

Is Google Missing Monopoly Power?

Data Show Google Abuses Search Role, Group Contends

<http://www.sfgate.com>

June 3, 2010

Consumer Watchdog continues to push its case that Google Inc.'s behavior necessitates antitrust scrutiny, releasing a report Wednesday that alleges that the company is abusing its dominance in online search to direct users to its own services.

The study, which will be sent to U.S. and European antitrust regulators, cites online traffic data that the Santa Monica group claims shows the Mountain View Internet giant seized large portions of market share in areas like online maps, video and comparison shopping after its search engine began highlighting links to its products in results.

Google called the report's methodology and premise flawed and said its practices are designed to benefit users.

"Our goal is to give users the info they're seeking as quickly as possible," a spokesman said in a statement. "Sometimes that means showing a map, a streaming audio link, or an answer to a question at the top of the page if we think that's what users want. We strive to deliver what we think is the most relevant result from a variety of content types, and if we're not giving users the information they want then other sources of information are always one click away."

Google doubled its market share in online video to nearly 80 percent since 2007, the year in which the company began returning high or prominent links to videos from its YouTube subsidiary in search results, according to the report by Consumer Watchdog's Inside Google project.

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ESSENCE OF THE STORY

- Consumer Watchdog says that Google should be scrutinized by U.S. and European antitrust regulators because it is abusing its dominant position in online search by directing users to its own services.
- The claim is that Google has grown a large market share in online maps, video, and comparison shopping because its search engine highlights links to these products in search results.
- Google says its goal is to give users the information they are seeking, in the format required, as quickly as possible.
- Google's market share in online video has doubled to nearly 80 percent since 2007 when it began returning links to YouTube videos.

ECONOMIC ANALYSIS

- Google began selling advertisements associated with search keywords in 2000.
- Google sells keywords based on a combination of willingness-to-pay and the number of clicks an advertisement receives, with bids starting at 5 cents per click.
- Google has steadily improved its search engine and refined and simplified its interface with both searchers and advertisers to make searches more powerful and advertising more effective.
- Figure 1 shows Google's extraordinary success in terms of its revenue, cost, and profit.
- Google could have provided a basic search engine with none of the features of today's Google.
- If Google had followed this strategy, people seeking information would have used other search engines and advertisers would have been willing to pay low prices for Google ads.
- Google would have faced the market described in Fig. 2 and earned a small economic profit.
- Instead, Google improved its search and the effectiveness of advertising. The demand for Google ads increased.
- By selling keywords to the highest bidder, Google is able to achieve perfect price discrimination.

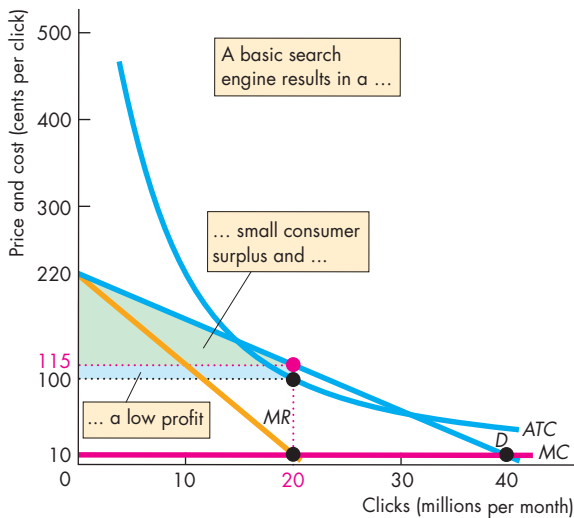


Figure 2 Basic search engine

- Figure 3 shows the consequences of Google's successful strategy. With perfect price discrimination, Google's producer surplus is maximized. Google produces the efficient quantity of search and advertising by accepting ads as long as price exceeds marginal cost.
- Google does not appear to be acting against the social interest: There is no antitrust case to answer.

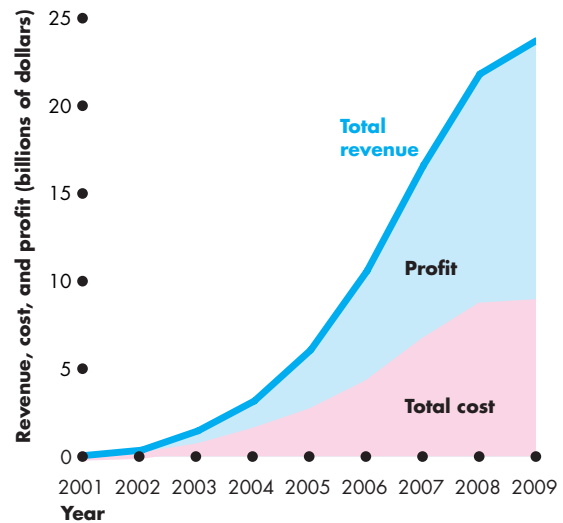


Figure 1 Google's revenue, cost, and profit

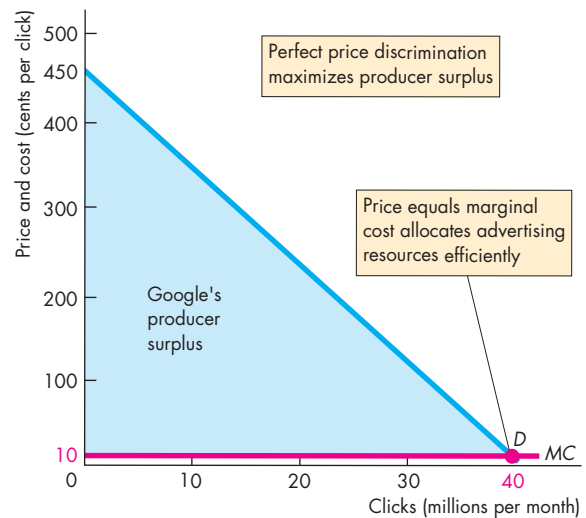


Figure 3 Google with AdWords and other features



SUMMARY

Key Points

Monopoly and How It Arises (pp. 300–301)

- A monopoly is a market with a single supplier of a good or service that has no close substitutes and in which barriers to entry prevent competition.
- Barriers to entry may be legal (public franchise, license, patent, copyright), firm owns control of a resource, or natural (created by economies of scale).
- A monopoly might be able to price discriminate when there is no resale possibility.
- Where resale is possible, a firm charges one price.

Working Problems 1 to 4 will give you a better understanding of monopoly and how it arises.

A Single-Price Monopoly's Output and Price Decision

(pp. 302–305)

- A monopoly's demand curve is the market demand curve and a single-price monopoly's marginal revenue is less than price.
- A monopoly maximizes profit by producing the output at which marginal revenue equals marginal cost and by charging the maximum price that consumers are willing to pay for that output.

Working Problems 5 to 9 will give you a better understanding of a single-price monopoly's output and price.

Single-Price Monopoly and Competition Compared

(pp. 306–309)

- A single-price monopoly charges a higher price and produces a smaller quantity than a perfectly competitive market.
- A single-price monopoly restricts output and creates a deadweight loss.

- The total loss that arises from monopoly equals the deadweight loss plus the cost of the resources devoted to rent seeking.

Working Problems 10 to 12 will give you a better understanding of the comparison of single-price monopoly and perfect competition.

Price Discrimination (pp. 309–312)

- Price discrimination converts consumer surplus into economic profit.
- Perfect price discrimination extracts the entire consumer surplus; each unit is sold for the maximum price that each consumer is willing to pay; the quantity produced is the efficient quantity.
- Rent seeking with perfect price discrimination might eliminate the entire consumer surplus and producer surplus.

Working Problems 13 to 16 will give you a better understanding of price discrimination.

Monopoly Regulation (pp. 313–315)

- Monopoly regulation might serve the social interest or the interest of the monopoly (the monopoly captures the regulator).
- Price equal to marginal cost achieves efficiency but results in economic loss.
- Price equal to average cost enables the firm to cover its cost but is inefficient.
- Rate of return regulation creates incentives for inefficient production and inflated cost.
- Price cap regulation with earnings sharing regulation can achieve a more efficient outcome than rate of return regulation.

Working Problems 17 to 19 will give you a better understanding of monopoly regulation.

Key Terms

Average cost pricing rule, 314
 Barrier to entry, 300
 Capture theory, 313
 Deregulation, 313
 Economic rent, 308
 Legal monopoly, 300

Marginal cost pricing rule, 313
 Monopoly, 300
 Natural monopoly, 300
 Perfect price discrimination, 311
 Price cap regulation, 315
 Price discrimination, 301

Rate of return regulation, 314
 Regulation, 313
 Rent seeking, 308
 Single-price monopoly, 301
 Social interest theory, 313



STUDY PLAN PROBLEMS AND APPLICATIONS

You can work problems 1 to 19 in MyEconLab Chapter 13 Study Plan and get instant feedback.

Monopoly and How It Arises (Study Plan 13.1)

Use the following information to work Problems 1 to 3.

The United States Postal Service has a monopoly on non-urgent First Class Mail and the exclusive right to put mail in private mailboxes. Pfizer Inc. makes LIPITOR, a prescription drug that lowers cholesterol. Cox Communications is the sole provider of cable television service in some parts of San Diego.

1. a. What are the substitutes, if any, for the goods and services described above?
b. What are the barriers to entry, if any, that protect these three firms from competition?
2. Which of these three firms, if any, is a natural monopoly? Explain your answer and draw a graph to illustrate it.
3. a. Which of these three firms, if any, is a legal monopoly? Explain your answer.
b. Which of these three firms are most likely to be able to profit from price discrimination and which are most likely to sell their good or service for a single price?
4. **Barbie's Revenge: Brawl over Doll Is Heading to Trial**

Four years ago, Mattel Inc. exhorted its executives to help save Barbie from a new doll clique called the Bratz. With its market share dropping at a “chilling rate,” Barbie needed to be more “aggressive, revolutionary, and ruthless.” Mattel has gone to court and is trying to seize ownership of the Bratz line, which Mattel accuses of stealing the idea for the pouty-lipped dolls with the big heads.

Source: *The Wall Street Journal*, May 23, 2008

- a. Before Bratz entered the market, what type of monopoly did Mattel Inc. possess in the market for “the pouty-lipped dolls with the big heads”?
- b. What is the barrier to entry that Mattel might argue should protect it from competition in the market for Barbie dolls?
- c. Explain how the entry of Bratz dolls might be expected to change the demand for Barbie dolls.

A Single-Price Monopoly's Output and Price Decision

(Study Plan 13.2)

Use the following table to work Problems 5 to 8.

Minnie's Mineral Springs, a single-price monopoly, faces the market demand schedule:

Price (dollars per bottle)	Quantity demanded (bottles per hour)
10	0
8	1
6	2
4	3
2	4
0	5

5. a. Calculate Minnie's total revenue schedule.
b. Calculate its marginal revenue schedule.
6. a. Draw a graph of the market demand curve and Minnie's marginal revenue curve.
b. Why is Minnie's marginal revenue less than the price?
7. a. At what price is Minnie's total revenue maximized?
b. Over what range of prices is the demand for water from Minnie's Mineral Springs elastic?
8. Why will Minnie not produce a quantity at which the market demand for water is inelastic?
9. Minnie's Mineral Springs faces the market demand schedule in Problem 5 and has the following total cost schedule:

Quantity produced (bottles per hour)	Total cost (dollars)
0	1
1	3
2	7
3	13
4	21
5	31

- a. Calculate Minnie's profit-maximizing output and price.
- b. Calculate the economic profit.

Single-Price Monopoly and Competition Compared

(Study Plan 13.3)

Use the following news clip to work Problems 10 to 12.

Zoloft Faces Patent Expiration

Pfizer's antidepressant Zoloft, with \$3.3 billion in 2005 sales, loses patent protection on June 30. When a brand name drug loses its patent, both the price of the drug and the dollar value of its sales each tend to drop 80 percent over the next year, as competition opens to a host of generic drugmakers. The real winners are the patients and the insurers, who pay much lower prices. The Food and Drug Administration insists that generics work identically to brand-names.

Source: CNN, June 15, 2006

10. a. Assume that Pfizer has a monopoly in the antidepressant market and that Pfizer cannot price discriminate. Use a graph to illustrate the market price and quantity of Zoloft sold.
 - b. On your graph, identify consumer surplus, producer surplus, and deadweight loss.
11. How might you justify protecting Pfizer from competition with a legal barrier to entry?
12. a. Explain how the market for an antidepressant drug changes when a patent expires.
 - b. Draw a graph to illustrate how the expiration of the Zoloft patent will change the price and quantity in the market for antidepressants.
 - c. Explain how consumer surplus, producer surplus, and deadweight loss change with the expiration of the Zoloft patent.

Price Discrimination (Study Plan 13.4)

Use the following news clip to work Problems 13 and 14.

The Saturday-Night Stay Requirement Is on Its Final Approach

The Saturday-night stay—the requirement that airlines instituted to ensure that business travelers pay an outrageous airfare if he or she wants to go home for the weekend—has gone the way of the dodo bird. Experts agree that low-fare carriers, such as Southwest, are the primary reason major airlines are adopting more consumer-friendly fare structures, which include the elimination of the Saturday-night stay, the introduction of one-way and walk-up fares, and the general restructuring of fares.

Source: *Los Angeles Times*, August 15, 2004

13. Explain why the opportunity for price discrimination exists for air travel. How does an airline profit from price discrimination?

14. Describe the change in price discrimination in the market for air travel when discount airlines entered the market and explain the effect of discount airlines on the price and the quantity of air travel.

Use the following information to work Problems 15 and 16.

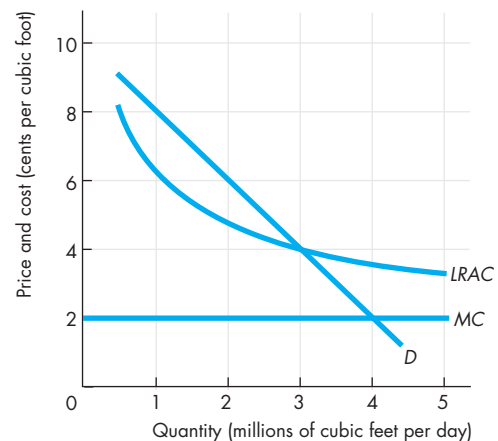
La Bella Pizza can produce a pizza for a marginal cost of \$2. Its standard price is \$15 a pizza. It offers a second pizza for \$5. It also distributes coupons that give a \$5 rebate on a standard-priced pizza.

15. How can La Bella Pizza make a larger economic profit with this range of prices than it could if it sold every pizza for \$15? Use a graph to illustrate your answer.
16. How might La Bella Pizza make even more economic profit? Would La Bella Pizza then be more efficient than it would be if it charged \$15 for each pizza?

Monopoly Regulation (Study Plan 13.5)

Use the following information to work Problems 17 to 19.

The figure shows a situation similar to that of Calypso U.S. Pipeline, a firm that operates a natural gas distribution system in the United States. Calypso is a natural monopoly that cannot price discriminate.



What quantity will Calypso produce, what price will it charge, what is the total surplus, and what is the deadweight loss if Calypso is

17. An unregulated profit-maximizing firm?
18. Regulated to make zero economic profit?
19. Regulated to be efficient?

ADDITIONAL PROBLEMS AND APPLICATIONS



You can work these problems in MyEconLab if assigned by your instructor.

Monopoly and How It Arises

Use the following list, which gives some information about seven firms, to answer Problems 20 and 21.

- Coca-Cola cuts its price below that of Pepsi-Cola in an attempt to increase its market share.
- A single firm, protected by a barrier to entry, produces a personal service that has no close substitutes.
- A barrier to entry exists, but the good has some close substitutes.
- A firm offers discounts to students and seniors.
- A firm can sell any quantity it chooses at the going price.
- The government issues Nike an exclusive license to produce golf balls.
- A firm experiences economies of scale even when it produces the quantity that meets the entire market demand.

20. In which of the seven cases might monopoly arise?
 21. Which of the seven cases are natural monopolies and which are legal monopolies? Which can price discriminate, which cannot, and why?

A Single-Price Monopoly's Output and Price Decision

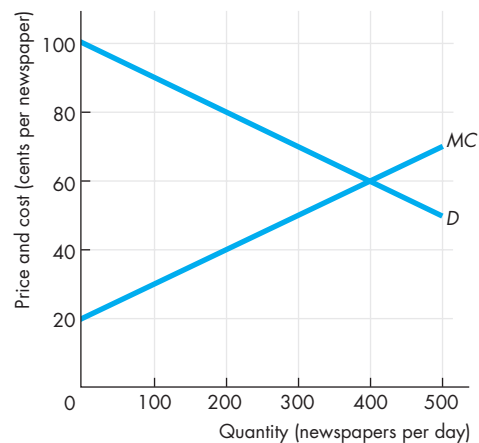
Use the following information to work Problems 22 to 26.

Hot Air Balloon Rides is a single-price monopoly. Columns 1 and 2 of the table set out the market demand schedule and columns 2 and 3 set out the total cost schedule:

Price (dollars per ride)	Quantity demanded (rides per month)	Total cost (dollars per month)
220	0	80
200	1	160
180	2	260
160	3	380
140	4	520
120	5	680

22. Construct Hot Air's total revenue and marginal revenue schedules.
 23. Draw a graph of the market demand curve and Hot Air's marginal revenue curve.
 24. Find Hot Air's profit-maximizing output and price and calculate the firm's economic profit.

25. If the government imposes a tax on Hot Air's profit, how do its output and price change?
 26. If instead of taxing Hot Air's profit, the government imposes a sales tax on balloon rides of \$30 a ride, what are the new profit-maximizing quantity, price, and economic profit?
 27. The figure illustrates the situation facing the publisher of the only newspaper containing local news in an isolated community.



- a. On the graph, mark the profit-maximizing quantity and price and the publisher's total revenue per day.
 b. At the price charged, is the demand for this newspaper elastic or inelastic? Why?

Single-Price Monopoly and Competition Compared

28. Show on the graph in Problem 27 the consumer surplus from newspapers and the deadweight loss created by the monopoly. Explain why this market might encourage rent seeking.
 29. If the newspaper market in Problem 27 were perfectly competitive, what would be the quantity, price, consumer surplus, and producer surplus? Mark each on the graph.
 30. **Telecoms Look to Grow by Acquisition**
 Multibillion-dollar telecommunications mergers show how global cellular powerhouses are scouting for growth in emerging economies while consolidating in their own, crowded backyards. France Télécom offered to buy TeliaSonera, a Swedish-Finnish telecommunications operator, but

within hours, TeliaSonera rejected the offer as too low. Analysts said higher bids—either from France Télécom or others—could persuade TeliaSonera to accept a deal. In the United States, Verizon Wireless agreed to buy Alltel for \$28.1 billion—a deal that would make the company the biggest mobile phone operator in the United States. A combination of France Télécom and TeliaSonera would create the world’s fourth-largest mobile operator, smaller only than China Mobile, Vodafone, and Telefónica of Spain.

Source: *International Herald Tribune*, June 5, 2008

- a. Explain the rent-seeking behavior of global telecommunications companies.
- b. Explain how mergers may affect the efficiency of the telecommunications market.

Price Discrimination

31. AT&T Moves Away from Unlimited-Data Pricing

AT&T said it will eliminate its \$30 unlimited data plan as the crush of data use from the iPhone has hurt call quality. AT&T is introducing new plans costing \$15 a month for 200 megabytes of data traffic or \$25 a month for 2 gigabytes. AT&T says those who exceed 2 gigabytes of usage will pay \$10 a month for each additional gigabyte. AT&T hopes that these plans will attract more customers.

Source: *The Wall Street Journal*, June 2, 2010

- a. Explain why AT&T’s new plans might be price discrimination.
- b. Draw a graph to illustrate the original plan and the new plans.

Monopoly Regulation

32. iSurrender

Getting your hands on a new iPhone means signing a two-year AT&T contract. Some markets, because of the costs of being a player, tend toward either a single firm or a small number of firms. Everyone hoped the wireless market would be different. A telephone monopoly has been the norm for most of American telecommunication history, except for what may turn out to have been a brief experimental period from 1984 through 2012 or so. It may be that telephone monopolies in America are a national tradition.

Source: *Slate*, June 10, 2008

- a. How does AT&T being the exclusive provider of wireless service for the iPhone influence the wireless telecommunication market?
- b. Explain why the wireless market may “tend toward either a single firm or a small number of firms.” Why might this justify allowing a regulated monopoly to exist in this market?

Economics in the News

33. After you have studied *Reading Between the Lines* on pp. 316 – 317 answer the following questions.

- a. Why does Consumer Watchdog say that Google needs to be investigated? Do you agree? Explain why or why not.
- b. Explain why it would be inefficient to regulate Google to make it charge the same price per keyword click to all advertisers.
- c. Explain why selling keywords to the highest bidder can lead to an efficient allocation of advertising resources.

34. F.C.C. Planning Rules to Open Cable Market

The Federal Communications Commission (F.C.C.) is setting new regulations to open the cable television market to independent programmers and rival video services. The new rules will make it easier for small independent programmers to lease access to cable channels and the size of the nation’s largest cable companies will be capped at 30 percent of the market.

Source: *The New York Times*, November 10, 2007

- a. What barriers to entry exist in the cable television market?
- b. Are high cable prices evidence of monopoly power?
- c. Draw a graph to illustrate the effects of the F.C.C.’s new regulations on the price, quantity, total surplus, and deadweight loss.

35. Antitrust Inquiry Launched into Intel

Intel, the world’s largest chipmaker, holds 80 percent of the microprocessor market. Advanced Micro Devices complains that Intel stifles competition, but Intel says that the 42.4 percent fall in prices between 2000 and 2007 shows that this industry is fiercely competitive.

Source: *The Washington Post*, June 7, 2008

- a. Is Intel a monopoly in the chip market?
- b. Evaluate the argument made by Intel that the fall in prices “shows that this industry is fiercely competitive.”



After studying this chapter, you will be able to:

- ◆ Define and identify monopolistic competition
- ◆ Explain how a firm in monopolistic competition determines its price and output in the short run and the long run
- ◆ Explain why advertising costs are high and why firms use brand names in a monopolistically competitive industry

14

MONOPOLISTIC COMPETITION

The online shoe store shoebuy.com lists athletic shoes made by 56 different producers in 40 different categories and priced between \$25 and \$850. Shoebuy offers 1,401 different types of athletic shoes for women and 1,757 different types for men. Because there are many different types of athletic shoes, the market for them isn't perfectly competitive. Athletic shoe producers compete, but each has a monopoly on its own special kind of shoe.

Most of the things that you buy are like athletic shoes—they come in many different types. Pizza and cell phones are two more striking examples.

The model of monopolistic competition that is explained in this chapter helps us to understand the competition that we see every day in the markets for athletic shoes, pizza, cell phones, and for most other consumer goods and services.

This chapter blends the models in the two preceding chapters on perfect competition and monopoly to create the model of monopolistic competition. To get the most out of this chapter, you will have studied the two preceding ones.

Reading Between the Lines, at the end of this chapter, applies the monopolistic competition model to the market for smart phones and the entry of other firms in that market following the success of the Apple iPhone.

What Is Monopolistic Competition?

You have studied perfect competition, in which a large number of firms produce at the lowest possible cost, make zero economic profit, and are efficient. You've also studied monopoly, in which a single firm restricts output, produces at a higher cost and price than in perfect competition, and is inefficient.

Most real-world markets are competitive but not perfectly competitive, because firms in these markets have some power to set their prices, as monopolies do. We call this type of market *monopolistic competition*.

Monopolistic competition is a market structure in which

- A large number of firms compete.
- Each firm produces a differentiated product.
- Firms compete on product quality, price, and marketing.
- Firms are free to enter and exit the industry.

Large Number of Firms

In monopolistic competition, as in perfect competition, the industry consists of a large number of firms. The presence of a large number of firms has three implications for the firms in the industry.

Small Market Share In monopolistic competition, each firm supplies a small part of the total industry output. Consequently, each firm has only limited power to influence the price of its product. Each firm's price can deviate from the average price of other firms by only a relatively small amount.

Ignore Other Firms A firm in monopolistic competition must be sensitive to the average market price of the product, but the firm does not pay attention to any one individual competitor. Because all the firms are relatively small, no one firm can dictate market conditions, and so no one firm's actions directly affect the actions of the other firms.

Collusion Impossible Firms in monopolistic competition would like to be able to conspire to fix a higher price—called *collusion*. But because the number of firms in monopolistic competition is large, coordination is difficult and collusion is not possible.

Product Differentiation

A firm practices **product differentiation** if it makes a product that is slightly different from the products of competing firms. A differentiated product is one that is a close substitute but not a perfect substitute for the products of the other firms. Some people are willing to pay more for one variety of the product, so when its price rises, the quantity demanded of that variety decreases, but it does not (necessarily) decrease to zero. For example, Adidas, Asics, Diadora, Etonic, Fila, New Balance, Nike, Puma, and Reebok all make differentiated running shoes. If the price of Adidas running shoes rises and the prices of the other shoes remain constant, Adidas sells fewer shoes and the other producers sell more. But Adidas shoes don't disappear unless the price rises by a large enough amount.

Competing on Quality, Price, and Marketing

Product differentiation enables a firm to compete with other firms in three areas: product quality, price, and marketing.

Quality The quality of a product is the physical attributes that make it different from the products of other firms. Quality includes design, reliability, the service provided to the buyer, and the buyer's ease of access to the product. Quality lies on a spectrum that runs from high to low. Some firms—such as Dell Computer Corp.—offer high-quality products. They are well designed and reliable, and the customer receives quick and efficient service. Other firms offer a lower-quality product that is poorly designed, that might not work perfectly, and that is not supported by effective customer service.

Price Because of product differentiation, a firm in monopolistic competition faces a downward-sloping demand curve. So, like a monopoly, the firm can set both its price and its output. But there is a tradeoff between the product's quality and price. A firm that makes a high-quality product can charge a higher price than a firm that makes a low-quality product.

Marketing Because of product differentiation, a firm in monopolistic competition must market its product. Marketing takes two main forms: advertising and packaging. A firm that produces a high-quality

product wants to sell it for a suitably high price. To be able to do so, it must advertise and package its product in a way that convinces buyers that they are getting the higher quality for which they are paying a higher price. For example, pharmaceutical companies advertise and package their brand-name drugs to persuade buyers that these items are superior to the lower-priced generic alternatives. Similarly, a low-quality producer uses advertising and packaging to persuade buyers that although the quality is low, the low price more than compensates for this fact.

Entry and Exit

Monopolistic competition has no barriers to prevent new firms from entering the industry in the long run. Consequently, a firm in monopolistic competition cannot make an economic profit in the long run. When existing firms make an economic profit, new firms enter the industry. This entry lowers prices and eventually eliminates economic profit. When firms incur economic losses, some firms leave the industry in the long run. This exit increases prices and eventually eliminates the economic loss.

In long-run equilibrium, firms neither enter nor leave the industry and the firms in the industry make zero economic profit.

Examples of Monopolistic Competition

The box below shows 10 industries that are good examples of monopolistic competition. These industries have a large number of firms (shown in parentheses after the name of the industry). In the market for audio and video equipment, the largest 4 firms produce only 30 percent of the industry's total sales and the largest 20 firms produce 75 percent of total sales. The number on the right is the Herfindahl-Hirschman Index. Producers of clothing, jewelry, computers, and sporting goods operate in monopolistic competition.

REVIEW QUIZ

- 1 What are the distinguishing characteristics of monopolistic competition?
- 2 How do firms in monopolistic competition compete?
- 3 Provide some examples of industries near your school that operate in monopolistic competition (excluding those in the figure below).

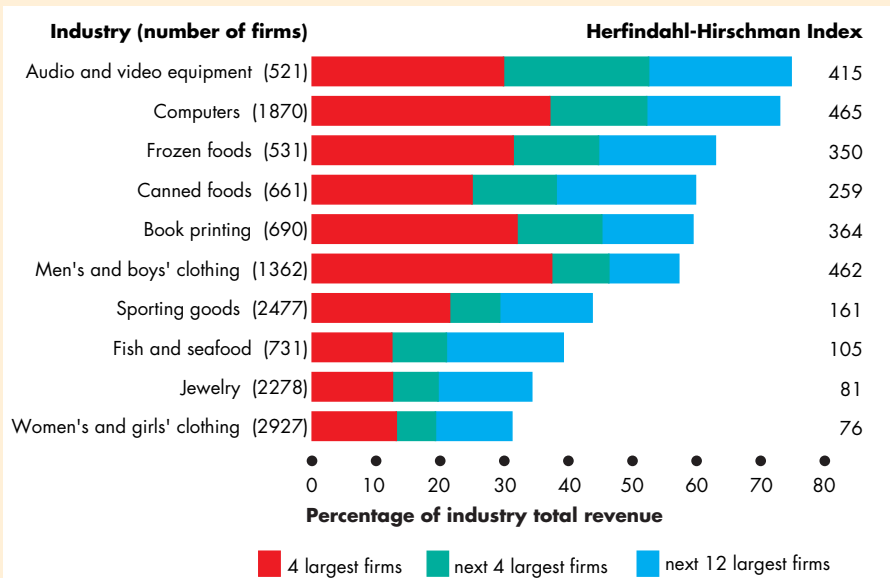
You can work these questions in Study Plan 14.1 and get instant feedback.



Economics in Action

Monopolistic Competition Today

These ten industries operate in monopolistic competition. The number of firms in the industry is shown in parentheses after the name of the industry. The red bars show the percentage of industry sales by the largest 4 firms. The green bars show the percentage of industry sales by the next 4 largest firms, and the blue bars show the percentage of industry sales by the next 12 largest firms. So the entire length of the combined red, green, and blue bars shows the percentage of industry sales by the largest 20 firms. The Herfindahl-Hirschman Index is shown on the right.



Measures of Concentration

Source of data: U.S. Census Bureau.

Price and Output in Monopolistic Competition

Suppose you've been hired by VF Corporation, the firm that owns Nautica Clothing Corporation, to manage the production and marketing of Nautica jackets. Think about the decisions that you must make at Nautica. First, you must decide on the design and quality of jackets and on your marketing program. Second, you must decide on the quantity of jackets to produce and the price at which to sell them.

We'll suppose that Nautica has already made its decisions about design, quality, and marketing and now we'll concentrate on the output and pricing decision. We'll study quality and marketing decisions in the next section.

For a given quality of jackets and marketing activity, Nautica faces given costs and market conditions. Given its costs and the demand for its jackets, how does Nautica decide the quantity of jackets to produce and the price at which to sell them?

The Firm's Short-Run Output and Price Decision

In the short run, a firm in monopolistic competition makes its output and price decision just like a monopoly firm does. Figure 14.1 illustrates this decision for Nautica jackets.

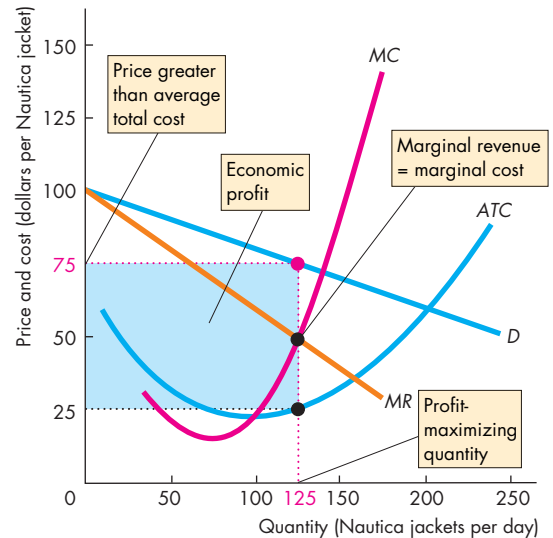
The demand curve for Nautica jackets is D . This demand curve tells us the quantity of Nautica jackets demanded at each price, given the prices of other jackets. It is not the demand curve for jackets in general.

The MR curve shows the marginal revenue curve associated with the demand curve for Nautica jackets. It is derived just like the marginal revenue curve of a single-price monopoly that you studied in Chapter 13.

The ATC curve and the MC curve show the average total cost and the marginal cost of producing Nautica jackets.

Nautica's goal is to maximize its economic profit. To do so, it produces the output at which marginal revenue equals marginal cost. In Fig. 14.1, this output is 125 jackets a day. Nautica charges the price that buyers are willing to pay for this quantity, which is determined by the demand curve. This price is \$75 per jacket. When Nautica produces 125 jackets a day, its average total cost is \$25 per jacket and it makes an economic profit of \$6,250 a day (\$50 per jacket mul-

FIGURE 14.1 Economic Profit in the Short Run



Nautica maximizes profit by producing the quantity at which marginal revenue equals marginal cost, 125 jackets a day, and charging the price of \$75 a jacket. This price exceeds the average total cost of \$25 a jacket, so the firm makes an economic profit of \$50 a jacket. The blue rectangle illustrates economic profit, which equals \$6,250 a day (\$50 a jacket multiplied by 125 jackets a day).

 myeconlab animation

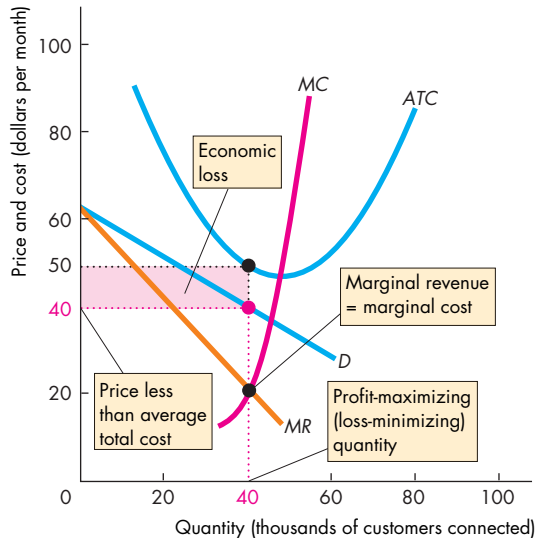
tiplied by 125 jackets a day). The blue rectangle shows Nautica's economic profit.

Profit Maximizing Might Be Loss Minimizing

Figure 14.1 shows that Nautica is making a large economic profit. But such an outcome is not inevitable. A firm might face a level of demand for its product that is too low for it to make an economic profit.

Excite@Home was such a firm. Offering high-speed Internet service over the same cable that provides television, Excite@Home hoped to capture a large share of the Internet portal market in competition with AOL, MSN, and a host of other providers.

Figure 14.2 illustrates the situation facing Excite@Home in 2001. The demand curve for its portal service is D , the marginal revenue curve is MR , the average total cost curve is ATC , and the marginal cost curve is MC . Excite@Home maximized profit—

FIGURE 14.2 Economic Loss in the Short Run

Profit is maximized where marginal revenue equals marginal cost. The loss-minimizing quantity is 40,000 customers. The price of \$40 a month is less than the average total cost of \$50 a month, so the firm incurs an economic loss of \$10 a customer. The red rectangle illustrates economic loss, which equals \$400,000 a month (\$10 a customer multiplied by 40,000 customers).

 animation

equivalently, it minimized its loss—by producing the output at which marginal revenue equals marginal cost. In Fig. 14.2, this output is 40,000 customers. Excite@Home charged the price that buyers were willing to pay for this quantity, which was determined by the demand curve and which was \$40 a month. With 40,000 customers, Excite@Home's average total cost was \$50 per customer, so it incurred an economic loss of \$400,000 a month (\$10 a customer multiplied by 40,000 customers). The red rectangle shows Excite@Home's economic loss.

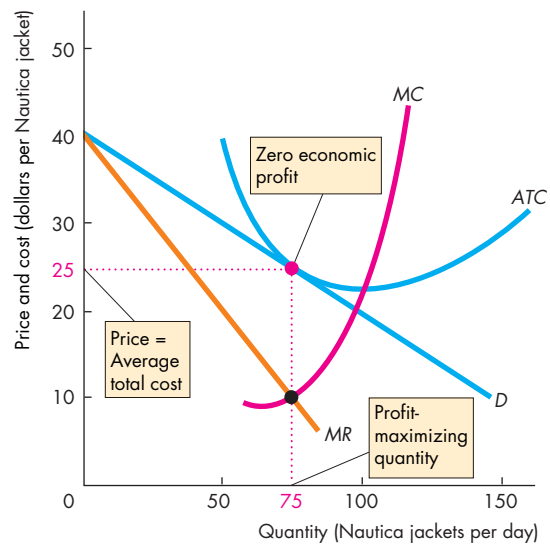
So far, the firm in monopolistic competition looks like a single-price monopoly. It produces the quantity at which marginal revenue equals marginal cost and then charges the price that buyers are willing to pay for that quantity, as determined by the demand curve. The key difference between monopoly and monopolistic competition lies in what happens next when firms either make an economic profit or incur an economic loss.

Long Run: Zero Economic Profit

A firm like Excite@Home is not going to incur an economic loss for long. Eventually, it goes out of business. Also, there is no restriction on entry into monopolistic competition, so if firms in an industry are making economic profit, other firms have an incentive to enter that industry.

As the Gap and other firms start to make jackets similar to those made by Nautica, the demand for Nautica jackets decreases. The demand curve for Nautica jackets and the marginal revenue curve shift leftward. As these curves shift leftward, the profit-maximizing quantity and price fall.

Figure 14.3 shows the long-run equilibrium. The demand curve for Nautica jackets and the marginal revenue curve have shifted leftward. The firm produces 75 jackets a day and sells them for \$25 each. At this output level, average total cost is also \$25 per jacket.

FIGURE 14.3 Output and Price in the Long Run

Economic profit encourages entry, which decreases the demand for each firm's product. When the demand curve touches the ATC curve at the quantity at which MR equals MC, the market is in long-run equilibrium. The output that maximizes profit is 75 jackets a day, and the price is \$25 per jacket. Average total cost is also \$25 per jacket, so economic profit is zero.

 animation

So Nautica is making zero economic profit on its jackets. When all the firms in the industry are making zero economic profit, there is no incentive for new firms to enter.

If demand is so low relative to costs that firms incur economic losses, exit will occur. As firms leave an industry, the demand for the products of the remaining firms increases and their demand curves shift rightward. The exit process ends when all the firms in the industry are making zero economic profit.

Monopolistic Competition and Perfect Competition

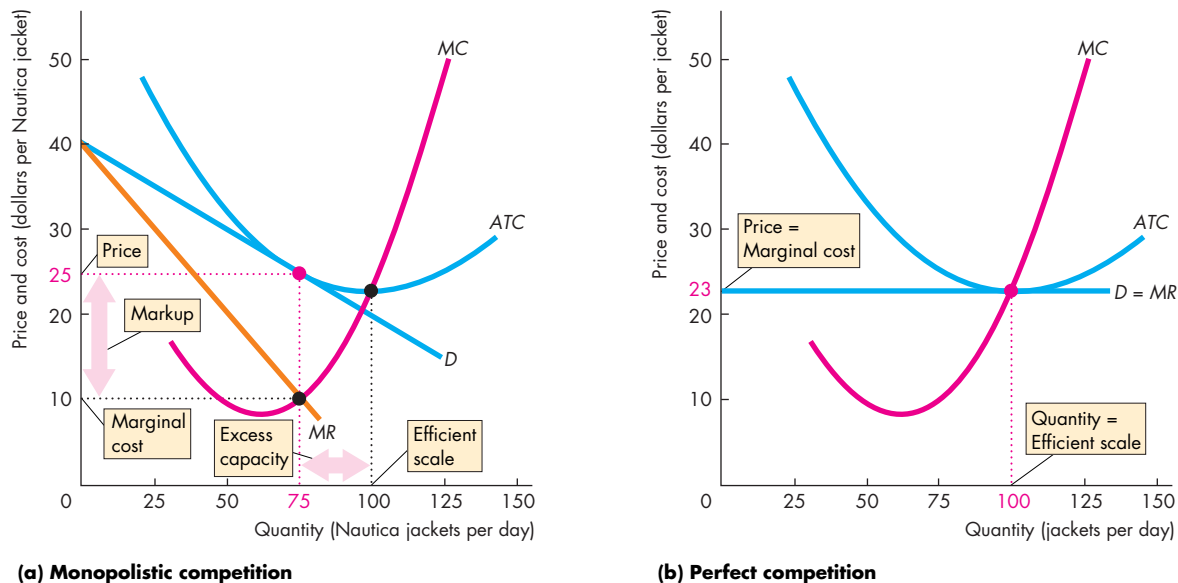
Figure 14.4 compares monopolistic competition and perfect competition and highlights two key differences between them:

- Excess capacity
- Markup

Excess Capacity A firm has **excess capacity** if it produces below its **efficient scale**, which is the quantity at which average total cost is a minimum—the quantity at the bottom of the U-shaped *ATC* curve. In Fig. 14.4, the efficient scale is 100 jackets a day. Nautica in part (a) produces 75 Nautica jackets a day and has *excess capacity* of 25 jackets a day. But if all jackets are alike and are produced by firms in perfect competition, each firm in part (b) produces 100 jackets a day, which is the efficient scale. Average total cost is the lowest possible only in *perfect* competition.

You can see the excess capacity in monopolistic competition all around you. Family restaurants (except for the truly outstanding ones) almost always have some empty tables. You can always get a pizza delivered in less than 30 minutes. It is rare that every pump at a gas station is in use with customers waiting in line. There are always many real estate agents ready to help find or sell a home. These industries are examples of monopolistic competition. The firms

FIGURE 14.4 Excess Capacity and Markup



The efficient scale is 100 jackets a day. In monopolistic competition in the long run, because the firm faces a downward-sloping demand curve for its product, the quantity produced is less than the efficient scale and the firm has excess capacity. Price exceeds marginal cost by the amount of the markup.

In contrast, because in perfect competition the demand for each firm's product is perfectly elastic, the quantity produced in the long run equals the efficient scale and price equals marginal cost. The firm produces at the least possible cost and there is no markup.

have excess capacity. They could sell more by cutting their prices, but they would then incur losses.

Markup A firm's **markup** is the amount by which price exceeds marginal cost. Figure 14.4(a) shows Nautica's markup. In perfect competition, price always equals marginal cost and there is no markup. Figure 14.4(b) shows this case. In monopolistic competition, buyers pay a higher price than in perfect competition and also pay more than marginal cost.

Is Monopolistic Competition Efficient?

Resources are used efficiently when marginal social benefit equals marginal social cost. Price equals marginal social benefit and the firm's marginal cost equals marginal social cost (assuming there are no external benefits or costs). So if the price of a Nautica jacket exceeds the marginal cost of producing it, the quantity of Nautica jackets produced is less than the efficient quantity. And you've just seen that in long-run equilibrium in monopolistic competition, price *does* exceed marginal cost. So is the quantity produced in monopolistic competition less than the efficient quantity?

Making the Relevant Comparison Two economists meet in the street, and one asks the other, "How is your husband?" The quick reply is "Compared to what?" This bit of economic wit illustrates a key point: Before we can conclude that something needs fixing, we must check out the available alternatives.

The markup that drives a gap between price and marginal cost in monopolistic competition arises from product differentiation. It is because Nautica jackets are not quite the same as jackets from Banana Republic, CK, Diesel, DKNY, Earl Jackets, Gap, Levi's, Ralph Lauren, or any of the other dozens of producers of jackets that the demand for Nautica jackets is not perfectly elastic. The only way in which the demand for jackets from Nautica might be perfectly elastic is if there is only one kind of jacket and all firms make it. In this situation, Nautica jackets are indistinguishable from all other jackets. They don't even have identifying labels.

If there was only one kind of jacket, the total benefit of jackets would almost certainly be less than it is with variety. People value variety—not only because it enables each person to select what he or she likes best but also because it provides an external benefit. Most of us enjoy seeing variety in the choices of oth-

ers. Contrast a scene from the China of the 1960s, when everyone wore a Mao tunic, with the China of today, where everyone wears the clothes of their own choosing. Or contrast a scene from the Germany of the 1930s, when almost everyone who could afford a car owned a first-generation Volkswagen Beetle, with the world of today with its enormous variety of styles and types of automobiles.

If people value variety, why don't we see infinite variety? The answer is that variety is costly. Each different variety of any product must be designed, and then customers must be informed about it. These initial costs of design and marketing—called setup costs—mean that some varieties that are too close to others already available are just not worth creating.

The Bottom Line Product variety is both valued and costly. The efficient degree of product variety is the one for which the marginal social benefit of product variety equals its marginal social cost. The loss that arises because the quantity produced is less than the efficient quantity is offset by the gain that arises from having a greater degree of product variety. So compared to the alternative—product uniformity—monopolistic competition might be efficient.



REVIEW QUIZ

- 1 How does a firm in monopolistic competition decide how much to produce and at what price to offer its product for sale?
- 2 Why can a firm in monopolistic competition make an economic profit only in the short run?
- 3 Why do firms in monopolistic competition operate with excess capacity?
- 4 Why is there a price markup over marginal cost in monopolistic competition?
- 5 Is monopolistic competition efficient?

You can work these questions in Study Plan 14.2 and get instant feedback.



You've seen how the firm in monopolistic competition determines its output and price in both the short run and the long run when it produces a given product and undertakes a *given* marketing effort. But how does the firm choose its product quality and marketing effort? We'll now study these decisions.

Product Development and Marketing

When Nautica made its price and output decision that we've just studied, it had already made its product quality and marketing decisions. We're now going to look at these decisions and see how they influence the firm's output, price, and economic profit.

Innovation and Product Development

The prospect of new firms entering the industry keeps firms in monopolistic competition on their toes! To enjoy economic profits, they must continually seek ways of keeping one step ahead of imitators—other firms who imitate the success of profitable firms.

One major way of trying to maintain economic profit is for a firm to seek out new products that will provide it with a competitive edge, even if only temporarily. A firm that introduces a new and differentiated product faces a demand that is less elastic and is able to increase its price and make an economic profit. Eventually, imitators will make close substitutes for the innovative product and compete away the economic profit arising from an initial advantage. So to restore economic profit, the firm must again innovate.

Profit-Maximizing Product Innovation The decision to innovate and develop a new or improved product is based on the same type of profit-maximizing calculation that you've already studied.

Innovation and product development are costly activities, but they also bring in additional revenues. The firm must balance the cost and revenue at the margin.

The marginal dollar spent on developing a new or improved product is the marginal cost of product development. The marginal dollar that the new or improved product earns for the firm is the marginal revenue of product development. At a low level of product development, the marginal revenue from a better product exceeds the marginal cost. At a high level of product development, the marginal cost of a better product exceeds the marginal revenue.

When the marginal cost and marginal revenue of product development are equal, the firm is undertaking the profit-maximizing amount of product development.

Efficiency and Product Innovation Is the profit-maximizing amount of product innovation also the efficient amount? Efficiency is achieved if the marginal social benefit of a new and improved product equals its marginal social cost.

The marginal social benefit of an innovation is the increase in price that consumers are willing to pay for it. The marginal social cost is the amount that the firm must pay to make the innovation. Profit is maximized when marginal *revenue* equals marginal cost. But in monopolistic competition, marginal revenue is less than price, so product innovation is probably not pushed to its efficient level.

Monopolistic competition brings many product innovations that cost little to implement and are purely cosmetic, such as new and improved packaging or a new scent in laundry powder. And even when there is a genuine improved product, it is never as good as what the consumer is willing to pay for. For example, “The Legend of Zelda: Twilight Princess” is regarded as an almost perfect and very cool game, but users complain that it isn't quite perfect. It is a game whose features generate a marginal revenue equal to the marginal cost of creating them.

Advertising

A firm with a differentiated product needs to ensure that its customers know how its product is different from the competition. A firm also might attempt to create a consumer perception that its product is different from its competitors, even when that difference is small. Firms use advertising and packaging to achieve this goal.

Advertising Expenditures Firms in monopolistic competition incur huge costs to ensure that buyers appreciate and value the differences between their own products and those of their competitors. So a large proportion of the price that we pay for a good covers the cost of selling it, and this proportion is increasing. Advertising in newspapers and magazines and on radio, television, and the Internet is the main selling cost. But it is not the only one. Selling costs include the cost of shopping malls that look like movie sets, glossy catalogs and brochures, and the salaries, airfares, and hotel bills of salespeople.

Advertising expenditures affect the profits of firms in two ways: They increase costs, and they change demand. Let's look at these effects.

Economics in Action

The Cost of Selling a Pair of Shoes

When you buy a pair of running shoes that cost you \$70, you're paying \$9 for the materials from which the shoes are made, \$2.75 for the services of the Malaysian worker who made the shoes, and \$5.25 for the production and transportation services of a manufacturing firm in Asia and a shipping company. These numbers total \$17. You pay \$3 to the U.S. government in import duty. So we've now accounted for a total of \$20. Where did the other \$50 go? It is the cost of advertising, retailing, and other sales and distribution services.

The selling costs associated with running shoes are not unusual. Almost everything that you buy includes a selling cost component that exceeds one half of the total cost. Your clothing, food, electronic items, DVDs, magazines, and even your textbooks cost more to sell than they cost to manufacture.

Advertising costs are only a part, and often a small part, of total selling costs. For example, Nike spends about \$4 on advertising per pair of running shoes sold.

For the U.S. economy as a whole, there are some 20,000 advertising agencies, which employ more than 200,000 people and have sales of \$45 billion. These numbers are only part of the total cost of advertising because firms have their own internal advertising departments, the costs of which we can only guess.

But the biggest part of selling costs is not the cost of advertising. It is the cost of retailing services. The retailer's selling costs (and economic profit) are often as much as 50 percent of the price you pay.

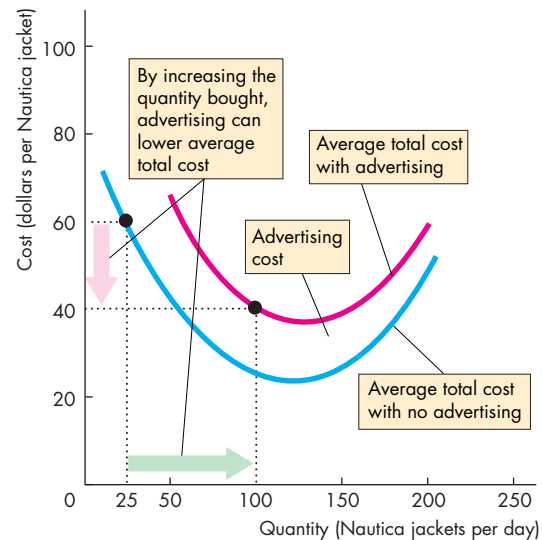


Selling Costs and Total Cost Selling costs are fixed costs and they increase the firm's total cost. So like the fixed cost of producing a good, advertising costs per unit decrease as the quantity produced increases.

Figure 14.5 shows how selling costs change a firm's average total cost. The blue curve shows the average total cost of production. The red curve shows the firm's average total cost of production plus advertising. The height of the red area between the two curves shows the average fixed cost of advertising. The *total* cost of advertising is fixed. But the *average* cost of advertising decreases as output increases.

Figure 14.5 shows that if advertising increases the quantity sold by a large enough amount, it can lower average total cost. For example, if the quantity sold increases from 25 jackets a day with no advertising to 100 jackets a day with advertising, average total cost falls from \$60 to \$40 a jacket. The reason is that although the *total* fixed cost has increased, the greater fixed cost is spread over a greater output, so average total cost decreases.

FIGURE 14.5 Selling Costs and Total Cost



Selling costs such as the cost of advertising are fixed costs. When added to the average total cost of production, selling costs increase average total cost by a greater amount at small outputs than at large outputs. If advertising enables sales to increase from 25 jackets a day to 100 jackets a day, average total cost *falls* from \$60 to \$40 a jacket.

Selling Costs and Demand Advertising and other selling efforts change the demand for a firm's product. But how? Does demand increase or does it decrease? The most natural answer is that advertising increases demand. By informing people about the quality of its products or by persuading people to switch from the products of other firms, a firm might expect to increase the demand for its own products.

But all firms in monopolistic competition advertise, and all seek to persuade customers that they have the best deal. If advertising enables a firm to survive, the number of firms in the market might increase. And to the extent that the number of firms does increase, advertising *decreases* the demand faced by any one firm. It also makes the demand for any one firm's product more elastic. So advertising can end up not only lowering average total cost but also lowering the markup and the price.

Figure 14.6 illustrates this possible effect of advertising. In part (a), with no advertising, the demand for Nautica jackets is not very elastic. Profit is maxi-

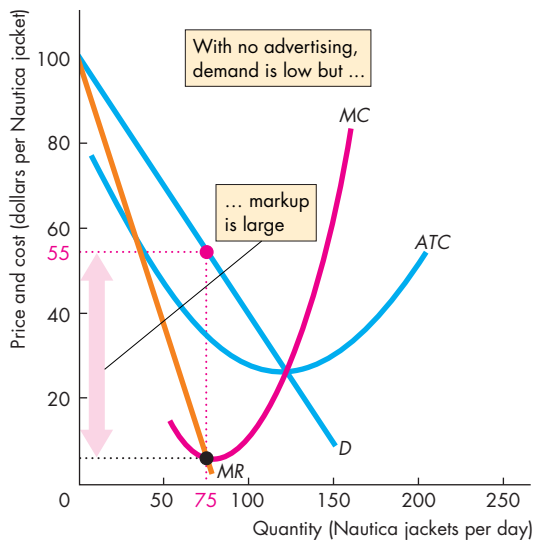
mized at 75 jackets per day, and the markup is large. In part (b), advertising, which is a fixed cost, increases average total cost from ATC_0 to ATC_1 but leaves marginal cost unchanged at MC . Demand becomes much more elastic, the profit-maximizing quantity increases, and the markup shrinks.

Using Advertising to Signal Quality

Some advertising, like the Ashton Kutcher Nikon Coolpix ads on television or the huge number of dollars that Coke and Pepsi spend, seems hard to understand. There doesn't seem to be any concrete information about a camera in an actor's glistening smile. And surely everyone knows about Coke and Pepsi. What is the gain from pouring millions of dollars into advertising these well-known colas?

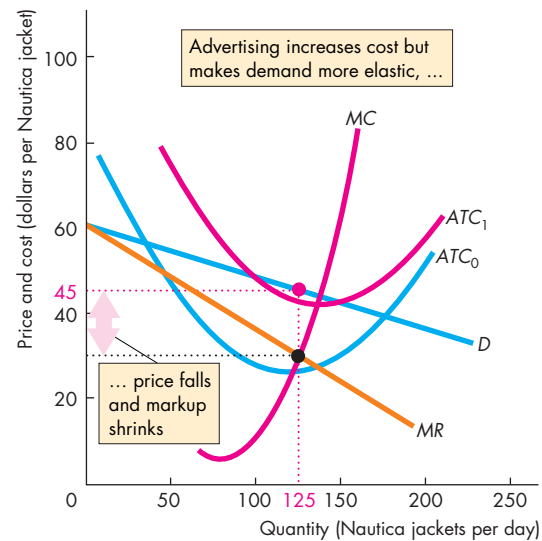
One answer is that advertising is a signal to the consumer of a high-quality product. A **signal** is an action taken by an informed person (or firm) to send a message to uninformed people. Think about two colas:

FIGURE 14.6 Advertising and the Markup



(a) No firms advertise

If no firms advertise, demand for each firm's product is low and not very elastic. The profit-maximizing output is small, the markup is large, and the price is high.



(b) All firms advertise

Advertising increases average total cost and shifts the ATC curve upward from ATC_0 to ATC_1 . If all firms advertise, the demand for each firm's product becomes more elastic. Output increases, the price falls, and the markup shrinks.

Coke and Oke. Oke knows that its cola is not very good and that its taste varies a lot depending on which cheap batch of unsold cola it happens to buy each week. So Oke knows that while it could get a lot of people to try Oke by advertising, they would all quickly discover what a poor product it is and switch back to the cola they bought before. Coke, in contrast, knows that its product has a high-quality consistent taste and that once consumers have tried it, there is a good chance they'll never drink anything else. On the basis of this reasoning, Oke doesn't advertise but Coke does. And Coke spends a lot of money to make a big splash.

Cola drinkers who see Coke's splashy ads know that the firm would not spend so much money advertising if its product were not truly good. So consumers reason that Coke is indeed a really good product. The flashy expensive ad has signaled that Coke is really good without saying anything about Coke.

Notice that if advertising is a signal, it doesn't need any specific product information. It just needs to be expensive and hard to miss. That's what a lot of advertising looks like. So the signaling theory of advertising predicts much of the advertising that we see.

Brand Names

Many firms create and spend a lot of money promoting a brand name. Why? What benefit does a brand name bring to justify the sometimes high cost of establishing it?

The basic answer is that a brand name provides information to consumers about the quality of a product, and is an incentive to the producer to achieve a high and consistent quality standard.

To see how a brand name helps the consumer, think about how you use brand names to get information about quality. You're on a road trip, and it is time to find a place to spend the night. You see roadside advertisements for Holiday Inn, Joe's Motel, and Annie's Driver's Stop. You know about Holiday Inn because you've stayed in it before. You've also seen their advertisements and know what to expect. You have no information at all about Joe's and Annie's. They might be better than the lodgings you do know about, but without that knowledge, you're not going to try them. You use the brand name as information and stay at Holiday Inn.

This same story explains why a brand name provides an incentive to achieve high and consistent quality. Because no one would know whether Joe's and Annie's were offering a high standard of service, they

have no incentive to do so. But equally, because everyone expects a given standard of service from Holiday Inn, a failure to meet a customer's expectation would almost surely lose that customer to a competitor. So Holiday Inn has a strong incentive to deliver what it promises in the advertising that creates its brand name.

Efficiency of Advertising and Brand Names

To the extent that advertising and brand names provide consumers with information about the precise nature of product differences and about product quality, they benefit the consumer and enable a better product choice to be made. But the opportunity cost of the additional information must be weighed against the gain to the consumer.

The final verdict on the efficiency of monopolistic competition is ambiguous. In some cases, the gains from extra product variety unquestionably offset the selling costs and the extra cost arising from excess capacity. The tremendous varieties of books and magazines, clothing, food, and drinks are examples of such gains. It is less easy to see the gains from being able to buy a brand-name drug that has a chemical composition identical to that of a generic alternative, but many people do willingly pay more for the brand-name alternative.

REVIEW QUIZ

- 1 How, other than by adjusting price, do firms in monopolistic competition compete?
- 2 Why might product innovation and development be efficient and why might it be inefficient?
- 3 How do selling costs influence a firm's cost curves and its average total cost?
- 4 How does advertising influence demand?
- 5 Are advertising and brand names efficient?

You can work these questions in Study Plan 14.3 and get instant feedback.



◆ Monopolistic competition is one of the most common market structures that you encounter in your daily life. *Reading Between the Lines* on pp. 334–335 applies the model of monopolistic competition to the market for smart phones and shows why you can expect continual innovation and the introduction of new phones from Apple and other producers of smart phones.