Chapter Focus

- What is economic efficiency and how can it be used to evaluate markets?
- Why is it generally undesirable to pursue any goal to perfection?
- What is the role of government in a market economy?
- What are externalities? What are public goods?
- Why might markets fail to allocate goods and services efficiently?
- If the market has shortcomings, does this mean the government should intervene?

The principal justification for public policy intervention lies in the frequent and numerous shortcomings of market outcomes.

—Charles Wolf

As we previously discussed, markets and government planning are the two main alternatives for the organization of economic activity. Chapters 3 and 4 introduced you to how markets work and demonstrated how the invisible hand of the market process directs the self-interest of individuals toward activities in the best interest of society. Throughout, we noted that some qualifications were in order, both in terms of the “rules of the game” that must be in place for markets to work well and the existence of special cases, in which the invisible hand might not function effectively. In this chapter, we turn our attention to discussing these potential problem areas for the market and consider their implications with regard to the role of government. In the following chapter, we will analyze how the political process works more directly.

A CLOSER LOOK AT ECONOMIC EFFICIENCY

Economists use the standard of economic efficiency to assess the desirability of economic outcomes. We briefly introduced the concept in Chapter 3. We now want to explore it in more detail. The central idea of economic efficiency is straightforward. For any given level of cost, we want to obtain the largest possible benefit. Alternatively, we want to obtain any particular benefit for the least possible cost. Economic efficiency means getting the most value from the available resources—making the largest pie from the available set of ingredients, so to speak.

Economists acknowledge that individuals generally do not regard the efficiency of the entire economy as a primary goal for themselves. Rather, each person is interested in enlarging the size of his or her own slice. But if resources are used more efficiently, the overall size of the pie will be larger, and therefore, at least potentially, everyone could have a larger slice. For an outcome to be consistent with ideal economic efficiency, two conditions are necessary:

Rule 1. Undertaking an economic action is efficient if it produces more benefits than costs. To satisfy economic efficiency, all actions generating more benefits than costs must be undertaken. Failure to undertake all such actions implies that a potential gain has been forgone.

Rule 2. Undertaking an economic action is inefficient if it produces more costs than benefits. To satisfy economic efficiency, no action that generates more costs than benefits should be undertaken. When such counterproductive actions are taken, society is worse off because even better alternatives were forgone.

Economic efficiency results only when both of these conditions have been met. Either failure to undertake an efficient action (Rule 1) or the undertaking of an inefficient action (Rule 2) will result in economic inefficiency. To illustrate, consider Exhibit 1, which shows the benefits and costs associated with expanding the amount of any particular activity. We have avoided using a specific example here to ensure you understand the general idea of efficiency without linking it to a specific application. As we will show, the concept has wide-ranging applications—from the evaluation of government policy to how long you choose to brush your teeth in the morning.

In Exhibit 1, the marginal benefit curve shows the additional benefit associated with expanding the activity. The marginal cost curve shows the cost—including any opportunities forgone. 2

2Note to students who may pursue advanced study in economics: Using the concept of efficiency to compare alternate policies typically requires that the analyst estimate costs and benefits that are difficult or impossible to measure. Costs and benefits are the values of opportunities forgone or accepted by individuals, as evaluated by those individuals. Then these costs and benefits must be added up across all individuals and compared. But does a dollar’s gain for one individual really compensate for a dollar’s sacrifice by another? Some economists simply reject the validity of making such comparisons. They say that neither the estimates by the economic analyst of subjectively determined costs and benefits nor the adding up of these costs and benefits across individuals is meaningful. Their case may be valid, but most economists today nevertheless use the concept of efficiency as we present it. No other way to use economic analysis to compare policy alternatives has been found.
nity costs—of spending additional time, effort, and resources on the activity. At $Q_1$, the height of the marginal benefit curve exceeds the height of the marginal cost curve. Thus, at that point, the additional benefits of expanding the activity past $Q_1$ exceed the additional costs. According to Rule 1 of economic efficiency, we should continue to expand the activity until we reach $Q_2$. Beyond $Q_2$ (at $Q_3$, for example), the height of the marginal benefit curve is less than the height of the marginal cost curve. The additional benefits from expanding activity to that point are smaller than the additional costs. According to Rule 2, at $Q_3$, we have gone too far and should cut back on the activity. $Q_2$ is the only point consistent with both rules of economic efficiency.

As we use more time and resources to expand the level of an activity, the marginal benefits will generally decline and the marginal costs rise. From the viewpoint of efficiency, the activity should be expanded as long as the marginal benefits exceed the marginal cost. Thus, quantity $Q_1$ is the economically efficient level of this activity. $Q_1$ is inefficient because some production that could generate more benefits than costs is not undertaken. $Q_3$ is also inefficient because some units are produced even though their costs exceed the benefits they create. Thus, both too much and too little of an activity will result in inefficiency.

**EXHIBIT 1**

Economic Efficiency

Eliminating pollution. Earning straight As. Being completely organized. Cleaning your apartment until it sparkles. Making automobiles completely safe. Making airplanes fully secure against terrorist attacks. All of these are worthwhile goals, right? Well, they are until you consider the costs of actually achieving them. The heading for this section is, of course, a play on the old saying, “If it’s worth doing, it’s worth doing to the best of your ability.” Economics suggests, however, that this is not a sensible guideline. At some point, the gains from doing something even better will not be worth the cost. It will make more sense to stop short of perfection.

Exhibit 1 can also be used to illustrate this point. As more resources are dedicated to an activity, the marginal improvements (benefits) will become smaller and smaller, while the marginal costs will rise. The optimal time and effort put into the activity will be achieved at $Q_2$, and this will nearly always be well below one’s best effort. Note that inefficiency results when either too little (for example, $Q_1$) or too much (for example $Q_3$) time and effort are put into the activity.

Do you make decisions this way? Last time you cleaned your car or apartment, why did you decide to leave some things undone? Once the most important areas were clean, you likely began to skip over other areas (like on top of the refrigerator or under the bed), figuring that the benefits of cleaning these areas were simply not worth the cost. Very few
people live in a perfectly organized and clean house, wash their hands enough to prevent all colds, brush their teeth long enough to prevent all cavities, or make their home as safe as Fort Knox. They recognize that the benefit of perfection in these, and many other areas, is simply not worth the cost.

Economics is about trade-offs; it is possible to pursue even worthy activities beyond the level that is consistent with economic efficiency. People seem to be more aware of this in their personal decision-making than when evaluating public policy. It is not uncommon to hear people say things like, “We ought to eliminate all pollution” or “No price is too high to save a life.”

If we want to get the most out of our resources, we need to think about both marginal benefits and marginal costs and recognize that there are alternative ways of pursuing objectives. Consequently, economists do not ask whether eliminating pollution or saving lives is worth the cost in terms of dollars per se, but whether it is worth the cost in terms of giving up other things that could have been done with those dollars—the opportunity cost. Spending an extra $10 billion on worker safety requirements to save 100 lives isn’t efficient if the funds could have been spent differently and saved 500 lives. Furthermore, it makes no more sense to have the government pursue perfection than it does for each of us personally to pursue it. Regardless of sector, achievement of perfection is virtually never worth the cost.

**THINKING ABOUT THE ECONOMIC ROLE OF GOVERNMENT**

For centuries, philosophers, economists, and other scholars have debated the proper role of government. While the debate continues, there is substantial agreement that at least two functions of government are legitimate: (1) protecting individuals and their property against invasions by others and (2) providing goods that cannot easily be provided through private markets. These two functions correspond to what Nobel laureate James Buchanan conceptualizes as the protective and productive functions of government.

**Protective Function of Government**

The most fundamental function of government is the protection of individuals and their property against acts of aggression. As John Locke wrote more than three centuries ago, individuals are constantly threatened by “the invasions of others.” Therefore, each individual
“is willing to join in society with others, who are already united, or have a mind to unite, for the mutual preservation of their lives, liberties, and estates.”

The protective function of government involves the maintenance of a framework of security and order—an infrastructure of rules within which people can interact peacefully with one another. Protection of person and property is crucial. It entails providing police protection and prosecuting aggressors who take things that do not belong to them. It also involves providing for a national defense designed to protect against foreign invasions. The legal enforcement of contracts and rules against fraud are also central elements of the protective function. People and businesses that write bad checks, violate contracts, or knowingly supply others with false information, for example, are therefore subject to legal prosecution.

It is easy to see the economic importance of the protective function. When it is performed well, the property of citizens is secure, freedom of exchange is present, and contracts are legally enforceable. When people are assured that they will be able to enjoy the benefits of their efforts, they will be more productive. In contrast, when property rights are insecure and contracts unenforceable, productive behavior is undermined. Plunder, fraud, and economic chaos result. Governments set and enforce the “rules of the game” that enable markets to operate smoothly.

Productive Function of Government

The nature of some goods makes them difficult to provide through markets. Sometimes it is difficult to establish a one-to-one link between the payment and receipt of a good. If this link cannot be established, the incentive of market producers to supply these goods is weak. In addition, high transaction costs—particularly, the cost of monitoring use and collecting fees—can sometimes make it difficult to supply a good through the market. When either of these conditions is present, it may be more efficient for the government to supply the good and impose taxes on its citizens to cover the cost.

One of the most important productive functions of government is providing a stable monetary and financial environment. If markets are going to work well, individuals have to know the value of what they are buying or selling. For market prices to convey this information, a stable monetary system is needed. This is especially true for the many market exchanges that involve a time dimension. Houses, cars, consumer durables, land, buildings, equipment, and many other items are often paid for over a period of months or even years. When the purchasing power of money fluctuates wildly, previously determined prices do not represent their intended values. Under these circumstances, exchanges involving long-term commitments are hampered, and the smooth operation of markets undermined.

The government’s tax, spending, and monetary policies exert a powerful influence on the stability of the overall economy. If properly conducted, these policies contribute to economic stability, full and efficient utilization of resources, and stable prices. However, improper stabilization policies can cause massive unemployment, rapidly rising prices, or both. For those pursuing a course in macroeconomics, these issues will be central to that analysis.

POTENTIAL SHORTCOMINGS OF THE MARKET

As we previously discussed, the invisible hand of market forces generally gives resource owners and business firms a strong incentive to use their resources efficiently and undertake projects that create value. Will this always be true? The answer to this question is “No.” There are four major factors that can undermine the invisible hand and reduce the efficiency of markets: (1) lack of competition, (2) externalities, (3) public goods, and (4) poorly informed buyers or sellers. We will now consider each of these factors and explain why they may justify government intervention.

Lack of Competition

Competition is vital to the proper operation of the pricing mechanism. The existence of competing buyers and sellers reduces the power of both to rig or alter the market in their own favor. Although competition is beneficial from a social point of view, individually each of us would prefer to be loosened from its grip. Students do not like stiff competitors in their social or romantic lives, at exam time, or when they’re trying to get into graduate school. Buyers on eBay hope for few competing bidders so they can purchase the items they’re bidding on at lower prices. Similarly, sellers prefer fewer competing sellers so they can sell at higher prices.

Exhibit 2 illustrates how sellers can gain from restricting competition. In the absence of any restrictions on competition in the market, the price \( P_1 \) and output \( Q_1 \) associated with the competitive supply curve (\( S_1 \)) will prevail. Here, \( Q_1 \) is the level of output consistent with economic efficiency. If a group of sellers was able to restrict competition, perhaps by forcing some firms out of the market and preventing new firms from entering, the group will be able to gain by raising the price of the product. This is illustrated by the price \( P_2 \) and output \( Q_2 \) associated with the restricted supply (\( S_2 \)). Even though the output is smaller, the total revenue (price \( P_2 \) times quantity \( Q_2 \)) derived by the sellers at the restricted output level is greater than at the competitive price \( P_1 \). Clearly, the sellers gain because, at the higher price, they are being paid more to produce less.

The restricted output level, however, is clearly less efficient. At the competitive output level \( Q_1 \), all units that were valued more than their cost are produced and sold. But this is not the case at \( Q_2 \). The additional units between \( Q_2 \) and \( Q_1 \) are valued more than their cost. Nonetheless, they will not be produced if suppliers are able to limit competition and restrict output. When competition is absent, there is a potential conflict between the interests of sellers and the efficient use of resources.
What can the government do to ensure that markets are competitive? The first guideline might be borrowed from the medical profession: Do no harm. A productive government will refrain from using its powers to impose licenses, discriminatory taxes, price controls, tariffs, quotas, and other entry and trade restraints that lessen the intensity of competition. In the vast majority of markets, sellers will find it difficult or impossible to limit the entry of rival firms (including rival producers from other countries). The only means by which they can limit competition is lobbying the government to impose restrictions or controls that limit competition on their behalf. In the interest of efficiency, governments should refrain from giving in to these demands.

When entering a market is very costly and there are only a few existing sellers, it may be possible for these sellers by themselves to restrict competition. In an effort to deal with cases like this, the United States has enacted a series of “antitrust laws,” most notably the Sherman Antitrust Act (1890) and the Clayton Act (1914), making it illegal for firms to collude or attempt to monopolize a market.

For the most part, economists favor the general principle of government action to ensure and promote competitive markets. There is considerable debate, however, about the effectiveness of actual government policy in this area. Many economists believe that, by and large, government policy in this area has been ineffective. Others stress that government policies have often been misused to actually limit competition, rather than promote it. These laws have been used as a basis for restricting entry into markets, protecting existing producers from competitors, and limiting price competition. This is counterproductive. For those taking a microeconomics course, non-competitive markets and related policy alternatives will be analyzed in greater detail later.

Externalities—A Failure to Account for All Costs and Benefits

When property rights are unclear or poorly enforced, the actions of an individual or group may “spill over” onto others and thereby affect their well-being without their consent. These spillover effects are called externalities. You are probably familiar with externalities. For example, when your neighbor’s loud stereo makes it hard for you to study, you are experiencing an externality firsthand. Although your neighbors do not have a right to come into your apartment and turn on your stereo, they do have a right to listen to their own stereo, and their listening may interfere with the quietness in your apartment. Their actions impose a cost on you, and they also raise an issue of property rights. Do your neighbors have a property right to play their stereo as loud as they please? Or do you have a property right to quietness in your own apartment? When questions like these arise, how should the boundaries of property rights be determined, and what steps should be taken to ensure adequate enforcement? Although the volume of your neighbor’s stereo may not be a major economic issue, it nonetheless illustrates the nature of the problems that arise when property rights are unclear and externalities are present.

The spillover effects may either impose a cost or create a benefit for third parties—people not directly involved in the transaction, activity, or exchange. Economists use the term external cost to describe a situation in which the spillover effects harm third parties. If the spillover effects enhance the welfare of the third parties, an external benefit is present. We will analyze both external costs and external benefits and consider why both of them can lead to problems.

External Cost Why should economists worry about external cost? Answer: external cost may result in economic inefficiency. For example, resources may be used to produce goods that are valued less than their production costs, including the costs imposed on the nonconsenting third parties. Consider the production of paper. The firms in the market operate mills and purchase labor, trees, and other resources to produce the paper. But they also emit pollutants into the atmosphere that impose costs on residents living around the mills. The pollutants cause paint on buildings to deteriorate more rapidly. They make it difficult for some people to breathe normally, and perhaps cause other health hazards. If the residents living near a pulp mill can prove they have been harmed, they could take the mill to court and force the paper producer to cover the cost of their damages. But it might
be difficult to prove that they were harmed and that the pulp mill is responsible for the damage. As you can see, the residents’ property rights to clean air may be difficult to enforce, particularly if there are many parties emitting pollutants into the air.

If the residents are unable to enforce their property rights, the production of paper will generate an external cost that will be ignored by markets. Exhibit 3 illustrates the implications of these external costs within the supply and demand framework. As the result of the external cost, the market supply curve $S_1$ will understate the true cost of producing paper. It reflects only the cost actually paid by the firms, and ignores the uncompensated costs imposed on the nearby residents. Under these circumstances, the firm will expand output to $Q_1$ (the intersection of the demand curve $D$ and supply curve $S_1$) and the market price $P_1$ will emerge. Are this price and this output consistent with economic efficiency? The answer is clearly “No.” If all of the costs of producing the paper, including those imposed on third parties, were taken into account, the supply curve $S_2$ would result. From an efficiency standpoint, only the smaller quantity $Q_2$ should be produced. The units beyond $Q_2$ on out to $Q_1$ cost more than their value to consumers. People would be better off if the resources used to produce those units (beyond $Q_2$) were used to produce other things. Nonetheless, profit-maximizing firms will expand output into this range. Thus, when external costs are present, the market supply curve will understate production costs, and output will be expanded beyond the quantity consistent with economic efficiency. Moreover, resources for which property rights are poorly enforced will be overutilized and sometimes polluted. This is often the case with air and water when the property rights to these resources are poorly enforced.

What should be done about external costs? These costs arise because property rights are poorly defined or imperfectly enforced. Initially, therefore, it makes sense to think seriously about how property rights might be better defined and enforced. However, the nature of some goods will make the defining and enforcement of property rights extremely difficult. This will certainly be the case for resources like clean air and many fish species in the ocean. In cases that involve a relatively small number of people, the parties involved may be able to agree to rules and establish procedures that will minimize the external effects. For example, property owners around a small lake will generally be able to control access to the lake and prevent each other, as well as outsiders, from polluting or overfishing the lake.

However, in cases that involve large numbers of people, the transactions costs of arriving at an agreement will be prohibitively high, so it is unrealistic to expect that private contracts among the parties will handle the situation satisfactorily. For example, this will be the case when a large number of automobiles and firms emit pollutants into the atmosphere. In these “large number” cases, government regulations may be the best approach. At this
point, we want you to see the nature of the problem when external costs are present. As we proceed, we will analyze a number of problems in this area in detail and consider alternative approaches that might improve economic efficiency.

**External Benefits**  As we mentioned, sometimes the actions of individuals and firms generate external benefits for others. The homeowner who keeps a house in good condition and maintains a neat lawn improves the beauty of the entire community. A flood-control dam built by upstream residents for their benefit might also generate gains for those who live downstream. Scientific theories benefit their authors, but the knowledge can also help others who did not contribute to the development of them.

From the standpoint of efficiency, why might external benefits be a problem? Here, inefficiency may arise because potential producers are unable to capture fully the benefits that their actions create for others. Suppose a pharmaceutical company develops a vaccine protecting users against a contagious virus or some other communal disease. Of course, the vaccine can easily be marketed to users who will benefit directly from it. However, because of the communal nature of the virus, as more and more people take the vaccine, nonusers will also be less likely to get the flu. But it will be very difficult for the pharmaceutical companies to capture any of the benefits derived by the nonusers. As a result, too little of the vaccine may be supplied.

Exhibit 4 illustrates the impact of external benefits like those generated by the vaccine within the framework of supply and demand. The market demand curve reflects the benefits derived by the users of the vaccine, while the supply curve reflects the opportunity cost of providing it. Market forces result in an equilibrium price of \( P_1 \) and output of \( Q_1 \). Is this outcome consistent with economic efficiency? Again, the answer is “No.” The market demand curve \( D_1 \) will register only the benefits derived by the users. Those benefits that accrue to nonusers, who are now less likely to contract the flu, will not be taken into account by decision-makers. The producer of the vaccine makes it more likely these people will not get sick, but it doesn’t derive any benefit (sales revenue) from having done so. Thus, market demand \( D_1 \) understates the total benefits derived from the production and use of the vaccine. Demand \( D_2 \) provides a measure of these total benefits, including those that accrue to the nonusers. The units between \( Q_1 \) and \( Q_2 \) are valued more highly than what it costs to produce them. Nonetheless, they will not be supplied because the suppliers of the vaccine will be unable to capture the benefits that accrue to the nonusers. Thus, when external benefits are present, market forces may supply less than the amount consistent with economic efficiency.
While external benefits are a potential source of inefficiency, entrepreneurs have a strong incentive to figure out ways to capture more fully the gains their actions generate for others. In some cases, they are able to capture what would otherwise be external benefits by extending the scope of the firm. The accompanying Application in Economics, “Capturing External Benefits: The Case of Walt Disney World,” provides an interesting and informative illustration of this point.

Public Goods and Why They Pose a Problem for the Market

What are public goods? Public goods have two distinguishing characteristics: (1) nonrivalry in consumption and (2) nonexcludability. Let’s take a closer look at both of these characteristics.

Nonrivalry in consumption means that making the good available to one consumer does not reduce its availability to others. In fact, providing it to one person simultaneously makes it available to other consumers. Thus, a consumer has no reason to compete with others for the good. A radio broadcast signal provides an example. The same signal can be shared by everyone within the listening range. Having additional listeners tune in does not detract from the availability of the signal. Clearly, most goods do not have this shared consumption characteristic, but are instead rivals-in-consumption. For example, two individuals cannot simultaneously consume the same pair of jeans. Further, if one person purchases a pair of jeans, there is one less pair available for someone else.

The second characteristic of a public good—nonexcludability—means that it is impossible (or at least very costly) to exclude nonpaying customers from receiving the good. Suppose an antimissile system were being built around the city in which you live. How could some people in the city be protected by the system and others excluded? Most people will realize there is no way the system can protect their neighbors from incoming missiles without providing similar protection to other residents. Thus, the services of the antimissile system have the nonexcludability characteristic.

It is important to note that it is the characteristic of the good, not the sector in which it is produced, that determines whether it qualifies as a public good. There is a tendency to think that if a good is provided by the government, then it is a public good. This is not the case. Many of the goods provided by governments clearly do not have the characteristics

EXHIBIT 4
External Benefits and Output That Is Less Than the Efficient Level

A vaccine that protects users against the flu will also help nonusers by making it less likely that they will catch it. But this benefit will not be registered by the market demand curve ($D_1$). In cases where external benefits like this are present, output will be less than the economically efficient level. Even though the units between $Q_1$ and $Q_2$ generate more benefits than costs, they will not be supplied because sellers are unable to capture the value of these external benefits.
Sometimes projects that generate more benefits than cost are still unattractive because a substantial share of the benefits are external and therefore difficult to capture. If an entrepreneur could figure out a way to capture more of these benefits, an otherwise unprofitable project might be transformed into a profitable one. Sometimes this can be done by extending the scope of a project.

The development of golf courses is an example. Because of the beauty and openness of the courses, many people find it attractive to live nearby. Thus, constructing a golf course typically generates an external benefit—an increase in the value of the nearby property. In recent years, golf course developers have figured out how to capture this benefit. Now, they typically purchase a large tract of land around the planned course *before it is built*. This places them in a position to resell the land at a higher price after the golf course has been completed and the surrounding land has increased in value. By extending the scope of their activities to include real estate as well as golf course development, they are able to capture what would otherwise be external benefits.

Florida’s Walt Disney World is an interesting case study in entrepreneurial ingenuity designed to capture external benefits more fully. When Walt Disney developed Disneyland in California, the market value of the land in the immediate area soared as a result of the increase in demand for services (food, lodging, gasoline, and so on). Because the land in the area was owned by others, the developers of Disneyland were unable to capture these external benefits. In addition, Disney felt as if some of the adult nightclubs that had opened around his existing Disneyland park were imposing external costs on him by detracting from the family image his park was trying to attain.

Because of his experience with these externalities, when Walt Disney World was developed outside of Orlando, Florida, in the mid 1960s, Walt Disney purchased far more land than was needed for the amusement park. This enabled him to capture the increased land value surrounding his development (when he resold the land for a higher price), and reduce the negative externalities imposed on him via his control of the surrounding property.

The purchases were made as secretly as possible to prevent speculators from driving up the land prices if Disney’s actions were detected. Disney even created a handful of smaller companies, with names like the Latin American Development and Managers Corporation and the Reedy Creek Ranch Corporation, to purchase the land. After his first major land purchase of 12,400 acres, Walt Disney was at a meeting at which he was offered an opportunity to purchase an additional 8,500 acres. Walt Disney’s assistant was rumored to have said, “But Walt, we already own 12,000 acres, enough to build the park.” Disney replied, “How would you like to own 8,000 acres around our existing Disneyland facility right now?” His assistant immediately responded, “Buy it!”

After another major acquisition of 1,250 acres, Disney began concentrating on buying smaller land parcels around his main property. By June 1965, Disney had purchased 27,400 acres, or about 43 square miles—an area 150 times larger than his existing Disneyland park, and about twice as big as Manhattan. In October 1965, when an Orlando newspaper finally broke the story that Disney was behind the land purchases, the remaining land prices around his property jumped from $183 an acre to $1,000 an acre overnight. But by then, except for several small parcels he was unable to acquire, Walt Disney had purchased all of the land he wanted.

Florida eventually gave Walt Disney permission to create an autonomous Reedy Creek Improvement District, outside the authority of any local government in Florida. In a very real sense, Walt Disney World is a jurisdiction of its own, separate from any other local government authority. Because of this, Walt Disney World can write its own zoning regulations. (continued)
Difficult Cases for the Market and The Role of Government

of public goods. Medical services, education, mail delivery, trash collection, and electricity come to mind. Although these goods are often supplied by governments, they do not have either nonrivalry or nonexcludability characteristics. Thus, they are not public goods.

Why are public goods difficult for markets to allocate efficiently? The nonexcludability characteristic provides the answer. Since those who do not pay cannot be excluded, sellers are generally unable to establish a one-to-one link between the payment and receipt of these goods. Realizing they cannot be excluded, potential consumers have little incentive to pay for these goods. Instead, they have an incentive to become free riders, people who receive the benefits of the good without helping to pay for its cost. But, when a large number of people become free riders, not very much of the good is supplied. This is precisely the problem: markets will tend to undersupply public goods, even when the population in aggregate values them highly relative to their cost.

Suppose national defense were provided entirely through the market. Would you voluntarily help to pay for it? Your contribution would have little impact on the total supply of defense available to each of us, even if you made a large personal contribution. Many citizens, even though they might value defense highly, would become free riders, and few funds would be available to finance national defense.

For most goods, it is easy to establish a link between payment and receipt. If you do not pay for a gallon of ice cream, an automobile, a television set, a DVD player, and literally thousands of other items, suppliers will not provide them to you. Thus, there are very few public goods. National defense is the classic example of a public good. Radio and TV signals, software programs, flood-control projects, mosquito abatement programs, and perhaps some scientific theories also have public good characteristics. But beyond this short list, it is difficult to think of additional goods that qualify.

Just because a good is a public good does not necessarily mean that markets will fail to supply it. When the benefit of producing these goods is high, entrepreneurs will attempt to find innovative ways to gain by overcoming the free-rider problem. For example, radio and television broadcasts, which have both of the public good characteristics, are still produced well by the private sector. The free-rider problem is overcome through the use of advertising (which generates indirect revenue from listeners), rather than directly charging listeners. Private entrepreneurs have developed things like scrambling devices (so nonpaying customers can’t tune into broadcasts free of charge) copy protection on DVDs, and tie-in purchases (for example, tying the purchase of a software instruction manual to the purchase of the software itself) to overcome the free-rider problem. The marketing of computer software provides an interesting illustration. Since the same software program can be copied without reducing the amount available, and it is costly to prevent consumption by nonpayers, software clearly has public good characteristics. Nonetheless, Bill Gates became the richest man in the world by producing and marketing it!

In spite of the innovative efforts of entrepreneurs, however, the quantity of public goods supplied strictly through market allocation might still be smaller than the quantity consistent with economic efficiency. This creates a potential opportunity for government action to improve the efficiency of resource allocation.

APPLICATIONS IN ECONOMICS

Just as Disney expected, the value of the land surrounding Walt Disney World soared as the demand for hotels, restaurants, and other businesses increased along with the development of the amusement park. Through the years, the resale of land near the park has been a major source of revenue for the company. To a large degree, the success of the Disney Corporation reflects Walt Disney’s entrepreneurial ability to deal with externality and public-good problems.
Potential Information Problems

Like other goods, information is scarce. Thus, when making purchasing decisions, people are sometimes poorly informed about the price, quality, durability, and side effects of alternate products. Imperfect knowledge is not the fault of the market. In fact, the market provides consumers with a strong incentive to acquire information. If they mistakenly purchase a “lemon,” they will suffer the consequences. Furthermore, sellers have a strong incentive to inform consumers about the benefits of their products, especially in comparison to competing products. However, circumstances will influence the incentive structure confronted by both buyers and sellers.

The consumer’s information problem is minimal if the item is purchased regularly. Consider the purchase of soap. There is little cost associated with trying different brands. Since soap is a regularly purchased product, trial and error is an economical means of determining which brand is most suitable to one’s needs. Regularly purchased items such as toothpaste, most food products, lawn service, and gasoline provide additional examples of repeat-purchase items. When purchasing items like these, the consumer can use past experience to acquire accurate information and make wise decisions.

Furthermore, the sellers of repeat-purchase items also have a strong incentive to supply consumers with accurate information about them because failing to do so will adversely affect future sales. Because future demand is directly related to the satisfaction level of current customers, sellers of repeat-purchase items will want to help their customers make satisfying long-run choices. This helps harmonize the interests of buyers and sellers.

But harmony will not always occur. Conflicting interests, inadequate information, and unhappy customers can arise when goods are either (1) difficult to evaluate on inspection and seldom repeatedly purchased from the same producer or (2) potentially capable of serious and lasting harmful side effects that cannot be predicted by a typical consumer. Under these conditions, consumers might make decisions they will later regret.

When customers are unable to distinguish between high-quality and low-quality goods, business entrepreneurs have an incentive to cut costs by reducing quality. Businesses that follow this course may survive and even prosper. Consider the information problem when an automobile is purchased. Are consumers capable of properly evaluating the safety equipment? Most are not. Of course, some consumers will seek the opinion of experts, but this information will be costly and difficult to evaluate. In this case, it might be more efficient to have the government regulate automobile safety and require certain safety equipment.

Similar issues arise with regard to product effectiveness. Suppose a new wonder drug promises to reduce the probability a person will be stricken by cancer or heart disease. Even if the product is totally ineffective, many consumers will waste their money trying it. Verifying the effectiveness of the drug will be a complicated and lengthy process. Consequently, it may be better to have experts certify its effectiveness. The federal Food and Drug Administration was established to perform this function. However, letting the experts decide is also a less than ideal solution. The certification process is likely to be costly and lengthy. As a result, the introduction of products that are effective may be delayed for years, and they are likely to be more costly than they would be otherwise.

Information as a Profit Opportunity

Consumers are willing to pay for information that will help them make better decisions. This presents a profit opportunity. Entrepreneurs publish and other providers of information help consumers find what they seek by offering product evaluations by experts. For example, dozens of publications provide independent expert opinions about automobiles and computers at a low cost to potential purchasers. Laboratory test results and detailed product evaluations on a wide variety of goods are provided by Consumer Reports, Consumer Research, and other publications.

Franchises are another way entrepreneurs have responded to the need of consumers for more and better information. A franchise is a right or license granted to an individual to market a company’s goods or services or use its brand name. The individual firms are independently owned but must meet certain conditions to continue to use the name.
to market a company’s goods or services (or use their brand name). Fast-food restaurants like McDonald’s, Wendy’s, and Burger King are typically organized as franchises. The individual restaurants are independently owned, but the owner pays for the right to use the company name and must offer specific products and services in a manner specified by the franchiser. Franchises help give consumers reliable information. The tourist traveling through an area for the first time with very little time to search out alternatives may find that eating at a franchised restaurant and sleeping at a franchised motel are the cheapest ways to avoid annoying and costly mistakes that might come from patronizing an unknown local establishment. The franchiser sets the standards for all firms in the chain and establishes procedures, including continuous inspections designed to maintain the standards. Franchisers have a strong incentive to maintain their reputation for quality, because if it declines, their ability to sell new franchises and to collect ongoing franchise fees is adversely affected. Even though the tourist may visit a particular establishment only once, the franchise turns that visit into a “repeat purchase,” since the reputation of the entire national franchise operation is at stake.

Similarly, advertising a brand name nationally puts the brand’s reputation at stake each time a purchase is made. How much would the Coca-Cola Company pay to avoid the sale of a dangerous bottle of Coke? Surely, it would be a large sum. Interbrand, a branding consulting agency that evaluates and ranks the top brand names in the world, estimates that Coke’s brand name is worth $67.4 billion. The value of that brand name is a hostage to quality control. The firm would suffer enormous damage if it failed to maintain the quality of its product. For example, in 2000 and 2001, Firestone’s brand name suffered an immense reduction in value after only a few Firestone tires were suspected of being defective. Firestone is still attempting to recover from its loss in brand name value.

Enterprising entrepreneurs have found ways to assure buyers that products meet high standards of quality, even when the producer is small and not so well known. Consider the case of Best Western Motels.4 Best Western owns no motels; however, building on the franchise idea, it publishes rules and standards with which motel owners must comply if they are to use the Best Western brand name and the reservation service that the company also operates. To protect its brand name, Best Western sends out inspectors to see that each Best Western Motel meets these standards. Every disappointed customer harms the reputation and reduces the value of the Best Western name, and reduces the willingness of motel owners to pay for use of the name. The standards are designed to keep customers satisfied. Even though each motel owner has only a relatively small operation, renting the Best Western name provides the small operator with the kind of international reputation formerly available only to large firms. In effect, Best Western acts as a regulator of all motels bearing its name. It profits by requiring efficient standards—those that produce maximum visitor satisfaction for every dollar spent by the motels utilizing the franchise name. As it does so, it helps eliminate problems in the market that result from imperfect information.

Underwriters Laboratories, Inc., is another example of private-sector regulation aimed at overcoming potential information problems. UL, as it is better known, is a private-sector corporation that has been testing and certifying products for more than 100 years based on its own set of quality standards. You have probably seen the UL mark on many of your household appliances. Sellers pay a fee to have UL evaluate their products for possible certification. The value of the UL brand depends on their careful evaluation of every product they certify. If UL allows defective products to carry its mark, its brand value will diminish.

Information published by reliable sources, franchising, and brand names can help consumers make better-informed decisions. Although these options are effective, they will not always provide an ideal solution. Government regulation may sometimes be able to improve the situation, but this, too, has its shortcomings. As with other things, there is no general solution to imperfect information problems.

Brand names (like Coca-Cola), franchises (like McDonald’s), private sector certification firms (like Underwriters Laboratories, Inc.), and consumer-ratings magazines (like Consumer Reports) are ways the private sector helps buyers overcome potential information problems.

PULLING THINGS TOGETHER

Throughout this textbook, we have stressed that a sound legal system—one that protects individuals and their property and provides access to evenhanded courts for the enforcement of contracts and settlement of disputes—is vitally important for the smooth operation of markets. So, too, is a monetary regime that provides people with access to a sound currency—money that maintains its value across time periods. Beyond these functions, however, there is little justification for government action when there is reason to expect that markets will allocate resources efficiently. But a lack of competition, externalities, public goods, and information problems often pose challenges and sometimes undermine the efficient operation of markets. Market shortcomings due to these factors raise the possibility that government intervention beyond the protective function might improve things. But before jumping to that conclusion, we need better knowledge about how the political process works. We are now ready to move on to that topic.

LOOKING AHEAD

Political decision-making is complex, but the tools of economics can enhance our understanding of how it works. This is the subject matter of the next chapter.
Economists use the standard of economic efficiency to assess the desirability of economic outcomes. Efficiency requires both: (1) that all actions generating more benefit than cost be undertaken, and (2) that no actions generating more cost than benefit be undertaken.

Although perfection is a noble goal, it is rarely worth achieving because additional time and resources devoted to an activity generally yield smaller and smaller benefits and cost more and more. Inefficiency can result when either too little or too much effort is put into an activity.

Governments can enhance economic well-being by performing both protective and productive functions. The protective function involves (1) the protection of individuals and their property against aggression and (2) the provision of a legal system for the enforcement of contracts and settlement of disputes. The productive function of government can help people obtain goods that would be difficult to supply through markets.

When markets fail to meet the conditions for ideal economic efficiency, the problem can generally be traced to one of four sources: absence of competition, externalities, public goods, or poor information.

Externalities reflect a lack of fully defined and enforced property rights. When external costs are present, output can be too large—units are produced even though their costs exceed the benefits they generate. In contrast, external benefits can lead to an output that is too small—some units are not produced even though the benefits of doing so would exceed the cost.

Public goods are goods for which (1) rivalry in consumption is absent and (2) it is difficult to exclude those who do not pay. Because of the difficulties involved in establishing a one-to-one link between payment and receipt of such goods, the market supply of public goods will often be less than the economically efficient quantity.

Entrepreneurs in markets have an incentive to find solutions to each market problem, and new solutions are constantly being discovered. But problems remain that can potentially be improved through government action.

**KEY POINTS**

1. Why is it important for producers to be able to prevent nonpaying customers from receiving a good?
2. In response to the terrorist attacks of September 11, 2001, airline security screening has increased dramatically. As a result, travelers must now spend considerably more time being screened before flights. Would it make economic sense to devote enough resources to completely prevent any such future attacks? Why or why not?
3. What are the distinguishing characteristics of “public goods?” Give two examples of a public good. Why are public goods difficult for markets to allocate efficiently?
4. Which of the following are public goods? Explain, using the definition of a public good.
   a. an antimissile system surrounding Washington, D.C.
   b. a fire department
   c. tennis courts
   d. Yellowstone National Park
   e. elementary schools
5. Explain in your own words what is meant by external costs and external benefits. Why may market outcomes be less than ideal when externalities are present?
6. English philosopher John Locke argued that the protection of each individual’s person and property (acquired without the use of violence, theft, or fraud) was the primary function of government. Why is this protection important to the efficient operation of an economy?
7. “If it’s worth doing, it’s worth doing to the best of your ability.” What is the economic explanation for why this statement is frequently said but rarely followed in practice? Explain.
8. “The traveler in a market economy has no chance for a fair deal. Local people may be treated well, but the traveler has no way to know, for example, who offers a good night’s lodging at a fair price, if the quality and price are not regulated by government.” Is this true or false? Explain.

9. If sellers of toasters were able to organize themselves, reduce their output, and raise their prices, how would economic efficiency be affected? Explain.

10. What are external costs? When are they most likely to be present? When external costs are present, what is likely to be the relationship between the market output of a good and the output consistent with ideal economic efficiency?

11. “Elementary education is obviously a public good. After all, it is provided by the government.” Evaluate this statement.

12. What are the necessary conditions for economic efficiency? In what four situations might a market fail to achieve ideal economic efficiency?


14. Apply the economic efficiency criterion to the role of government. When would a government intervention be considered economically efficient? When would a government intervention be considered economically inefficient?

* Asterisk denotes questions for which answers are given in Appendix B.