In medieval times, the aristocracy and town guilds directed much of the economic activity in Europe and Asia. However, about two centuries ago, governments began to exercise less and less power over prices and production methods. Feudalism gradually gave way to markets, or what we call the “market mechanism” or “competitive capitalism.”

In most of Europe and North America, the nineteenth century became the age of laissez-faire. This doctrine, which translates as “leave us alone,” holds that government should interfere as little as possible in economic affairs and leave economic decisions to the private marketplace. Many governments espoused this economic philosophy in the middle of the nineteenth century.

Nevertheless, by the end of the century, the unbridled excesses of capitalism led the United States and the industrialized countries of Western Europe to retreat from full laissez-faire. Government’s role expanded steadily as it regulated monopolies, levied income taxes, and began to provide a social safety net with support for the elderly. This new system, called the welfare state, is one in which markets direct the detailed activities of day-to-day economic life while government regulates social conditions and provides pensions, health care, and other necessities for poor families.

Then, around 1980, the tides shifted again, as conservative governments in many countries began to reduce taxes and deregulate government’s control over the economy. Particularly influential was the “Reagan revolution” in the United States, which changed public attitudes about taxes and government and reversed the trends in U.S. federal spending on civilian programs. Even Democratic president William Clinton held that “the era of big government is over.” The most dramatic turn toward the market came in Russia and the socialist countries of Eastern Europe. After decades of extolling the advantages of a government-run command economy, these countries scrapped central planning and made the difficult transition to a decentralized, market economy.

China, while still run by the dictatorship of the Communist party, has enjoyed an economic boom in the last two decades by allowing competition to operate within its borders. Developing countries like Taiwan, Singapore, and Chile have enjoyed rapid income growth by embracing capitalism and reducing the role of government in their economies.

This capsule history of the shifting balance between state and market raises many questions. What exactly is a market economy, and what makes it so powerful? What is the “capital” in “capitalism”? What government controls are
Not Chaos, but Economic Order

The market looks like a jumble of different sellers and buyers. It seems almost a miracle that food is produced in suitable amounts, gets transported to the right place, and arrives in a palatable form at the dinner table. But a close look at New York or other economies is convincing proof that a market system is neither chaos nor miracle. It is a system with its own internal logic. And it works.

A market economy is an elaborate mechanism for coordinating people, activities, and businesses through a system of prices and markets. It is a communication device for pooling the knowledge and actions of billions of diverse individuals. Without central intelligence or computation, it solves problems of production and distribution involving billions of unknown variables and relations, problems that are far beyond the reach of even today’s fastest supercomputer. Nobody designed the market, yet it functions remarkably well. In a market economy, no single individual or organization is responsible for production, consumption, distribution, and pricing.

How do markets determine prices, wages, and outputs? Originally, a market was an actual place where buyers and sellers could engage in face-to-face bargaining. The marketplace—filled with slabs of butter, pyramids of cheese, layers of wet fish, and heaps of vegetables—used to be a familiar sight in many villages and towns, where farmers brought their goods to sell. In the United States today there are still important markets where many traders gather together to do business. For example, wheat and corn are traded at the Chicago Board of Trade, oil and platinum are traded at the New York Mercantile Exchange, and gems are traded at the Diamond District in New York City.

In a general sense, markets are places where buyers and sellers interact to set prices and exchange goods and services. There are markets for almost everything. You can buy artwork by old masters at auction houses in New York, or pollution permits at the Chicago Board of Trade, or legal drugs from delivery services in many large cities. A market may be centralized, like the stock market. It may be decentralized, as in the case of labor. Or it may exist only electronically, as is increasingly the case with “e-commerce” on the Internet.

A. WHAT IS A MARKET?

In a country like the United States, most economic decisions are resolved through the market, so we begin our systematic study there. Who solves the three fundamental questions—what, how, and for whom—in a market economy? You may be surprised to learn that no one individual or organization or government is responsible for solving the economic problems in a market economy. Instead, millions of businesses and consumers engage in voluntary trade, intending to improve their own economic situations, and their actions are invisibly coordinated by a system of prices and markets.

To see how remarkable this is, consider the city of New York. Without a constant flow of goods into and out of the city, New Yorkers would be on the verge of starvation within a week. For New York to thrive, many kinds of goods must be provided. From the surrounding counties, from 50 states, and from the far corners of the world, goods travel for days and weeks with New York as their destination.

How is it that 10 million people can sleep easily at night, without living in mortal terror of a breakdown in the elaborate economic processes upon which they rely? The surprising answer is that, without coercion or centralized direction by anyone, these economic activities are coordinated through the market.

Everyone in the United States notices how much the government does to control economic activity: it places tolls on bridges, polices the streets, regulates drugs, levies taxes, sends armies to Europe, and so forth. But we seldom think about how much of our ordinary economic life proceeds without government intervention. Thousands of commodities are produced by millions of people every day, willingly, without central direction or master plan.

needed to make markets function effectively? Why do societies redefine the roles of government and market from time to time? The time has come to understand the principles that lie behind the market economy and to review government’s role in economic life.
A market is a mechanism through which buyers and sellers interact to set prices and exchange goods and services.

In a market system, everything has a price, which is the value of the good in terms of money (the role of money will be discussed in Section B of this chapter). Prices represent the terms on which people and firms voluntarily exchange different commodities. When I agree to buy a used Ford from a dealer for $4050, this agreement indicates that the Ford is worth at least $4050 to me and that the $4050 is worth at least as much as the Ford to the dealer. The used-car market has determined the price of a used Ford and, through voluntary trading, has allocated this good to the person for whom it has the highest value.

In addition, prices serve as signals to producers and consumers. If consumers want more of any good, the price will rise, sending a signal to producers that more supply is needed. When a terrible disease reduces beef production, the supply of beef decreases and raises the price of hamburgers. The higher price encourages farmers to increase their production of beef and, at the same time, encourages consumers to substitute other foods for hamburgers and beef products.

What is true of the markets for consumer goods is also true of markets for factors of production, such as land or labor. If more computer programmers are needed to run Internet businesses, the price of computer programmers (their hourly wage) will tend to rise. The rise in relative wages will attract workers into the growing occupation.

Prices coordinate the decisions of producers and consumers in a market. Higher prices tend to reduce consumer purchases and encourage production. Lower prices encourage consumption and discourage production. Prices are the balance wheel of the market mechanism.

**Market Equilibrium.** At every moment, some people are buying while others are selling; firms are inventing new products while governments are passing laws to regulate old ones; foreign companies are opening plants in America while American firms are selling their products abroad. Yet in the midst of all this turmoil, markets are constantly solving the what, how, and for whom. As they balance all the forces operating on the economy, markets are finding a market equilibrium of supply and demand.

A market equilibrium represents a balance among all the different buyers and sellers. Depending upon the price, households and firms all want to buy or sell different quantities. The market finds the equilibrium price that simultaneously meets the desires of buyers and sellers. Too high a price would mean a glut of goods with too much output; too low a price would produce long lines in stores and a deficiency of goods. Those prices for which buyers desire to buy exactly the quantity that sellers desire to sell yield an equilibrium of supply and demand.

**How Markets Solve the Three Economic Problems**

We have just described how prices help balance consumption and production (or demand and supply) in an individual market. What happens when we put all the different markets together—beef, cars, land, labor, capital, and everything else? These markets work simultaneously to determine a general equilibrium of prices and production.

By matching sellers and buyers (supply and demand) in each market, a market economy simultaneously solves the three problems of what, how, and for whom. Here is an outline of a market equilibrium:

1. **What** goods and services will be produced is determined by the dollar votes of consumers—not every 2 or 4 years at the polls, but in their daily purchase decisions. The money that they pay into businesses’ cash registers ultimately provides the payrolls, rents, and dividends that consumers, as employees, receive as income.

Firms, in turn, are motivated by the desire to maximize profits. **Profits** are net revenues, or the difference between total sales and total costs. Firms abandon areas where they are losing profits; by the same token, firms are lured by high profits into production of goods in high demand. Some of the most profitable activities today are producing and marketing legal drugs—drugs for depression, anxiety, impotence, and all other manner of human frailty. Lured by the high profits, companies are investing billions in research to come up with yet more new and improved chemicals.
2. How things are produced is determined by the competition among different producers. The best way for producers to meet price competition and maximize profits is to keep costs at a minimum by adopting the most efficient methods of production. Sometimes change is incremental and consists of little more than tinkering with the machinery or adjusting the input mix to gain a cost advantage, which can be very important in a competitive market. At other times there are drastic shifts in technology, as with steam engines displacing horses because steam was cheaper per unit of useful work, or airplanes replacing railroads as the most efficient mode for long-distance travel. Right now we are in the midst of just such a transition to a radically different technology, with computers revolutionizing many tasks in the workplace, from the checkout counter to the drafting table.

3. For whom things are produced—who is consuming and how much—depends, in large part, on the supply and demand in the markets for factors of production. Factor markets (i.e., markets for factors of production) determine wage rates, land rents, interest rates, and profits. Such prices are called factor prices. The same person may receive wages from a job, dividends from stocks, interest on a bond, and rent from a piece of property. By adding up all the revenues from factors, we can calculate the person’s market income. The distribution of income among the population is thus determined by the quantity of factor services (person-hours, acres, etc.) and the prices of the factors (wage rates, land rents, etc.).

Be warned, however, that incomes reflect more than the rewards for sweaty labor or frugal living. High incomes can come from large inheritances, good luck, and skills highly prized in the marketplace. Those with low incomes are often pictured as lazy, but the truth is that low incomes are generally the result of poor education, discrimination, or living where jobs are few and wages are low. When we see someone on the unemployment line, we should remember, “There, but for the grace of supply and demand, go I.”

Monarchs of the Marketplace
Who rules a market economy? Do giant companies like Microsoft and AT&T call the tune? Or perhaps Congress and the president? Or the advertising moguls from Madison Avenue? All these entities can affect us, but the core determinants of the shape of our economy are the dual monarchs of tastes and technology. Innate and acquired tastes—as expressed in the dollar votes of consumer demands—direct the uses of society’s resources. They pick the point on the production-possibility frontier (PPF).

But consumers alone cannot dictate what goods will be produced. The available resources and technology place a fundamental constraint on their choices. The economy cannot go outside its PPF. You can fly to Hong Kong, but there are no flights to Mars. An economy’s resources, along with the available science and technology, limit the candidates for the dollar votes of consumers. Consumer demand has to dovetail with business supply of goods. So business cost and supply decisions, along with consumer demand, help determine what is produced.

You will find it helpful to recall the dual monarchy when you wonder why some technologies fail in the marketplace. From the Stanley Steamer—a car that ran on steam—to the Premiere smokeless cigarette, which was smokeless but also tasteless, history is full of products that found no markets. How do useless products die off? Is there a government agency that pronounces upon the value of new products? No such agency is necessary. Rather, they become extinct because there is no consumer demand for the products at the going market price. These products earn losses rather than profits. This reminds us that profits serve as the rewards and penalties for businesses and guide the market mechanism.

Like a farmer using a carrot and a stick to coax a donkey forward, the market system deals out profits and losses to induce firms to produce desired goods efficiently.

A Picture of Prices and Markets
We can picture the circular flow of economic life in Figure 2-1 on page 29. The diagram provides an overview of how consumers and producers interact to determine prices and quantities for both inputs and outputs. Note the two different kinds of markets in the circular flow. At the top are the product markets, or the flow of outputs like pizza and shoes; at the bottom are the markets for inputs or factors of production like land and labor. Further, see how de-
decisions are made by two different entities, consumers and businesses.

Consumers buy goods and sell factors of production; businesses sell goods and buy factors of production. Consumers use their income from the sale of labor and other inputs to buy goods from businesses; businesses base their prices of goods on the costs of labor and property. Prices in goods markets are set to balance consumer demand with business supply; prices in factor markets are set to balance household supply with business demand.

All this sounds complicated. But it is simply the total picture of the intricate web of interdependent supplies and demands, interconnected through a market mechanism to solve the economic problems of what, how, and for whom. Look at Figure 2-1 carefully. A few minutes spent studying it will surely help you understand the workings of a market economy.
In summary:

Adam Smith discovered a remarkable property of a competitive market economy. Under perfect competition and with no market failures, markets will squeeze as many useful goods and services out of the available resources as is possible. But where monopolies or pollution or similar market failures become pervasive, the remarkable efficiency properties of the invisible hand may be destroyed.

The Invisible Hand

The order contained in a market economy was first recognized by Adam Smith. In one of the most famous passages of all economics, quoted from *The Wealth of Nations* at the opening of this chapter, Smith saw the harmony between private profit and public interest. He argued that even though every individual “intends only his own security, only his own gain, . . . he is led by an invisible hand to promote an end which was no part of his intention. By pursuing his own interest he frequently promotes that of society more effectually than when he really intends to promote it.”

Pause for a moment to consider these paradoxical words, written in 1776. That same year was also marked by the American Declaration of Independence. It is no coincidence that both ideas appeared at the same time. Just as the American revolutionaries were proclaiming freedom from tyranny, Adam Smith was preaching a revolutionary doctrine emancipating trade and industry from the shackles of a feudal aristocracy. Smith held that in this best of all possible worlds, government interference with market competition is almost certain to be injurious.

Smith’s insight about the functioning of the market mechanism has inspired modern economists—both the admirers and the critics of capitalism. Economic theorists have proved that under limited conditions a perfectly competitive economy is efficient (remember that an economy is producing efficiently when it cannot increase the economic welfare of anyone without making someone else worse off).

After two centuries of experience and thought, however, we recognize the limited scope of this doctrine. We know that there are “market failures,” that markets do not always lead to the most efficient outcome. One set of market failures concerns monopolies and other forms of imperfect competition. A second failure of the “invisible hand” comes when there are spillovers or externalities outside the marketplace—positive externalities such as scientific discoveries and negative spillovers such as pollution.

A final reservation comes when the income distribution is politically or ethically unacceptable. When any of these elements occur, Adam Smith’s invisible-hand doctrine breaks down and government may want to step in to mend the flawed invisible hand.

Adam Smith: Founding father of economics

“For what purpose is all the toil and bustle of this world? What is the end of avarice and ambition, of the pursuit of wealth, of power, and pre-eminence?” Thus wrote Adam Smith (1723–1790), of Scotland, who glimpsed for the social world of economics what Isaac Newton recognized for the physical world of the heavens. Smith answered his questions in *The Wealth of Nations* (1776), where he explained the self-regulating natural order by which the oil of self-interest lubricates the economic machinery in an almost miraculous fashion. Smith believed that the toil and bustle had the effect of improving the lot of the common man and woman. “Consumption is the sole end and purpose of all production.”

Smith was the first apostle of economic growth. At the dawn of the Industrial Revolution, he pointed to the great strides in productivity brought about by specialization and the division of labor. In a famous example, he described the specialized manufacturing of a pin factory in which “one man draws out the wire, another straightens it, a third cuts it,” and so it goes. This operation allowed 10 people to make 48,000 pins in a day, whereas if “all wrought separately, they could not each of them make twenty, perhaps not one pin a day.” Smith saw the result of this division of labor as “universal opulence which extends itself to the lowest ranks of the people.” Imagine what he would think if he returned today to see what two more centuries of economic growth have produced!

Smith wrote hundreds of pages railing against countless cases of government folly and interference. Consider the seventeenth-century guild master who was attempting to improve his weaving. The town guild decided, “If a cloth weaver intends to process a piece according to his own invention, he should obtain permission from the
B. TRADE, MONEY, AND CAPITAL

Since the time of Adam Smith, market economies have evolved enormously. Advanced capitalist economies, such as the United States, Western Europe, and Japan, have three distinguishing features: trade and specialization, money, and capital.

- An advanced economy is characterized by an elaborate network of trade, among individuals and countries, that depends on great specialization and an intricate division of labor.
- Modern economies today make extensive use of money, or the means of payment. The flow of money is the lifeblood of our system. Money provides the yardstick for measuring the economic value of things and for financing trade.
- Modern industrial technologies rest on the use of vast amounts of capital: precision machinery, large-scale factories, and stocks of inventories. Capital goods leverage human labor power into a much more efficient factor of production and allow productivity many times greater than that possible in an earlier age.

TRADE, SPECIALIZATION, AND DIVISION OF LABOR

As compared to the economies of the 1700s, today's economies depend heavily on the specialization of individuals and firms, connected by an extensive network of trade. Western economies have enjoyed rapid economic growth as increasing specialization has allowed workers to become highly productive in particular occupations and to trade their output for the commodities they need.

Specialization occurs when people and countries concentrate their efforts on a particular set of tasks—it permits each person and country to use to its best advantage its specific skills and resources. One of the facts of economic life is that, rather than have everyone do everything in a mediocre way, it is better to establish a division of labor—dividing production into a number of small specialized steps or tasks. A division of labor permits tall people to play basketball, numerate people to teach, and persuasive people to sell cars. It sometimes takes many years to receive the training for particular careers—it usually takes 14 postgraduate years to become a certified neurosurgeon.

Capital and land are also highly specialized. Land can be specialized, as in the vineyard lands of California and France, which it has taken decades to cultivate. The computer software that went along with the labor to write this textbook took over a decade to be developed, but it is useless at managing an oil refinery or solving large numerical problems. One of the most impressive examples of specialization is the computer chip that manages automobiles, increases their efficiency, and can even serve as a "black box" to record accident data.

The enormous efficiency of specialization allows the intricate network of trade among people and nations that we see today. Very few of us produce a single finished good; we make but the tiniest fraction of what we consume. We might teach a small part of one college's curriculum, or empty coins from parking meters, or separate the genetic material of fruit flies. In exchange for this specialized labor, we will receive an income adequate to buy goods from all over the world.

The idea of gains from trade forms one of the central insights of economics. Different people or countries tend to specialize in certain areas; they then
engage in the voluntary exchange of what they produce for what they need. Japan has grown enormously productive by specializing in manufacturing goods such as automobiles and consumer electronics; it exports much of its manufacturing output to pay for imports of raw materials. By contrast, countries which have tried the strategy of becoming self-sufficient, attempting to produce most of what they consume, have discovered that this is the road to stagnation. Trade can enrich all nations and increase everyone’s living standards.

To summarize:

Advanced economies engage in specialization and division of labor, which increase the productivity of their resources. Individuals and countries then voluntarily trade goods in which they specialize for others’ products, vastly increasing the range and quantity of consumption and having the potential to raise everyone’s living standards.

Globalization

You can hardly open a newspaper today without reading about the most recent trends in “globalization.” What exactly does this term mean? How can economics contribute to understanding the issues?

Globalization is a popular term that is used to denote an increase in economic integration among nations. Increasing integration is seen today in the dramatic growth in the flows of goods, services, and capital across national borders.

One major component of globalization is the spectacular increase in the share of national output devoted to imports and exports. With a continuous drop in transportation and communication costs, along with declining tariffs and other barriers to trade, the share of trade in U.S. national output has more than doubled over the last half-century. Domestic producers now compete with producers from around the world in their prices and design decisions.

The increased share of trade has been accompanied by increased specialization in the production process itself as different stages of production are “outsourced” to different countries. A typical example is the production of Barbie dolls:

The plastic and hair come from Taiwan and Japan. Assembly used to be done in those countries but has now migrated to lower-cost locations in Indonesia, Malaysia, and China. The molds themselves come from the United States, as do the paints used in decorating. China supplies labor and the cotton cloth used for dresses. The dolls sell for $10, of which 35 cents covers Chinese labor, 65 cents covers foreign materials, $1 covers Hong Kong profits and transportation, and the rest is Mattel profit, marketing, and transportation expenses in the United States.

Evidence indicates that this process of slicing up the productive process is typical of manufacturing activities in the United States and other high-income countries.

A second component of globalization is the increasing integration of financial markets. Financial integration is seen in the accelerated pace of lending and borrowing among nations as well as in the convergence of interest rates among different countries. The major causes of financial market integration have been the dismantling of restrictions on capital flows among nations, cost reductions, and innovations in financial markets, particularly the use of new kinds of financial instruments.

Financial integration among nations has undoubtedly led to gains from trade, as nations with productive uses for capital can borrow from countries with excess saving. In the last two decades, Japan has served as the world’s major lending country. Surprisingly, the United States has been the world’s largest borrower—partly because of its low national savings rate and partly because of the technological dynamism of its computer, telecommunication, and biotechnology industries.

Integration of goods and financial markets has produced impressive gains from trade in the form of lower prices, increased innovation, and more rapid economic growth. But these gains have been accompanied by painful side effects.

One consequence of economic integration is the unemployment and lost profits that occur when low-cost foreign producers displace domestic production. The unemployed textile worker, the bankrupt soybean farmer—they find little solace in the fact that consumers are enjoying lower prices for food and clothing. Those who lose from increased international trade have become tireless advocates of “protectionism” in the form of tariffs and quotas on international trade.

1 See Feenstra in the Further Reading section at the end of this chapter.
A second consequence comes when financial integration triggers international financial crises. In the late 1990s, problems in Thailand, Mexico, and Russia spilled over into stock and bond markets around the world. The contagion arising from small disturbances is a direct result of closely linked markets. American investors put their funds into Thailand, seeking higher returns. But these same investors are likely to pull out their funds when they smell trouble, and that can lead to a financial crisis as countries attempt to prop up exchange rates or financial institutions in the face of a massive speculative attack.

Globalization raises many new issues for policymakers. Are the gains from trade worth the domestic costs in terms of social disruption and dislocation? Should countries prevent investors from moving funds in and out so rapidly that domestic markets are threatened? Does integration lead to greater inequality? Should international institutions become lenders of last resort for countries in financial difficulties? These questions are on the minds of policymakers around the world who are attempting to deal with globalization.

**MONEY: THE LUBRICANT OF EXCHANGE**

If specialization permits people to concentrate on particular tasks, money then allows people to trade their specialized outputs for the vast array of goods and services produced by others. What is money? Money is the means of payment—the currency and checks that we use when we buy things. But more than that, money is a lubricant that facilitates exchange. When everyone trusts and accepts money as payment for goods and debts, trade is facilitated. Just imagine how complicated economic life would be if you had to barter goods for goods every time you wanted to buy a pizza or go to a concert. What services could you offer Sal’s Pizza? And what about your education—what could you barter with your college for tuition that it needs? Because everyone accepts money as the medium of exchange, the need to match supplies and demands is enormously simplified.

Governments control the money supply through their central banks. But like other lubricants, money can get overheated and damage the economic engine. It can grow out of control and cause a hyperinflation, in which prices increase very sharply. When that happens, people concentrate on spending their money quickly, before it loses its value, rather than investing it for the future. That’s what happened to several Latin American countries in the 1980s, and many former socialist economies in the 1990s, when they had inflation rates exceeding 1000 percent or even 10,000 percent per year. Imagine getting your paycheck and having it lose 20 percent of its value by the end of the week!

Money is the medium of exchange. Proper management of the money supply is one of the major issues for government macroeconomic policy in all countries.

**CAPITAL**

An advanced industrial economy like the United States uses an enormous number of buildings, machines, computers, software, and so on. These are the factors of production called capital—a produced factor of production, a durable input which is itself an output of the economy.

Most of us do not realize how much our daily activities depend upon capital, including our houses, the highways on which we drive, and the wires that bring electricity and cable TV to our homes. The total net private capital stock in the U.S. economy is more than $19 trillion—including government-owned, business, and residential capital. On average, this is $70,000 per person.

As we have seen, capital is one of the three major factors of production. The other two, land and labor, are often called primary factors of production. That means their supply is mostly determined by noneconomic factors, such as the fertility rate and the country’s geography. Capital, by contrast, has to be produced before you can use it. For example, some companies build textile machinery, which is then used to make shirts; some companies build farm tractors, which are then used to help produce corn.

Use of capital involves time-consuming, roundabout methods of production. People learned long ago that indirect and roundabout production techniques often are more efficient than direct methods.
Capital and Private Property

In a market economy, capital typically is privately owned, and the income from capital goes to individuals. Every patch of land has a deed, or title of ownership; almost every machine and building belongs to an individual or corporation. Property rights bestow on their owners the ability to use, exchange, paint, dig, drill, or exploit their capital goods. These capital goods also have market values, and people can buy and sell the capital goods for whatever price the goods will fetch. The ability of individuals to own and profit from capital is what gives capitalism its name.

However, while our society is one built on private property, property rights are limited. Society determines how much of “your” property you may bequeath to your heirs and how much must go in inheritance and estate taxes to the government. Society determines how much your factory can pollute and where you can park your car. Even your home is not your castle: you must obey zoning laws and, if necessary, make way for a road.

Interestingly enough, the most valuable economic resource, labor, cannot be turned into a commodity that is bought and sold as private property. Since the abolition of slavery, it has been against the law to treat human earning power like other capital assets. You are not free to sell yourself; you must rent yourself at a wage.

Growth from the Sacrifice of Current Consumption. If people are willing to save—to abstain from present consumption and wait for future consumption—society can devote resources to new capital goods. A larger stock of capital helps the economy grow faster by pushing out the PPF. Look back at Figure 1-5 to see how forgoing current consumption in favor of investment adds to future production possibilities. High rates of saving and investment help explain how Taiwan, China, and other Asian countries have grown so fast over the last three decades. By comparison, many poor countries save and invest little—they start the economic race at the back and fall further behind because they cannot accumulate productive capital.

Is there no limit to the amount of useful capital? Should we continue to boost productivity by adding more capital, by replacing all direct processes with more productive, roundabout ones and all roundabout processes with still more roundabout processes? While this seems sensible, it has a high cost because too much roundabout investment would cause too great a reduction in today’s consumption. Investing resources to give every worker an advanced degree, to remove 99.9 percent of pollution, and to build a subway system under every town and hamlet would certainly increase productivity. But the payoff would not be worth the enormous cost in reducing consumption.

We summarize as follows:

Economic activity involves forgoing current consumption to increase our capital. Every time we invest—building a new factory or road, increasing the years or quality of education, or increasing the stock of useful technical knowledge—we are enhancing the future productivity of our economy and increasing future consumption.

Property rights for capital and pollution

Property rights define the ability of individuals or firms to own, buy, sell, and use the capital goods and other property in a market economy. These rights are enforced through the legal framework, which constitutes the set of laws within which an economy operates. An efficient and acceptable legal framework for a market economy includes the definition of property rights, the laws of contract, and a system for adjudicating disputes.

As the ex-communist countries are discovering, it is very difficult to have a market economy when there are no laws enforcing contracts or guaranteeing that a company can keep its own profits. And when the legal framework breaks down, as in the former Yugoslavia or in drug-producing countries like Colombia, people begin to fear for their lives and have little time or inclination to
government intervention. In the real world, however, no economy actually conforms totally to the idealized world of the smoothly functioning invisible hand. Rather, every market economy suffers from imperfections which lead to such ills as excessive pollution, unemployment, and extremes of wealth and poverty.

For that reason, no government anywhere in the world, no matter how conservative, keeps its hands off the economy. In modern economies governments take on many tasks in response to the flaws in the market mechanism. The military, the police, the national weather service, and highway construction are all typical areas of government activity. Socially useful ventures such as space exploration and scientific research benefit from government funding. Governments may regulate some businesses (such as banking and drugs) while subsidizing others (such as education and health care). Governments also tax their citizens and redistribute some of the proceeds to the elderly and needy.

How do governments perform their functions? Governments operate by requiring people to pay taxes, obey regulations, and consume certain collective goods and services. Because of its coercive powers, the government can perform functions that would not be possible under voluntary exchange. This coercion increases the freedoms and consumption of those who benefit while reducing the incomes and opportunities of those who are taxed or regulated.

But for all the wide range of possible activities, governments have three main economic functions in a market economy. These functions are increasing efficiency, promoting equity, and fostering macroeconomic stability and growth.

1. Governments increase efficiency by promoting competition, curbing externalities like pollution, and providing public goods.
2. Governments promote equity by using tax and expenditure programs to redistribute income toward particular groups.

We will examine briefly each function.
What is the effect of imperfect competition? Imperfect competition leads to prices that rise above cost and to consumer purchases that are reduced below efficient levels. The pattern of too high price and too low output is the hallmark of the inefficiencies associated with imperfect competition.

In reality, almost all industries possess some measure of imperfect competition. Airlines, for example, may have no competition on some of their routes but face several rivals on others. The extreme case of imperfect competition is the monopolist—a single supplier who alone determines the price of a particular good or service. For example, Microsoft has been a monopolist in the production of Windows operating systems.

Over the last century, most governments have taken steps to curb the most extreme forms of imperfect competition. Governments sometimes regulate the price and profits of monopolies such as local water, telephone, and electric utilities. In addition, government antitrust laws prohibit actions such as price fixing and agreeing to divide up markets. The most important check to imperfect competition, however, is the opening of markets to competitors, whether they be domestic or foreign. Few monopolies can long withstand the attack of competitors unless governments protect them through tariffs or regulations.

Externalities

A second type of inefficiency arises when there are spillovers or externalities, which involve involuntary imposition of costs or benefits. Market transactions involve voluntary exchange in which people exchange goods or services for money. When a firm buys a chicken to make frozen drumsticks, it buys the chicken from its owner in the chicken market, and the seller receives the full value of the hen. When you buy a haircut, the barber receives the full value for time, skills, and rent.

But many interactions take place outside markets. While airports produce a lot of noise, they generally do not compensate the people living around the airport for disturbing their peace. On the other hand, some companies which spend heavily on research and development have positive spillover effects for the rest of society. For example, researchers at AT&T invented the transistor and launched the electronic revolution, but AT&T’s profits increased
by only a small fraction of the global social gains. In each case, an activity has helped or hurt people outside the market transaction; that is, there was an economic transaction without an economic payment.

**Externalities** (or spillover effects) occur when firms or people impose costs or benefits on others outside the marketplace.

Governments are generally more concerned with negative externalities than positive ones. As our society has become more densely populated and as the production of energy, chemicals, and other materials increases, negative externalities or spillover effects have grown from little nuisances into major threats. This is where governments come in. Government *regulations* are designed to control externalities like air and water pollution, damage from strip mining, hazardous wastes, unsafe drugs and foods, and radioactive materials.

In many ways, governments are like parents, always saying no: Thou shalt not expose thy workers to dangerous conditions. Thou shalt not pour out poisonous smoke from thy factory chimney. Thou shalt not sell mind-altering drugs. Thou shalt not drive without wearing thy seat belt. And so forth. Finding the precisely correct regulations is a difficult task that requires complex science and economics and is subject to heavy political pressure, but few today would argue for returning to the unregulated economic jungle where firms would be allowed to dump pollutants like plutonium wherever they wanted.

**Public Goods**

While negative externalities like pollution or global warming command most of the headlines, positive externalities may well be economically more significant. Important examples of positive externalities are construction of a highway network, operation of a national weather service, support of basic science, and provision of measures to enhance public health. These are not goods which can be bought and sold in markets. Adequate private production of these public goods will not occur because the benefits are so widely dispersed across the population that no single firm or consumer has an economic incentive to provide the service and capture the returns.

The extreme example of a positive externality is a public good. **Public goods** are commodities for which the cost of extending the service to an additional person is zero and which it is impossible to exclude individuals from enjoying. The best example of a public good is national defense. When a nation protects its freedoms and way of life, it does so for all its inhabitants, whether they want the protection or not and whether they pay for it or not.

Because private provision of public goods is generally insufficient, the government must step in to encourage the production of public goods. In buying public goods like national defense or lighthouses, the government is behaving exactly like any other large spender. By casting sufficient dollar votes in certain directions, it causes resources to flow there. Once the dollar votes are cast, the market mechanism then takes over and channels resources to firms so that the lighthouses or tanks get produced.

**Are lighthouses public goods?**

For many years, lighthouses were used to illustrate the notion of public goods. They save lives and cargoes. But lighthouse keepers cannot reach out to collect fees from ships; nor, if they could, would it serve an efficient social purpose for them to exact an economic penalty on ships who use their services. The light can be provided most efficiently free of charge, for it costs no more to warn 100 ships than to warn a single ship of the nearby rocks.

This view became controversial when Nobel Prize-winning economist Ronald Coase reviewed the history of lighthouses in England and Wales and determined that these had been *privately* operated. Coase found that English lighthouses operated profitably under licenses purchased from the Crown and were financed by government-authorized “light duties” levied on ships which used nearby ports. From this history, Coase concluded that “contrary to the belief of many economists, a lighthouse service can be provided by private enterprise.” Some have even concluded that lighthouses are not public goods.

But let’s look carefully here. The two key attributes of a public good are that the cost of extending the service to an additional person is zero (“nonrivalry”) and that it is impossible to exclude individuals from enjoying it (“nonexcludability”). Both these characteristics are applicable to lighthouses.

But a “public” good is not necessarily publicly provided. Often, it is provided by no one. Moreover, just
because it is privately provided does not indicate that it is efficiently provided or that a market mechanism can pay for the lighthouse. The English example shows the interesting case where, if provision of the public good can be tied to another good or service (in this case, vessel tonnage), and if the government gives private persons the right to collect what are essentially taxes, then an alternative mechanism for financing the public good can be found. Such an approach would work poorly where the fees could not be easily tied to tonnage (such as in international waterways). And it would not work at all if the government refused to privatize the right to collect light duties on shipping.

America shows quite a different experience. From its earliest days, the United States believed that navigational aids should be government-provided. Indeed, one of the first acts of the first Congress, and America’s first public-works law, provided that “the necessary support, maintenance, and repairs of all lighthouse, beacons, [and] buoys . . . shall be defrayed out of the Treasury of the United States.”

But, like many public goods, lighthouses were provided meager funding, and it is interesting to note what happened in the absence of navigational aids. A fascinating case lies off the east coast of Florida, which is a treacherous waterway with a 200-mile reef lying submerged a few feet below the surface in the most active hurricane track of the Atlantic Ocean. This heavily used channel was prime territory for storm, shipwreck, and piracy.

There were no lighthouses in Florida until 1825, and no private-sector lighthouses were ever built in this area. The market responded vigorously to the perils, however. What arose from the private sector was a thriving “wrecking” industry. Wreckers were ships that lurked near the dangerous reefs waiting for an unfortunate boat to become disabled. The wreckers would then appear, offer their help in saving lives and cargo, tow the boat into the appropriate port, and then claim a substantial part of the value of the cargo. Wrecking was the major industry of south Florida in the mid-nineteenth century and made Key West the richest town in America at that time.

While wreckers probably had positive value added, they provided none of the public-good attributes of lighthouses. Indeed, because many cargoes were insured, there was significant “moral hazard” involved in navigation. Conivance between wreckers and captains often enriched both at the expense of owners and insurance companies.

It was only when the U.S. Lighthouse Service, financed by government revenues, began to build lighthouses through the Florida channel that the number of shipwrecks began to decrease—and the wreckers were gradually driven out of business.

Lighthouses are no longer a central issue of public policy today and are mainly of interest to tourists. They have been largely replaced by the satellite-based Global Positioning System (GPS), which is also a public good provided free by the government. But the history of lighthouses reminds us of the problems that can arise when public goods are inefficiently provided.

**Taxes.** The government must find the revenues to pay for its public goods and for its income-redistribution programs. Such revenues come from taxes levied on personal and corporate incomes, on wages, on sales of consumer goods, and on other items. All levels of government—city, state, and federal—collect taxes to pay for their spending.

Taxes sound like another “price”—in this case the price we pay for public goods. But taxes differ from prices in one crucial respect: taxes are not voluntary. Everyone is subject to the tax laws; we are all obligated to pay for our share of the cost of public goods. Of course, through our democratic process, we as citizens choose both the public goods and the taxes to pay for them. However, the close connection between spending and consumption that we see for private goods does not hold for taxes and public goods. I pay for a hamburger only if I want one, but I must pay my share of the taxes used to finance defense and public education even if I don’t care a bit for these activities.

**EQUITY**

Our discussion of market failures like monopoly or externalities focused on defects in the allocative role of markets—imperfections that can be corrected by judicious intervention. But assume for the moment that the economy functioned with complete efficiency—always on the production-possibility frontier and never inside it, always choosing the right amount of public versus private goods, and so forth. Even if the market system worked perfectly, it might still lead to a flawed outcome.
Markets do not necessarily produce a fair distribution of income. A market economy may produce inequalities in income and consumption that are not acceptable to the electorate.

Why might the market mechanism produce an unacceptable solution to the question for whom? The reason is that incomes are determined by a wide variety of factors, including effort, education, inheritance, factor prices, and luck. The resulting income distribution may not correspond to a fair outcome. Moreover, recall that goods follow dollar votes and not the greatest need. A rich man’s cat may drink the milk that a poor boy needs to remain healthy. Does this happen because the market is failing? Not at all, for the market mechanism is doing its job—putting goods in the hands of those who have the dollar votes. If a country spends more fertilizing its lawns than feeding poor children, that is a defect of income distribution, not of the market. Even the most efficient market system may generate great inequality.

Often the income distribution in a market system is the result of accidents of birth. Every year Forbes magazine lists the 400 richest Americans, and it’s impressive how many of them either received their wealth by inheritance or used inherited wealth as a springboard to even greater wealth. Would everyone regard that as necessarily right or ideal? Probably not. Should someone be allowed to become a billionaire simply by inheriting 5000 square miles of rangeland or the family’s holding of oil wells? That’s the way the cookie crumbles under laissez-faire capitalism.

For most of American history, economic growth was a rising tide that lifted all boats, raising the incomes of the poor as well as those of the rich. But over the last two decades, changes in family structure and declining wages of the less skilled and less educated have reversed the trend. With a return to greater emphasis on the market has come greater homelessness, more children living in poverty, and deterioration of many of America’s central cities.

Income inequalities may be politically or ethically unacceptable. A nation does not need to accept the outcome of competitive markets as predetermined and immutable; people may examine the distribution of income and decide it is unfair. If a democratic society does not like the distribution of dollar votes under a laissez-faire market system, it can take steps to change the distribution of income.

Let’s say that voters decide to reduce income inequality. What tools could the government use to implement that decision? First, it can engage in progressive taxation, taxing large incomes at a higher rate than small incomes. It might impose heavy taxes on wealth or on large inheritances to break the chain of privilege. The federal income and inheritance taxes are examples of such redistributive progressive taxation.

Second, because low tax rates cannot help those who have no income at all, governments can make transfer payments, which are money payments to people. Such transfers today include aid for the elderly, blind, and disabled and for those with dependent children, as well as unemployment insurance for the jobless. This system of transfer payments provides a “safety net” to protect the unfortunate from privation. And, finally, governments sometimes subsidize consumption of low-income groups by providing food stamps, subsidized medical care, and low-cost housing—though in the United States, such spending comprises a relatively small share of total spending.

These programs have become increasingly unpopular in the last two decades. As the real wages of the middle class have stagnated, people naturally ask why they should support the homeless or able-bodied people who do not work. What can economics contribute to debates about equality? Economics as a science cannot answer such normative questions as how much of our market incomes—if any—should be transferred to poor families. This is a political question that can be answered only at the ballot box.

Economics can, however, analyze the costs or benefits of different redistributive systems. Economists have devoted much time to analyzing whether different income-redistribution devices (such as taxes and food stamps) lead to social waste (e.g., people working less or buying drugs rather than food). They have also studied whether giving poor people cash rather than goods is likely to be a more efficient way of reducing poverty. Economics cannot answer questions of how much poverty is acceptable and fair, but it can help design more effective programs to increase the incomes of the poor.
MACROECONOMIC GROWTH AND STABILITY

Since its origins, capitalism has been plagued by periodic bouts of inflation (rising prices) and recession (high unemployment). Since World War II, for example, there have been nine recessions in the United States, some putting millions of people out of work. These fluctuations are known as the business cycle.

Today, thanks to the intellectual contribution of John Maynard Keynes and his followers, we know how to control the worst excesses of the business cycle. By careful use of fiscal and monetary policies, governments can affect output, employment, and inflation. The fiscal policies of government involve the power to tax and the power to spend. Monetary policy involves determining the supply of money and interest rates; these affect investment in capital goods and other interest-rate-sensitive spending. Using these two fundamental tools of macroeconomic policy, governments can influence the level of total spending, the rate of growth and level of output, the levels of employment and unemployment, and the price level and rate of inflation in an economy.

Governments in advanced industrial countries have successfully applied the lessons of the Keynesian revolution over the last half-century. Spurred on by active monetary and fiscal policies, the market economies witnessed a period of unprecedented economic growth in the three decades after World War II.

In the 1980s, governments became more concerned with also designing macroeconomic policies to promote long-term objectives, such as economic growth and productivity. (Economic growth denotes the growth in a nation’s total output, while productivity represents the output per unit input or the efficiency with which resources are used.) For example, tax rates were lowered in most industrial countries in order to improve incentives for saving and production. Many economists emphasized the importance of public saving through smaller budget deficits as a way to increase national saving and investment.

Macroeconomic policies for stabilization and economic growth include fiscal policies (of taxing and spending) along with monetary policies (which affect interest rates and credit conditions). Since the development of macroeconomics in the 1930s, governments have succeeded in curbing the worst excesses of inflation and unemployment.

Table 2-1 summarizes the economic role played by government today. It shows the important governmental functions of promoting efficiency, achieving...
ing a fairer distribution of income, and pursuing the macroeconomic objectives of economic growth and stability. In all advanced industrial societies we find some variant of a mixed economy, in which the market determines output and prices in most individual sectors while government steers the overall economy with programs of taxation, spending, and monetary regulation.

TWILIGHT OF THE WELFARE STATE?

In 1942, the great Austria-born Harvard economist Joseph Schumpeter argued that the United States was “capitalism living in an oxygen tent” on its march to socialism. Capitalism’s success would breed alienation and self-doubt, sapping its efficiency and innovation. But he was wrong. The next half-century saw sustained growth in government’s involvement in the economies of North America and Western Europe along with the most impressive economic performance ever recorded.

Rapid economic growth has been accompanied by increased skepticism about government’s role. Critics of government say that the state is overly intrusive; governments create monopoly; government failures are just as pervasive as market failures; high taxes distort the allocation of resources; social security threatens to overload workers in the decades ahead; environmental regulation dulls the spirit of enterprise; government attempts to stabilize the economy must fail at best and increase inflation at worst. In short, for some, government is the problem rather than the solution.

Guardians of economic freedom:
Friedrich Hayek
and Milton Friedman

Economists, being human, are subject to fluctuations in opinions and ideology. Because government policies seemed so successful in mobilizing the U.S. and U.K. war economies for military victory over Germany and Japan during World War II, and because active macroeconomic policies seemed to succeed in conquering the Great Depression, conservative laissez-faire ideologies came to represent only minority opinion among most free-world professional economists.

Two eminent scholars never wavered in their skepticism about the merits of heavy government intervention in the economy. Friedrich Hayek (1899–1992), of Vienna, London, and Chicago, and Milton Friedman (1912– ), of the University of Chicago and the Hoover Library at Stanford, received Nobel Prizes in economics for their scientific innovations. Their work is today highly regarded by conservative and “libertarian” economic thinkers.

Hayek’s most influential work examined the efficiency of different forms of economic organization. The 1920s and 1930s witnessed a great debate as to whether resources could be efficiently organized under socialism. Oskar Lange and Abba Lerner argued that a socialist firm could use capitalist-style pricing and thereby emulate a market economy without the monopolistic tendencies of capitalism. Hayek provided an important rebuttal. He pointed out that costs and production possibilities are not known. Only with the incentives of a private, free-enterprise system could the information dispersed among the millions of economic agents be effectively mobilized and used. No system can generate innovations without the carrot of profits and the stick of bankruptcy. Modern economics, with its emphasis on dispersed and asymmetrical information, owes much to the brilliant insights of Hayek.

Friedman’s statistical and analytic researches have ranged widely. He documented how small the differences are between the saving rates of rich and poor in the long run after adjusting saving for temporary ups and downs in income. This led to the permanent-income theory of consumption (which is discussed in the macroeconomic sections of this text). Together with Anna Schwartz, Friedman authored the definitive Monetary History of the United States, 1876–1960 (1993). This book launched the monetarist revolution and led to an appreciation among macroeconomists of how the money supply can affect aggregate spending, prices, and output. Friedman helped convince economists that monetary policy definitely matters for overall economic activity.

During the last half of the twentieth century, everywhere—in the United States, Western Europe, and Asia, as well as in Stalin’s Soviet Union and Mao’s China—there has been a significant swing back toward the competitive-market pole and away from the centralized-command pole. No one within the economist guild has been more
have increased literacy and life expectancy. Macroeconomic successes have reduced the sting of inflation and unemployment, while government transfer programs have brought health care to the poor and improved the quality of life for the aged. State-supported science has penetrated the atom, discovered the DNA molecule, and explored outer space.

Of course, these successes do not belong to governments alone. Governments harnessed private ingenuity through the market mechanism to help achieve these social aims. And, in some cases, governments were like orators who didn’t know when enough was enough.

The debate about government’s successes and failures demonstrates again that drawing the boundary between market and government is an enduring problem. The tools of economics are indispensable to help societies find the golden mean between laissez-faire market mechanisms and democratic rules of the road. The good mixed economy is, perforce, the limited mixed economy. But those who would reduce government to the constable plus a few lighthouses are living in a dream world. An efficient and humane society requires both halves of the mixed system—market and government. Operating a modern economy without both is like trying to clap with one hand.

In weighing the relative merits of state and market, public debate often oversimplifies the complex choices that societies face. Markets have worked miracles in some countries. But without the right kind of legal and political structure, and without the social overhead capital that promotes trade and private investment, markets have also produced corrupt capitalism with great inequality, pervasive poverty, and declining living standards.

In economic affairs, success has many parents, while failure is an orphan. The success of market economies may lead us to overlook the many successes of collective action over the last century, as the case of the lighthouse reminds us. Collective action has helped reduce malnutrition and conquered many terrible diseases like smallpox. Government programs

Important, both as an architect and as an expositor of this shift, than Milton Friedman. His classic book, Capitalism and Freedom (1962), argues why a rational thinker might, along with advocating free international trade and maximal deregulation, deplore the minimum wage, state licensing of surgeons, and prohibition of drugs like heroin and cocaine. All thoughtful economists should study his arguments carefully.
votes to buy consumer goods. Those without property or with skills, color, or sex that the market undervalues will receive low incomes.

B. Trade, Money, and Capital

4. As economies develop, they become more specialized. Division of labor allows a task to be broken into a number of smaller chores that can each be mastered and performed more quickly by a single worker. Specialization arises from the increasing tendency to use roundabout methods of production that require many specialized skills. As individuals and countries become increasingly specialized, they tend to concentrate on particular commodities and trade their surplus output for goods produced by others. Voluntary trade, based on specialization, benefits all.

5. Trade in specialized goods and services today relies on money to lubricate its wheels. Money is the universally acceptable medium of exchange—including primarily currency and checking deposits. It is used to pay for everything from apple tarts to zebra skins. By accepting money, people and nations can specialize in producing a few goods and can then trade them for others; without money, we would waste much time negotiating and bartering.

6. Capital goods—produced inputs such as machinery, structures, and inventories of goods in process—permit roundabout methods of production that add much to a nation’s output. These roundabout methods take time and resources to get started and therefore require a temporary sacrifice of present consumption in order to increase future consumption. The rules that define how capital and other assets can be bought, sold, and used are the system of property rights. In no economic system are private-property rights unlimited.

C. The Economic Role of Government

7. Although the market mechanism is an admirable way of producing and allocating goods, sometimes market failures lead to deficiencies in the economic outcomes. The government may step in to correct these failures. Its role in a modern economy is to ensure efficiency, to correct an unfair distribution of income, and to promote economic growth and stability.

8. Markets fail to provide an efficient allocation of resources in the presence of imperfect competition or externalities. Imperfect competition, such as monopoly, produces high prices and low levels of output. To combat these conditions, governments regulate businesses or put legal antitrust constraints on business behavior. Externalities arise when activities impose costs or bestow benefits that are not paid for in the marketplace. Governments may decide to step in and regulate these spillovers (as it does with air pollution) or provide for public goods (as in the case of public health).

9. Markets do not necessarily produce a fair distribution of income; they may spin off unacceptably high inequality of income and consumption. In response, governments can alter the pattern of incomes (the for whom) generated by market wages, rents, interest, and dividends. Modern governments use taxation to raise revenues for transfers or income-support programs that place a financial safety net under the needy.

10. Since the development of macroeconomics in the 1930s, the government has undertaken a third role: using fiscal powers (of taxing and spending) and monetary policy (affecting credit and interest rates) to promote long-run economic growth and productivity and to tame the business cycle’s excesses of inflation and unemployment. Since 1980, the blend of the mixed economy called the welfare state has been on the defensive in the enduring struggle over the boundary between state and market.
FURTHER READING AND INTERNET WEBSITES

Further Reading

For examples of the writings of libertarian economists, see Milton Friedman, *Capitalism and Freedom* (University of Chicago Press, 1963), and Friedrich Hayek, *The Road to Serfdom* (University of Chicago Press, 1944).

A strong defense of government interventions in the economy can be found in Robert Kuttner, *Everything for Sale: The Virtues and Limits of the Market* (University of Chicago Press, 1999) and in Anne Alstott and Bruce Ackerman, *The Stakeholder Economy* (Yale University Press, New Haven, CT, 1999).

Websites
You can explore recent analyses of the economy along with a discussion of major economic policy issues in the *Economic Report of the President* at w3.access.gpo.gov/eop/. See www.whitehouse.gov for federal budget information and as an entry point into the useful Economic Statistics Briefing Room.

Major issues are presented from a conservative or libertarian economic perspective at the website of the Cato Institute, www.cato.org/.

QUESTIONS FOR DISCUSSION

1. What determines the composition of national output? In some cases, we say that there is “consumer sovereignty,” meaning that consumers decide how to spend their incomes on the basis of their tastes and market prices. In other cases, decisions are made by political choices of legislatures. Consider the following examples: transportation, education, police, energy efficiency of appliances, health-care coverage, television advertising. For each, describe whether the allocation is by consumer sovereignty or by political decision. Would you change the method of allocation for any of these goods?

2. When a good is limited, some means must be found to ration the scarce commodity. Some examples of rationing devices are auctions, ration coupons, and first-come, first-served systems. What are the strengths and weaknesses of each? Explain carefully in what sense a market mechanism “rations” scarce goods and services.

3. This chapter discusses many “market failures,” areas in which the invisible hand guides the economy poorly, and describes the role of government. Is it possible that there are, as well, “government failures,” government attempts to curb market failures that are worse than the original market failures? Think of some examples of government failures. Give some examples in which government failures are so bad that it is better to live with the market failures than to try to correct them.

4. Consider the following cases of government intervention: regulations to limit air pollution, income support for the poor, and price regulation of a telephone monopoly. For each case, (1) explain the market failure, (2) describe a government intervention to treat the problem, and (3) explain how “government failure” (see the definition in question 3) might arise because of the intervention.

5. The circular flow of goods and inputs illustrated in Figure 2-1 has a corresponding flow of dollar incomes and spending. Draw a circular-flow diagram for the dollar flows in the economy, and compare it with the circular flow of goods and inputs. What is the role of money in the dollar circular flow?

6. Give three examples of specialization and division of labor. In what areas are you and your friends thinking of specializing? What might be the perils of overspecialization?
7. “Lincoln freed the slaves. With one pen stroke he destroyed much of the capital the South had accumulated over the years.” Comment.

8. The table opposite shows some of the major expenditures of the federal government. Explain how each one relates to the economic role of government.

### Major Expenditure Categories for Federal Government

<table>
<thead>
<tr>
<th>Budget category</th>
<th>Federal spending, 2001 ($, billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social security</td>
<td>426</td>
</tr>
<tr>
<td>Health care and Medicare</td>
<td>387</td>
</tr>
<tr>
<td>National defense</td>
<td>291</td>
</tr>
<tr>
<td>Income security</td>
<td>260</td>
</tr>
<tr>
<td>Interest on public debt</td>
<td>208</td>
</tr>
<tr>
<td>Natural resources and environment</td>
<td>25</td>
</tr>
<tr>
<td>International affairs</td>
<td>20</td>
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