We now move from the general characteristics of the market economy, including the role of supply and demand, to specific information about the world’s largest economy. Each year, the value of U.S. output exceeds that of Japan, Germany, the United Kingdom, and France—combined! For descriptive convenience, we will divide the economy into two sectors: the private sector, which includes households and businesses, and the public sector, or simply government.

This chapter builds on the simple circular flow diagram of Chapter 2 (Figure 2.2, p. 40) by providing institutional detail about the households and businesses listed in that diagram and by also adding and examining the role of government in the economy’s flow of goods and services. The chapter answers some very important questions: What types of income do households receive and how do they dispose of it? What are the types of business enterprises and why has the corporate form of business dominated?

IN THIS CHAPTER YOU WILL LEARN:
1. Important facts about U.S. households and U.S. businesses.
2. Why the corporate form of business organization dominates sales and profits.
3. The problem that arises when corporate owners (principals) and their managers (agents) have different interests.
4. About the economic role of government in the economy.
5. The categories of government spending and the sources of government revenues.
What is government’s economic role in the economy and how does it fit into the circular flow diagram?
What are the sources of government revenues and how does it allocate its expenditures?

Households as Income Receivers
Recall that households are a key element in the circular flow diagram. The U.S. economy currently has about 114 million households, which, by definition, consist of one or more persons occupying a housing unit. Households are both the ultimate suppliers of all economic resources and the major spenders in the economy. We can categorize the income received by households by how it was earned and by how it was divided among households.

The Functional Distribution of Income
The functional distribution of income indicates how the nation’s income is apportioned among wages, rents, interest, and profits, that is, according to the function performed by the income receiver. Wages are paid to labor; rents and interest are paid to owners of property resources; and profits are paid to the owners of corporations and unincorporated businesses.

Figure 4.1 shows the functional distribution of U.S. income earned in 2007. The largest source of income for households is the wages and salaries paid to workers. Notice that the bulk of total U.S. income (71 percent) goes to labor, not to capital. Proprietors’ income—the income of doctors, lawyers, small-business owners, farmers, and owners of other unincorporated enterprises—also has a “wage” element. Some of this income is payment for one’s own labor and some of it is profit from one’s own business.

The other three types of income are self-evident: Some households own corporate stock and receive dividend incomes on their holdings. Many households also own bonds and savings accounts that yield interest income. And some households receive rental income by providing buildings and natural resources (including land) to businesses and other individuals.

The Personal Distribution of Income
The personal distribution of income indicates how the nation’s total income is divided among individual households. In Figure 4.2 households are divided into five income groups:

- Lowest 20%: 3.4%
- Second 20%: 8.6%
- Middle 20%: 14.5%
- Fourth 20%: 22.9%
- Highest 20%: 50.5%

Numbers do not add to 100 percent due to rounding.


numerically equal groups or quintiles; the heights of the bars show the percentage of total income received by each group. In 2006 the poorest 20 percent of all households received 3.4 percent of total personal income and the richest 20 percent received 50.5 percent. Taxes, noncash transfer (for example, food stamps), and the movement of households among categories over time lessen the income inequality shown in Figure 4.2. Nevertheless, even with these things considered, the United States clearly has considerable income inequality. (Key Question 2)

Households as Spenders
How do households dispose of their income? Part of it flows to government as taxes and the rest is divided between personal savings and personal consumption expenditures. In 2007, households disposed of their total personal income as shown in Figure 4.3.

Personal Taxes
In 2007, U.S. households paid $1483 billion in personal taxes (mainly income taxes and property taxes), or 13 percent of their $11,260 billion of income. Personal taxes of which the personal income tax is the major component, have risen in relative terms since the Second World War.

In 1941, households paid just 3 percent of their total income in personal taxes.

Personal Saving
Economists define “saving” as that part of after-tax income that is not spent; hence, households have just two choices about what to do with their income after taxes—use it to consume, or save it. Saving is the portion of income that is not paid in taxes or used to purchase consumer goods but instead flows into bank accounts, insurance policies, bonds and stocks, mutual funds, and other financial assets.

U.S. households typically save about 3 percent of their income each year. Reasons for saving center on security and speculation. Households save to provide a nest egg for coping with unforeseen contingencies (sickness, accident, and unemployment), for retirement from the workforce, for financing the education of children, or simply for financial security. They may also channel part of their income to purchase stocks, speculating that their investments will increase in value.

The desire to save is not enough in itself, however. You must be able to save, and that depends on the size of your income. If your income is low, you may not be able to save any money at all. If your income is very, very low, you may dissave—that is, spend more than your after-tax income. You do this by borrowing or by digging into savings you may have accumulated in years when your income was higher.

Of course, some high-income people also dissave. That is how large fortunes are squandered. But overall, both saving and consumption vary directly with income; as households garner more income, they usually save more and consume more. In fact, the top 10 percent of income receivers account for most of the personal saving in the U.S. economy.

As shown in Figure 4.3, personal saving was $43 billion in 2007. This amounted to less than one percent of household income.

Personal Consumption Expenditures
As Figure 4.3 shows, 86 percent of the total income of households flows back into the business sector as personal consumption expenditures—money spent on consumer goods.

Figure 4.4 shows how consumers divide their expenditures among durable goods, nondurable goods, and services. Eleven percent of consumer expenditures are on durable goods—products that have expected lives of three years or more. Such goods include automobiles,
The composition of consumer expenditures, 2007. Consumers divide their spending among durable goods (goods that have expected lives of three years or more), nondurable goods, and services. About 60 percent of consumer spending is for services.

Durable goods $1078 billion (11%)
Nondurable goods $2833 billion (29%)
Services $5823 billion (60%)


In discussing businesses, it will be useful to distinguish among a plant, a firm, and an industry:

- A **plant** is a physical establishment—a factory, farm, mine, store, or warehouse—that performs one or more functions in fabricating and distributing goods and services.
- A **firm** is an organization that employs resources to produce goods and services for profit and operates one or more plants.
- An **industry** is a group of firms that produce the same, or similar, products.

The organizational structures of firms are often complex and varied. **Multiplant firms** may be organized horizontally, with several plants performing much the same function. Examples are the multiple bottling plants of Coca-Cola and the many individual Wal-Mart stores. Firms also may be **vertically integrated**, meaning they own plants that perform different functions in the various stages of the production process. For example, oil companies such as Shell own oil fields, refineries, and retail gasoline stations. Some firms are **conglomerates**, so named because they have plants that produce products in several industries. For example, Pfizer makes not only prescription medicines (Lipitor, Viagra) but also chewing gum (Trident, Dentyne), razors (Schick), cough drops (Halls), breath mints (Clorets, Certs), and antacids (Rolaids).

### Legal Forms of Businesses

The business population is extremely diverse, ranging from giant corporations such as ExxonMobil, with 2007 sales of $347 billion and thousands of employees, to neighborhood specialty shops with one or two employees and sales of only $200 to $300 per day. There are three major legal forms of businesses:

- A **sole proprietorship** is a business owned and operated by one person. Usually, the proprietor (the owner) personally supervises its operation.
- The **partnership** form of business organization is a natural outgrowth of the sole proprietorship. In a partnership, two or more individuals (the partners) agree to own and operate a business together. Usually they pool their financial resources and business skills. Consequently, they share the risks and the profits or losses.
- A **corporation** is a legal creation that can acquire resources, own assets, produce and sell products, incur debts, extend credit, sue and be sued, and perform the functions of any other type of enterprise. A corporation is distinct and separate from the individual stockholders who own it. Hired managers run most corporations.
FIGURE 4.5 The business population and shares of domestic output. (a) Sole proprietorships dominate the business population numerically, but (b) corporations account for about 84 percent of total sales (output).

A common stock represents a share in the ownership of a corporation. The purchaser of a stock certificate has the right to vote for corporate officers and to share in dividends. If you buy 1000 of the 100,000 shares issued by OutTell, Inc., then you own 1 percent of the company, are entitled to 1 percent of any dividends declared by the board of directors, and control 1 percent of the votes in the annual election of corporate officials.

In contrast, a corporate bond does not bestow any corporate ownership on the purchaser. A bond purchaser is simply lending money to a corporation. A bond is an IOU, in acknowledgment of a loan, whereby the corporation promises to pay the holder a fixed amount set forth on the bond at some specified future date and other fixed amounts (interest payments) every year up to the bond’s maturity date. For example, you might purchase a 10-year OutTell bond with a face value of $1000 and a 5 percent rate of interest. This means that in exchange for your $1000, OT promises you a $50 interest payment for each of the next 10 years and then repays you your $1000 principal at the end of that period.

Financing through sales of stocks and bonds also provides other advantages to those who purchase these corporate securities. An individual investor can spread risks by buying the securities of several corporations. And it is usually easy for holders of corporate securities to sell their holdings. Organized stock exchanges and bond markets simplify the transfer of securities from sellers to buyers. This “ease of sale” increases the willingness of savers to make financial investments in corporate securities. Besides, corporations have easier access to bank credit than do other types of business organizations. Corporations are better risks and are more likely to become profitable clients of banks.

Corporations provide limited liability to owners (stockholders), who risk only what they paid for their stock. Their personal assets are not at stake if the corporation defaults on its debts. Creditors can sue the corporation as a legal entity but cannot sue the owners of the corporation as individuals.

Because of their ability to attract financial capital, successful corporations can easily expand the scope of their operations and realize the benefits of expansion. For example, they can take advantage of mass-production technologies and division of labor. A corporation can hire specialists in production, accounting, and marketing functions and thus improve efficiency.

Unlike sole proprietorships and partnerships, the corporation has a life independent of its owners and its officers. As a legal entity, corporations are immortal. The transfer of corporate ownership through inheritance or
The World's 10 Largest Corporations

Five of the world's 10 largest corporations, based on dollar revenue in 2007, were headquartered in the United States.

<table>
<thead>
<tr>
<th>Corporation</th>
<th>Revenue (billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wal-Mart (U.S.)</td>
<td>$351</td>
</tr>
<tr>
<td>ExxonMobil (U.S.)</td>
<td>$347</td>
</tr>
<tr>
<td>Shell (U.K./Netherlands)</td>
<td>$319</td>
</tr>
<tr>
<td>BP (U.K.)</td>
<td>$274</td>
</tr>
<tr>
<td>General Motors (U.S.)</td>
<td>$207</td>
</tr>
<tr>
<td>Toyota (Japan)</td>
<td>$205</td>
</tr>
<tr>
<td>Chevron (U.S.)</td>
<td>$201</td>
</tr>
<tr>
<td>DaimlerChrysler (Germany)</td>
<td>$190</td>
</tr>
<tr>
<td>ConocoPhillips (U.S.)</td>
<td>$172</td>
</tr>
<tr>
<td>Total (France)</td>
<td>$168</td>
</tr>
</tbody>
</table>

Global Perspective 4.1 lists the world's 10 largest corporations, by annual sales.

The sale of stock does not disrupt the continuity of the corporation. Corporations have permanence that lends itself to long-range planning and growth. This permanence and growth explains why virtually all the nation's largest business enterprises are corporations.

The Principal-Agent Problem

Many of the world's corporations are extremely large. In 2007, 351 of the world's largest corporations had annual sales of more than $20 billion; 121 firms had sales exceeding $50 billion; and 30 firms had sales greater than $100 billion. U.S.-based Wal-Mart alone had sales of $351 billion in 2007. Global Perspective 4.1 lists the world's 10 largest corporations, by annual sales.

But large size creates a potential problem. In sole proprietorships and partnerships, the owners of the real and financial assets of the firm enjoy direct control of those assets. But ownership of large corporations is spread over tens or hundreds of thousands of stockholders. The owners of a corporation usually do not manage it—they hire others to do so.

That practice can create a principal-agent problem. The principals are the stockholders who own the corporation and who hire executives as their agents to run the business on their behalf. But the interests of these managers (the agents) and the wishes of the owners (the principals) do not always coincide. The owners typically want maximum company profit and stock price. However, the agent may want the power, prestige, and pay that often accompany control over a large enterprise, independent of its profitability and stock price.

So a conflict of interest may develop. For example, executives may build expensive office buildings, enjoy
excessive perks such as corporate jets, and pay too much to acquire other corporations. Consequently, the firm's costs will be excessive and the executives will fail to maximize profit and the stock price for the owners. (Key Question 4)

**QUICK REVIEW 4.2**

- A plant is a physical establishment that contributes to the production of goods and services; a firm is a business organization that owns and operates plants; plants may be arranged horizontally, be vertically integrated, and/or take on a conglomerate form.
- The three basic legal forms of business are the sole proprietorship, the partnership, and the corporation. While sole proprietorships make up 72 percent of all firms, corporations account for 84 percent of total sales.
- The major advantages of corporations are their ability to raise financial capital, the limited liability they bestow on owners, and their continuing life beyond the life of their owners and managers.
- The principal-agent problem is the conflict of interest that may occur when agents (executives) pursue their own objectives to the detriment of the principals' (stockholders') goals.

**The Public Sector: Government’s Role**

The economic activities of the public sector—Federal, state, and local government—are extensive. We begin by discussing the economic functions of governments. What is government's role in the economy?

**Providing the Legal Structure**

Government provides the legal framework and the services needed for a market economy to operate effectively. The legal framework sets the legal status of business enterprises, ensures the rights of private ownership, and allows the making and enforcement of contracts. Government also establishes the legal "rules of the game" that control relationships among businesses, resource suppliers, and consumers. Discrete units of government referee economic relationships, seek out foul play, and impose penalties.

Government intervention is presumed to improve the allocation of resources. By supplying a medium of exchange, ensuring product quality, defining ownership rights, and enforcing contracts, the government increases the volume and safety of exchange. This widens the market and fosters greater specialization in the use of land, labor, capital, and entrepreneurial resources. Such specialization promotes a more efficient allocation of resources.

Like the optimal amount of any "good," the optimal amount of regulation is that at which the marginal benefit and marginal cost are equal. Thus, there can be either too little regulation (MB exceeds MC) or too much regulation (MB is less than MC). The task is to decide wisely on the right amount.

**Maintaining Competition**

Competition is the basic regulatory mechanism in the market system. It is the force that subjects producers and resource suppliers to the dictates of consumer sovereignty. With competition, buyers are the boss, the market is their agent, and businesses are their servants.

It is a different story where a single seller—a monopoly—controls an industry. By controlling supply, a monopolist can charge a higher-than-competitive price. Producer sovereignty then supplants consumer sovereignty. In the United States, government has attempted to control monopoly through regulation and through antitrust.

A few industries are natural monopolies—industries in which technology is such that only a single seller can achieve the lowest possible costs. In some cases government has allowed these monopolies to exist but has also created public commissions to regulate their prices and set their service standards. Examples of regulated monopolies are some firms that provide local electricity, telephone, and transportation services.

In nearly all markets, however, efficient production can best be attained with a high degree of competition. The Federal government has therefore enacted a series of antitrust (antimonopoly) laws, beginning with the Sherman Act of 1890, to prohibit certain monopoly abuses and, if necessary, break monopolists up into competing firms. Under these laws, for example, in 2000 Microsoft was found guilty of monopolizing the market for operating systems for personal computers. Rather than breaking up Microsoft, however, the government imposed a series of prohibitions and requirements that collectively limited Microsoft's ability to engage in anticompetitive actions.

**Redistributing Income**

The market system is impersonal and may distribute income more inequitably than society desires. It yields very large incomes to those whose labor, by virtue of inherent ability and acquired education and skills, commands high wages. Similarly, those who, through hard work or inheritance, possess valuable capital and land receive large property incomes.
But many other members of society have less productive ability, have received only modest amounts of education and training, and have accumulated or inherited no property resources. Moreover, some of the elderly, the physically and mentally disabled, and the poorly educated earn small incomes or, like the unemployed, no income at all. Thus society chooses to redistribute a part of total income through a variety of government policies and programs. They are:

- **Transfer payments** Transfer payments, for example, in the form of welfare checks and food stamps, provide relief to the destitute, the dependent, the disabled, and older citizens; unemployment compensation payments provide aid to the unemployed.

- **Market intervention** Government also alters the distribution of income through market intervention, that is, by acting to modify the prices that are or would be established by market forces. Providing farmers with above-market prices for their output and requiring that firms pay minimum wages are illustrations of government interventions designed to raise the income of specific groups.

- **Taxation** The government uses the personal income tax to take a larger proportion of the income of the rich than of the poor, thus narrowing the after-tax income difference between high-income and low-income earners.

The extent to which government should redistribute income is subject to lively debate. Redistribution involves both benefits and costs. The purported benefits are greater "fairness" or "economic justice"; the purported costs are reduced incentives to work, save, invest, and produce, and therefore a loss of total output and income.

### Reallocating Resources

**Market failure** occurs when the competitive market system (1) produces the "wrong" amounts of certain goods and services or (2) fails to allocate any resources whatsoever to the production of certain goods and services whose output is economically justified. The first type of failure results from what economists call *externalities* or spillovers and the second type involves *public goods*. Government can take actions to try to address both kinds of market failure.

**Externalities** When we say that competitive markets automatically bring about the efficient use of resources, we assume that all the benefits and costs for each product are fully reflected in the market demand and supply curves. That is not always the case. In some markets certain benefits or costs may escape the buyer or seller.

An **externality** occurs when some of the costs or the benefits of a good are passed on to or "spill over to" someone other than the immediate buyer or seller. Such spillovers are called externalities because they are benefits or costs that accrue to some third party that is *external* to the market transaction.

**Negative Externalities** Production or consumption costs inflicted on a third party without compensation are called **negative externalities**. Environmental pollution is an example. When a chemical manufacturer or a meat-packing plant dumps its wastes into a lake or river, swimmers, fishers, and boaters—and perhaps those who drink the water—suffer external costs. What are the economic effects? Recall that costs determine the position of the firm's supply curve. When a firm avoids some costs by polluting, its supply curve lies farther to the right than it does when the firm bears the full costs of production. A result, the price of the product is too low and the output of the product is too large to achieve allocative efficiency. A market failure occurs in the form of an overallocation of resources to the production of the good.

**Correcting for Negative Externalities** Some externalities get resolved via private negotiations between those creating the externalities and those affected by them. But when the externalities are widespread and negotiation between parties is unrealistic, government can play an important role. For example, it can do two things to correct the overallocation of resources associated with negative externalities. Both solutions are designed to internalize external costs, that is, to make the offending firm pay the costs rather than shift them to others:

- **Legislation** In cases of air and water pollution, the most direct action is legislation prohibiting or limiting the pollution. Such legislation forces potential polluters to pay for the proper disposal of industrial wastes—here, by installing smoke-abatement equipment or water-purification facilities. The idea is to force potential offenders, under the threat of legal action, to bear *all* the costs associated with production.

- **Specific taxes** A less direct action is based on the fact that taxes are a cost and therefore a determinant of a
Positive Externalities Sometimes externalities appear as benefits to other producers or consumers. These uncompensated spillovers accruing to third parties or the community at large are called positive externalities. Immunization against measles and polio results in direct benefits to the immediate consumer of those vaccines. But it also results in widespread substantial external benefits to the entire community.

Education is another example of positive externalities. Education benefits individual consumers: Better-educated people generally achieve higher incomes than less-well-educated people. But education also provides benefits to society, in the form of a more versatile and more productive labor force, on the one hand, and smaller outlays for crime prevention, law enforcement, and welfare programs, on the other.

External benefits mean that the market demand curve, which reflects only private benefits, understates total benefits. The demand curve for the product lies farther to the left than it would if the market took all benefits into account. As a result, a smaller amount of the product will be produced, or, alternatively, there will be an underallocation of resources to the product—again a market failure.

Correcting for Positive Externalities How might government deal with the underallocation of resources resulting from positive externalities? The answer is either to subsidize consumers (to increase demand), to subsidize producers (to increase supply), or, in the extreme, to have government produce the product:

- **Subsidize consumers** To correct the underallocation of resources to higher education, the U.S. government provides low-interest loans to students so that they can afford more education. Those loans increase the demand for higher education.
- **Subsidize suppliers** In some cases government finds it more convenient and administratively simpler to correct an underallocation by subsidizing suppliers. For example, in higher education, state governments provide substantial portions of the budgets of public colleges and universities. Such subsidies lower the costs of producing higher education and increase its supply. Publicly subsidized immunization programs, hospitals, and medical research are other examples.

- **Provide goods via government** A third policy option may be appropriate where positive externalities are extremely large: Government may finance or, in the extreme, own and operate the industry that is involved. Examples are the U.S. Postal Service and Federal air traffic control systems.

Public Goods and Services Certain goods called private goods are produced through the competitive market system. Examples are the wide variety of items sold in stores. Private goods have two characteristics—rivalry and excludability. “Rivalry” means that when one person buys and consumes a product, it is not available for purchase and consumption by another person. What Joan gets, Jane cannot have. Excludability means that buyers who are willing and able to pay the market price for the product obtain its benefits, but those unable or unwilling to pay that price do not. This characteristic enables profitable production by a private firm.

Certain other goods and services called public goods have the opposite characteristics—nonrivalry and nonexcludability. Everyone can simultaneously obtain the benefit from a public good such as a global positioning system, national defense, street lighting, and environmental protection. One person’s benefit does not reduce the benefit available to others. More important, there is no effective way of excluding individuals from the benefit of the good once it comes into existence. The inability to exclude creates a free-rider problem, in which people can receive benefits from a public good without having to pay for it. As a result, goods and services subject to free riding will typically be unprofitable for any private firm that decides to produce and sell them.

An example of a public good is the war on terrorism. This public good is thought to be economically justified by the majority of Americans because the benefits are perceived as exceeding the costs. Once the war efforts are undertaken, however, the benefits accrue to all Americans (nonrivalry). And there is no practical way to exclude any American from receiving those benefits (nonexcludability).

No private firm will undertake the war on terrorism because the benefits cannot be profitably sold (due to the free-rider problem). So here we have a service that yields substantial benefits but to which the market system will not allocate sufficient resources. Like national defense in
general, the pursuit of the war on terrorism is a public good. Society signals its desire for such goods by voting for particular political candidates who support their provision. Because of the free-rider problem, the public sector provides these goods and finances them through compulsory charges in the form of taxes.

**Quasi-Public Goods** Government provides many goods that fit the economist’s definition of a public good. However, it also provides other goods and services that could be produced and delivered in such a way that exclusion would be possible. Such goods, called quasi-public goods, include education, streets and highways, police and fire protection, libraries and museums, preventive medicine, and sewage disposal. They could all be priced and provided by private firms through the market system. But, as we noted earlier, because they all have substantial positive externalities, they would be underproduced by the market system. Therefore, government often provides them to avoid the underallocation of resources that would otherwise occur.

**The Reallocation Process** How are resources reallocated from the production of private goods to the production of public and quasi-public goods? If the resources of the economy are fully employed, government must free up resources from the production of private goods and make them available for producing public and quasi-public goods. It does so by reducing private demand for them. And it does that by levying taxes on households and businesses, taking some of their income out of the circular flow. With lower incomes and hence less purchasing power, households and businesses must curtail their consumption and investment spending. As a result, the private demand for goods and services declines, as does the private demand for resources. So by diverting purchasing power from private spenders to government, taxes remove resources from private use.

Government then spends the tax proceeds to provide public and quasi-public goods and services. Taxation releases resources from the production of private consumer goods (food, clothing, television sets) and private investment goods (printing presses, boxcars, warehouses). Government shifts those resources to the production of public and quasi-public goods (post offices, submarines, parks), changing the composition of the economy’s total output. *(Key Questions 9 and 10)*

**Promoting Stability**

Macroeconomic stability is said to exist when an economy’s output matches its production capacity, its labor resources are fully employed, and inflation is low and stable. (Inflation is a general increase in the level of prices.) In such circumstances, the economy’s total spending matches its production capacity. Government and the nation’s central bank (the Federal Reserve in the United States) promote full employment and price stability through prudent fiscal policy (government taxing and spending policy) and
monetary policy (central bank interest rate policy). But sometimes unexpected shocks occur to the economy that cause total spending either to fall far below production capacity or to surge way above it, resulting in widespread unemployment or inflation. Government may try to address these problems by altering its fiscal policy or monetary policy.

- **Unemployment** When private sector spending is too low, resulting in unemployment, government may try to increase total spending (private + public) by raising its own spending or by lowering tax rates to encourage greater private spending. Also, the nation's central bank may take monetary actions to lower interest rates, thereby encouraging more private borrowing and spending.

- **Inflation** Inflation is a general increase in the level of prices. Prices of goods and services rise when the amount of spending in the economy expands more rapidly than the supply of goods and services. This can happen when the nation's central bank allows interest rates to remain too low for the economic circumstances. In such situations, the central bank can act to lower inflation by increasing the interest rate so as to dampen private borrowing and spending. The government may also try to reduce total spending by cutting its own expenditures or boosting tax rates to reduce private spending.

**Government's Role: A Qualification**

Government does not have an easy task in performing the aforementioned economic functions. In a democracy, government undertakes its economic role in the context of politics. To serve the public, politicians need to get elected. To stay elected, officials (presidents, senators, representatives, mayors, council members, school board members) need to satisfy their particular constituencies. At best, the political realities complicate government's role in the economy; at worst, they produce undesirable economic outcomes.

In the political context, overregulation can occur in some cases; underregulation, in others. Income can be redistributed to such an extent that incentives to work, save, and invest suffer. Some public goods and quasi-public goods can be produced not because their benefits exceed their costs but because their benefits accrue to firms located in states served by powerful elected officials. Inefficiency can easily creep into government activities because of the lack of a profit incentive to hold down costs. Policies to correct negative externalities can be politically blocked by the very parties that are producing the spillovers. In short, the economic role of government, although critical to a well-functioning economy, is not always perfectly carried out.

**QUICK REVIEW 4.3**

- Government enhances the operation of the market system by providing an appropriate legal foundation and promoting competition.
- Transfer payments, direct market intervention, and taxation are among the ways in which government can lessen income inequality.
- Government can correct for the overallocation of resources associated with negative externalities through legislation or taxes; it can offset the underallocation of resources associated with positive externalities by granting government subsidies.
- Government provides certain public goods for which there is nonrivalry in consumption and nonexcludability of benefits; government also provides many quasi-public goods because of their large external benefits.
- A nation's government and central bank promote economic stability by engaging in prudent fiscal and monetary policies.

**The Circular Flow Revisited**

In Figure 4.6 we integrate government into the circular flow model first shown in Figure 2.2. Here flows (1) through (4) are the same as the corresponding flows in that figure. Flows (1) and (2) show business expenditures for the resources provided by households. These expenditures are costs to businesses but represent wage, rent, interest, and profit income to households. Flows (3) and (4) show household expenditures for the goods and services produced by businesses.

Now consider what happens when we add government. Flows (5) through (8) illustrate that government makes purchases in both product and resource markets. Flows (5) and (6) represent government purchases of such products as paper, computers, and military hardware from private businesses. Flows (7) and (8) represent government purchases of resources. The Federal government employs and pays salaries to members of Congress, the armed forces, Justice Department lawyers, meat inspectors, and so on. State and local governments hire and pay teachers, bus drivers, police, and firefighters. The Federal government might also lease or purchase land to expand a military base and a city might buy land on which to build a new elementary school.

Government then provides public goods and services to both households and businesses, as shown by flows...
The U.S. Economy: Private and Public Sectors

Government Purchases and Transfers
We can get an idea of the size of government's economic role by examining government purchases of goods and services and government transfer payments. There is a significant difference between these two kinds of outlays:

- **Government purchases** are *exhaustive*; the products purchased directly absorb (require the use of) resources and are part of the domestic output. For example, the purchase of a missile absorbs the labor of physicists and engineers along with steel, explosives, and a host of other inputs.
- **Transfer payments** are *nonexhaustive*; they do not directly absorb resources or create output. Social Security benefits, welfare payments, veterans' benefits, and unemployment compensation are examples of transfer payments. Their key characteristic is that recipients make no current contribution to domestic output in return for them.

Federal, state, and local governments spent $4413 billion in 2007. Of that total, government purchases...
were $2671 billion and government transfers were $1742 billion. Figure 4.7 shows these amounts as percentages of U.S. domestic output for 2007 and compares them to percentages for 1960. Government purchases have declined from about 22 to 19 percent of output since 1960. But transfer payments have more than doubled as a percentage of output—from 5 percent in 1960 to about 13 percent in 2007. Relative to U.S. output, total government spending is thus higher today than it was 47 years ago. This means that the tax revenues required to finance government expenditures are also higher. Today, government spending and the tax revenues needed to finance it are about 32 percent of U.S. output.

In 2007 the so-called Tax Freedom Day in the United States was April 30. On that day the average worker had earned enough (from the start of the year) to pay his or her share of the taxes required to finance government spending for the year. Tax Freedom Day arrives even later in several other countries, as implied in Global Perspective 4.2.

**Federal Finance**

Now let's look separately at each of the Federal, state, and local units of government in the United States and compare their expenditures and taxes. Figure 4.8 tells the story for the Federal government.

**Federal Expenditures**

Four areas of Federal spending stand out: (1) pensions and income security, (2) national defense, (3) health, and (4) interest on the public debt. The pensions and income security category includes the many income-maintenance programs for the aged, persons with disabilities or handicaps, the unemployed, the retired, and families with no breadwinner. This category—dominated by the $461 billion pension portion of the Social Security program—accounts for 34 percent of total Federal expenditures. (This chapter's Last Word examines the impact of the aging U.S. population on the future financing of this area of Federal spending.) National defense accounts for about 21 percent of the Federal budget, underscoring the high cost of military preparedness. Health reflects the cost of government health programs for the retired (Medicare) and poor (Medicaid). Interest on the public debt is a substantial amount because the public debt itself is large.
CHAPTER 4 | The U.S. Economy: Private and Public Sectors

FIGURE 4.8 Federal expenditures and tax revenues, 2007. Federal expenditures are dominated by spending for pensions and income security, health, and national defense. A full 79 percent of federal tax revenue is derived from just two sources: the personal income tax and payroll taxes. The $163 billion difference between expenditures and revenues reflects a budget deficit.

Total expenditures: $2731 billion
Total tax revenues: $2568 billion


Federal Tax Revenues

The revenue side of Figure 4.8 shows that the personal income tax, payroll taxes, and the corporate income tax are the basic revenue sources, accounting respectively for 45, 34, and 14 cents of each dollar collected.

Personal Income Tax The personal income tax is the kingpin of the Federal tax system and merits special comment. This tax is levied on taxable income, that is, on the incomes of households and unincorporated businesses after certain exemptions ($3500 for each household member) and deductions (business expenses, charitable contributions, home mortgage interest payments, certain state and local taxes) are taken into account.

The Federal personal income tax is a progressive tax, meaning that people with higher incomes pay a larger percentage of their incomes as taxes than do people with lower incomes. The progressivity is achieved by applying higher tax rates to successive layers or brackets of income.

Columns 1 and 2 in Table 4.1 show the mechanics of the income tax for a married couple filing a joint return in 2008. Note that a 10 percent tax rate applies to all taxable income up to $16,050 and a 15 percent rate applies to additional income up to $65,100. The rates on additional layers of income then go up to 25, 28, 33, and 35 percent.

The tax rates shown in column 2 in Table 4.1 are marginal tax rates. A marginal tax rate is the rate at which the tax is paid on each additional unit of taxable income. Thus, if a couple's taxable income is $80,000, they will pay the marginal rate of 10 percent on each dollar from $1 to $16,050, 15 percent on each dollar from $16,051 to $65,100, and 25 percent on each dollar from $65,101 to $80,000. You should confirm that their total income tax is $12,688.

The marginal tax rates in column 2 overstate the personal income tax bite because the rising rates in that column apply only to the income within each successive tax bracket. To get a better idea of the tax burden, we must consider average tax rates. The average tax rate is the total tax paid divided by total taxable income. The couple in our previous example is in the 25 percent tax bracket because they pay a top marginal tax rate of 25 percent on the highest dollar of their income. But their average tax rate is 16 percent (= $12,688/$80,000).

<table>
<thead>
<tr>
<th>(1) Total Taxable Income</th>
<th>(2) Marginal Tax Rate, %</th>
<th>(3) Total Tax on Highest Income In Bracket</th>
<th>(4) Average Tax Rate on Highest Income In Bracket, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1-$16,050</td>
<td>10.0</td>
<td>$1605</td>
<td>10</td>
</tr>
<tr>
<td>$16,051-$65,100</td>
<td>15.0</td>
<td>8963</td>
<td>14</td>
</tr>
<tr>
<td>$65,101-$131,450</td>
<td>25.0</td>
<td>25,550</td>
<td>19</td>
</tr>
<tr>
<td>$131,451-$200,300</td>
<td>28.0</td>
<td>44,828</td>
<td>22</td>
</tr>
<tr>
<td>$200,301-$357,700</td>
<td>33.0</td>
<td>96,770</td>
<td>27</td>
</tr>
<tr>
<td>Over $357,700</td>
<td>35.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*For a married couple filing a joint return.
There Is a Severe Long-Run Shortfall in Social Security Funding Because Expected Future Outlays to Retirees Greatly Exceed Expected Future Revenues.

The Social Security program (excluding Medicare) has grown from less than one-half of 1 percent of U.S. GDP in 1950 to 4.3 percent of GDP today. That percentage is projected to grow to 6 percent of GDP in 2030 and slightly higher thereafter.

The $461 billion Social Security program is largely an annual “pay-as-you-go” plan, meaning that most of the current revenues from the 12.4 percent Social Security tax (the rate when the 2.9 percent Medicare tax is excluded) are paid out to current Social Security retirees. In anticipation of the large benefits owed to the baby boomers when they retire, however, the Social Security Administration has been placing an excess of current revenues over current payouts into a trust fund consisting of U.S. Treasury securities. But the accumulation of money in the Social Security trust fund will be greatly inadequate for paying the retirement benefits promised to all future retirees.

In 2017 Social Security retirement revenues will fall below Social Security retirement benefits and the system will begin dipping into the trust fund to make up the difference. The trust fund will be exhausted in 2041, after which the annual tax revenues will cover only 75 percent of the promised benefits. The Federal government faces a several-trillion-dollar shortfall of long-run revenues for funding Social Security.

As shown in the accompanying figure, the problem is one of demographics. The percentage of the American population age 62 or older will rise substantially over the next several decades, with the greatest increases for those age 75 and older. High fertility rates during the “baby boom” (1946–1964), declining birthrates thereafter, and rising life expectancies have combined to produce an aging population. In the future, more people will be receiving Social Security benefits for longer periods and each person’s benefits will be paid for by fewer workers. The number of workers per Social Security beneficiary was 5:1 in 1960. Today it is 3:1, and by 2040 it will be only 2:1.

There is no easy way to restore long-run balance to Social Security funding. Either benefits must be reduced or revenues must be increased. The Social Security Administration concludes that bringing projected Social Security revenues and payments into balance over the next 75 years would require a 12 percent permanent reduction in Social Security benefits, a 14 percent permanent increase in tax revenues, or some combination of the two.

A tax whose average rate rises as income increases is a progressive tax. Such a tax claims both a larger absolute amount and a larger proportion of income as income rises. Thus we can say that the Federal personal income tax is progressive. (Key Question 15)

Payroll Taxes Social Security contributions are payroll taxes—taxes based on wages and salaries—used to finance two compulsory Federal programs for retired workers: Social Security (an income-enhancement program) and Medicare (which pays for medical services). Employers and employees pay these taxes equally. Enlargements in, and extensions of, the Social Security programs, plus growth of the labor force, have resulted in significant increases in these payroll taxes in recent years. In 2008, employees and employers each paid 7.65 percent on the first $102,000 of an employee’s annual earnings and 1.45 percent on all additional earnings.

Corporate Income Tax The Federal government also taxes corporate income. The corporate income tax is levied on a corporation’s profit—the difference between its total revenue and its total expenses. For almost all corporations, the tax rate is 35 percent.

Excise Taxes Taxes on commodities or on purchases take the form of sales and excise taxes. The difference
Several ideas have been offered to improve the financial outlook of Social Security. These ideas include increasing the retirement age, subjecting a larger portion of total earnings to the Social Security tax, and reducing benefits for wealthy retirees.

Other ideas are more novel. For example, one suggestion is to boost the trust fund by investing all or part of it in corporate stocks and bonds. The Federal government would own the stock investments, and an appointed panel would oversee the direction of those investments. The presumed higher returns on the investments relative to the lower returns on U.S. securities would stretch out the life of the trust fund. Nevertheless, a substantial increase in the payroll tax would still be needed to cover the shortfalls after the trust fund is exhausted.

Another option is to increase the payroll tax immediately—perhaps by as much as 1.5 percentage points—and allocate the new revenues to individual accounts. Government would control the accumulations in the accounts, but individuals could direct their investments to a restricted list of broad stock or bond funds. When they retire, recipients could convert these individual account balances to annuities—securities paying monthly payments for life. That annuity income would supplement reduced monthly benefits from the pay-as-you-go system when the trust fund is exhausted.

A different route is to place half the payroll tax into accounts that individuals, not the government, would own, maintain, and bequeath. Individuals could invest these funds in bank certificates of deposit or in approved stock and bond funds and draw upon the accounts when they reach retirement age. A flat monthly benefit would supplement the accumulations in the private accounts. The personal security accounts would be phased in over time, so those individuals now receiving or about to receive Social Security benefits would continue to receive benefits.

These general ideas do not exhaust the possible reforms since the variations on each plan are nearly endless. Reaching consensus on Social Security reform will be difficult because every citizen has a direct economic stake in the outcome and little agreement is present among them on the proper magnitude of the benefits, how the program should be structured, and how we should pay for the projected funding shortfall. Nevertheless, society will eventually need to confront the problem of trillions of dollars of unfunded Social Security liabilities.


'Medicare (the health insurance that accompanies Social Security) is also severely underfunded. To bring projected Medicare revenues and expenditures into long-run balance would require an immediate increase in the Medicare payroll tax by 122 percent, a 51 percent reduction of Medicare payments from their projected levels, or some combination of each. The total funding shortfall through 2080 for Social Security and Medicare (including its prescription drug benefit) was $24 trillion in 2007.

State Finances

The primary source of tax revenue for state governments is sales and excise taxes, which account for about 47 percent of all their tax revenue. State personal income taxes, which have much lower rates than the Federal income tax, are the second most important source of state tax revenue. They bring in about 35 percent of total state tax revenue. Corporate income taxes and license fees account for most of the remainder of state tax revenue.

Education expenditures account for about 36 percent of all state spending. State expenditures on public welfare are next in relative weight, at about 28 percent of the

State and Local Finance

State and local governments have different mixes of revenues and expenditures than the Federal government has.
total. States also spend heavily on health and hospitals (7 percent), highway maintenance and construction (7 percent), and public safety (4 percent). That leaves about 18 percent of all state spending for a variety of other purposes.

These tax and expenditure percentages combine data from all the states, so they reveal little about the finances of individual states. States vary significantly in the taxes levied. Thus, although personal income taxes are a major source of revenue for all state governments combined, seven states do not levy a personal income tax. Also, there are great variations in the sizes of tax revenues and disbursements among the states, both in the aggregate and as percentages of personal income.

Thirty-nine states augment their tax revenues with state-run lotteries to help close the gap between their tax receipts and expenditures. Individual states also receive large intergovernmental grants from the Federal government. In fact, about 24 percent of their total revenue is in that form. States also take in revenue from miscellaneous sources such as state-owned utilities and liquor stores.

**Local Finances**
The local levels of government include counties, municipalities, townships, and school districts as well as cities and towns. Local governments obtain about 72 percent of their tax revenue from property taxes. Sales and excise taxes contribute about 16 percent of all local government tax revenue.

About 44 percent of local government expenditures go to education. Welfare, health, and hospitals (12 percent); public safety (11 percent); housing, parks, and sewerage (8 percent); and streets and highways (4 percent) are also major spending categories.

The tax revenues of local government cover less than one-half of their expenditures. The remaining revenue comes from intergovernmental grants from the Federal and state governments. Also, local governments receive considerable amounts of proprietary income, for example, revenue from government-owned utilities providing water, electricity, natural gas, and transportation.

**Quick Review 4.4**
- As percentages of GDP, government purchases are 19 percent; government transfers, 13 percent; and the two combined, 32 percent.
- Income security and national defense are the main categories of Federal spending; personal income, payroll, and corporate income taxes are the primary sources of Federal revenue.
- States rely on sales and excise taxes for revenue; their spending is largely for education and public welfare.
- Education is the main expenditure for local governments, most of whose revenue comes from property taxes.

**Summary**
1. The functional distribution of income shows how society's total income is divided among wages, rents, interest, and profit; the personal distribution of income shows how total income is divided among individual households.
2. Households use all their income for paying personal taxes, for saving, and for buying consumer goods. Nearly about 60 percent of their consumption expenditures are for services.
3. Sole proprietorships are firms owned and usually operated by single individuals. Partnerships are firms owned and usually operated by just a handful of individuals. Corporations—the dominant form of business organization—are legal entities, distinct and separate from the individuals who own them. They often have thousands, or even millions, of owners—the stockholders.
4. Corporations finance their operations and purchases of new plant and equipment partly through the issuance of stocks and bonds. Stocks are ownership shares of a corporation, and bonds are promises to repay a loan, usually at a set rate of interest.
5. A principal-agent problem may occur in corporations when the agents (managers) hired to represent the interest of the principals (stockholders) pursue their own objectives to the detriment of the objectives of the principals.
6. Government improves the operation of the market system by (a) providing an appropriate legal and social framework and (b) acting to maintain competition.
7. Government alters the distribution of income through the tax-transfer system and through market intervention.
8. Externalities, or spillovers, cause the equilibrium output of certain goods to vary from the socially efficient output. Negative externalities result in an overallocation of resources, which can be corrected by legislation or by specific taxes. Positive externalities are accompanied by an underallocation of resources, which can be corrected by government subsidies to consumers or producers.
9. Only government is willing to provide public goods, which can be consumed by all simultaneously (nonrivalry) and
entail benefits from which nonpaying consumers (free riders) cannot be excluded (nonexcludability). Because doing so is not profitable, private firms will not produce public goods. Quasi-public goods have some of the characteristics of public goods and some of the characteristics of private goods; government provides them because the private sector would underallocate resources to their production.

10. To try to stabilize the economy, the government adjusts its spending and taxes, and the nation’s central bank (the Federal Reserve in the United States) uses monetary actions to alter interest rates.

11. Government purchases exhaust (use up or absorb) resources; transfer payments do not. Government purchases have declined from about 22 percent of domestic output in 1960 to 19 percent today. Transfer payments, however, have grown rapidly. As a percentage of GDP, total government spending (purchases plus transfers) now stands at about 32 percent, up from 27 percent in 1960.

12. The main categories of Federal spending are pensions and income security, national defense, health, and interest on the public debt; Federal revenues come primarily from personal income taxes, payroll taxes, and corporate income taxes.

13. States derive their revenue primarily from sales and excise taxes and personal income taxes; major state expenditures go to education, public welfare, health and hospitals, and highways. Local communities derive most of their revenue from property taxes; education is their most important expenditure.

14. State and local tax revenues are supplemented by sizable revenue grants from the Federal government.
externalities are present? How might government correct these divergences? Cite an example (other than the text examples) of an external cost and an external benefit. **LO4**

8. Explain why zoning laws, which allow certain land uses only in specific locations, might be justified in dealing with a problem of negative externalities. Explain why tax breaks to businesses that set up in areas of high unemployment might be justified in view of positive externalities. Explain why excise taxes on beer might be justified in dealing with a problem of external costs. **LO4**

9. **KEY QUESTION** What are the two characteristics of public goods? Explain the significance of each for public provision as opposed to private provision. What is the free-rider problem as it relates to public goods? Is U.S. border patrol a public good or a private good? Why? How about satellite TV? Explain. **LO4**

10. **KEY QUESTION** Draw a production possibilities curve with public goods on the vertical axis and private goods on the horizontal axis. Assuming the economy is initially operating on the curve, indicate how the production of public goods might be increased. How might the output of public goods be increased if the economy is initially operating at a point inside the curve? **LO4**

11. Use the distinction between the characteristics of private and public goods to determine whether the following should be produced through the market system or provided by government: (a) French fries, (b) airport screening, (c) court systems, (d) mail delivery, and (e) medical care. State why you answered as you did in each case. **LO4**

12. Use the circular flow diagram to show how each of the following government actions simultaneously affects the allocation of resources and the distribution of income. **LO4**
   a. The construction of a new high school.
   b. A 2-percentage-point reduction of the corporate income tax.
   c. An expansion of preschool programs for disadvantaged children.
   d. The levying of an excise tax on polluters.

13. What do economists mean when they say government purchases are "exhaustive" expenditures whereas government transfer payments are "nonexhaustive" expenditures? Cite an example of a government purchase and a government transfer payment. **LO5**

14. What is the most important source of revenue and the major type of expenditure at the Federal level? At the state level? At the local level? **LO5**

15. **KEY QUESTION** Suppose in Fiscalville there is no tax on the first $10,000 of income, but a 20 percent tax on earnings between $10,000 and $20,000 and a 30 percent tax on income between $20,000 and $30,000. Any income above $30,000 is taxed at 40 percent. If your income is $50,000, how much will you pay in taxes? Determine your marginal and average tax rates. Is this a progressive tax? Explain. **LO5**

16. **LAST WORD** What do economists mean when they refer to Social Security as a pay-as-you-go plan? What is the Social Security trust fund? What is the nature of the long-run fiscal imbalance in the Social Security retirement system? What are the broad options for addressing this problem?

### Web-Based Questions

1. **PERSONAL DISTRIBUTION OF INCOME—WHAT IS THE TREND?** Visit the U.S. Census Bureau Web site at [www.census.gov](http://www.census.gov) and in order select Income, Historical Income Tables, Households, and Table H-2. Since 1970, how has the share of aggregate household income received by the lowest and highest income quintiles (fifths) changed?

2. **STATE TAXES AND EXPENDITURES PER CAPITA—WHERE DOES YOUR STATE RANK?** Go to the Census Bureau site, [www.census.gov/govs/www/state.html](http://www.census.gov/govs/www/state.html), and select years in descending order until you find a table that ranks the states by tax revenue and expenditures per capita. Where does your home state rank in each category? Where does the state in which you are attending college, if different, rank? Speculate as to why a large gap separates the high-ranking and low-ranking states.

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**FURTHER TEST YOUR KNOWLEDGE AT**
[www.mcconnell18e.com](http://www.mcconnell18e.com)