

CHAPTER 6

PERFECT COMPETITION AND OTHER MARKET STRUCTURES

LEARNING OBJECTIVES

Studying the core and technical sections of this chapter will help you with the following:

Core

- Explain the various ways to characterize a market structure.
- Compare the characteristics of the healthcare market with those of a perfectly competitive market.
- Describe how an oligopolistic and monopolistically competitive market structure relates to healthcare markets.
- Evaluate the market structure of the pharmaceutical industry.
- Describe the trade-off between efficiency and equity in the healthcare market.

Technical

- Use a basic supply-and-demand model to explain the societal benefits and the associated losses of externalities.
- Apply the general supply-and-demand model to public health and health system issues.
- Explain how the monopoly and monopolistic competition market structures can be used to understand health economic issues.

CORE CONCEPTS

To gain an understanding of current public health and health system issues—such as competition among hospitals, shortage of the flu vaccine, and oversupply of specialists—one must have a solid understanding of different market structures.

A market structure can be categorized in numerous ways. Typically, economists assess first whether a market (consisting of buyers and sellers) has characteristics that align with perfect competition. If it does not, economists then evaluate what market structure is at play—a monopoly, oligopoly, duopoly, or something else (see Exhibit 6.1 for the various types of market structures). This chapter reviews these structural types and uses them to understand healthcare markets. (Note that the terms *industry* and *market* are used interchangeably in this chapter.)

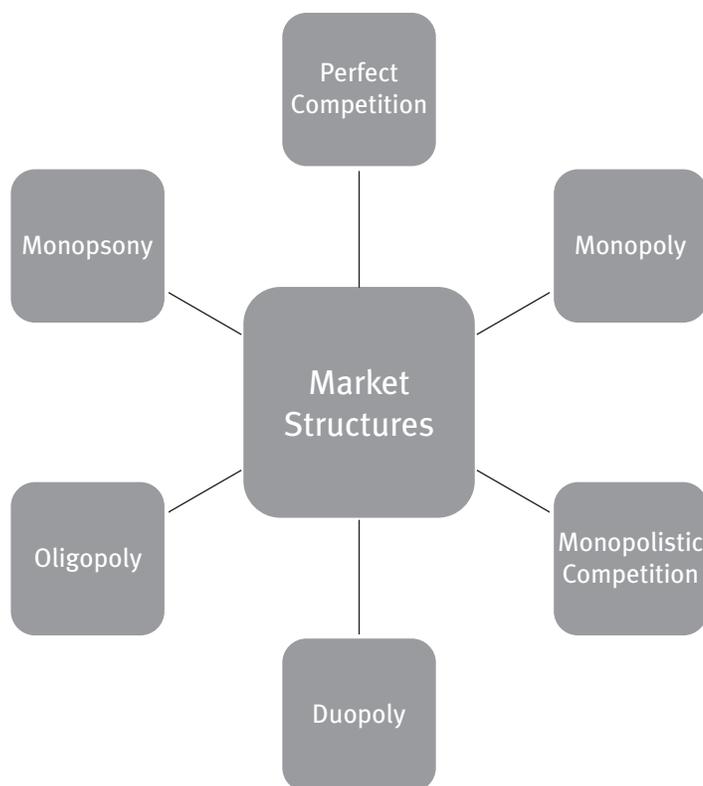
PERFECT COMPETITION

The assumptions associated with perfect competition are fairly strict, and the reality is that most markets are *not* perfectly competitive. However, the assumptions of perfect competition are used here as a jumping-off point to understand other market structures.

The conditions under which perfect competition operates are as follows:

- ◆ *Many small firms.* Each firm produces an insignificant percentage of total market output. Hence, no individual firm has control over the market price.
- ◆ *Many individual buyers.* No individual buyer (or small group of buyers) has control over the market price.
- ◆ *Freedom of entry and exit from the industry.* People (and firms) make production and consumption decisions on the basis of their own free will.

EXHIBIT 6.1
Types of Market
Structures



- ◆ *Homogeneous products.* Products sold by any one firm are indistinguishable from the products sold by a competing firm.
- ◆ *Price takers.* Assuming that many buyers and sellers exist in the marketplace, the equilibrium price is determined by a huge number of different transactions. Economists typically say that a firm “takes the price” from the market. If a firm decides to sell goods (that are identical to other goods in the marketplace) at a price higher than the price set by competitors, no one will purchase the product. Likewise, a firm cannot set a price that is below the equilibrium price because its competitors would also lower their prices, and all firms will earn less profit. For these reasons, firms in competitive markets are called *price takers*.
- ◆ *Perfect knowledge.* Consumers know what choices are available. Firms have access to the same production technology. No firm can produce its good faster, better, or cheaper.

Perfect knowledge

A situation in which consumers and producers have equal information about price, production, or quality of a good or service

- ◆ *No externalities.* An **externality** arises when an economic transaction negatively or positively affects a person (or third party) that is not a willing participant (either a buyer or a seller) in the transaction. Under perfect competition, the assumption is that buyers are not negatively affected by other buyers' market decisions. A common example of a negative externality is pollution. An individual who is not a buyer or manufacturer of a product may be negatively affected by the pollution generated by the manufacturing facility.
- ◆ *Zero economic profits.* The act of competition is what drives the market toward equilibrium price and quantity. At equilibrium, a firm makes zero economic profits. Zero economic profits mean that firms are earning just enough to cover the costs of production and to cover the opportunity costs of their investment.

Externality

The negative or positive effect of an economic transaction on a person or party that is neither the buyer nor the seller

As the assumptions of perfect competition are quite stringent, most markets related to healthcare are more similar to monopolistic competition, duopoly, or oligopoly.

 **CONSIDER THIS**

If firms in an industry are making positive economic profits, then more firms have an incentive to enter the market. This entry, in turn, decreases the equilibrium price. At the point of zero economic profits, firms cease to enter the industry.

OTHER MARKET STRUCTURES

Sometimes, the seller has the market power to influence the terms of the exchange, meaning the price and quantity. This situation occurs in the following market structures:

- ◆ *Monopoly*, a market with only one seller
- ◆ *Duopoly*, a market with two sellers
- ◆ *Oligopoly*, a market with a few sellers
- ◆ *Monopolistic competition*, a market with many sellers

MONOPOLY

A monopoly—a market structure with one seller—exists for three reasons:

1. *One firm owns all of some resources.* For example, in 2009, one company controlled 100 percent of the HMO (health maintenance organization) market in Ithaca, New York.
2. *The government allows a monopoly to exist.* This is not common in the United States, but in many other countries, airlines or railways are government-designated monopolies.
3. *A physical reason exists for a company to have a monopoly.* For example, a local power company is the sole service provider in a town because it is the only one with an established power infrastructure.

A monopolist can set a fairly high price, as it has no competitors to drive down price. However, if a price is set too high, people may buy less even if no exact substitutes exist.

There are situations in which one company is the only supplier, but related goods and services are available that some consumers are willing to purchase. For example, in a geographic area served by only one hospital, residents with certain conditions may substitute medical management (e.g., prescription medicine and physical therapy) for surgical care. In this instance, the hospital has a monopoly on care that can only be provided in a hospital; however, for some consumers it is reasonable to look at alternatives for services that may generate the desired outcome.



CONSIDER THIS

Firms that have a large share of the market may face criticism and unhappy consumers, but they are not monopolies.

A monopoly market structure can lead to the following:

- ◆ Lower quantity of goods or services than would be produced in a competitive market
- ◆ Higher price than the equilibrium price in a competitive market

- ◆ Higher profit level for the firm; other firms are not able to enter the market and drive down the price

 **CONSIDER THIS**

Saint Elizabeth Hospital is the only provider of inpatient, outpatient, and emergency care in town. Thus, it has the upper hand when negotiating reimbursement rates with insurance companies.

Because insurance companies want to retain enrollees (and attract new ones), they may be pressured to reimburse Saint Elizabeth at whatever rate the hospital is asking. As the only supplier of hospital care in town, Saint Elizabeth has the power to deny access to patients whose insurance carriers do not accept its payment conditions—although, under the Emergency Medical Treatment and Active Labor Act (EMTALA), hospitals that participate in the Medicare program must stabilize all patients who present themselves in the emergency department, regardless of those patients' ability to pay.

DUOPOLY

In a **duopoly**, the marketplace consists of just two sellers. The price is lower than in a monopoly structure but higher than would be in a perfectly competitive market. The equilibrium quantity is shared between the two sellers. The best outcome for the two firms is to share the profits between them, but each has an incentive to cheat, which can result in a different equilibrium.

The duopoly structure is fairly common in healthcare, especially when the service is capital intensive (e.g., MRI [magnetic resonance imaging]) or has a limited demand. For example, in a medium-sized community, the demand for neurosurgeons is likely small. The community might have just two neurosurgeons who, together, control 100 percent of the neurosurgery market.

Duopoly

A market structure consisting of two sellers

OLIGOPOLY

Oligopoly is often referred to as “competition among the few.” Each firm in an oligopolistic market produces goods or services that are similar but are not considered perfect substitutes for each other. As a result, each firm can influence the competitors' market shares.

Oligopoly

A market structure consisting of a few dominant sellers

Many health-related goods and services compete under this market structure. For example, in one community, three or four facilities may offer similar outpatient surgical services.

An oligopoly market structure is different enough from other market types that a review of its defining characteristics is in order:

1. *Interdependence.* Any change in price and output by one firm has a direct effect on the profits of the other firms. Hence, if one firm makes a change, the other firms also change their price and output. Simply put, the firms under oligopoly market structure are interdependent.
2. *Reliance on advertising.* Firms must spend a considerable amount on advertisements and other promotional measures to gain market share. Under perfect competition and monopoly, large expenditures on marketing are not necessary.
3. *Demand uncertainty.* Mutual interdependence creates uncertainty for all of the firms. As a result, estimating the quantity demanded at different price levels is extremely difficult.
4. *Product differentiation.* When firms produce slightly different products and that differentiation can be discerned by consumers, each firm behaves as a monopolist in terms of price setting and output determination.
5. *Sticky prices.* Under an oligopoly structure, prices tend to be fairly “sticky” (meaning prices do not budge). If any firm reduces its price (in an attempt to gain market share), its rival firms immediately make the same price cut. Then, all firms have reduced profits. Hence, prices remain fairly stable and higher than they would be in a perfectly competitive situation.



CONSIDER THIS

Could the insurance industry be classified as oligopolistic?

Not too long ago in the United States, only 12 health plans covered approximately two-thirds of people with private health insurance. In nearly half of all states, two health insurers covered 70 percent or more of the population (Matthews 2010).

MONOPOLISTIC COMPETITION

Whereas oligopoly brings about a low level of cooperation among competing firms in the market (at least in theory), a monopolistic competition is a market structure in which no cooperation occurs among the many sellers.

The following characteristics of monopolistic competition borrow from both the competitive market structure and the monopoly market structure:

1. *Product differentiation.* Monopolistic competitors produce heterogeneous products. Sellers find ways to differentiate their goods and services from similar offerings in the market. This can lead to excessive product differentiation and excess capacity.
2. *Many buyers and sellers.* Similar to a perfect competition, monopolistic competition has many buyers and sellers in the market. Each seller has a relatively small market share. In comparison, a monopolist has 100 percent market share.
3. *Reduced likelihood of minimizing cost.* Firms may have an incentive to produce goods and services that are “over the top” and as a result incur high production costs.
4. *Price setters.* Each firm has its own demand curve and is a *price setter* (rather than a price taker). In a sense, each firm has its own market. Thus, the price for a good or service is set higher than it would be if the market was perfectly competitive.

Under monopolistic competition, brand loyalty is essential. If consumer loyalty is high, the seller has the ability to increase prices without the risk of losing its entire customer base. For example, many (but definitely not all) patients have long-standing relationships with their physicians. The personal ties between patients and physicians give providers monopolistically competitive power.

A monopolistically competitive firm can earn a profit in the short run. Higher profit levels lead to

1. more providers entering the market to try to reap some of the potential profit, and
2. existing providers further differentiating their products to attract more customers.

The Cost of Differentiation

Suppose an ambulatory surgical center (ASC) is in competition with other ASCs and hospital-based outpatient surgery centers. To attract patients, the ASC may choose to add

**CONSIDER THIS**

Cardiologist Dr. Winona Green is fairly “old school.” She is a highly skilled diagnostician, a thorough and collaborative care planner, and a natural health educator. She has a wonderful rapport with her patients and spends ample time listening to and addressing their medical concerns. She also gets to know them as people, asking about their family and home life.

Doug, a 41-year-old male with high blood pressure, has been coming to her since his primary care provider diagnosed him with hypertension five years ago. He feels comfortable telling her his concerns, never misses an appointment, and is highly compliant with her recommendations.

In recent years, a few other cardiologists have moved into the neighborhood. Their offices are sleek and house high-tech equipment for new testing (e.g., nuclear testing). Leasing such equipment is expensive, and Dr. Green does not want to have the financial pressure to recommend a test to her patients just so she can pay for the lease. However, she understands that many patients are lured by new offices and advanced technology, so she has to differentiate her practice from those of her competitors.

A few patients have left Dr. Green’s practice, and she fears more will follow. She decides to redecorate her office with modern furniture and pictures and fresh paint on the walls, institute some evening and weekend hours, and offer e-mail correspondence with her patients. Dr. Green hopes these less expensive changes will be enough to retain her remaining patient base.

valet parking, an on-site pharmacy, and free follow-up home health care. These changes are costly. For the ASC to maintain (or increase) its profit level, it will likely raise prices, with the hope that the added benefits will outweigh the price increase.

Asymmetric information

A situation in which the buyer and seller have unequal information about price, production, or quality of a good or service

DEVIATIONS FROM COMPETITIVE MARKETS

Healthcare markets deviate from perfect competition in some typical ways.

ASYMMETRIC INFORMATION

In almost every industry, the seller has more or better information about the product than the buyer does. This **asymmetric information** is highly prevalent in healthcare.

 **CONSIDER THIS**

When profits increase for the firms operating in a market, other firms have an incentive to enter that market. As more firms compete for business, the price drops and profits fall. Firms then try to differentiate their products to attract more customers, but this differentiation typically comes with a cost and the firms end up raising prices.

In healthcare, improving the quality of services as a competitive strategy means higher prices for consumers and thus higher insurance premiums.

Physicians and other providers have a knowledge advantage, which enables them to influence the type and amount of health-related goods and services a consumer purchases. (Keep in mind that having the *ability* to influence the purchasing decision is not the same as actually doing so.)

For example, repairing a herniated disc may seem to be a routine procedure, but surgeons know they can use slightly different techniques or tools, or follow their own methods. Patients can try to understand what is involved in the procedure, but without specialized training necessary, the nuances of such a procedure are difficult to grasp.

Conversely, patients may hide some information from their physicians. This lack of disclosure may stem from fear, embarrassment, or ignorance (e.g., the patient may believe a symptom he is experiencing is not important). Before the Affordable Care Act was passed, fear of losing health insurance coverage also contributed to a patient's withholding of information.

UNCERTAINTY

In a perfectly competitive market structure, the quality of the product and all of its attributes are known. In healthcare, this is not the case.

Different physicians may not agree on the medical condition underlying the symptoms the patient presents. Even if physicians agree on the diagnosis, they may not agree on the course of treatment (e.g., medical management vs. surgery). Additionally, regardless of the treatment, some degree of uncertainty exists regarding the ultimate health outcome.

PRODUCT DIFFERENTIATION

Each provider offers a different experience. Differences between providers include (but are not limited to) technology, human interaction, and diagnostic capabilities.

Certificate of need (CON)

An approval required by a state before the acquisition, expansion, or creation of a medical facility or the purchase of capital equipment

BARRIERS TO ENTRY

Newly licensed physicians and other medical practitioners may find entering the healthcare market difficult. Why? First, it takes time to build strong relationships with patients—let alone with a sufficient number of patients to enable a provider to compete with others in the marketplace. Second, certain legal restrictions limit market access. In many states, opening or expanding a facility and making a large capital purchase require providers to obtain **certificate-of-need (CON)** approval from the state. CON laws vary by state.

Barriers to entry also exist for those training to become healthcare providers. Physician education and licensing are a lengthy and costly process. Moreover, the competition to get accepted into well-respected medical schools and nursing programs is tight. Even though the demand for nursing education has been high, the supply of “seats” in nursing schools has not been enough to satisfy the increasing demand.

NEGATIVE AND POSITIVE EXTERNALITIES

Under perfect competition, externalities do not exist. A positive externality occurs when the societal benefit of buying a good exceeds the benefit received by those who actually buy that good. A negative externality occurs when the societal cost of buying a good exceeds the actual cost of the purchase.

A commonly used example to explain externalities is vaccinations. When individuals get vaccinated, society benefits. For example, if 28 students, in a class of 30, purchase and receive a vaccination for the flu, then the remaining 2 students receive some protection from the flu by virtue of spending a large part of their day with classmates who will likely not be struck by (and thus spread) the virus. This is called *herd immunity*.

In theory, the price a person is willing to pay for vaccination depends on that person’s valuation of the benefit of immunization. This price typically does not take into account the societal benefit (e.g., herd immunity). If the societal benefit and the personal benefit were considered, the economically efficient price of the vaccination would be higher than the market price.

Monopsony

A situation in which a buyer (or a group of buyers) has enough market power to reduce prices below what would be offered in a competitive market

MONOPSONY

In a **monopsony**, a buyer (or a group of buyers) has the ability to reduce the purchase price below the price offered in a competitive market. Monopsony discussions in healthcare often center on whether an insurance company can force providers to accept below-market reimbursements. (Providers negotiate reimbursement rates with insurance companies on a yearly basis. Providers are willing to negotiate because patients are more likely to go to a provider who accepts their insurance.)

If one insurance company controls a large share of the insurance market in a geographic area, providers may have no choice but to accept a low reimbursement rate for their services. An insurance company that has negotiated low payment rates is able to retain a larger share of its enrollees' premiums and thus generate higher profit.

 **CONSIDER THIS**

Hospital D is the sole employer of physicians, nurses, therapists, and other providers in the community. The town has no other medical setting in which these professionals can work. As a result, Hospital D takes advantage of the monopsony power. It is the only buyer of labor and thus has the power to keep the wages lower than the wages would be in a competitive market.

MARKET STRUCTURE IN THE PHARMACEUTICAL INDUSTRY

There are two types of pharmaceutical companies: (1) those that engage in R&D (research and development) to produce brand-name drugs, and (2) those that manufacture generic drugs. The average cost of developing and getting approval to market a new drug is about \$2.6 billion (Tufts Center for the Study of Drug Development 2014), while prices of generic drugs in the United States are between 30 percent and 80 percent lower than the originally patented brand-name product (DiMasi, Hansen, and Grabowski 2003).

 **CONSIDER THIS**

The process a pharmaceutical company must undertake to bring a drug to the US market is extensive. In addition to animal testing, it involves a three-stage clinical trial. Stage 1 introduces the drug to a small number of healthy people. Stage 2 uses a small number of diseased individuals as test subjects. Stage 3, which is what the general public usually hears about, administers the drug to a large number of patients to demonstrate efficacy and safety. The development process (animal testing and clinical trials) is lengthy and can take about ten years.

Patent protection of a drug serves as a legal barrier to pharmaceutical firms entering the market. A *patent* is a property right granted by the US government to an inventor “to exclude others from making, using, offering for sale, or selling the invention throughout the United States or importing the invention into the United States” for a limited time (US Patent and Trademark Office 2014). Two different forms of patent protection apply to pharmaceuticals. The first safeguards the process by which a drug is produced, and the second protects the formula of the drug. Patents last approximately 20 years (US Patent and Trademark Office 2014).

The pharmaceutical market is often used as an example of a monopoly or oligopoly. Typically, the price consumers pay for a new drug is much higher than the drug’s cost of production. Prices are generally set according to the demand structure and the price sensitivity of consumers. The more innovative the drug and the fewer close substitutes it has, the greater the price markup over costs.

A new drug for treating a disease is often priced three times higher than similar drugs in its therapeutic class. (*Therapeutic class* refers to similar medications used to treat a particular disorder or disease.) If the new drug delivers only modest therapeutic gain, then it is priced about two times as much as the average available substitute. If no therapeutic gain is obtained, the drug is typically priced at the same level as existing substitutes.

Generic drug manufacturers control about 50 percent of the US pharmaceutical market. The exact percentage varies by therapeutic class. In comparison to drug makers that patent their medicine, generic producers offer pharmaceuticals at a price that is much closer to the marginal cost of production.

EFFICIENCY AND EQUITY

When markets work efficiently, goods and services are not underproduced or overproduced, and prices are set at a level that consumers are willing to pay—not too high and not too low. But this is not the case in healthcare. For example, without government intervention, the supply of hospitals in rural areas would be low. The patient volume in rural areas is not high enough to generate the revenue needed to cover the cost of running a hospital.

If only efficiency is considered, only those who can afford health-related goods and services will purchase them. Healthcare consumption, however, is not determined exclusively by willingness or ability to pay. Many individuals, for lack of better options, present themselves in emergency departments to obtain care that could be delivered in a less expensive setting, such as a physician’s office.

In the United States, health insurance determines a person’s ability to obtain health-related goods and services. Most other Western countries do not view healthcare as a typical

commodity. In the United Kingdom, for example, denying individuals treatment just because they cannot pay is incomprehensible. The passage of the Affordable Care Act moves the United States closer to equitable access to health-related goods and services. However, there remain some fundamental obstacles to the development of a healthcare system that bases access to care on need rather than on ability to pay.

CORE CONCEPTS TAKEAWAYS

- ◆ The characteristics of a healthcare market do not conform to a perfectly competitive market structure.
- ◆ A monopoly can lead to lower quantities, higher prices, and higher profits than those experienced in a competitive market structure.
- ◆ Many healthcare markets have the characteristics of monopolistic competition, monopoly, and other structures.
- ◆ Competition for healthcare customers by improving quality may mean higher prices for the customers and thus higher insurance premiums.
- ◆ When markets work efficiently, goods and services are not underproduced or overproduced, and prices are set at a level that consumers are willing to pay—not too high and not too low.
- ◆ The pharmaceutical industry is often used as an example of a noncompetitive market structure. The more innovative the drug, the fewer close substitutes it has and the greater the price markup over costs.
- ◆ The insurance industry has many of the characteristics of an oligopoly.

TECHNICAL ELEMENTS

The markets for health-related goods and services are not perfectly competitive, but the structure of a perfectly competitive market serves as a basis for understanding how prices and quantities are determined in healthcare.

SHORT-RUN PRICE AND OUTPUT UNDER PERFECT COMPETITION

Let's review a few basic concepts about perfect competition:

1. A perfectly competitive industry has a large number of firms that sell identical goods or services.

2. Each firm in perfect competition holds a very small market share, so no one firm is a leader in the market. As a result, the firm cannot set a price that is different from its competitors. If it raises its price above the competitors' price, no one will purchase its product. If it lowers its price, competitors will also cut their prices and all firms will make less profit. This means that every firm in this market structure is a price taker.
3. In a perfectly competitive market, price is equal to **marginal revenue (MR)**, which is equal to marginal cost (MC):

$$\text{Equation 6.1} \quad P = MR = MC$$

Marginal revenue (MR)

The change in total revenue when selling one additional unit of output

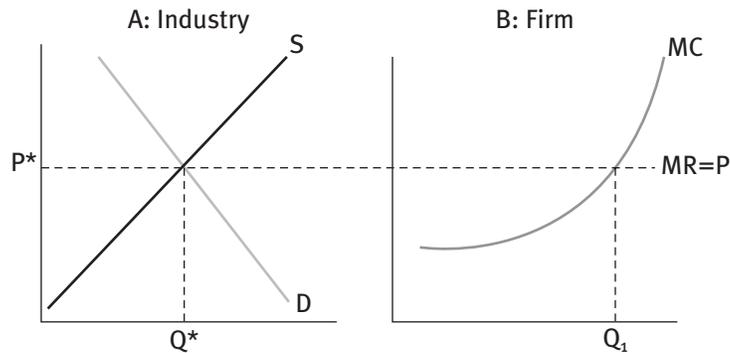
In Exhibit 6.2, the industry demand curve is downward sloping as individuals typically demand more at low prices. The industry supply curve is upward sloping as suppliers want to supply more at high prices. The industry *equilibrium* price is P^* and the industry *equilibrium* output is Q^* . Individual firms take the price from the industry.

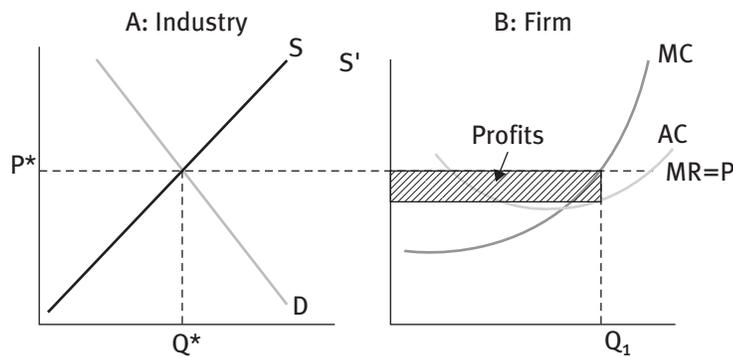
In Exhibit 6.2, the MR curve is the firm's demand curve, and the market price is constant for all units sold. For the firm, the profit-maximizing output is determined by finding $MR = MC$ (on graph B) and drawing a line down to the quantity axis. Thus, the *firm* maximizes profit at Q_1 . This output generates a total revenue for the *firm* of $P^* \times Q_1$.

The total cost of producing this output can be calculated by multiplying the average cost (AC) of a unit of output by the output produced (Q_1). In Exhibit 6.3 (graph B), locate the intersection of MR and MC. From there, draw a line down to the quantity axis. Where that line hits the AC curve, draw a line across to the price axis. Now, if the equilibrium price (P^*) is above AC (as it is in this example), then the firm is making a profit. If P^*

EXHIBIT 6.2

Perfectly Competitive Firm Taking a Price from the Industry



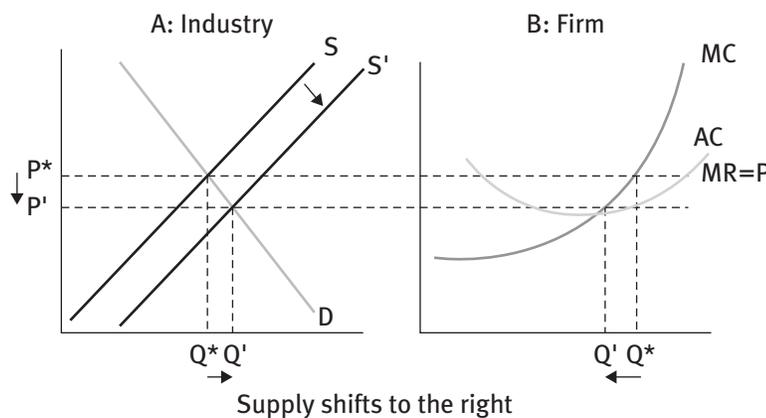
**EXHIBIT 6.3**

Determining Profit
in the Short Run

is less than AC, then the firm is losing money on each unit sold. In Exhibit 6.3, the firm is making a profit. P^* is greater than average cost at the profit-maximizing level Q_1 .

IMPACT OF PROFITS ON MARKET ACTIVITY

If firms are earning positive economic profits, new companies will want to enter the industry. In Exhibit 6.4, the entry of firms is shown by the industry supply shifting to the right. This increase will reduce the market price as each firm now takes a lower price from the market. As shown in Exhibit 6.4, firms will continue to enter the industry until the price is equal to average cost. At this point, firms have no further incentive to enter the industry.

**EXHIBIT 6.4**

Entry of New Firms
into the Industry
Drives Down Profit

APPLICATION OF THE BASIC SUPPLY-AND-DEMAND MODEL TO HEALTHCARE MARKETS

Applying the basic supply-and-demand model to different healthcare situations helps to solidify the fundamental concepts. Let's start with two relatively straightforward examples.

EXAMPLE 1

In the mid-1980s, the uncertainty surrounding a mysterious illness—now known as HIV—increased the demand for latex gloves among healthcare workers. Graphically, this is represented by the market demand curve for latex gloves shifting to the right in Exhibit 6.5. In the short run, the quantity supplied is less than the quantity demanded: At P_0 , the quantity demanded (Q_D) is greater than the quantity supplied (Q_S).

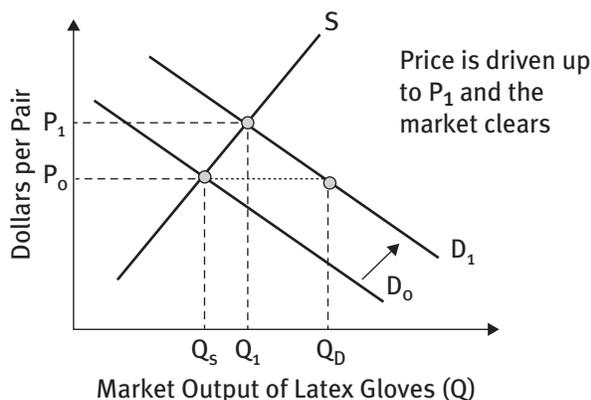
When demand for a product is greater than the available supply, firms can increase price. This is shown in Exhibit 6.5 by an increase in price to P_1 . Of course, if a price is determined by a contract or a prospective payment schedule, the price will remain constant in the short run.

EXAMPLE 2

UK citizens who use the National Health Service (NHS) pay zero copayment for most health-related goods and services. Under the competitive model, zero copayment is predicted to cause a large increase in demand for healthcare. Without an accompanying increase in supply, high demand is expected to result in persistent shortage. The graphical representation of this is shown in Exhibit 6.6.

As shown in Exhibit 6.6, at $P=0$ the quantity demanded is greater than the quantity supplied, which creates excess demand. Economic theory predicts that this disequilibrium

EXHIBIT 6.5
Market Shortage
Caused by
Increased Demand



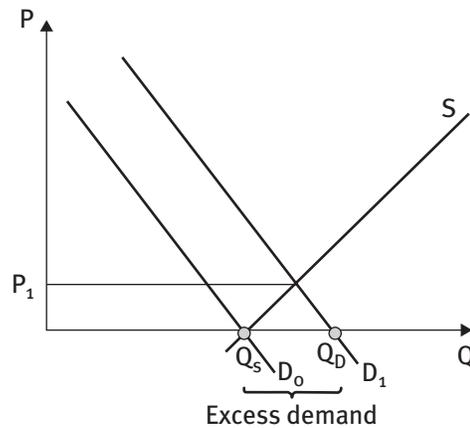
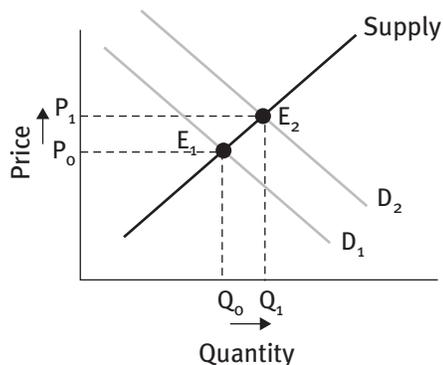


EXHIBIT 6.6
Excess Demand
in a Market with
Zero Copayment

➔ **CONSIDER THIS**

Can the competitive model explain the rise in physician fees after 1965? The introduction of Medicare and Medicaid in 1965 caused demand for health-related goods and services to increase. When demand increased and supply remained fixed, prices were pushed higher.

If the supply of physicians also increased, then (in theory) prices would not have been able to increase to the extent they did. The supply response in the physician market is slow due to the time it takes to train new physicians.



If the supply of physicians increased, the supply curve would shift to the right. This would lessen the impact of the demand response on prices.

($Q_D \neq Q_S$) results in either a price increase to P_1 or a supply increase (which would shift the market supply to the right). When neither of these happens, as is the case with the NHS, waiting times for services persist and so does excess demand.

EXTERNALITIES

The basic supply-and-demand model can be used to capture the societal benefits and the associated losses of externalities.

Assume that individuals get vaccinated because the benefit they receive is at least equal to the economic cost of the vaccination. Economists call this benefit *marginal private benefit* (MPB). In Exhibit 6.7, the demand curve is labeled MPB, which can be interpreted as the additional benefit an individual receives from consuming one additional unit. Because of the law of diminishing marginal utility, the MPB decreases as quantities increase. The market supply of vaccinations is S , the equilibrium price is P_1 , and the equilibrium quantity is Q_1 .

As shown in Exhibit 6.7, **consumer surplus** represents the difference between what consumers are willing to pay (at each level of output) and how much consumers actually pay. **Producer surplus** is the difference between what suppliers are willing to receive (at each level of output) and the amount suppliers actually receive. Because of the nature of the downward-sloping demand curve and the upward-sloping supply curve, both consumers and producers have an economic surplus.

As explained earlier, when a large percentage of people in a group get vaccinated against a disease, other people benefit through herd immunity. This benefit is not captured

Consumer surplus

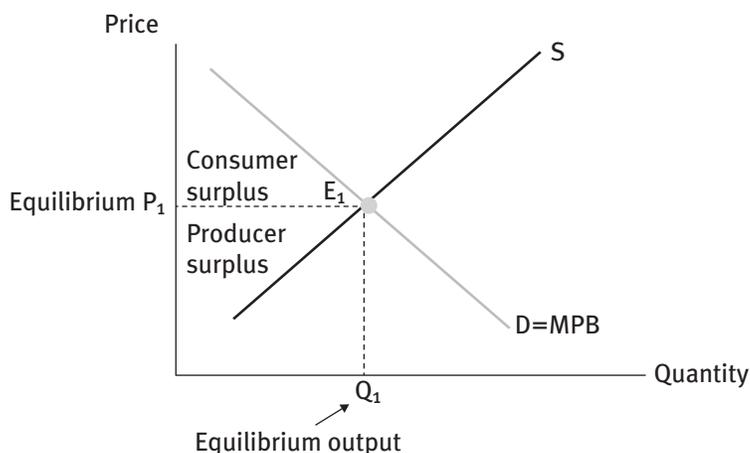
The difference between what consumers are willing to pay (at each level of output) and how much consumers actually pay

Producer surplus

The difference between what suppliers are willing to receive (at each level of output) and the amount suppliers actually receive

EXHIBIT 6.7

Marginal Private
Benefit



→ **CONSIDER THIS**

In the case of externalities, if societal benefits and costs are not fully explored, policy-makers have insufficient information to make informed policy decisions.

in the standard free market model. In Exhibit 6.8, the *marginal social benefit* (MSB) represents the private benefit *plus* the benefits received by society.

The economically efficient equilibrium at point E_2 corresponds to a socially optimum output of Q_2 vaccinations. A market that depends on individual consumers' valuation of vaccinations will underprovide vaccinations. With a free-market model of vaccinations, there is a welfare loss to society, which in economic terms is referred to as *deadweight social loss*. This deadweight loss is shown as a triangle in Exhibit 6.8 and is the social benefit forgone if Q_1 vaccinations are consumed instead of Q_2 vaccinations.

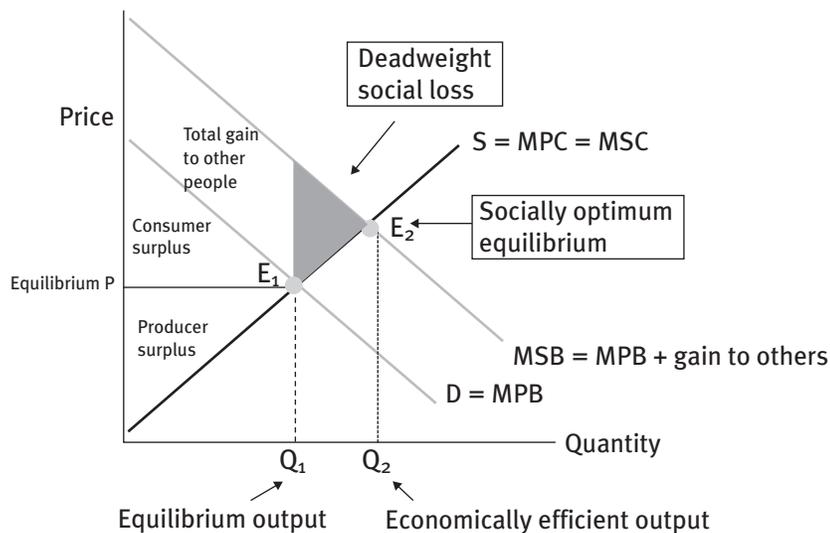


EXHIBIT 6.8

Societal Benefit and Social Loss

MONOPOLY STRUCTURE

Numerous monopolies exist in healthcare, such as communities with only one insurance carrier or one physician specialist. When only one seller is present in the market, the seller faces the entire market demand curve and there are no close substitutes. In addition, the assumption is that the seller offers the same-quality product to all consumers and that MR is less than or equal to the price of the good. (This latter point is fairly theoretical and is not explored in this text, but any introductory microeconomics textbook can elaborate on this concept.)

The extent to which the monopolist can increase price beyond the competitive price is determined by the price elasticity of demand. If consumers are very price sensitive, which is exemplified by a relatively flat demand curve, then the monopolist cannot raise its price much higher than it would be in a competitive market. For example, if an insurance company is not competing with other insurance companies, it has the power to raise enrollees' premiums beyond what is acceptable in a competitive insurance market. Of course, if the enrollees do not need to purchase the monopolist's insurance coverage, the company has limited opportunity to increase its premiums.

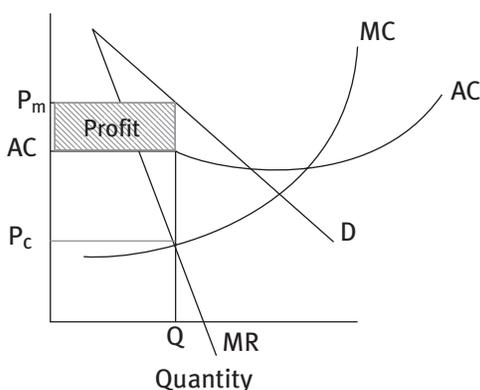
In Exhibit 6.9, P_m is the price for the monopolist's product. A perfectly competitive firm will sell the product at P_c . P_m is greater than P_c .

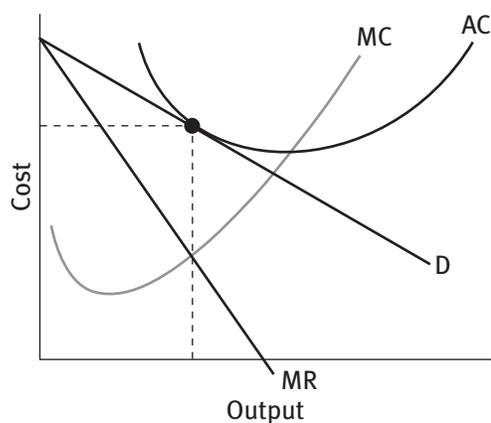
MONOPOLISTIC COMPETITION

The short-run situation for a monopolistically competitive firm is the same as that for a monopoly (see Exhibit 6.9). A monopolistically competitive firm's demand curve is downward sloping (as opposed to horizontal for a firm in a perfectly competitive market). The firm produces a quantity at the point where $MR=MC$ and sets the price off the demand curve. In Exhibit 6.9, the price for a monopolistically competitive firm is P_m and the quantity is Q .

EXHIBIT 6.9

Monopoly
Structure and
Short-Run
Monopolistically
Competitive
Structure

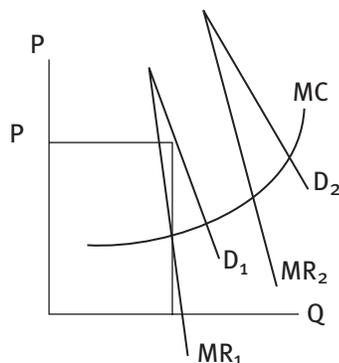


**EXHIBIT 6.10**

Long-Run
Monopolistically
Competitive Firm

→ CONSIDER THIS

Nerve compression in the lower extremities is excruciating and limits sufferers' mobility. Suppose a new technology emerges that dramatically improves the success rate of surgery for this condition, from 40 percent to 80 percent. Many patients would likely be interested in exploring this new treatment. With the increase in demand, the price that consumers (and insurance companies) pay also increases. If consumers are price insensitive (perhaps due to the intense pain of their condition), the demand curve will have a steep slope and the price increase will be dramatic. This is represented in the following graph:



In a monopolistically competitive market, firms enter the industry as long as a positive economic profit exists. This means that when firms enter a market and there is more competition, each monopolistically competitive firm loses some of its customer base. **In Exhibit 6.10, the demand curve (for each firm) shifts left to the point where it is just tangent to the AC curve. In the long run, firms stop entering the industry and the monopolistically competitive firm no longer has the ability to set price above cost.**

The cycle starts again when demand for the product increases or when something occurs that results in more profit. The increase in demand could be related to health status, tastes and preferences, or other factors. Of course, if firms exit the industry, the remaining firms may experience an increase in demand for their goods and services.

TECHNICAL ELEMENTS TAKEAWAYS

- ◆ The basic supply-and-demand model can be used to explain surpluses, shortages, long waits, and rising prices.
- ◆ The extent to which a monopolist can increase price beyond the competitive price is determined by the elasticity of demand. If consumers are price sensitive (which is exemplified by a relatively flat demand curve), then a monopolist cannot raise price much higher than the price in a competitive market.
- ◆ In a monopolistically competitive market, firms enter the industry as long as a positive economic profit can be obtained.

REVIEW QUESTIONS

1. As of July 2015, 29 states and the District of Columbia had expanded their Medicaid programs as directed by the Affordable Care Act of 2010. Using economic tools and economic reasoning, describe the effect this change may have on the physician services market and the hospital services market as well as on the individual firms supplying medical services. Explain and show your answer graphically. Be explicit in your assumptions, and label all parts of your graphs.
2. Explain the monopoly, duopoly, and oligopoly market structures using real examples from the healthcare industry. Hint: Look through the newspaper and other credible news sources for articles related to mergers or acquisitions.
3. Advanced question: The Ebola outbreak of 2014 had tragic consequences for a few countries in West Africa. Explain the effect the outbreak had on the physician, pharmaceutical, nursing, hospital, and other markets. Be specific in your economic assumptions, and use graphs to supplement your answer. Because much has been

written on the Ebola outbreak, base your economic representation on facts rather than suppositions.

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