves by location and style, and there is free entry and exit. Your hairdresser boasts that he is making a profit and that if he continues to do so, he will be able to retire in five years. Use a diagram to illustrate your hairdresser's current situation. Do you expect this to last? In a separate diagram, draw what you expect to happen in the long run. Explain your reasoning.
- Magnificent Blooms is a florist in a monopolistically competitive industry. It is a successful operation, producing the quantity that minimizes its average total cost and making a profit. The owner also boasts that at its current level of output, its marginal cost is above marginal revenue. Illustrate the current situation of Magnificent Blooms in a diagram. Answer the following questions by illustrating with a diagram.
  - In the short run, could Magnificent Blooms increase its profit?
  - In the long run, could Magnificent Blooms increase its profit?
- "In the long run, there is no difference between monopolistic competition and perfect competition." True or false? Discuss this statement with respect to the following:
  - The price charged to consumers
  - The average total cost of production
  - The efficiency of the market outcome
  - The typical firm's profit in the long run
- "Both in the short run and in the long run, the typical firm in monopolistic competition and a monopolist each make profits." Do you agree with this statement? Explain your reasoning.
- The market for clothes has the structure of monopolistic competition. If there were fewer firms in this industry, what impact would this have on you as a consumer? Address the following issues:
  - Variety of clothes
  - Quality of service
  - Price
- For each of the following situations, decide whether advertising is directly informative about the product or simply an indirect signal of its quality. Explain your reasoning.
  - Golf champion Tiger Woods drives a Buick in a TV commercial and claims that he prefers it to any other car.
  - A newspaper ad states "For sale: 1989 Honda Civic, 160,000 miles, new transmission."
  - McDonald's spends millions of dollars on an advertising campaign that proclaims: "We love to see you smile."
  - Subway advertises one of its sandwiches claiming that it contains 6 grams of fat and fewer than 300 calories.

11. In each of the following cases, explain how the advertisement functions as a signal to a potential consumer. Explain what information the buyer lacks that is being supplied by the advertisement and how the information supplied by the advertisement is likely to affect the buyer's willingness to buy the good.
- a. "Looking for work. Excellent references from previous employers available."
  - b. "Electronic equipment for sale. All merchandise carries a one-year, no-questions-asked warranty."
  - c. "Car for sale by original owner. All repair and maintenance records available."
12. McDonald's spends millions of dollars each year on legal protection of its brand name, thereby preventing any unauthorized use of it. Explain what information this conveys to you as a consumer about the quality of McDonald's products.

• **>web...** To continue your study and review of concepts in this chapter, please visit the Krugman/Wells website for quizzes, animated graph tutorials, web links to helpful resources, and more.

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