

PART FOUR

Applications of Economic Principles



Government Taxation and Expenditure

16



The spirit of a people, its cultural level, its social structure, the deeds its policy may prepare, all this and more is written in its fiscal history. . . . He who knows how to listen to its messenger here discerns the thunder of world history more clearly than anywhere else.

Joseph Schumpeter

When we look at a market economy—providing all sorts of products from apples and boats to X-ray machines and zithers—it would be tempting to think that markets require little more than skilled workers and lots of capital. But history has shown that markets cannot work effectively alone. At a minimum, an efficient market economy needs police to ensure physical security, an independent judicial system to enforce contracts, regulatory mechanisms to prevent monopolistic abuses and lethal pollution, schools to educate the young, and a public health system to ward off communicable diseases. Exactly where to draw the line between government and private activities is a difficult and controversial question, and people today debate the appropriate role of government in education, health care, and income support.

As economists, we want to go beyond the partisan debates and analyze the functions of government—government’s comparative advantage in the mixed economy. The present chapter examines the role of government in an advanced economy. What are the appropriate goals for economic policy in a market economy, and what instruments are available to carry them out? What principles underlie an efficient tax

system? Understanding the answers to these questions is key to developing sound public policies.

A. GOVERNMENT CONTROL OF THE ECONOMY

Debates about the role of government often take place on bumper stickers, with rallying cries such as “No new taxes” or “Balance the budget.” These simplistic phrases cannot capture the serious business of government economic policy. Say the populace decides that it wants to devote more resources to improving public health; or that more resources should be devoted to educating the young; or that unemployment in a deep recession should be reduced. A market economy cannot automatically solve these problems. Each of these objectives can be met if and only if the government changes its taxes, spending, or regulations. The thunder of world history is heard in fiscal policy because taxing and spending are such powerful instruments for social change.

THE TOOLS OF GOVERNMENT POLICY

In a modern economy, no sphere of economic life is untouched by the government. We can identify three major instruments or tools that government uses to influence private economic activity:

1. *Taxes* on incomes and goods and services. These reduce private income, thereby reducing private expenditures (on automobiles or restaurant food) and providing resources for public expenditures (on missiles and school lunches). The tax system also serves to discourage certain activities by taxing them more heavily (such as smoking cigarettes) while encouraging other activities by taxing them lightly or even subsidizing them (such as health care).
2. *Expenditures* on certain goods or services (such as roads, education, or police protection), along with *transfer payments* (like social security and food stamps) that provide resources to individuals.
3. *Regulations* or controls that direct people to perform or refrain from certain economic activities. Examples include rules that limit the amount firms

can pollute, or that divide up the radio spectrum, or that mandate testing the safety of new drugs.

Trends in the Size of Government

For more than a century, national income and production have been rising in all economies. At the same time, in most countries, government expenditures have been rising even faster than the overall economy. Each period of emergency—depression, war, or concern over social problems such as poverty or pollution—expanded the activity of government. After the crisis passed, government controls and spending never returned to their previous levels.

Before World War I, the combined federal, state, and local government expenditures or taxation amounted to little more than one-tenth of the entire U.S. national income. The war effort during World War II compelled government to consume about half the nation's greatly expanded total output. By 2007, expenditures of all levels of government in the United States ran around 33 percent of GDP.

Figure 16-1 shows the trend in taxes and expenditures for all levels of government in the United

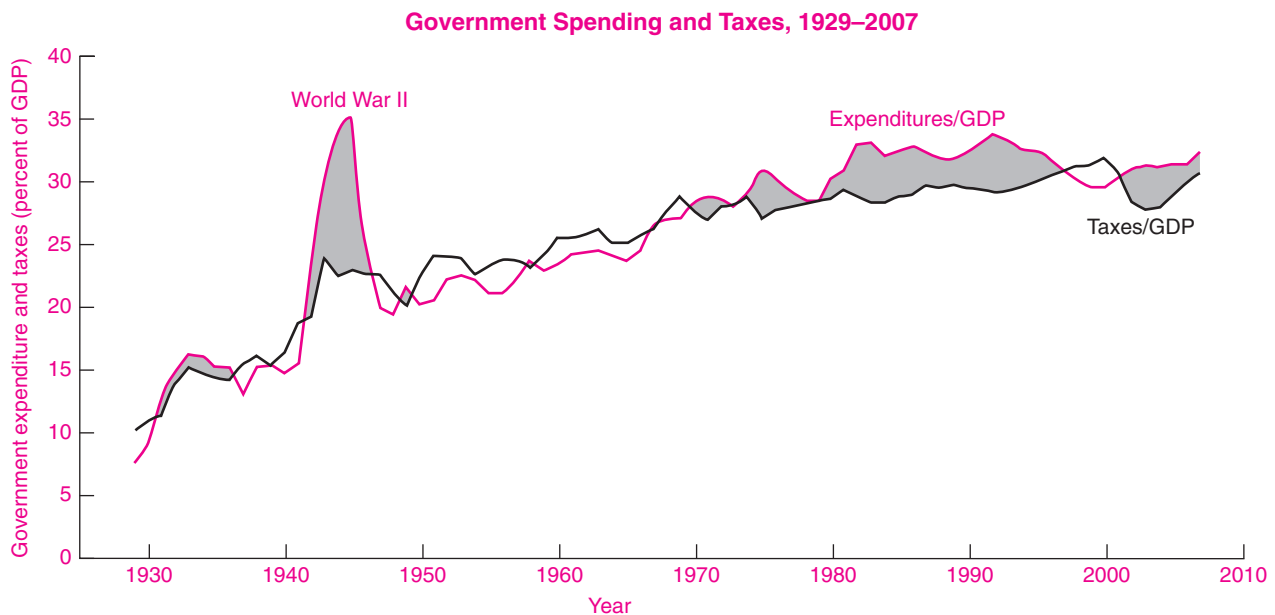


FIGURE 16-1. Government's Share of the Economy Has Grown Sharply

Government expenditures include spending on goods, services, and transfers at the federal, state, and local levels. Note how spending grew rapidly during wartime but did not return to prewar levels afterward. The difference between spending and taxes is the government deficit or surplus.

Source: U.S. Department of Commerce.

States. The rising curves indicate that the shares of government taxes and spending have grown steadily upward over recent decades.

Government's expansion has not occurred without opposition; each new spending and tax program provoked a fierce reaction. For example, when social security was first introduced in 1935, opponents denounced it as an ominous sign of socialism. But with the passage of time, political attitudes evolve. The "socialistic" social security system is today defended by politicians of all stripes as an essential part of the "social contract" between the generations. The radical doctrines of one era become accepted gospel of the next.

Figure 16-2 shows how government spending as a percentage of GDP varies among countries. High-income countries tend to tax and spend a larger fraction of GDP than do poor countries. Can we discern a pattern among wealthy countries? Within the high-income countries, no simple law

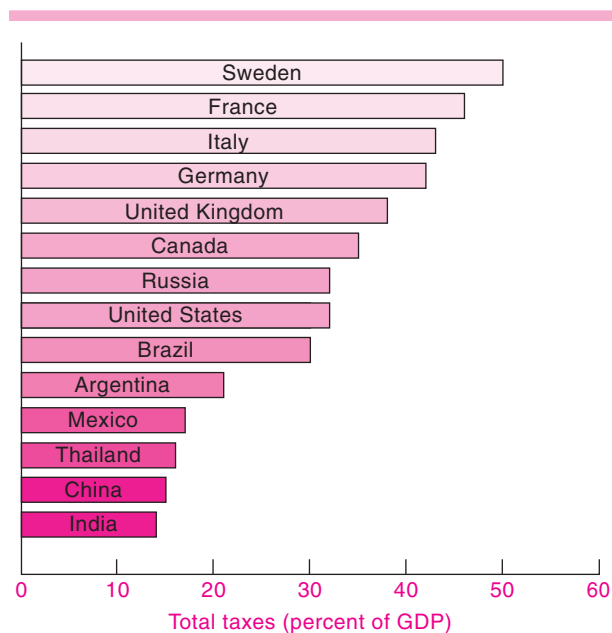


FIGURE 16-2. Government Taxation Is Highest in Rich Countries

Governments of poor countries tax and spend relatively little of national income. With affluence come greater demands for public goods and redistributive taxation to aid low-income families.

Source: United Nations for period 2000–2002, at unpan1.un.org/intradoc/groups/public/documents/un/unpan014052.pdf.

relating tax burdens and the citizenry's well-being can do justice to the true diversity of the fiscal facts of nations. For example, financing for education and health care, two of the largest components of government spending, is organized very differently across countries.

Figures 16-1 and 16-2 show the total expenditures of governments. Such expenditures include purchases of goods and services (like missiles and education) as well as transfer payments (like social security payments and interest on the government debt). Purchases of goods and services are called "exhaustive" because they make a direct claim upon the production of a country; transfer payments, by contrast, increase people's income and allow individuals to purchase goods and services but do not directly reduce the quantity of goods and services available for private consumption and investment.

The Growth of Government Controls and Regulation

In addition to the growth in spending and taxing, there has also been a vast expansion in the laws and regulations governing economic affairs.

Nineteenth-century America came as close as any economy has come to being a pure laissez-faire society—the system that the British historian Thomas Carlyle labeled "anarchy plus the constable." This philosophy permitted people great personal freedom to pursue their economic ambitions and produced a century of rapid material progress. But critics saw many flaws in this laissez-faire idyll. Historians record periodic business crises, extremes of poverty and inequality, deep-seated racial discrimination, and poisoning of water, land, and air by pollution. Muckrakers and progressives called for a bridle on capitalism so that the people could steer this wayward beast in more humane directions.

Beginning in the 1890s, the United States gradually turned away from the belief that "government governs best which governs least." Presidents Theodore Roosevelt, Woodrow Wilson, Franklin Roosevelt, and Lyndon Johnson—in the face of strenuous opposition—pushed out the boundaries of federal control over the economy, devising new regulatory and fiscal tools to combat the economic ailments of their time.

Constitutional powers of government were interpreted broadly and used to “secure the public interest” and to “police” the economic system. In 1887, the federal Interstate Commerce Commission (ICC) was established to regulate rail traffic across state boundaries. Soon afterward, the Sherman Antitrust Act and other laws were aimed against monopolistic combinations in “restraint of trade.”

During the 1930s, a whole set of industries came under *economic regulation*, in which government sets the prices, conditions of exit and entry, and safety standards. Regulated industries since that time have included the airlines, trucking, and barge and water traffic; electric, gas, and telephone utilities; financial markets; and oil and natural gas, as well as pipelines.

In addition to regulating the prices and standards of business, the nation attempted to protect health and safety through increasingly stringent *social regulation*. Following the revelations of the muckraking era of the early 1900s, pure food and drug acts were passed. During the 1960s and 1970s, Congress passed a series of acts that regulated mine safety and then worker safety more generally; regulated air and water pollution; authorized safety standards for automobiles and consumer products; and regulated strip mining, nuclear power, and toxic wastes.

Over the last three decades, the growth in government programs slowed. Economists argued persuasively that many economic regulations were impeding competition and keeping prices up rather than down. In the area of social regulations, economists have emphasized the need to ensure that the marginal benefits of regulations exceed their marginal costs. Today, “entitlement programs” (programs available to everyone who meets certain well-defined eligibility criteria), such as pensions and health care, are now the major spending programs for most high-income countries.

Still, there is no likelihood of a return to the *laissez-faire* era. Government programs have changed the very nature of capitalism. Private property is less and less wholly private. Free enterprise has become progressively less free. Irreversible evolution is part of history.

THE FUNCTIONS OF GOVERNMENT

We are beginning to get a picture of how government directs and interacts with the economy. What are the appropriate economic goals for government

action in a modern mixed economy? Let’s examine the four major functions:

1. Improving economic efficiency
2. Reducing economic inequality
3. Stabilizing the economy through macroeconomic policies
4. Conducting international economic policy

Improving Economic Efficiency

A central economic purpose of government is to assist in the socially desirable allocation of resources. This is the *microeconomic* side of government policy; it concentrates on the *what* and *how* of economic life. Microeconomic policies differ among countries according to customs and political philosophies. Some countries emphasize a hands-off, *laissez-faire* approach, leaving most decisions to the market. Other countries lean toward heavy government regulation, or even public ownership of businesses, in which production decisions are made by government planners.

The United States is fundamentally a market economy. On any microeconomic issue, most people presume that the market will solve the economic problem at hand. But sometimes there is good reason for government to override the allocational decisions of market supply and demand.

The Limits of the Invisible Hand. Earlier chapters have explained how the invisible hand of perfect competition would lead to an efficient allocation of resources. But this invisible-hand result holds only under limited conditions. All goods must be produced efficiently by perfectly competitive firms. All goods must be private goods like loaves of bread, the total of which can be cut up into separate slices of consumption for different individuals. There can be no externalities like air pollution. Consumers and firms must be fully informed about the prices and characteristics of the goods they buy and sell.

If all these idealized conditions were met, the invisible hand could provide perfectly efficient production and distribution of national output, and there would be no need for government intervention to promote efficiency.

Yet even in this ideal case, if there were to be a division of labor among people and regions, and if a price mechanism were to work, government would

have an important role. Courts and police forces would be needed to ensure fulfillment of contracts, nonfraudulent and nonviolent behavior, freedom from theft and external aggression, and the legislated rights of property.

Inescapable Interdependencies. Laissez-faire with minimal government intervention might be a good system if the idealized conditions listed above were truly present. In reality, each and every one of the idealized conditions enumerated above is violated to some extent in all human societies. Unregulated factories do tend to pollute the air, water, and land. When contagious diseases threaten to break out, private markets have little incentive to develop effective public-health programs. Consumers are sometimes poorly informed about the characteristics of the goods they buy. The market is not ideal. There are market failures.

In other words, government often deploys its weapons to correct significant market failures, of which the most important are the following:

- *The breakdown of perfect competition.* When monopolies or oligopolies collude to fix prices or drive firms out of business, government may apply anti-trust policies or regulations.
- *Externalities and public goods.* The unregulated market may produce too much air pollution and too little investment in public health or basic science. Government can use its influence to control harmful externalities or to fund programs in science and public health. Government can levy taxes on activities which impose external public costs (such as cigarette smoking), or it can subsidize activities which are socially beneficial (such as education or prenatal health care).
- *Imperfect information.* Unregulated markets tend to provide too little information for consumers to make well-informed decisions. In an earlier era, hucksters hawked snake oil remedies that might just as easily kill you as cure you. This led to food and drug regulations requiring that pharmaceutical companies provide extensive data on the safety and efficacy of new drugs before they can be sold. The government also requires that companies provide information on energy efficiency of major household appliances like refrigerators and water heaters. In addition, government may use its spending power to collect and provide

needed information itself, as it does with automobile crash-and-safety data.

Clearly, there is much on the agenda of possible allocational problems for government to handle.

Reducing Economic Inequality

Even when the invisible hand is marvelously efficient, it may at the same time produce a very unequal distribution of income. Under laissez-faire, people end up rich or poor depending on where they were born, on their inherited wealth, on their talents and efforts, on their luck in finding oil, and on their gender or the color of their skin. To some people, the distribution of income arising from unregulated competition looks as arbitrary as the Darwinian distribution of food and plunder in the jungle.

In the poorest societies, there is little excess income to take from the better-off and provide to the unfortunate. However, as a nation becomes wealthier, it can devote more resources to provide basic necessities and social insurance for all of its residents. These activities are the role of the “welfare state”—in which governments provide a minimum living standard to all—which is surveyed in detail in the next chapter. The welfare states of North America and Western Europe now devote a significant share of their revenues to maintaining minimum standards of health, nutrition, and income.

Income redistribution is usually accomplished through taxation and spending policies. Most wealthy countries now rule that children shall not go hungry because of the economic circumstances of their parents; that the poor shall not die because of insufficient money for needed medical care; that the young shall receive free public education; and that the old shall live out their years with a minimum level of income. In the United States, these government activities are provided primarily by transfer programs, such as food stamps, Medicaid, and social security.

But attitudes about redistribution evolve as well. With rising tax burdens and government budget deficits, along with rising costs of income-support programs, taxpayers increasingly resist redistributive programs and progressive taxation.

Stabilizing the Economy through Macroeconomic Policies

Early capitalism was prone to financial panics and bouts of inflation and depression. Today government

has the responsibility of preventing calamitous business depressions by the proper use of monetary and fiscal policy, as well as regulation of the financial system. In addition, government tries to smooth out the ups and downs of the business cycle, in order to avoid either large-scale unemployment at the bottom of the cycle or high inflation at the top of the cycle. More recently, government has become concerned with finding economic policies which boost long-term economic growth. These questions are considered at length in the chapters on macroeconomics.

Conducting International Economic Policy

As we will see in Chapter 18's review of international trade, the United States has become increasingly linked to the global economy in recent years. Government now plays a critical role representing the interests of the nation on the international stage and negotiating beneficial agreements with other countries on a wide range of issues. We can group the international issues of economic policy into four main areas:

- *Reducing trade barriers.* An important part of economic policy involves harmonizing laws and reducing trade barriers so as to encourage fruitful international specialization and division of labor. In recent years, nations have negotiated a series of trade agreements to lower tariffs and other trade barriers on agricultural products, manufactured goods, and services.

Such agreements are often contentious. They sometimes harm certain groups, as when removing textile tariffs reduces employment in that industry. In addition, international agreements may require giving up national sovereignty as the price of raising incomes. Suppose that one country's laws protect intellectual property rights, such as patents and copyrights, while another country's laws allow free copying of books, videos, and software. Whose laws shall prevail?
- *Conducting assistance programs.* Rich nations have numerous programs designed to improve the lot of the poor in other countries. These involve direct foreign aid, disaster and technical assistance, the establishment of institutions like the World Bank to give low-interest-rate loans to poor countries, and concessionary terms on exports to poor nations.
- *Coordinating macroeconomic policies.* Nations have seen that fiscal and monetary policies of other nations affect inflation, unemployment, and financial conditions at home. The international monetary system cannot manage itself; establishing a smoothly functioning exchange-rate system is a prerequisite for efficient international trade. When the American credit crisis erupted in 2008, it quickly spread to Europe and threatened several European banks. Central banks needed to act in a coordinated fashion to ensure that a bank failure, or even the fear of failure, in one country did not spread like wildfire to the entire international financial system. Particularly in tightly integrated regions, like Western Europe, countries work to coordinate their fiscal, monetary, and exchange-rate policies, or even adopt a common currency, so that inflation, unemployment, or financial crises in one country do not spill over to hurt the entire area.
- *Protecting the global environment.* The most recent facet of international economic policy is to work with other nations to protect the global environment in cases where several countries contribute to or are affected by spillovers. The most active areas historically have been protecting fisheries and water quality in rivers. When the Antarctic ozone hole threatened public health, countries reached an agreement to limit the use of ozone-depleting chemicals. Other treaties are designed to reduce the threats of deforestation, global warming, and species extinction. Clearly, international environmental problems can be resolved only through the cooperation of many nations.

Even the staunchest conservatives agree that government has a major role to play in representing the national interest in the anarchy of nations.

PUBLIC-CHOICE THEORY

For the most part, our analysis has concentrated on the *normative* theory of government—on the appropriate policies that the government *should follow* to increase the welfare of the population. But economists are not starry-eyed about the government any more than they are about the market. Governments

can make bad decisions or carry out good ideas badly. Indeed, just as there are market failures such as monopoly and pollution, so are there “government failures” in which government interventions lead to waste or redistribute income in an undesirable fashion.

These issues are the domain of **public-choice theory**, which is the branch of economics and political science that studies the way that governments make decisions. Public-choice theory examines the way different voting mechanisms can function and shows that there are no ideal mechanisms to sum up individual preferences into social choices. This approach also analyzes government failures, which arise when state actions fail to improve economic efficiency or when the government redistributes income unfairly. Public-choice theory points to issues such as the short time horizons of elected representatives, the lack of a hard budget constraint, and the role of money in financing elections as sources of government failures. A careful study of government failures is crucial for understanding the limitations of government and ensuring that government programs are not excessively intrusive or wasteful.



The Economics of Politics

Economists focus most of their analysis on the workings of the marketplace. But serious economists have also pondered the government’s role in society. Joseph Schumpeter pioneered public-choice theory in *Capitalism, Socialism, and Democracy* (1942), and Kenneth Arrow’s Nobel Prize–winning study on social choice brought rigor to this field. The landmark study by Anthony Downs, *An Economic Theory of Democracy* (1957), sketched a powerful new theory which held that politicians choose economic policies in order to be reelected. Downs showed that this theory implies that political parties would move toward the center of the political spectrum because of electoral competition.

Among the most important applications of public-choice theory were those to economic regulation. George Stigler argued that regulatory agencies have been “captured” by the regulated and often served the industries they regulated more than consumers. Studies by James Buchanan and Gordon Tullock in *The Calculus of Consent*

(1959) defended checks and balances and advocated the use of unanimity in political decisions, arguing that unanimous decisions do not coerce anyone. Public-choice economics has been applied to such areas as farm policy and the courts, and it formed the theoretical basis for a proposed constitutional amendment to balance the budget.

B. GOVERNMENT EXPENDITURES

Nowhere can the changes in government’s role be seen more clearly than in the area of government spending. Look back at Figure 16-1 on page 304. It shows the share of national output going to government spending, which includes things like purchases of goods, salaries of government workers, social security and other transfers, and interest on the government debt. You can see that government’s share rose for most of the twentieth century, with temporary bulges during wartime, but it has leveled off in recent years.

FISCAL FEDERALISM

While we have been referring to government as if it were a single entity, in fact Americans face three levels of government: federal, state, and local. This reflects a division of fiscal responsibilities among the different levels of government—a system known as *fiscal federalism*. The boundaries are not always clear-cut, but in general the federal government directs activities that concern the entire nation—paying for defense, space exploration, and foreign affairs. Local governments educate children, police streets, and remove garbage. States build highways, run university systems, and administer welfare programs.

The total U.S. spending at the different levels of government is shown in Table 16-1. The dominance of the federal role is a comparatively recent phenomenon. Before the twentieth century, local government was by far the most important of the three levels. The federal government did little more than support the military, pay interest on the national

Level of government	Total expenditures, 2007 (\$, billion)	Percent of total
All levels	4,429	100.0
Federal	2,515	56.8
State	857	19.3
Local	1,058	23.9

TABLE 16-1. Federal, State, and Local Government Current Expenditures

In the early days of the Republic, most spending was at the state and local levels. Today, more than half of total government outlays are federal.

Source: U.S. Bureau of Economic Analysis.

debt, and finance a few public works. Most of its tax collection came from liquor and tobacco excises and import tariffs. But two world wars and the rise of the welfare state, with transfer programs such as social security and Medicare, increased spending gradually. The advent of the national income tax in 1913 provided a source of funds that no state or locality could match.

To understand fiscal federalism, economists emphasize that spending decisions should be allocated among the levels of government according to the spillovers from government programs. In general, localities are responsible for *local public goods*, activities whose benefits are largely confined to local residents. Since libraries are used by townspeople and streetlights illuminate city roads, decisions about these goods are appropriately made by local residents. Many federal functions involve *national public goods*, which provide benefits to all the nation's citizens. For example, an AIDS vaccine would benefit people from every state, not just those living near the laboratory where it is discovered. What about global concerns such as protecting the ozone layer or slowing global warming? These are *global public goods* because they transcend the boundaries of individual countries.

An efficient system of fiscal federalism takes into account the way the benefits of public programs spill over political boundaries. The most efficient arrangement is to locate the tax and spending decisions so that the beneficiaries of programs pay the taxes and can weigh the tradeoffs.

Federal Expenditures

Let's look now at the different levels of government. The U.S. government is the world's biggest enterprise. It buys more automobiles and steel, meets a bigger payroll, and handles more money than any other organization anywhere. The numbers involved in federal finance are astronomical—in the billions and trillions of dollars. The federal budget expenditures for 2009 are projected to be \$3107 billion, or \$3.1 trillion; this enormous number amounts to roughly \$27,000 for each American household.

Table 16-2 lists the major categories of federal expenditure for fiscal year 2009. (The federal fiscal year 2009 covers October 1, 2008, through September 30, 2009.)

The most rapidly expanding items in the last three decades have been entitlement programs, which provide benefits or payments to any persons who meet certain eligibility requirements set down by law. The major entitlements are social security (old-age, survivors, and disability insurance), health programs (including Medicare for those over 65 and Medicaid for indigent families), and income-security programs (including subsidies for food and unemployment insurance). In fact, virtually the entire growth in federal spending in recent years can be accounted for by entitlement programs, which increased from 28 percent of the budget in 1960 to 60 percent in 2009.

State and Local Expenditures

Although the battles over the federal budget command the headlines, state and local units provide many of the essential functions in today's economy. Figure 16-3 illustrates the way states and localities spend their money. By far the largest item is education because most of the nation's children are educated in schools financed primarily by local governments. By attempting to equalize the educational resources available to every child, public education helps level out the otherwise great disparities in economic opportunity.

In recent years, the fastest-growing categories of spending for states and localities have been health care and prisons. In the last two decades, the number of prisoners in state prisons tripled, as the United States fought a war on crime partly by using longer prison sentences, especially for drug offenders. At the same time, state and local governments were forced to absorb their share of rising health-care costs.

Federal Expenditures, Fiscal Year 2009		
Description	Expenditures (\$, billion)	Percent of total
Total expenditures	3,107.4	100.0
National defense	675.1	21.7
Social security	649.3	20.9
Medicare	413.3	13.3
Income security	401.7	12.9
Health	299.4	9.6
Net interest	260.2	8.4
Veterans benefits and services	91.9	3.0
Education, training, employment, and social services	88.3	2.8
Transportation	83.9	2.7
Administration of justice	51.1	1.6
International affairs	38.0	1.2
Natural resources and environment	35.5	1.1
General science, space and technology	29.2	0.9
Community and regional development	23.3	0.8
General government	21.5	0.7
Agriculture	19.1	0.6
Commerce and housing credit	4.2	0.1
Energy	3.1	0.1

TABLE 16-2. Federal Spending Is Dominated by Defense and Entitlement Programs

About one-fifth of federal spending is for defense or pensions due to past wars. More than half of spending today is for rapidly growing entitlement programs—income security, social security, and health. Note how small is the traditional cost of government.

Source: Office of Management and Budget, Budget of the U.S. Government, Fiscal Year 2009, available at www.whitehouse.gov/omb/budget/fy2009/hist.html.

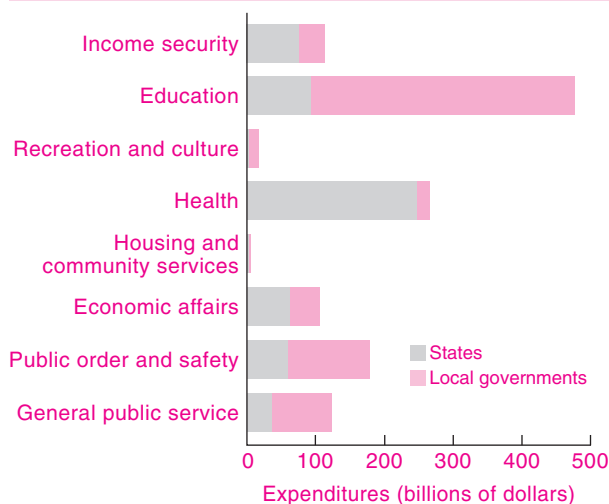


FIGURE 16-3. Distribution of Spending by State and Local Governments, 2006

State and local programs include providing education, financing hospitals, and maintaining the streets. Education and health take an increasing fraction of state and local spending.

Source: Bureau of Economic Analysis.

CULTURAL AND TECHNOLOGICAL IMPACTS

Government programs have subtle impacts on the country beyond the dollar spending. The federal government has changed the landscape through the interstate highway system. By making automotive travel much faster, this vast network lowered transportation costs, displaced the railroads, and brought goods to every corner of the country. It also helped accelerate urban sprawl and the growth of the suburban culture.

The government has put the United States on the map in many areas of science and technology. Government support gave a powerful start to the electronics industries. The development of the transistor by Bell Labs, for example, was partially funded by the U.S. military, anxious for better radar and communications. Today’s computer and airplane industries were boosted in their early years by strong government support. The Internet was

developed by the Department of Defense to create a network that would continue to function in the event of nuclear war.

The government today plays an especially important role in basic science. Of all the basic research in the United States, 85 percent is funded by the government or by nonprofit institutions like universities. Often, if you follow a successful invention upstream to its source, you will find that government subsidized the inventor's education and supported basic university research. Economic studies indicate that these funds were well spent, moreover, for the social rates of return to research and development exceed the returns on investments in most other areas.

C. ECONOMIC ASPECTS OF TAXATION

Taxes are what we pay for a civilized society.

Justice Oliver Wendell Holmes

Governments must pay for their programs. The funds come mainly from taxes, and any shortfall is a deficit that is borrowed from the public.

But in economics we always need to pierce the veil of monetary flows to understand the flow of real resources. Behind the dollar flows of taxes, what the government really needs is the economy's scarce land, labor, and capital. When a nation goes to war, people argue about how to finance the military spending. But in reality, what really happens is that people are diverted from their civilian jobs, airplanes transport troops rather than tourists, and oil goes to airplanes rather than cars. When the government gives out a grant for biotechnology research, its decision really means that a piece of land that might have been used for an office building is now being used for a laboratory.

In taxing, government is in reality deciding how to draw the required resources from the nation's households and businesses for public purposes. The money raised through taxation is the vehicle by which real resources are transferred from private goods to collective goods.

PRINCIPLES OF TAXATION

Benefit vs. Ability-to-Pay Principles

Once the government has decided to collect some amount of taxes, it has many possible taxes available to it. It can tax income, tax profits, or tax sales. It can tax the rich or tax the poor, tax the old or tax the young. Are there any guidelines that can help construct a fair and efficient tax system?

Indeed there are. Economists and political philosophers have proposed two major principles for organizing a tax system:

- The **benefit principle**, which holds that individuals should be taxed in proportion to the benefit they receive from government programs. Just as people pay private goods like dollars in proportion to their consumption of private goods like bread, a person's taxes should be related to his or her use of collective goods like public roads or parks.
- The **ability-to-pay principle**, which states that the amount of taxes people pay should relate to their income or wealth. The higher the wealth or income, the higher the taxes. Usually tax systems organized on the ability-to-pay principle are also *redistributive*, meaning that they raise funds from higher-income people to increase the incomes and consumption of poorer groups.

For instance, if the construction of a new bridge is funded by tolls on the bridge, that's a reflection of the benefit principle, since you pay for the bridge only if you use it. But if the bridge were funded out of income-tax collections, that would be an example of the ability-to-pay principle.

Horizontal and Vertical Equity

Whether they are organized along benefit or ability-to-pay lines, most modern tax systems attempt to incorporate modern views about fairness or equity. One important principle is that of **horizontal equity**, which states that those who are essentially equal should be taxed equally.

The notion of equal treatment of equals has deep roots in Western political philosophy. If you and I are alike in every way except the color of our eyes, all principles of taxation would hold that we should pay equal taxes. In the case of benefit taxation, if we receive exactly the same services from the highways or parks, the principle of horizontal equity states that

we should therefore pay equal taxes. Or if a tax system follows the ability-to-pay approach, horizontal equity dictates that people who have equal incomes should pay the same taxes.

A more controversial principle is **vertical equity**, which concerns the tax treatment of people with different levels of income. Abstract philosophical principles provide little guidance in resolving the issues of fairness here. Imagine that A and B are alike in every respect except that B has 10 times the property and income of A. Does that mean that B should pay the same absolute tax dollars as A for government services such as police protection? Or that B should pay the same percentage of income in taxes? Or, since the police spend more time protecting the property of well-to-do B, is it perhaps fair for B to pay a larger fraction of income in taxes?

Be warned that general and abstract principles cannot determine the tax structure for a nation. When Ronald Reagan campaigned for lower taxes, he did so because he thought high taxes were unfair to those who had worked hard and saved for the future. A decade later, Bill Clinton said, “We now have real fairness in the tax code with over 80 percent of the new tax burden being borne by those who make over \$200,000 a year.” What looks fair to the goose seems foul to the gander.

Horizontal equity is the principle that equals should be treated equally. Vertical equity holds that people in unequal circumstances should be treated unequally and fairly, but there is no consensus on exactly how vertical equity should be applied.

Pragmatic Compromises in Taxation

How have societies resolved these thorny philosophical questions? Governments have generally adopted pragmatic solutions that are only partially based on benefit and ability-to-pay approaches. Political representatives know that taxes are highly unpopular. After all, the cry of “taxation without representation” helped launch the American Revolution. Modern tax systems are an uneasy compromise between lofty principles and political pragmatism. As the canny French finance minister Colbert wrote three centuries ago, “Raising taxes is like plucking a goose: you want to get the maximum number of feathers with the minimum amount of hiss.”

What practices have emerged? Often, public services primarily benefit recognizable groups, and those groups have no claim for special treatment by virtue of their average incomes or other characteristics. In such cases, modern governments generally rely on benefit taxes.

Thus, local roads are usually paid for by local residents. “User fees” are charged for water and sewage treatment, which are treated like private goods. Taxes collected on gasoline may be devoted (or “earmarked”) to roads.

Progressive and Regressive Taxes. Benefit taxes are a declining fraction of government revenues. Today, advanced countries rely heavily on **progressive income taxes**. With progressive taxes, a family with \$50,000 of income is taxed more than one with \$20,000 of income. Not only does the higher-income family pay a larger income tax, but it in fact pays a higher fraction of its income.

This progressive tax is in contrast to a strictly **proportional tax**, in which all taxpayers pay exactly the same proportion of income. A **regressive tax** takes a larger fraction of income in taxes from poor families than it does from rich families.

A tax is called *proportional, progressive, or regressive* depending on whether it takes from high-income people the same fraction of income, a larger fraction of income, or a smaller fraction of income than it takes from low-income people.

The different kinds of taxes are illustrated in Figure 16-4. What are some examples? A personal income tax that is graduated to take more and more out of each extra dollar of income is progressive. Economists have found, by contrast, that the cigarette tax is regressive. The reason is that the number of cigarettes purchased rises less rapidly than income. For example, some studies have determined that the income elasticity of cigarette use is around 0.6. This means that a 10 percent increase in income leads to a 6 percent increase in expenditures on cigarettes, and also to a 6 percent increase in cigarette taxes. Thus, high-income groups pay a smaller fraction of their income in cigarette taxes than do low-income groups.

Direct and Indirect Taxes. Taxes are classified as direct or indirect. **Indirect taxes** are ones that are levied on goods and services and thus only “indirectly”



FIGURE 16-4. Progressive, Proportional, and Regressive Taxes

Taxes are progressive if they take a larger fraction of income as income rises; proportional if they are a constant fraction of income; and regressive if they place a larger relative burden on low-income families than on high-income families.

on individuals. Examples are excise and sales taxes, cigarette and gasoline taxes, tariffs on imports, and property taxes. By contrast, **direct taxes** are levied directly upon individuals or firms. Examples of direct taxes are personal income taxes, social security or other payroll taxes, and inheritance and gift taxes. Direct taxes have the advantage of being easier to tailor to fit personal circumstances, such as size of family, income, age, and more generally the ability to pay. By contrast, indirect taxes have the advantage of being easier to collect, since they can be levied at the retail or wholesale level.

FEDERAL TAXATION

Let us now try to understand the principles by which the federal system of taxation is organized. Table 16-3 provides an overview of the major taxes collected by the federal government and shows whether they are progressive, proportional, or regressive.

The Individual Income Tax

Our discussion begins with the individual income tax, which is the most complex part of the tax system. The income tax is a direct tax, and it is the tax which most clearly reflects the ability-to-pay principle.

Federal Tax Receipts, Fiscal Year 2009

	Receipts (% of total)
Progressive:	
Individual income taxes	46.6
Estate and gift taxes	1.0
Corporate income taxes	12.6
Proportional:	
Payroll taxes	35.2
Regressive:	
Excise taxes	2.6
Customs duties	1.1
Other taxes and receipts	1.0
Total	100.0

TABLE 16-3. Income and Payroll Taxes Are the Main Federal Revenue Sources

Progressive taxes are still the leading source of federal revenues, but proportional payroll taxes are closing fast. Regressive consumption taxes have declined sharply at the federal level.

Source: See Table 16-2.

The individual income tax arrived late in our nation's history. The Constitution forbade any direct tax that was not apportioned among the states according to population. This was changed in 1913, when the Sixteenth Amendment to the Constitution provided that "Congress shall have power to lay and collect taxes on income, from whatever source derived."

How does the federal income tax work? The principle is simple, although the forms are complicated. You start by calculating your income; you next subtract certain expenses, deductions, and exemptions to obtain taxable income. You then calculate your taxes on the basis of your taxable income.

Suppose you have just graduated from college and take a job in California with a salary of \$60,000 in 2009. Table 16-4 shows a calculation of the total direct tax payments that you should expect. It will be worthwhile going line by line to understand the different items.

Line 1 begins with your salary. The first set of taxes is social insurance taxes. We will postpone our

1	Annual salary	\$60,000
2	Social security taxes:	
3	Pension	3,720
4	Medicare	870
5	Federal adjusted gross income = (1)	60,000
6	Less:	
7	Personal exemption	3,500
8	Standard deduction	5,450
9	Federal taxable income = (5) - (7) - (8)	51,050
10	Income tax:	
11	Federal	9,106
12	State (California)	2,672
13	Total taxes = (3) + (4) + (11) + (12)	16,368
14	Income after tax = (1) - (13)	43,632
15	Tax rate	
16	Average = (13)/(1)	27.3%
17	Marginal*	42.0%

*Marginal tax rate is the additional total taxes per additional dollar of income. This would be calculated by repeating all the lines for an additional \$1000 of income and then dividing the extra number of dollars of taxes by 1000.

TABLE 16-4. Calculation of Individual Income Taxes, 2009

The table shows an illustrative calculation of total taxes for a single worker living in California in 2009. The worker has a total salary of \$60,000. Social security taxes are for future social security benefits and pay health benefits for current retired workers. Income taxes are levied by the federal government and most states.

The average tax rate is 27.3 percent. Economists focus on the marginal tax rate, which is the additional tax per additional dollar of income. For our worker, the marginal tax rate is calculated to be 42 percent.

Source: Internal Revenue Service and State of California (preliminary tax tables).

discussion of these to the next section. Line 5 shows your *adjusted gross income*—that is, total wages, interest, dividends, and other income earned. If you were single, you would have a *personal exemption* of \$3500. If you do not own a house, you are likely to take the *standard deduction* of \$5450. Subtracting both of these yields your *federal taxable income* of \$51,050.

Next, you go to the tax tables. These currently show a tax of \$9106 on this income. You would also have taxes due to the state, \$2672 in this case.

Adding up all the taxes, you find you owe \$16,368. This represents 27.3 percent of your income. This is called the **effective** or **average tax rate**, which is equal to total taxes divided by total income.

The last row introduces an important new concept. The **marginal tax rate** is the extra tax that is paid per dollar of additional income. We have met the term “marginal” before, and it always means “extra.” If you were to earn an additional \$1000 of

income, you would pay an additional \$420 in taxes. This means that your marginal tax rate is \$420/\$1000, or 42 percent. The marginal tax rate is a critical tool for tax analysis because people and companies tend to respond to their marginal tax rates, not their average tax rates. Moreover, when marginal tax rates are extremely high, incentives to work are dulled and effort may significantly decrease.

The marginal tax rate is a central concept of tax analysis. It refers to the extra tax paid per dollar of extra income and is particularly important for understanding the incentive effects of taxation.

Figure 16-5 shows the estimated marginal tax rate for households with incomes up to \$100,000. Low-income households have a “negative income tax,” because they receive an earned-income tax credit.

The notion of marginal tax rates is extremely important in modern economics. Remember the

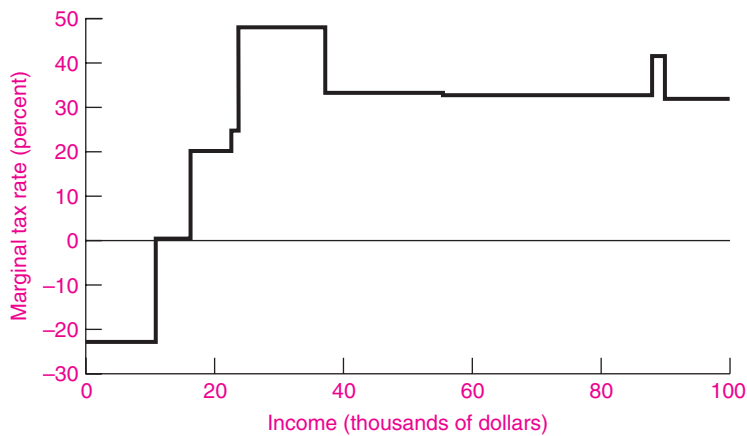


FIGURE 16-5. Marginal Tax Rate of U.S. Households by Income Category, 2005

The marginal tax rate is the extra tax that is paid per dollar of additional income. The figure shows the estimated marginal tax rates of households in 2005. These include social insurance as well as federal and average state taxes. Because of the earned-income tax credit, low-income workers get a tax rebate—this is a “negative income tax” on wages. Note that the marginal tax rates in this figure differ from those in Table 16-4 because California has relatively high taxes and because the CBO uses different assumptions about exemptions and deductions.

Source: Congressional Budget Office, *Effective Marginal Tax Rates on Labor Income*, November 2005, available at www.cbo.gov.

marginal principle. People should be concerned only with the extra costs or benefits that occur. They should “let bygones be bygones.” Under this principle, the major effect of any tax on incentives comes from the marginal tax rate.



Radical Tax Reform: The Flat Tax

The individual income tax is a powerful engine for raising revenues. But it has become enormously complex over the century since its introduction. Moreover, it is full of loopholes or “tax preferences” that provide benefits to particular forms of income or expenditure and even to individual groups of taxpayers. For example, expenditures on mortgage interest and medical care are deductible from income—they are, in effect, subsidized spending.

Economists have campaigned tirelessly for a more streamlined tax system—one that *broadens* the tax base, and thus raises revenues by eliminating unnecessary tax breaks, and can therefore *lower marginal tax rates*. One of the most radical and innovative proposals for fundamental tax reform is the *flat tax*, which was developed in detail by

Stanford’s Robert Hall and Alvin Rabushka.¹ Their proposal incorporates the following major features (see question 9 at the end of this chapter for an example):

- It taxes consumption rather than income. As we will discuss later in this chapter, taxing consumption serves to increase the incentive to save and can help boost the declining national savings rate.
- It integrates the corporate income tax with the individual income tax. This removes one of the major distortions in the U.S. tax code.
- It eliminates virtually all loopholes and tax preferences. Gone are subsidies for medical care, owner-occupied homes, and charitable contributions.
- It provides a basic exemption of around \$20,000 per family and then imposes a constant marginal tax rate of 19 percent above that level.

The economic effects of a flat tax would be far-reaching. Heavily taxed entities such as corporations would find their taxes lowered and would experience a major capital

¹ *The Flat Tax*, rev. ed. Hoover Institute Press, Palo Alto, Calif., 2007.

gain. High-income wage earners would find their taxes cut in half. At the same time, the amount of owner-occupied housing and medical expenditures would shrink and charitable giving would drop sharply.

Hall and Rabushka emphasize above all the importance of reducing the marginal tax rates. They argue that the flat tax would “give an enormous boost to the U.S. economy by dramatically improving incentives to work, save, invest, and take entrepreneurial risks. The flat tax would save taxpayers hundreds of billions in direct and indirect compliance costs.”

The plan’s critics point out that it would lead to a major redistribution of income to high-income people at the expense of low- and middle-income households. The losers will question whether the rich, whose share has risen dramatically over the last three decades, deserve yet another windfall. We see here yet another example of the tradeoff between fairness and efficiency that runs through many of the most controversial economic policy issues.

Social Insurance Taxes

Virtually all industries now come under the Social Security Act. Workers receive retirement benefits that depend on their earnings history and past social security taxes. The social insurance program also funds a disability program and health insurance for the poor and elderly.

To pay for these benefits, employees and employers are charged a *payroll tax*. As shown in Table 16-4, in 2008, this consisted of a total of 15.3 percent of all wage income below a ceiling of \$102,000 a year per person, along with a payroll tax of 2.9 percent of annual wage income above \$102,000. The tax is split equally between employer and employee.

Table 16-3 shows the payroll tax as a proportional tax because it taxes a fixed fraction of employment earnings. The tax incidence is more complicated, however, because the payroll tax includes only labor earnings (which makes it regressive) and finances retirement most generously for low-income people (which makes it progressive).

Corporation Taxes

The federal government collects a wide variety of other taxes, some of which are shown in Table 16-3. The *corporate income tax* is a tax on the profits of corporations.

The corporation income tax has been heavily criticized by some economists. Critics oppose the tax, arguing that corporations are but legal fictions and should not be taxed. By taxing first corporate profits and then the dividends paid by corporations and received by individuals, the government subjects corporations to double taxation.

Consumption Taxes

While the United States relies heavily on income taxes, a radically different approach is consumption taxes, which are taxes on purchases of goods and services rather than on income. The rationale is that people should be penalized for what they *use* rather than what they *produce*. Sales taxes are the most familiar example of consumption taxes. The United States has no national sales tax, although there are a number of *federal excise taxes* on specific commodities such as cigarettes, alcohol, and gasoline. Sales and excise taxes are generally regressive because they consume a larger fraction of the income of poor families than of high-income families.

Many have argued that the United States should rely more heavily on sales or consumption taxes. One tax, widely used outside the United States, is the *value-added tax*, or VAT. The VAT is like a sales tax, but it collects taxes at each stage of production. Thus, if a VAT were levied on bread, it would be collected from the farmer for wheat production, from the miller for flour production, from the baker at the dough stage, and from the grocer at the delivered-loaf stage.

The advocates of consumption taxes argue that the country is currently saving and investing less than is necessary for future needs and that by substituting consumption taxes for income taxes, the national savings rate would increase. Critics of consumption taxes respond that such a change is undesirable because sales taxes are more regressive than today’s income tax. The *flat tax*, discussed earlier, is actually equivalent to a highly simplified system of personal consumption taxation (see question 9 below).

STATE AND LOCAL TAXES

Under the U.S. system of fiscal federalism, state and local governments rely on a very different set of taxes than does the federal government. Figure 16-6 illustrates the main sources of funds that finance state and local expenditures.

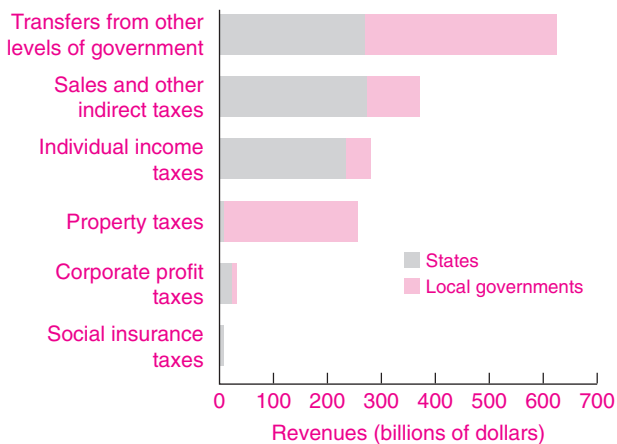


FIGURE 16-6. States and Localities Rely on Transfers and Indirect Taxes

Cities rely heavily on property taxes because houses and land cannot easily flee to the suburbs to avoid a city's tax. States get most revenues from sales and income taxes.

Source: Bureau of Economic Analysis.

Property Tax

The *property tax* is levied primarily on real estate—land and buildings. Each locality sets an annual tax rate which is levied on the assessed value of the land and structures. In many localities, the assessed value may be much smaller than the true market value. The property tax accounts for about 30 percent of the total revenues of state and local finance. Figure 16-6 shows that localities are the main recipient of property taxes.

Because about one-fourth of property values are from land, the property tax has elements of a capital tax and elements of a Henry George–type land tax. Economists believe that the land component of the property tax has little distortion, while the capital component will drive investment from high-tax central cities out to the low-tax suburbs.

Other Taxes

Most other state and local taxes are closely related to the analogous federal taxes. States get most of their revenues from *general sales taxes* on goods and services. Each purchase at the department store or restaurant incurs a percentage tax (food and other necessities are exempt in some states). States tax the net income of corporations. Forty-three states imitate the federal government, on a much smaller scale, by taxing individuals according to the size of their incomes.

There are other miscellaneous revenues. Many states levy “highway user taxes” on gasoline. A growing source of revenue is lotteries and legalized gambling, in which the states benefit from encouraging people to impoverish themselves.

EFFICIENCY AND FAIRNESS IN THE TAX SYSTEM

The Goal of Efficient Taxation

In recent years, economists have focused increasingly on the efficiency of different tax systems. The first point to recall here is that efficiency depends primarily on the marginal tax rates faced by taxpayers. Look back at Figure 16-5 to recall how the marginal tax rates differ across income groups.

Taxes on Labor Income. How do high marginal tax rates affect economic behavior? In the area of labor supply, the impacts are mixed. As we saw in Chapter 13, the impact of tax rates on hours worked is unclear because the income and substitution effects of wage changes work in opposite directions. As a result of progressive taxes, some people may choose more leisure over more work. Other people may work harder in order to make their millions. Many high-income doctors, artists, celebrities, and business executives, who enjoy their jobs and the sense of power or accomplishment that they bring, will work as hard for \$800,000 after tax as for \$1,000,000 after tax.

Figure 16-7 shows how an increase in the tax rate on labor will affect labor supply; note the paradox that hours worked may actually decline after a tax-rate cut if the labor supply curve is backward-bending.

Taxes on Capital Income. In the area of saving and investment, taxes are likely to have major effects on amounts supplied and efficiency. When taxes are high in one sector, resources will flow into more lightly taxed areas. For example, because corporate profits are double-taxed, people's savings will flow out of the corporate sector and into lightly taxed sectors. If risky investments are taxed unfavorably, investors may prefer safer investments.

Impacts of Globalization. With increased openness of economies, countries need to ensure that mobile factors of production like capital or highly skilled workers are not lured away to low-tax countries. This

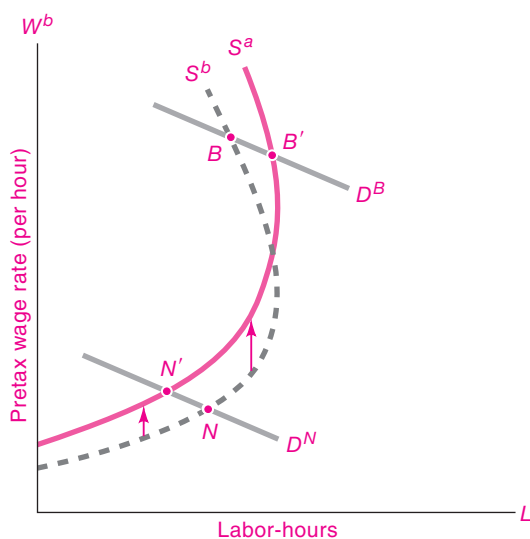


FIGURE 16-7. Response of Work to Taxes Depends on Shape of Supply Curve

Supply and demand plots labor supplied against pretax wage. Before-tax supply curve of labor (S^b) shifts vertically upward to after-tax supply (S^a) after imposition of a 25 percent income tax on labor earnings. If demand for labor intersects supply in the normal region at bottom, we see an expected decline in labor supplied from N to N' . If the labor supply is backward-bending, as at top, the labor supplied actually rises with the tax increase, going from B to B' .

concern is particularly important for company taxes, for companies can easily move their headquarters to some island tax haven.

Efficiency vs. Fairness

Economists have long been concerned with the impact of taxes on economic efficiency. Recall from Chapter 14 that Henry George argued that a tax on land will have little impact on efficiency because the supply of land is completely inelastic. The modern theory of efficient taxation puts forth the *Ramsey tax rule*, which states that the government should levy the heaviest taxes on those inputs and outputs that are most price-inelastic in supply or demand.² The rationale for the Ramsey tax rule is that if a commodity is very price-inelastic in supply or demand, a tax on

the commodity will have little impact upon consumption and production. In some circumstances, Ramsey taxes may constitute a way of raising revenues with a minimum loss of economic efficiency.

But economies and politics do not run on efficiency alone. While stiff taxation of land rents or food might be efficient, many would think them unfair. A sober reminder of the dilemma was the proposal to introduce a poll tax in Britain in 1990. A *poll tax* is a *lump-sum tax*, or a fixed tax per person. The advantage of this tax is that, like a land tax, it would induce no inefficiencies. After all, people are unlikely to decamp to Russia or commit hari-kari to avoid the tax, so the economic distortions would arguably be minimal.

Alas, the British government underestimated the extent to which the populace felt this tax to be unfair. The poll tax is highly regressive because it places a much higher proportional burden on low-income people than on high-income people. Criticism of the poll tax played a key role in bringing down the Thatcher government after 11 years in power. This illustrates clearly the difficult choice between efficiency and fairness in taxes and other areas of economic policy.



Taxing “Bads” rather than “Goods”: Green Taxes

While economists have rarely advocated poll taxes, they have favored an approach wherein the tax system would weigh more heavily on “bads” than on “goods.” The main source of inefficiency is that taxes generally tax “goods”—economic activities like working, investing in capital, saving, or taking risk—and thereby discourage these activities. An alternative approach is to tax “bads.” Traditional taxes on bads include “sin taxes”: taxes on alcohol, cigarettes, and other substances that have harmful health effects.

A new approach to taxation is to tax pollution and other undesirable externalities; such taxes are called *green taxes* because they are designed to help the environment as well as to raise revenues. Say that the nation decides to help slow global warming by levying a “carbon tax,” which is a tax on carbon-dioxide emissions from power plants and other sources. By standard economic reasoning we know that the tax will lead firms to lower their carbon-dioxide emissions, thereby improving the environment. In addition, this green tax will provide revenues, which the government can use either to finance its activities or to reduce

² Recall Chapter 14’s discussion of Henry George’s single tax and the extension to efficient or Ramsey taxes.

tax rates on beneficial activities like working or saving. So green taxes are doubly effective: the state gets revenue, and the environment is improved because the taxes discourage harmful externalities.

FINAL WORD

Our introductory survey of government's role in the economy is a sobering reminder of the responsibilities and shortcomings of collective action. On the one hand, governments must defend their borders, stabilize their economies, protect the public health, and

regulate pollution. On the other hand, policies often reflect primarily the attempt to redistribute income from consumers to politically powerful interest groups.

Does this mean we should abandon the visible hand of government for the invisible hand of markets? Economics cannot answer such deep political questions. But economics can examine the strengths and weaknesses of both collective and market choices, and point to mechanisms (such as green taxes or subsidies to research and development) by which a mended invisible hand may be more efficient and fair than the extremes of either pure *laissez-faire* or unbridled bureaucratic rulemaking.



SUMMARY

A. Government Control of the Economy

1. The economic role of government has increased sharply over the last century. The government influences and controls private economic activity by using taxes, expenditures, and direct regulation.
2. A modern welfare state performs four economic functions: (a) It remedies market failures; (b) it redistributes income and resources; (c) it establishes fiscal and monetary policies to stabilize the business cycle and promote long-term economic growth; and (d) it manages international economic affairs.
3. Public-choice theory analyzes how governments actually behave. Just as the invisible hand can break down, so there are government failures, in which government interventions lead to waste or redistribute income in an undesirable fashion.

B. Government Expenditures

4. The American system of public finance is one of fiscal federalism. The federal government concentrates its spending on issues of national concern—on national public goods like defense and space exploration. States and localities generally focus on local public goods—those whose benefits are largely confined within state or city boundaries.
5. Government spending and taxation today take approximately one-third of total national output. Of this total, about 55 percent is spent at the federal level, and the balance is divided between state and local governments. Only a small fraction of government outlays is devoted to traditional functions like police and the courts.

C. Economic Aspects of Taxation

6. Notions of “benefits” and “ability to pay” are two principal theories of taxation. A tax is progressive, proportional, or regressive as it takes a larger, equal, or smaller fraction of income from rich families than it does from poor families. Direct and progressive taxes on incomes are in contrast to indirect and regressive sales and excise taxes.
7. More than half of federal revenues come from personal and corporate income taxes. The rest comes from taxes on payrolls or consumption goods. Local governments raise most of their revenue from property taxes, while sales taxes are most important for states.
8. The individual income tax is levied on “income from whatever source derived,” less certain exemptions and deductions. The marginal tax rate, denoting the fraction paid in taxes for every dollar of additional income, is the key to determining the impact of taxes on incentives to work and save.
9. The fastest-growing federal tax is the payroll tax, used to finance social security. This is an “earmarked” levy, with funds going to provide public pensions and health and disability benefits. Because there are visible benefits at the end of the stream of payments, the payroll tax has elements of a benefit tax.
10. Economists point to the Ramsey tax rule, which emphasizes that efficiency will be promoted when taxes are levied more heavily on those activities that are relatively price-inelastic. A new approach is green taxes, which levy fees on environmental externalities, reducing harmful activities while raising revenues that would otherwise be imposed on goods or productive inputs. But in all taxes, equity and political acceptability are severe constraints.

CONCEPTS FOR REVIEW

Functions of Government

three tools of government economic control:
 taxes
 expenditures
 regulation
 market failures vs. government failures
 public-choice theory

four functions of government:
 efficiency
 distribution
 stabilization
 international representation

Government Expenditures and Taxation

fiscal federalism and local vs. national public goods

economic impact of government spending
 benefit and ability-to-pay principles
 horizontal and vertical equity
 direct and indirect taxes
 entitlement programs
 progressive, proportional, and regressive taxes
 Ramsey and green taxes

FURTHER READING AND INTERNET WEBSITES

Further Reading

An excellent review of tax issues is contained in the symposium on tax reform in *Journal of Economic Perspectives*, Summer 1987. The classic study of the flat tax referred to in the text is also online, at www.hoover.org/publications/books/3602666.html.

Websites

Data on government budget and tax trends can be found at government sites. For example, overall trends are presented by the Bureau of Economic Analysis at

www.bea.gov. Budget information for the federal government comes from the Office of Management and Budget at www.whitehouse.gov/omb.

The Internal Revenue Service (IRS) has a lively site with a plethora of tax statistics at www.irs.gov and www.irs.gov/taxstats/index.html.

Two organizations which study taxation and have good websites are the National Tax Association at www.ntanet.org and the Brookings Institution at www.brookings.org. Policy papers by a British research institute that focuses on social security and taxation can be found at www.ifs.org.uk.

QUESTIONS FOR DISCUSSION

1. Recall Justice Oliver Wendell Holmes's statement, "Taxes are what we pay for a civilized society." Interpret this statement, remembering that in economics we always need to pierce the veil of monetary flows to understand the flow of real resources.
2. In considering whether you want a pure laissez-faire economy or government regulation, discuss whether there should be government controls over prostitution, addictive drugs, heart transplants, assault weapons, and alcohol. Discuss the relative advantages of high taxes and prohibition for such goods (recall the discussion of drug prohibition in Chapter 5).
3. Critics of the U.S. tax system argue that it harms incentives to work, save, and innovate and therefore reduces long-run economic growth. Can you see why "green

taxes" might promote economic efficiency and economic growth? Consider, for example, taxes on sulfur or carbon-dioxide emissions or on leaky oil tankers. Construct a list of taxes that you think would increase efficiency, and compare their effects with the effects of taxes on labor or capital income.

4. Tax economists often speak of lump-sum taxes, which are levied on individuals without regard to their economic activity. Lump-sum taxes are efficient because they impose zero marginal tax rates on all inputs and outputs.

Assume that the government imposes a lump-sum tax of \$200 on each individual. Show the effect of this on the supply and demand for labor in a graph. Does the marginal revenue product of labor still equal the wage in equilibrium?

In a lifetime framework, the dynamic equivalent of a lump-sum tax is an “endowment tax,” which would tax individuals on the basis of their potential labor incomes. Would you favor such a change? Describe some of the difficulties in implementing an endowment tax.

5. Make a list of different federal taxes in order of their progressiveness. If the federal government were to trade in income taxes for consumption or sales taxes, what would be the effect in terms of overall progressiveness of the tax system?
6. Some public goods are local, spilling out to residents of small areas; others are national, benefiting an entire nation; some are global, affecting all nations. A private good is one whose spillover is negligible. Give some examples of purely private goods and of local, national, and global public goods or externalities. For each, indicate the level of government that could design relevant policies most efficiently, and suggest one or two appropriate government actions that could solve the externality.
7. Recall from our discussion of tax incidence that the incidence of a tax refers to its ultimate economic burden and to its total effect on prices, outputs, and other economic magnitudes. Below are some incidence questions that can be answered using supply and demand. Use graphs to explain your answers.
 - a. In the 1993 Budget Act, Congress raised federal gasoline taxes by 4.3 cents a gallon. Assuming the wholesale price of gasoline is determined in world markets, what is the relative impact of the tax on American producers and consumers?
 - b. Social insurance taxes are generally levied on labor earnings. What is their incidence if labor supply is perfectly inelastic? If labor supply is backward-bending?
 - c. Assume that firms must earn a given post-tax rate of return on investment, where the return is determined in world capital markets. What is the incidence of a tax on corporate income in a small open economy?
8. An interesting question involves the *Laffer curve*, named for California economist and sometime senatorial candidate Arthur Laffer. In Figure 16-8, the Laffer curve shows how revenues rise as *tax rates* are increased, reach a maximum at point *L*, and then decline to zero at a 100 percent tax rate as activity is completely discouraged. The exact shape of the Laffer curve for different taxes is highly controversial.

A common mistake in discussing taxes is the post hoc fallacy (see Chapter 1’s discussion of this). Proponents of lower taxes often invoke the Laffer curve in their arguments. They point to tax cuts of the 1960s

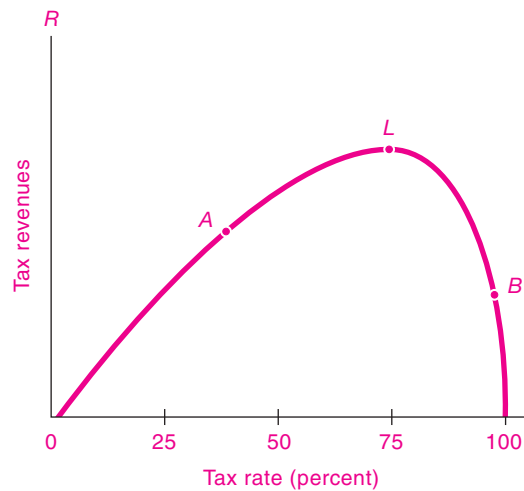


FIGURE 16-8. The Laffer Curve

to suggest that the economy is to the right of the peak of Mt. Laffer, say, at *B*. They say, in effect, “After the Kennedy-Johnson tax cuts of 1964, federal revenues actually rose from \$110 billion in 1963 to \$133 billion in 1966. Therefore, cutting taxes raises revenues.” Explain why this does not prove that the economy was to the right of *L*. Further explain why this is an example of the post hoc fallacy. Give a correct analysis.

9. Under the flat tax, all personal and corporate income is taxed only once at a low fixed rate. Table 16-5 shows how such a flat tax might work. Compare the average and marginal tax rates of the flat tax with the tax schedule shown in Table 16-4 in the text. List advantages and disadvantages of both. Which is more progressive?

(1) Adjusted gross income (\$)	(2) Deductions and exemptions (\$)	(3) Taxable income (\$)	(4) Individual income tax (\$)
5,000	20,000	0	0
10,000	20,000	0	0
20,000	20,000	0	0
50,000	20,000	30,000	6,000
100,000	20,000	80,000	16,000
1,000,000	20,000	980,000	196,000

TABLE 16-5.

Efficiency vs. Equality: The Big Tradeoff

17



[The conflict] between equality and efficiency [is] our biggest socioeconomic tradeoff, and it plagues us in dozens of dimensions of social policy. We can't have our cake of market efficiency and share it equally.

Arthur Okun (1975)

About a century ago, many Western governments began to intervene in the marketplace and introduce a social safety net as a bulwark against socialist pressures—this new conception of society was called the “welfare state.” Attitudes toward the welfare state evolved gradually into the mixed market economy found today in the democracies of Europe and North America. In these countries, the market is responsible for production and pricing of most goods and services, while governments manage the economy and provide a safety net for the poor, unemployed, and aged.

One of the most controversial aspects of government policy involves policies toward the poor. Should families have guaranteed incomes? Or perhaps just minimum levels of food, shelter, and health care? Should taxation be progressive, redistributing incomes from the rich to the poor? Or should taxation be aimed primarily at promoting economic growth and efficiency?

Surprisingly, these questions have been just as contentious as societies have become richer. You might think that as a country becomes more prosperous, it would devote a larger share of its income to programs helping the needy at home and abroad. This has not always proved to be the case. As tax burdens have risen over the last half-century, tax revolts have sparked

reductions in tax rates. People are also increasingly aware that attempts to equalize incomes can harm incentives and efficiency. Today, people ask: How much of the economic pie must be sacrificed in order to divide it more equally? How should we redesign income-support programs to retain the objective of reducing want and inequality without bankrupting the nation?

The purpose of this chapter is to examine the distribution of income along with the dilemmas of policies designed to reduce inequality. These issues are among the most controversial economic questions of today. Remember the first chapter suggestion that economics best serves the public interest in using cool heads to inform warm hearts. This chapter surveys the trends in inequality and the relative merits of different approaches and indicates how cool-headed economic analysis can help promote both fairness and continued growth of the mixed economy.

A. THE SOURCES OF INEQUALITY

To measure the inequality of control over economic resources, we need to concern ourselves with both income and wealth differences. Recall that by **personal**

income we mean the total receipts or cash earned by a person or household during a given time period (usually a year). The major components of personal income are labor earnings, property income (such as rents, interest, and dividends), and government transfer payments. **Disposable personal income** consists of personal income less any taxes paid. **Wealth** or “net worth” consists of the dollar value of financial and tangible assets minus the amount of money owed to banks and other creditors. You can refresh your memory about the major sources of income and wealth by reviewing Tables 12-1 and 12-2 (look at pages 230 and 232).

THE DISTRIBUTION OF INCOME AND WEALTH

Statistics show that in 2006 the median income of American families was \$48,200—this means that half of all families received less than this figure while half received more. This number concerns the *distribution of income*, which shows the variability or dispersion of incomes. To understand the income distribution, consider the following experiment: Suppose one person from each household writes down the yearly income of his or her household on an index card. We can then sort these cards into *income classes*. Some of the cards go into the lowest 20 percent, the group with an average income of \$11,551. Some go into the next class. A few go into the top 5 percent of households, those with an average income of \$362,514.

The actual income distribution of American households in 2006 is shown in Table 17-1. Column (1) shows the different income-class fifths, or quintiles, plus the top 5 percent of households. Column (2) shows the average income in each income class. Column (3) shows the percentage of the households in each income class, while column (4) shows the percentage of total national income that goes to the households in an income class.

Table 17-1 enables us to see at a glance the wide range of incomes in the U.S. economy. Half of the population makes less than \$50,000 per year. As you move up the distribution, the number of people gets smaller and smaller. If we made an income pyramid out of building blocks, with each layer portraying \$500 of income, the peak would be far higher than Mount Everest, but most people would be within a few feet of the ground.

How to Measure Inequality among Income Classes

How can we measure the degree of income inequality? At one pole, if incomes were absolutely equally distributed, there would be no difference between the lowest 20 percent and the highest 20 percent of the population: each quintile would receive exactly 20 percent of the nation’s income. That’s what absolute equality means.

The reality is very different. In 2006, the lowest fifth, with 20 percent of the households, earned less than 4 percent of the total income. Meanwhile the

(1) Income class of households	(2) Average	(3) Percentage of all households in this class	(4) Percentage of total income received by households in this class
Lowest fifth	\$11,551	20	3.4
Second fifth	\$29,442	20	8.7
Third fifth	\$49,968	20	14.8
Fourth fifth	\$79,111	20	23.4
Highest fifth	\$169,971	20	49.7
Top 5 percent	\$362,514	5	21.2

TABLE 17-1. Distribution of Money Incomes of American Households, 2006

How was total income distributed among households in 2006? We group households into the fifth (or quintile) with the lowest income, the fifth with the second-lowest income, and so on.

Source: U.S. Bureau of the Census, Current Population Report, *Income, Poverty, and Health Insurance Coverage in the United States: 2007*, available at www.census.gov/hhes/www/income/income.html.

situation is reversed for the top 5 percent of households, which get 21 percent of the income.

We can show the degree of inequality in a diagram known as the **Lorenz curve**, a widely used device for analyzing income and wealth inequality. Figure 17-1 is a Lorenz curve showing the amount of inequality listed in the columns of Table 17-2; that is, it contrasts the patterns of (1) absolute equality, (2) absolute inequality, and (3) actual 2006 American inequality.

Absolute equality is depicted by the numbers in column (4) of Table 17-2. When they are plotted, these become the diagonal 45° dashed green line of Figure 17-1's Lorenz diagram.

At the other extreme, we have the hypothetical case of absolute inequality, where one person has all the income. Absolute inequality is shown in column (5) of Table 17-2 and by the lowest curve on the Lorenz diagram—the dashed, right-angled blue line.

Any actual income distribution, such as that for 2006, will fall between the extremes of absolute equality and absolute inequality. The green-colored column (6) in Table 17-2 presents the data derived from the first two columns in a form suitable for plotting as an actual Lorenz curve. This actual Lorenz curve appears in Figure 17-1 as the solid green intermediate curve. The shaded area indicates the deviation from absolute equality, hence giving us a measure of the degree of inequality of income distribution.

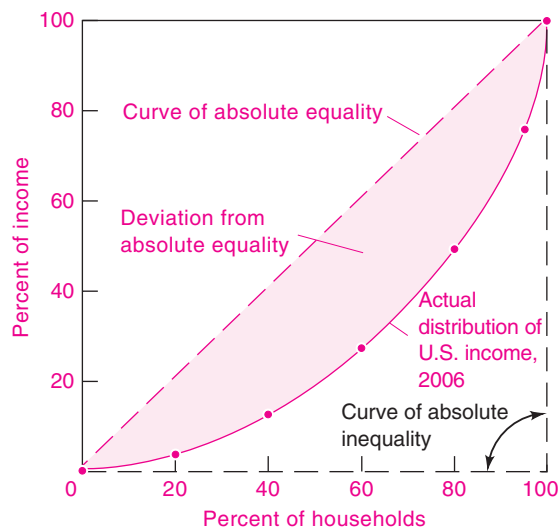


FIGURE 17-1. Lorenz Curve Shows Income Inequality

By plotting the figures from Table 17-2's column (6), we see that the solid green actual-distribution-of-income curve lies between the two extremes of absolute equality and absolute inequality. The shaded area of this Lorenz curve (as a percentage of the triangle's area) measures the relative inequality of income. (How would the curve have looked back in the roaring 1920s when inequality was greater? In an egalitarian Utopia where all have equal inheritances and opportunities?)

(1) Income class of households	(2) Percentage of total income received by households in this class	(3) Percentage of households in this class and lower ones	(4) (5) (6) Percentage of Income Received by This Class and Lower Ones		
			Absolute equality	Absolute inequality	Actual distribution
Lowest fifth	3.4	20	20	0	3.4
Second fifth	8.7	40	40	0	12.1
Third fifth	14.8	60	60	0	26.9
Fourth fifth	23.4	80	80	0	50.3
Highest fifth	49.7	100	100	100	100.0

TABLE 17-2. Actual and Polar Cases of Inequality

By cumulating the income shares of each quintile shown in column (2), we can compare in column (6) the actual distribution with polar extremes of complete inequality and equality.

Source: Table 19-1.



The Gini Coefficient

Economists often need to calculate quantitative measures of inequality. One useful measure is the *Gini coefficient*. This is measured by calculating the shaded area in the Lorenz curve of Figure 17-1 and multiplying it by 2. The Gini coefficient is equal to 1 under complete inequality and 0 under complete equality. To see this, recall that a society with equal incomes would have the Lorenz curve run along the 45° line, so the shaded area would be zero. Conversely, when the Lorenz curve runs along the axes, the area is one-half, which, when multiplied by 2, gives a Gini coefficient of 1.

Using the Gini coefficient approach, the Census Bureau calculates that inequality was little changed from 1967 to 1980 (the Gini coefficient rose from .399 to .403) but then rose steadily from 1980 to 2006 (from .403 to .469).

Distribution of Wealth

One major source of the inequality of income is inequality of ownership of *wealth*, which is the net ownership of financial claims and tangible property. Those who are fabulously wealthy—whether because of inheritance, skill, or luck—enjoy incomes far above

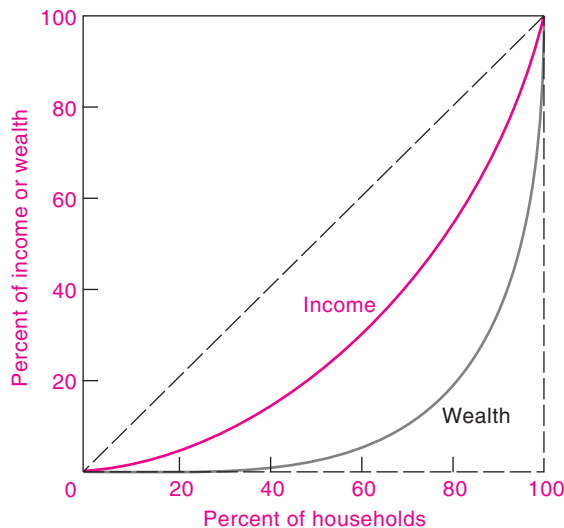


FIGURE 17-2. Inequality of Wealth Is Greater Than for Income

Holdings of wealth tend to be more concentrated than annual incomes.

Source: For income, see Table 17-1. Source for wealth is Federal Reserve Board, *Survey of Consumer Finances, 2004*, available at www.federalreserve.gov/Pubs/oss/oss2/2004/scf2004home_modifj.html.

the amount earned by the average household. Those without wealth begin with an income handicap.

In market economies, wealth is much more unequally distributed than is income, as Figure 17-2 shows. In the United States, the top 10 percent of households in 2004 owned 70 percent of wealth, and the top 1 percent of the households owned around 35 percent of all wealth.

Societies are ambivalent about large wealth holdings. A century ago, President T. Roosevelt criticized “malefactors of great wealth” and introduced sharply progressive income and inheritance taxes. A century later, conservatives attempted to abolish all inheritance and gift taxes, labeling them as “death taxes.”

Inequality across Countries

Countries show quite different income distributions depending upon their economic and social structures. Table 17-3 shows the inequality of different countries as measured by the ratio of the income of

	Ratio of income of top 10% to income of bottom 10%
Japan	4.5
Czech Republic	5.2
Sweden	6.2
Germany	6.9
Korea, Republic of	7.8
France	9.0
Spain	9.0
Canada	10.0
Italy	11.7
Australia	12.7
United Kingdom	13.6
United States	15.7
South Africa	31.9
Argentina	38.9
Brazil	67.0
Namibia	129.0

TABLE 17-3. Comparative Inequality in Different Countries

This shows the ratio of the income of the top 10 percent of the population to the income of the bottom 10 percent. Inequality differs greatly across countries. Japan and Western Europe have the least inequality, while South American countries show the greatest.

Source: World Bank, *World Development Indicators, 2005*, available at devdata.worldbank.org/wdi2005/index2.htm.

the top 10 percent to that of the bottom 10 percent of the income distribution. Market-oriented countries like the United States tend to have the most unequal income distributions among the high-income countries. The welfare states of western Europe tend to have the least inequality. The sources of high inequality in the United States are discussed later in this chapter.

The experience of developing countries shows an interesting relationship. Inequality begins to rise as countries begin to industrialize, after which inequality then declines. The greatest extremes of inequality occur in middle-income countries, particularly Latin American countries like Brazil and Argentina.

POVERTY IN AMERICA

“You will always have the poor with you,” according to the Scriptures. Poverty is indeed an enduring concern in the United States and in the wider world. Before we can analyze antipoverty programs, we must examine the definition of poverty.



The Elusive Concept of Poverty

The word “poverty” means different things to different people. Clearly, poverty is a condition in which people have inadequate incomes, but it is hard to draw an exact line between the poor and the nonpoor. Economists have therefore devised certain techniques which provide the official definition of poverty.

Poverty was officially defined in the 1960s in the United States as an income insufficient to buy basic food, clothing, shelter, and other necessities. This was calculated from family budgets and double-checked by examining the fraction of incomes that was spent on food. Since that time, the poverty budget has been updated by the government’s consumer price index to reflect changes in the cost of living. According to the standard definition, the subsistence cost of living for a family of four was \$21,200 in 2008. This figure represents the “poverty line” or demarcation between poor and nonpoor families. The poverty line also varies by family size.

While an exact figure for measuring poverty is helpful, scholars recognize that “poverty” is a relative term. The notion of a subsistence budget includes subjective questions of taste and social convention. Housing that is today considered substandard often includes household appliances and plumbing that were unavailable to the millionaires and robber barons of an earlier age.

Because of shortcomings in the current definition, a panel of experts of the National Academy of Sciences recommended that the definition of poverty be changed to reflect *relative-income status*. The panel recommended that a family be considered poor if its consumption is less than 50 percent of the median family’s consumption of food, clothing, and housing. Poverty in the relative-income sense would decline when inequality decreased; poverty would be unchanged if the economy prospered with no change in the distribution of income and consumption. In this new world, a rising tide would lift all boats but not change the fraction of the population considered poor. This new approach is being weighed carefully by the government.

Who Are the Poor?

Poverty hits some groups harder than others. Table 17-4 shows the incidence of poverty in different groups for 2006. Whites have lower poverty rates than blacks and Hispanics. The elderly no longer have above-average poverty.

Poverty in Major Groups, 2006

Population group	Percentage of group in poverty
Total population	12.3
By racial and ethnic group:	
White (non-Hispanic)	8.2
Black	24.3
Hispanic	20.6
By age:	
Under 18 years	17.4
18 to 64 years	10.8
65 years and over	9.4
By type of family:	
Married couple	5.7
Female householder, no husband present	30.5
Male householder, no wife present	13.8

TABLE 17-4. Incidence of Poverty in Different Groups, 2006

Whites and married couples have lower-than-average poverty rates. Blacks, Hispanics, and female-headed households have above-average poverty rates.

Source: U.S. Bureau of the Census, *Poverty in the United States: 2006*, CPS 2007 Annual Social and Economic Supplement, downloaded from pubdb3.census.gov/macro/032007/pov/toc.htm.

Perhaps the most troubling trend is that single-parent families headed by women are an increasingly large share of the poor population. In 1959, about 18 percent of poor families were headed by women raising children alone. By 2006, the poverty rate of that group was 30 percent. Social scientists worry that children in single-parent families will receive inadequate nutrition and education and will find it difficult to escape from poverty when they are adults.

Why are so many female-headed and minority families poor? What is the role of discrimination? Experienced observers conclude that blatant racial or gender discrimination in which firms simply pay minorities or women less is vanishing today. Yet the relative poverty of women and blacks continues at a high rate. How can we reconcile these two apparently contradictory trends? The major factor at work is the increasing gap between earnings of highly educated and skilled workers and those of unskilled and less educated workers. Over the last 25 years, the wage differential between these two groups has grown sharply. The growing wage gap has hit minority groups particularly hard.

Who Are the Rich?

At the other extreme are the high earners. Many of the top earners get primarily *property income*, which consists of income on assets like stocks, bonds, and real estate. A generation ago, many of the richest Americans got their wealth through inheritances. Today, entrepreneurship is a much more important road to riches. Most of the richest people in America got that way by taking risks and creating profitable new businesses, such as computer software companies, television networks, and retail chains. The people who invented new products or services or organized the companies that brought them to market got rich on the “Schumpeterian profits” from these innovations. This group of wealthy individuals includes folk heroes like Bill Gates (head of software giant Microsoft), the Waltons (founders of Wal-Mart), and Warren Buffett (investment guru). In an earlier era, the rich lived on stocks, bonds, and land rents.

Another major change among top earners is that wages (including proprietorships) today account for 85 percent of the income of the top 1 percent, whereas that share was only about 50 percent at the beginning of the twentieth century. The high earners are increasingly working in finance and business.

What single profession makes the most money? In recent years, it has been investment bankers and specialists working in financial markets. The average earnings in the securities industry in 2006 was \$206,000 for all workers, and the top managers and analysts make many times that amount.

Why are there such vast differences in compensation among jobs? Some of the differences come from investments in human capital, such as the years of training needed to become a top doctor. Abilities also play a role, for example, in limiting jobs in finance to those who have a deep appreciation of the decimal point. Some jobs pay more because they are dangerous or unpleasant (recall the discussion of compensating differentials in Chapter 13). Moreover, when the supply of labor is limited in an occupation (say, because of union restrictions or professional licensing rules), the supply restrictions drive up the wages and salaries of that occupation.

Trends in Inequality

The inequality of income in the United States has gone through a complete cycle over the last century. The history of inequality in the United States is shown in Figure 17-3. This shows the ratio of the incomes received by the top fifth of families to those received by the bottom fifth. We can see three distinct periods: falling inequality until World War II, stable shares until the 1970s, and then rising inequality over the last three decades. We see that the ratio of upper- to lower-group incomes has almost doubled. Also, examine the income shares of the four top groups, shown in Figure 17-4. The most striking trend is the very top 0.1 percent of the income pyramid. The 133 thousand families in that group had an average income of \$6.3 million in 2006.

Diminishing Inequality. Inequality peaked in 1929 and then declined sharply in the Great Depression as stock prices reduced capital income of the upper groups. The long postwar boom brought prosperity to the middle-class workers, and the share of top income groups declined to its trough in the late 1960s. The share of total income going to the poorest fifth of families rose from 3.8 percent to about 5 percent between 1929 and 1975.

Why did inequality narrow over this period? Inequality declined in part because of the narrowing of wage inequality. With increasing education of

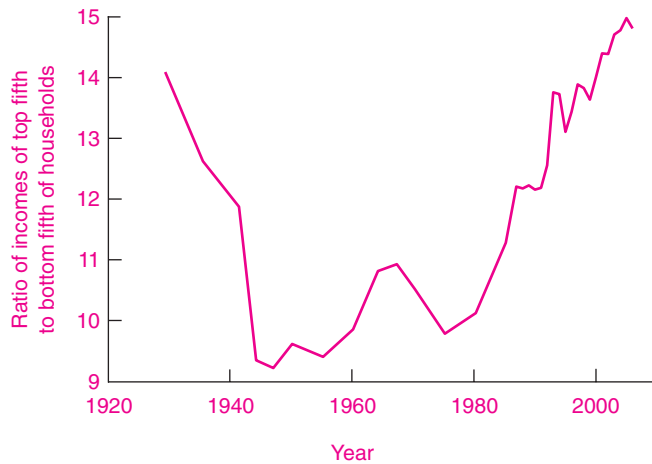


FIGURE 17-3. Trends in Inequality in the United States, 1929–2006

A useful measure of inequality is the ratio of the incomes of the top fifth of the population to those of the bottom fifth. The share of top incomes declined after 1929 with the stock market collapse of the 1930s, the low unemployment and reduced barriers to women and minorities during World War II, and the migration from the farm to the city. Since 1980, income inequality has grown sharply with higher immigration and decline of wages of the unskilled.

Source: U.S. Bureau of the Census, with historical series spliced together by authors.

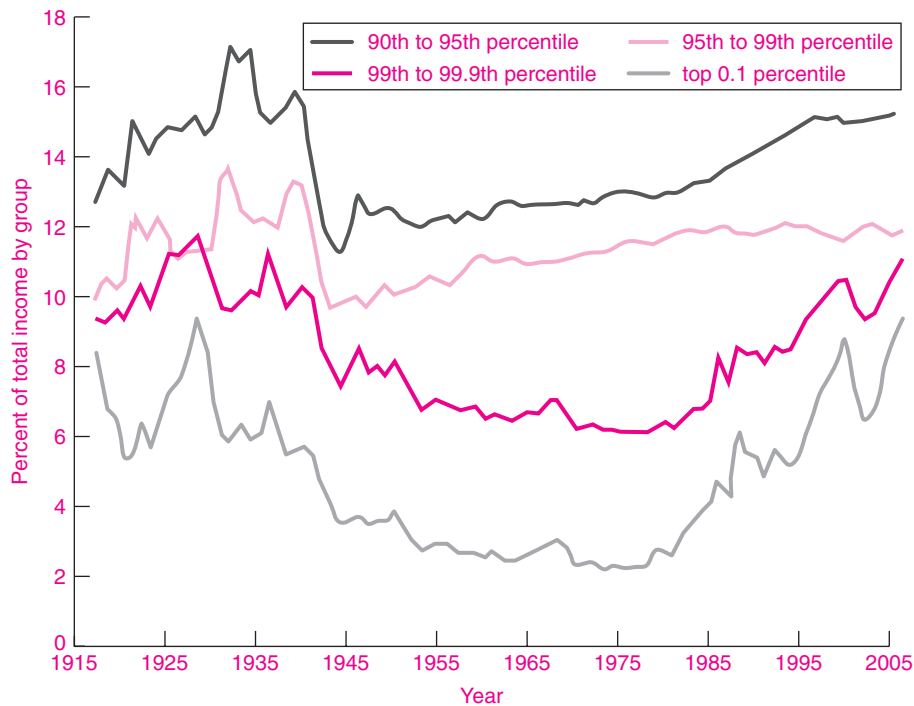


FIGURE 17-4. Income Shares of Top Income Groups, United States, 1917–2006

Inequality fell over most of the twentieth century and then began to rise around 1970. The most dramatic gains were in the very top group—the top 0.1 percent of households. Their share rose from 2 percent of income in 1975 to over 9 percent in the latest year.

Source: The methods were developed in Thomas Piketty and Emmanuel Saez, “Income Inequality in the United States, 1913–1998,” *Quarterly Journal of Economics*, 2003. The data here are from their update of March 2008, downloaded from elsa.berkeley.edu/~saez/.

lower-income groups and unionization of the workforce, the wage gap declined. Government policies like social security made a big difference for the elderly population, while programs like cash assistance and food stamps for the indigent and unemployment insurance boosted the incomes of other low-income groups. Our progressive income-tax system, which taxed high incomes more heavily than low incomes, tended to reduce the degree of inequality.

Widening Gaps. In the last quarter-century, several of these trends have reversed themselves. The share of total income going to the bottom quintile declined sharply in the 1980s, sinking from 5.4 percent in 1975 to 3.4 percent in 2006. Average real incomes for families in the bottom fifth are well below their peak. Although the incomes of the poor stagnated during the last quarter-century, the share of income going to the richest Americans soared.

Why did inequality rise in recent decades? After years of intensive debate on this question, a tentative verdict has been proposed in a recent survey by Robert J. Gordon and Ian Dew-Becker. Their conclusions are:

- Virtually none of the rising inequality came from changes in the overall share of labor in national income. That share has been virtually unchanged since 1970.
- The decline of trade unions contributed slightly to increased inequality for men.
- The impact of foreign trade on relative wages appears minimal, while immigration appears to have adversely affected foreign-born workers who are close “substitutes” for immigrants.
- Technological change appears primarily to have depressed the relative wages of the middle-income groups while boosting the incomes of complementary highly skilled workers and having little effect on unskilled service-sector workers.
- The very top of the income distribution has increased its share sharply because of three phenomena. First, the pay of superstars has risen as technology has increased the audience of athletes and entertainers. Second, the incomes of top professionals, particularly in finance, have increased with the increased globalization of the U.S. economy. Third, they endorse the idea that the separation of ownership from control has allowed “the outsized gains in CEO pay.”

This concludes our description of the measurement and sources of inequality. In the next section, we turn to an analysis of government programs to combat poverty and reduce inequality. High-income democracies everywhere are rethinking these programs as they redefine the role of the state.

B. ANTIPOVERTY POLICIES

All societies take steps to provide for their poor citizens. But what is given to the poor must come from other groups, and that is undoubtedly the major point of resistance to redistributive programs. In addition, economists worry about the impact of redistribution upon the efficiency and morale of a country. In this section, we review the rise of the welfare state, consider the costs of income redistribution, and survey the current system of income maintenance.

The Rise of the Welfare State

The early classical economists believed the distribution of income was unalterable. They argued that attempts to alleviate poverty by government interventions in the economy were foolish endeavors that would simply end up reducing total national income. This view was contested by the English economist and philosopher John Stuart Mill. While cautioning against interferences with the market mechanism, he argued eloquently that government policies could reduce inequality.

A half-century later, at the end of the nineteenth century, political leaders in Western Europe took steps that marked a historic turning point in the economic role of government. Bismarck in Germany, Gladstone and Disraeli in Britain, followed by Franklin Roosevelt in the United States introduced a new concept of government responsibility for the welfare of the populace.

This marked the rise of the welfare state, in which government takes steps to protect individuals against specified contingencies and to guarantee people a minimum standard of living.

Important welfare-state programs include public pensions, accident and sickness insurance, unemployment insurance, health insurance, food and housing

programs, family allowances, and income supplements for certain groups of people. These policies were introduced gradually from 1880 through to the modern era. The welfare state came late to the United States, being introduced in the New Deal of the 1930s with unemployment insurance and social security. Medical care for the aged and the poor was added in the 1960s. In 1996 the federal government turned back the clock by removing the guarantee of a minimum income. The debate over redistribution never ends.

THE COSTS OF REDISTRIBUTION

One of the goals of a modern mixed economy is to provide a safety net for those who are temporarily or permanently unable to provide adequate incomes for themselves. One reason for these policies is to promote greater equality.

What are the different concepts of equality? To begin with, democratic societies affirm the principle of equality of *political rights*—generally including the right to vote, the right to trial by jury, and the right to free speech and association. In the 1960s, liberal philosophers espoused the view that people should also have equal *economic opportunity*. In other words, all people should play by the same rules on a level playing field. All should have equal access to the best schools, training, and jobs. Then discrimination on the basis of race or gender or religion would disappear. Many steps were taken to promote greater equality, but inequalities of opportunity have proved very stubborn.

A third, and the most far-reaching, ideal is equality of *economic outcomes*. In this utopia, people would have the same consumption whether they were smart or dull, eager or lazy, lucky or unfortunate. Wages would be the same for doctor and nurse, lawyer and secretary. “From each according to his abilities, to each according to his needs” was Karl Marx’s formulation of this philosophy.

Today, even the most radical socialist recognizes that some differences in economic outcome are necessary if the economy is to function efficiently. Without some differential reward for different kinds of work, how can we ensure that people will do the unpleasant as well as the enjoyable work, that they will work on dangerous offshore oil derricks as well as in beautiful parks? Insisting on equality of outcomes would severely hamper the functioning of the economy.



The Leaky Bucket

In taking steps to redistribute income from the rich to the poor, governments may harm economic efficiency and reduce the amount of national income available to distribute. On the other hand, if equality is a social good, it is one worth paying for.

The question of how much we are willing to pay in reduced efficiency for greater equity was addressed by Arthur Okun in his “leaky bucket” experiment. He noted that if we value equality, we would approve when a dollar is taken in a bucket from the very rich and given to the very poor. But, he continued, suppose the bucket of redistribution has a leak in it. Suppose only a fraction—maybe only one-half—of each dollar paid by the rich in taxes actually reaches the poor. Then redistribution in the name of equity has been at the expense of economic efficiency.¹

Okun presented a fundamental dilemma. Redistributive measures like the progressive income tax, analyzed in Chapter 16, will reduce real output by reducing incentives to work and save. As a nation considers its income-distribution policies, it will want to weigh the benefit of greater equality against the impact of these policies on total national income.

Redistribution Costs in Diagrams

We can illustrate Okun’s point by using the income-possibility curve of Figure 17-5. This graph shows the incomes available to different groups when government programs redistribute income.

We begin by dividing the population in half; the real income of the lower half is measured on the vertical axis of Figure 17-5, while the income of the upper half is measured on the horizontal axis. At point *A*, which is the pre-redistribution point, no taxes are levied and no transfers are given, so people simply live with their market incomes. In a competitive economy, point *A* will be efficient and the no-redistribution policy maximizes total national income.

However, at *laissez-faire* point *A*, the upper-income group receives substantially more income than the lower half. People might strive for greater equality by tax and transfer programs, hoping to move toward the point of equal incomes at *E*. If such

¹ Arthur M. Okun, *Equality and Efficiency: The Big Tradeoff* (Brookings Institution, Washington, D.C., 1975).

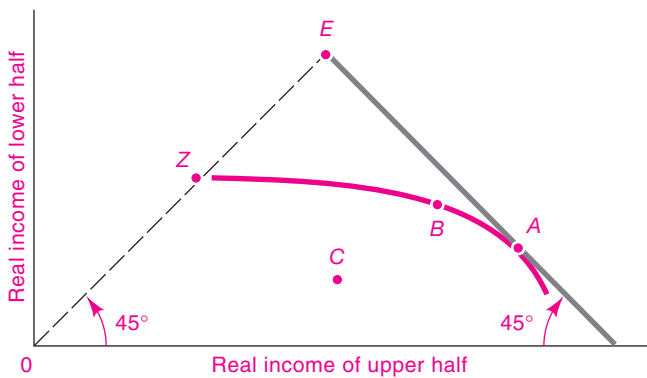


FIGURE 17-5. Redistributing Income May Harm Economic Efficiency

Point A marks the most efficient outcome, with maximal national output. If society could redistribute with no loss of efficiency, the economy would move toward point E. Because redistributive programs generally create distortions and efficiency losses, the path of redistribution might move along the green line ABZ. Society must decide how much efficiency to sacrifice to gain greater equality. Why would everyone want to avoid redistributive programs that take the economy from point B to point C?

steps could be taken without reducing national output, the economy would move along the blue line from A toward E. The slope of the AE line is -45° , reflecting the assumption about efficiency that the redistributive bucket has no leaks, so every dollar taken from the upper half increases the income of the lower half by exactly \$1. Along the -45° line, total national income is constant, indicating that redistributive programs have no impact upon the total national income.

Most redistributive programs do affect efficiency. If a country redistributes income by imposing high tax rates on the wealthiest people, their saving and work effort may be reduced or misdirected, with a resulting lower total national output. They may spend more money on tax lawyers or invest less in high-yielding but risky innovations. Also, if society puts a guaranteed floor beneath the incomes of the poor, the sting of poverty will be reduced and the poor may work less. All these reactions to redistributive programs reduce the total size of real national income.

In terms of Okun's experiment, we might find that for every \$100 of taxation on the rich, the income of the poor increased by only \$50, with the rest dissipated because of reduced effort or administrative costs. The bucket of redistribution has developed a leak. Costly redistribution is shown by the ABZ curve in Figure 17-5. Here, the hypothetical frontier of real incomes bends away from the -45° line because taxes and transfers produce inefficiencies.

The experience of socialist countries exemplifies how attempts to equalize incomes by expropriating property from the rich can end up hurting everyone. By prohibiting private ownership of businesses,

socialist governments reduced the inequalities that arise from large property incomes. But the reduced incentives for work, investment, and innovation crippled this radical experiment of "to each according to his needs" and impoverished entire countries. By 1990, comparisons of living standards in East and West had convinced many socialist countries that private ownership of business would benefit the living standards of workers as well as capitalists.

How Big Are the Leaks?

Okun characterized our redistributive system of taxes and transfers as a leaky bucket. But just how big are the leaks in the American economy? Is the country closer to Figure 17-5's point A, where the leaks are negligible? Or to B, where they are substantial? Or to Z, where the redistributive bucket is in fact a sieve? To find the answer, we must examine the major inefficiencies induced by high tax rates and by generous income-support programs: administrative costs, damage to work and saving incentives, and socioeconomic costs.

- The government must hire tax collectors to raise revenues and social security accountants to disburse them. These are clear inefficiencies or regrettable necessities, but they are small: the Internal Revenue Service spends only half a penny on administrative costs for each dollar of collected revenues.
- As the tax collector's bite grows larger and larger, might I not become discouraged and end up working less? Tax rates might conceivably be so high that total revenues are actually lower

than they would be at more modest tax rates. Empirical evidence, however, suggests that the damage of taxes on work effort is limited. For a few groups, the labor supply curve may actually be backward-bending, indicating that a tax on wages might increase rather than decrease work effort. Most studies find that taxes have only a small impact on labor effort for middle-income and high-income workers. However, there may well be substantial impacts of the tax and transfer system on the behavior of poor people.

- Perhaps the most important potential leakage from the revenue bucket is the savings component. Some believe that current government programs discourage saving and investment. Some economic studies indicate that by taxing income rather than consumption, total saving is reduced. Additionally, economists worry that the nation's saving rate has declined sharply because of generous social programs—especially social security and Medicare—that reduce the need for people to save for old age and health contingencies.
- Some claim that the leaks cannot be found in the cost statistics of the economist; instead, the costs of equality are seen in attitudes rather than in dollars. Are people so turned off by the prospect of high taxes that they turn on to drugs and idleness? Is the welfare system leading to a permanent underclass, a society of people who are trapped in a culture of dependency?
- Some people criticize the entire notion of costly redistribution, arguing as follows: Poverty is rooted in malnourishment in the early years, broken families, illiteracy at home, poor education, and lack of job training. Poverty begets poverty; the vicious cycle of malnutrition, poor education, drug dependency, low productivity, and low incomes leads to yet another generation of poor families. These analysts contend that enhanced programs to provide health care and adequate food for poor families will increase productivity and efficiency rather than decrease output. By breaking the vicious cycle of poverty today, we will be raising the skills, human capital, and productivity of the children of poverty tomorrow.

Adding Up the Leaks

When all the leaks are added up, how big are they? Okun argued that the leaks are small, particularly when funds for redistributive programs are drawn from the tap of a broad-based income tax. Others disagree strenuously, pointing to high marginal tax rates and overly generous transfer programs as confusing and destructive of economic efficiency.

What is the reality? While much research has been undertaken on the cost of redistribution, the truth has proved elusive. A cautious verdict is that there are but modest losses to economic efficiency from redistributive programs of the kind used in the United States today. For many people, the efficiency costs of redistribution are a reasonable price to pay for reducing the economic and human costs of poverty in malnutrition, poor health, lost job skills, and human misery. But countries whose welfare-state policies have gone far beyond those in the United States see major inefficiencies. Egalitarian countries like Sweden and the Netherlands, which provided cradle-to-grave protection for their citizens, found declining labor-force participation, growing unemployment, and rising budget deficits. These countries have taken steps to reduce the burden of the welfare state.

Countries need to design their policies carefully to avoid the extremes of unacceptable inequality or great inefficiency.

ANTIPOVERTY POLICIES: PROGRAMS AND CRITICISMS

All societies provide for their aged, their young, and their sick. Sometimes, the support comes from families or religious organizations. Over most of the last century, central governments have increasingly assumed the responsibility for providing income support for the poor and needy. Yet, as governments have assumed larger responsibilities for more people, the fiscal burdens of transfer programs have grown steadily. Today, most high-income countries face the prospect of rising tax burdens to finance health and retirement programs as well as income-support programs for poor families. This rising tax burden has provoked a sharp backlash against “welfare programs,” particularly in the United States. Let's review the major antipoverty programs and recent reforms.

Income-Security Programs

What are the major income-security programs today? Let's look briefly at a few of the programs that have been established in the United States.

Most income-security programs are targeted at the elderly rather than the poor. The major programs are social security, which is a contributory federal retirement program, and Medicare, which is a subsidized health program for those over 65 years old. These two programs are the largest transfer programs in the United States and in most other high-income countries.

Programs specifically targeted to poor households are a patchwork quilt of federal, state, and local programs. Some of these are cash assistance. Others subsidize particular goods or services, such as the food-stamps program or Medicaid, which provides poor families with free health care. Most of the programs targeted to poor families have shrunk sharply over the last two decades.

The most controversial program was cash assistance to poor parents with small children. This program was drastically reformed in 1996, and we will discuss the reform below.

How much do all federal programs add up to in terms of budget expenditures? All federal poverty programs today amount to 20 percent of the total federal budget.

Incentive Problems of the Poor

One of the major obstacles faced by poor families is that the rules in most welfare programs severely reduce the incentives of low-income adults to seek work. If a poor person on welfare gets a job, the government will trim back food stamps, income-support payments, and rent subsidies, and the person might even lose medical benefits. We might say that poor people face high marginal "tax rates" (or, more accurately, "benefit-reduction rates") because welfare benefits are sharply reduced as earnings rise.

THE BATTLE OVER WELFARE REFORM

The traditional welfare system has few defenders. Some want to dismantle it; others, to strengthen it. Some wish to devolve responsibility for income support to states, localities, or families; others, to broaden the federal role. These disparate approaches reflect

disparate views of poverty and lead to strikingly different policy proposals.

Two Views of Poverty

Social scientists put forth a wide variety of proposals to cure or alleviate poverty. The different approaches often reflect differing views of the roots of poverty. Proponents of strong government action see poverty as the result of social and economic conditions over which the poor have little control. They stress malnutrition, poor schools, broken families, discrimination, lack of job opportunities, and a dangerous environment as central determinants of the fate of the poor. If you hold this view, you might well believe that government bears a responsibility to alleviate poverty—either by providing income to the poor or by correcting the conditions that produce poverty.

A second view holds that poverty grows out of maladaptive individual behavior—behavior that is the responsibility of individuals and is properly cured by the poor themselves. In earlier centuries, laissez-faire apologists held that the poor were shiftless, lazy, or drunk; as a charity worker wrote almost a century ago, "Want of employment . . . is, as often as not, [caused by] drink." Sometimes the government itself is blamed for breeding dependency on government programs that squelch individual initiative. Critics who hold these views advocate that the government should cut back on welfare programs so that people will develop their own resources.

The poverty debate was succinctly summarized by the eminent social scientist William Wilson:

Liberals have traditionally emphasized how the plight of disadvantaged groups can be related to the problems of the broader society, including problems of discrimination and social class subordination. . . . Conservatives, in contrast, have traditionally stressed the importance of different group values and competitive resources in accounting for the experiences of the disadvantaged.²

Much of today's debate can be better understood if these two views and their implications are factored into the political equation.

² William Julius Wilson, "Cycles of Deprivation and the Underclass Debate," *Social Service Review*, December 1985, pp. 541–559.

Income-Support Programs in the United States Today

Most high-income countries provide guaranteed income supplements for poor families with children, and that model was followed by the United States until 1996. At that time, the country took a radically different approach to increasing incomes of the poor. First, the government augmented a program to supplement wages of working families. Second, it fundamentally altered cash assistance programs, abolishing a federal entitlement for poor families.

The Earned-Income Tax Credit

The wage supplement program is called the *earned-income tax credit* or *EITC*. This credit applies to labor incomes and is in effect a wage supplement. In 2008, the EITC provided a supplement to wage income of as much as 40 percent, up to a maximum of \$4824 for a family with two children. A single father or mother would receive some credit for an income up to around \$39,000 of wages. It is known as a “refundable” credit because it is actually paid to an individual when the individual owes no taxes.

What is the difference between a traditional cash-assistance program and the earned-income tax credit? Cash assistance provides a minimum benefit for poor families and then reduces the benefit as market income increases. The earned-income tax credit, by contrast, gives nothing to those who do not work and supplements the earnings of those who do work. The philosophy of the EITC in essence is, “Those who do not work shall not get government dollars.”

The 1996 U.S. Welfare Reform

From the 1930s until 1996, poor families could also benefit from a federal cash-assistance program known as Aid to Families with Dependent Children. This was an *entitlement program*, meaning that anyone who met certain qualifications could receive the benefits as a matter of law.

President Bill Clinton had run on a platform of “reforming welfare as we know it.” In 1996, he teamed up with a Republican Congress and completely changed the rules for cash assistance. The old program was replaced by the Temporary Assistance for Needy Families (TANF) program, which removed the federal entitlement to cash benefits and turned the program over to the 50 states.

The major provisions of the new program were the following:

- The primary responsibility for the income support of poor people was turned over to state and local governments. This replaced the earlier system in which the federal government picked up most of the costs of income support.
- The entitlement for federal cash assistance under TANF was removed.
- Each family is subject to a lifetime limit of 5 years of benefits under the federally supported program. After 5 years, TANF funds can no longer be used to support the family, even if it moves to a new state or has been off the welfare rolls for a number of years.
- Adults in the program must engage in work activities after 2 years of benefits.
- Legal immigrants may be excluded from TANF benefits.
- Other major low-income-support programs were largely unchanged.

Appraisal. The 1996 welfare reform was a major change in social policy. One aspect is the effect on *labor markets*. To the extent that the loss of benefits forces people to seek work, this will increase the supply of relatively uneducated and unskilled labor. This increased supply will tend to lower wages of the lowest-paid workers and increase income inequality. (This effect operates much the same way that the sharp increase in immigration has contributed to lowering of wages of the unskilled in the last three decades.) If the equilibrium wages of some workers are driven down below the minimum wage, this may also lead to an increase in the unemployment rate of these groups.

One important feature of the new law, emphasized by social and economic conservatives, was the *transfer of responsibility* for income support for poor families to the states. The idea behind this change was that states would reverse the century-long trend of increasing generosity of welfare programs. Critics of this transfer believed that placing decision-making responsibility in the states would give strong incentives for states to trim welfare benefits to reduce the costs and the fiscal burden of the low-income population. This has been called a “race to the bottom” in which the equilibrium is for states to have the

lowest-possible benefits and drive low-income households elsewhere.

The *impacts* of the expanded EITC and 1996 welfare reform have surprised most analysts. Among the major impacts have been the following:

- The fall in welfare caseloads has been unprecedented, widespread, and continuous. From 1995 to 2008, the number of households on welfare has fallen by more than 70 percent. While a decline was expected, its size and duration were surprising.
- There was a large increase in the labor-force participation rate of single women with young children. The combination of economic incentives and a strong labor market was successful in pushing women off welfare and into jobs.

ECONOMIC POLICY FOR THE 21ST CENTURY

How should government's role in the economy be redefined? We close with three final reflections:

1. We have examined the key economic functions of the government. The government combats market failures, redistributes income, stabilizes the economy, manages international affairs, and promotes long-term economic growth. Each of these is essential. No serious person today advocates shutting down the government. No one today proposes to allow nuclear dumping, to let poor orphans starve in the streets, to privatize the central bank, or to open the borders to all flows of people and drugs. The question is not whether government should regulate the economy but how and where it should intervene.
2. While government plays a central role in a civilized society, we must constantly reassess the mission and instruments of government policy. Governments have a monopoly on political power, and this imposes a special responsibility for government to operate efficiently. Every public dollar spent on wasteful programs could be used for promoting scientific research or alleviating hunger. Every inefficient tax reduces people's consumption opportunities, whether for food or education or housing. The central premise of economics is that resources are scarce—and this applies to the government as well as to the private sector.
3. While economics can analyze the major public-policy controversies, it cannot have the final word. For underlying all public-policy debates are normative assumptions and value judgments about what is just and fair. What an economist does, therefore, is try very hard to keep positive science cleanly separated from normative judgments—to draw a line between the economic calculations of the head and the human feelings of the heart. But keeping description separate from prescription does not mean that the professional economist is a bloodless computer. Economists are as divided in their political philosophies as is the rest of the population. Conservative economists argue strenuously for reducing the scope of government and ending programs to redistribute income. Liberal economists are just as passionate in advocating reducing poverty or using macroeconomic policies to combat unemployment. Economic science cannot say which political point of view is right or wrong. But it can arm us for the great debate.



SUMMARY

A. The Sources of Inequality

1. In the previous century, the classical economists believed that inequality was a universal constant, unchangeable by public policy. This view does not stand up to scrutiny. Poverty made a glacial retreat over the early part of the twentieth century, and absolute incomes for those in the bottom part of the income distribution rose sharply. Since around 1980, this trend has reversed, and inequality has increased.
2. The Lorenz curve is a convenient device for measuring the spreads or inequalities of income distribution. It shows what percentage of total income goes to the poorest 1 percent of the population, to the poorest 10 percent, to the poorest 95 percent, and so forth.

The Gini coefficient is a quantitative measure of inequality.

3. Poverty is essentially a relative notion. In the United States, poverty was defined in terms of the adequacy of incomes in the early 1960s. By this standard of measured income, little progress in reducing inequality has been made in the last decade.
4. Income inequality declined markedly over most of the twentieth century. Then, beginning around 1975, the gap between rich and poor began to widen. The largest income gains have gone to the very top of the income distribution, to the richest 0.1 percent of people. Analysts believe that the “rich man’s crash” of 2007–2009 will narrow income gaps at the very top. Wealth is even more unequally distributed than is income, both in the United States and in other capitalist economies.

B. Antipoverty Policies

5. Political philosophers write of three types of equality: (a) equality of political rights, such as the right to vote; (b) equality of opportunity, providing equal

access to jobs, education, and other social systems; and (c) equality of outcomes, whereby people are guaranteed equal incomes or consumptions. Whereas the first two types of equality are increasingly accepted in most advanced democracies like the United States, equality of outcomes is generally rejected as impractical and too harmful to economic efficiency.

6. Equality has costs as well as benefits; the costs show up as drains from Okun’s “leaky bucket.” That is, attempts to reduce income inequality by progressive taxation or transfer payments may harm economic incentives to work or save and may thereby reduce the size of national output.
7. Major programs to alleviate poverty are welfare payments, food stamps, Medicaid, and a group of smaller or less targeted programs. As a whole, these programs are criticized because they impose high benefit-reduction rates (or marginal “tax” rates) on low-income families when families begin to earn wages or other income.

CONCEPTS FOR REVIEW

trends of income distribution
Lorenz curve of income and wealth
Gini coefficient
poverty

welfare state
Okun’s “leaky bucket”
equality: political, of opportunity,
of outcomes

equality vs. efficiency
income-possibility curve: ideal and
realistic cases

FURTHER READING AND INTERNET WEBSITES

Further Reading

An influential book on equality versus efficiency is Arthur Okun, *Equality and Efficiency: The Big Tradeoff* (Brookings Institution, Washington, D.C., 1975).

For a nontechnical review of issues in health-care reform, see the symposium in *Journal of Economic Perspectives*, Summer 1994.

Websites

The Census Department collects poverty data. See www.census.gov/hhes/www/poverty.html. For information on

welfare and poverty, see www.welfareinfo.org. The site www.doleta.gov describes the results of welfare reform from the perspective of individuals.

The Urban Institute (www.urban.org) and the Joint Center for Poverty Research (www.jcpr.org) are organizations devoted to analyzing trends in poverty and income distribution.

QUESTIONS FOR DISCUSSION

1. Let each member of the class anonymously write down on a card an estimate of his or her family's annual income. From these, draw up a frequency table showing the distribution of incomes. What is the median income? The mean income?
2. What effect would the following have on the Lorenz curve of after-tax incomes? (Assume that the taxes are spent by the government on a representative slice of GDP.)
 - a. A proportional income tax (i.e., one taxing all incomes at the same rate)
 - b. A progressive income tax (i.e., one taxing high incomes more heavily than low incomes)
 - c. A sharp increase in taxes on cigarettes and food
 Draw four Lorenz curves to illustrate the original income distribution and the income distribution after each of the three tax categories.
3. Review Okun's leaky bucket experiment. Get a group together and have each member of the group write down on a piece of paper how large a leak should be tolerated when government transfers \$100 from the top income quintile to the bottom income quintile. Do you think it should be 99 percent? Or 50 percent? Or zero? Each person should write a short justification of the maximum number. Tabulate the results and then discuss the differences.
4. Consider two ways of supplementing the income of the poor: (a) cash assistance (say, \$500 per month) and (b) categorical benefits such as subsidized food or medical care. List the pros and cons of using each strategy. Can you explain why the United States tends to use mainly strategy (b)? Do you agree with this decision?
5. In a country called Econoland, there are 10 people. Their incomes (in thousands) are \$3, \$6, \$2, \$8, \$4, \$9, \$1, \$5, \$7, and \$5. Construct a table of income quintiles like Table 17-2. Plot a Lorenz curve. Calculate the Gini coefficient defined in Section A.
6. People continue to argue about what form assistance for the poor should take. One school says, "Give people money and let them buy health services and the foods they need." The other school says, "If you give money to the poor, they may spend it on beer and drugs. Your dollar goes further in alleviating malnourishment and disease if you provide the services "in kind" (meaning by directly providing the good or service rather than providing money to buy the good or service.) The dollar that you earn may be yours to spend, but society's income-support dollar is a dollar that society has the right to channel directly to its targets."

The argument of the first school might rest on demand theory: Let each household decide how to maximize its utility on a limited budget. Chapter 5 shows why this argument might be right. But what if the parents' utility includes mainly beer and lottery tickets and no milk or clothing for the children? Might you agree with the second view? From your own personal experience and reading, which of these two arguments would you endorse? Explain your reasoning.

International Trade



TO THE CHAMBER OF DEPUTIES:

We are subject to the intolerable competition of a foreign rival, who enjoys such superior facilities for the production of light that he can inundate our national market at reduced price. This rival is no other than the sun. Our petition is to pass a law shutting up all windows, openings, and fissures through which the light of the sun is used to penetrate our dwellings, to the prejudice of the profitable manufacture we have been enabled to bestow on the country. Signed: The Candle Makers

F. Bastiat

A. THE NATURE OF INTERNATIONAL TRADE

As we go about our daily lives, it is easy to overlook the importance of international trade. America ships enormous volumes of food, airplanes, computers, and machinery to other countries; and in return we get vast quantities of oil, footwear, cars, coffee, and other goods and services. While Americans pride themselves on their ingenuity, it is sobering to realize how many of our products—including gunpowder, classical music, clocks, railroads, penicillin, and radar—arose from the inventions of long-forgotten people in faraway places.

What are the economic forces that lie behind international trade? Simply put, trade promotes specialization, and specialization increases productivity.

Over the long run, increased trade and higher productivity raise living standards for all nations. Gradually, countries have realized that opening up their economies to the global trading system is the most secure road to prosperity.

This chapter extends our analysis by examining the principles governing *international trade*, through which nations export and import goods, services, and capital. International economics involves many of the most controversial questions of the day. Should the nation be concerned that so many of its consumer goods are made abroad? Do we gain from free trade, or should we tighten up the rules on trading with Mexico and China? Are workers hurt in competition with “cheap foreign labor”? How should the principles governing trade be extended to intellectual property rights, such as patents and copyrights? The economic stakes are high in finding sound answers to these questions.

International vs. Domestic Trade

In a deep economic sense, trade is trade, whether it involves people within the same nation or people in different countries. There are, however, three important differences between domestic and international trade, and these have important practical and economic consequences:

1. *Expanded trading opportunities.* The major advantage of international trade is that it expands the scope of trade. If people were forced to consume only what they produced at home, the world would be poorer on both the material and the spiritual planes. Canadians could drink no wine, Americans could eat no bananas, and most of the world would be without jazz and Hollywood movies.
2. *Sovereign nations.* Trading across frontiers involves people and firms living in different nations. Each nation is a sovereign entity which regulates the flow of people, goods, and finance crossing its borders. This contrasts with domestic trade, where there is a single currency, where trade and money flow freely within the borders, and where people can migrate easily to seek new opportunities. Countries sometimes build barriers to international trade, using tariffs or quotas, to “protect” affected workers or firms from foreign competition.
3. *International finance.* Most nations have their own currencies. I want to pay for a Japanese car in U.S. dollars, while Toyota wants to be paid in Japanese yen. Dollars are translated into yen by the foreign exchange rate, which is the relative price of different currencies. The international financial system must ensure a smooth flow and exchange of dollars, yen, and other currencies—or else risk a breakdown in trade. The financial aspects of international trade are analyzed in the chapters on macroeconomics.

Trends in Foreign Trade

What are the major components of international trade for the United States? Table 18-1 shows the composition of U.S. foreign trade for 2007. The bulk of trade is in goods, particularly manufactured goods, although trade in services has increased rapidly. The data reveal that the United States exports surprisingly large amounts of primary commodities (such as food)

International Trade in Goods and Services, 2007 (billions of dollars)		
	Exports	Imports
Goods	1,149	1,965
Food and beverages	84	50
Industrial supplies	316	269
Capital goods	446	284
Motor vehicles	121	204
Consumer goods	146	308
Other goods	36	49
Services	479	372
Travel	97	76
Passenger fares	25	29
Other transportation	52	67
Royalties and license fees	71	28
Other private services	217	135
Military sales and government	17	37
Total goods and services	1,628	2,337

TABLE 18-1. International Trade in Goods and Services

The United States exports a wide array of goods and services from food to intellectual property. In 2007, U.S. imports exceeded exports by around \$700 billion. The United States exports primarily specialized capital goods like machinery. At the same time, it imports many other manufactured goods, like cars and cameras, because other countries specialize in different market niches and enjoy economies of scale.

Source: U.S. Bureau of Economic Analysis, available at www.bea.gov/international/.

and imports large quantities of sophisticated, capital-intensive manufactured goods (like automobiles and computer parts). Moreover, we find a great deal of two-way, or intra-industry, trade. Within a particular industry, the United States exports and imports at the same time because a high degree of product differentiation means that different countries tend to have niches in different parts of a market.

THE REASONS FOR INTERNATIONAL TRADE IN GOODS AND SERVICES

What are the economic factors that lie behind the patterns of international trade? Nations find it beneficial to participate in international trade for several

reasons: diversity in the conditions of production, differences in tastes among nations, and decreasing costs of large-scale production.

Diversity in Natural Resources

Trade may take place because of the diversity in productive possibilities among countries. In part, these differences reflect endowments of natural resources. One country may be blessed with a supply of petroleum, while another may have a large amount of fertile land. Or a mountainous country may generate large amounts of hydroelectric power which it sells to its neighbors, while a country with deep-water harbors may become a shipping center.

Differences in Tastes

A second reason for trade lies in preferences. Even if the conditions of production were identical in all regions, countries might engage in trade if their tastes for goods were different.

For example, suppose that Norway and Sweden both produce fish from the sea and meat from the land in about the same amounts but the Swedes have a great fondness for meat while the Norwegians are partial to fish. A mutually beneficial export of meat from Norway and fish from Sweden would take place. Both countries would gain from this trade; the sum of human happiness is increased, just as when Jack Sprat trades fat meat for his wife's lean.

Differences in Costs

Perhaps the most important reason for trade is differences among countries in production costs. We see vast differences in labor costs among nations. In 2006, for example, China's hourly wage of \$1 was about one-thirtieth of that in Western Europe. Companies looking to compete effectively strive to find those parts of the production chain that can profitably be located in China to use unskilled Chinese workers. When an iPod or mobile phone is labeled "Made in China," that probably means that it was assembled in China, while the design, patents, marketing, and hard drives were produced in other countries.

An important feature in today's world is that some companies or countries enjoy economies of scale; that is, they tend to have lower average costs of production as the volume of output expands. So when a particular country gets a head start in producing a particular product, it can become the high-

volume, low-cost producer. The economies of scale give it a significant cost and technological advantage over other countries, which find it cheaper to buy from the leading producer than to make the product themselves.

Large-scale production is an important advantage in industries with major research-and-development expenses. As the leading aircraft maker in the world, Boeing can spread the enormous cost of designing, developing, and testing a new plane over a large sales volume. That means it can sell planes at a lower price than competitors with a smaller volume. Boeing's only real competitor, Airbus, got off the ground through large subsidies from several European countries to cover its research-and-development costs.

The example of decreasing cost helps explain the important phenomenon of extensive intra-industry trade shown in Table 18-1. Why is it that the United States both imports and exports computers and related equipment? Consider a company such as Intel, which produces high-end semiconductors. Intel has facilities in the United States as well as in China, Malaysia, and the Philippines, and the company often ships products manufactured in one country to be assembled and tested in another country. Similar patterns of intra-industry specialization are seen with cars, steel, textiles, and many other manufactured products.

B. COMPARATIVE ADVANTAGE AMONG NATIONS

THE PRINCIPLE OF COMPARATIVE ADVANTAGE

It is only common sense that countries will produce and export goods for which they are uniquely qualified. But there is a deeper principle underlying *all* trade—in a family, within a nation, and among nations—that goes beyond common sense. The *principle of comparative advantage* holds that a country can benefit from trade even if it is absolutely more efficient (or absolutely less efficient) than other countries in the production of every good. Indeed, trade according to comparative advantage provides mutual benefits to all countries.

Uncommon Sense

Take a world in which there are only two goods, computers and clothing. Suppose that the United States has higher output per worker (or per unit of input) than the rest of the world in making both computers and clothing. But suppose the United States is relatively more efficient in the production of computers than it is in clothing. For example, it might be 50 percent more productive in computers and 10 percent more productive in clothing than other countries. In this case, it would benefit the United States to export that good in which it is relatively more efficient (computers) and import that good in which it is relatively less efficient (clothing).

Or consider a poor country like Mali. How could impoverished Mali, whose workers use handlooms and have productivity that is only a fraction of that of workers in industrialized countries, hope to export any of its textiles? Surprisingly, according to the principle of comparative advantage, Mali can benefit by exporting the goods in which it is *relatively* more efficient (like textiles) and importing those goods which it produces *relatively* less efficiently (like turbines and automobiles).

The principle of comparative advantage holds that each country will benefit if it specializes in the production and export of those goods that it can produce at relatively low cost. Conversely, each country will benefit if it imports those goods which it produces at relatively high cost.

This simple principle provides the unshakable basis for international trade.

Ricardo's Analysis of Comparative Advantage

Let us illustrate the fundamental principles of international trade by considering America and Europe two centuries ago. If labor (or resources, more generally) is absolutely more productive in America than in Europe, does this mean that America will import nothing? And is it economically wise for Europe to “protect” its markets with tariffs or quotas?

These questions were first answered in 1817 by the English economist David Ricardo, who showed that international specialization benefits a nation. He called this result the law of comparative advantage.

For simplicity, Ricardo worked with only two regions and only two goods, and he chose to measure all production costs in terms of labor-hours. We will

American and European Labor Requirements for Production		
Product	Necessary Labor for Production (labor-hours)	
	In America	In Europe
1 unit of food	1	3
1 unit of clothing	2	4

TABLE 18-2. Comparative Advantage Depends Only on Relative Costs

In a hypothetical example, America has lower labor costs in both food and clothing. American labor productivity is between 2 and 3 times Europe's (twice in clothing, thrice in food).

follow his lead here, analyzing food and clothing for Europe and America.¹

Table 18-2 shows the illustrative data. In America, it takes 1 hour of labor to produce a unit of food, while a unit of clothing requires 2 hours of labor. In Europe the cost is 3 hours of labor for food and 4 hours of labor for clothing. We see that America has *absolute advantage* in both goods, for it can produce either one with greater absolute efficiency than can Europe. However, America has *comparative advantage* in food, while Europe has *comparative advantage* in clothing. The reason is that food is *relatively inexpensive* in America compared to Europe, while clothing is *relatively inexpensive* in Europe compared to America.

From these facts, Ricardo proved that both regions will benefit if they specialize in their areas of comparative advantage—that is, if America specializes in the production of food while Europe specializes in the production of clothing. In this situation, America will export food to pay for European clothing, while Europe will export clothing to pay for American food.

To analyze the effects of trade, we must measure the amounts of food and clothing that can be produced and consumed in each region (1) if there is no international trade and (2) if there is free trade with each region specializing in its area of comparative advantage.

¹ An analysis of comparative advantage with many countries and many commodities is presented later in this chapter.

Before Trade. Start by examining what occurs in the absence of any international trade, say, because all trade is illegal or because of a prohibitive tariff. Table 18-2 shows the real wage of the American worker for an hour's work as 1 unit of food or $\frac{1}{2}$ unit of clothing. The European worker earns only $\frac{1}{3}$ unit of food or $\frac{1}{4}$ unit of clothing per hour of work.

Clearly, if perfect competition prevails in each isolated region, the prices of food and clothing will be different in the two places because of the difference in production costs. In America, clothing will be 2 times as expensive as food because it takes twice as much labor to produce a unit of clothing as it does to produce a unit of food. In Europe, clothing will be only $\frac{1}{3}$ as expensive as food.

After Trade. Now suppose that all tariffs are repealed and free trade is allowed. For simplicity, further assume that there are no transportation costs. What is the flow of goods when trade is opened up? Clothing is relatively more expensive in America (with a price ratio of 2 as compared to $\frac{1}{3}$), and food is relatively more expensive in Europe (with a price ratio of $\frac{3}{4}$ as compared to $\frac{1}{2}$). Given these relative prices, and with no tariffs or transportation costs, food will soon be shipped from America to Europe and clothing from Europe to America.

As European clothing penetrates the American market, American clothiers will find prices falling and profits shrinking, and they will begin to shut down their factories. By contrast, European farmers will find that the prices of foodstuffs begin to fall when American products hit the European markets; they will suffer losses, some will go bankrupt, and resources will be withdrawn from farming.

After all the adjustments to international trade have taken place, the prices of clothing and food must be equalized in Europe and America (just as the water in two connecting pipes must come to a common level once you remove the barrier between them). Without further knowledge about the exact supplies and demands, we cannot know the exact level to which prices will move. But we do know that the relative prices of food and clothing must lie somewhere between the European price ratio (which is $\frac{3}{4}$ for the ratio of food to clothing prices) and the American price ratio (which is $\frac{1}{2}$). Let us say that the final ratio is $\frac{2}{3}$, so 2 units of clothing trade for 3 units of food. For simplicity,

we measure prices in American dollars and assume that the free-trade price of food is \$2 per unit, which means that the free-trade price of clothing must be \$3 per unit.

With free trade, the regions have shifted their productive activities. America has withdrawn resources from clothing in favor of food, while Europe has contracted its farm sector and expanded its clothing manufacture. *Under free trade, countries shift production toward their areas of comparative advantage.*

The Economic Gains from Trade

What are the economic effects of opening up the two regions to international trade? America as a whole benefits from the fact that imported clothing costs less than clothing produced at home. Likewise, Europe benefits by specializing in clothing and consuming food that is less expensive than domestically produced food.

We can most easily reckon the gains from trade by calculating the effect of trade upon the real wages of workers. Real wages are measured by the quantity of goods that a worker can buy with an hour's pay. Using Table 18-2, we can see that the real wages after trade will be greater than the real wages before trade for workers in both Europe and America. For simplicity, assume that each worker buys 1 unit of clothing and 1 unit of food. Before trade, this bundle of goods costs an American worker 3 hours of work and a European worker 7 hours of work.

After trade has opened up, the price of clothing is \$3 per unit while the price of food is \$2 per unit. An American worker must still work 1 hour to buy a unit of food, because food is domestically produced; but at the price ratio of 2 to 3, the American worker need work only $1\frac{1}{2}$ hours to produce enough to buy 1 unit of European clothing. Therefore the bundle of goods costs the American worker $2\frac{1}{2}$ hours of work when trade is allowed—this represents an increase of 20 percent in the real wage of the American worker.

For European workers, a unit of clothing will still cost 4 hours of labor in a free-trade situation. To obtain a unit of food, however, the European worker need produce only $\frac{2}{3}$ of a unit of clothing (which requires $\frac{2}{3} \times 4$ hours of labor) and then trade that $\frac{2}{3}$ clothing unit for 1 unit of American food. The total European labor needed to obtain the bundle of consumption is then $4 + 2\frac{2}{3} = 6\frac{2}{3}$, which represents an

increase in real wages of about 5 percent over the no-trade situation.

When countries concentrate on their areas of comparative advantage under free trade, each country is better off. Compared to a no-trade situation, workers in each region can obtain a larger quantity of consumer goods for the same amount of work when they specialize in their areas of comparative advantage and trade their own production for goods in which they have a relative disadvantage.

Outsourcing as Another Kind of Trade

Recently, Americans have become concerned about outsourcing (sometimes also called “offshoring”). What exactly is the issue here? *Outsourcing* refers to locating services or production processes abroad. Prominent examples are telemarketing, medical diagnostics, publishing, web development, and engineering. These differ from the more conventional international trade in goods because they relate to services that were expensive to locate in foreign countries in an earlier era, whereas today, with rapid and low-cost communication, such processes can be economically located where costs are lower. Just as low-cost ocean shipping made possible greater international trade in grains in the nineteenth century, low-cost communication makes it possible to have Indian architects work on designs for New York firms today.

Many economists respond to outsourcing by arguing that it is just an extension of the principle of comparative advantage to more sectors. For example, when he was G. W. Bush’s chief economist, Greg Mankiw stated, “I think outsourcing is a growing phenomenon, but it’s something that we should realize is probably a plus for the economy in the long run.” His comment ignited a firestorm of controversy among both Republicans and Democrats, and one political figure called it “Alice in Wonderland economics.”

Most economists tend to agree with Mankiw that outsourcing is another example of comparative advantage at work. But there are policy consequences for governments. A careful analysis by Princeton economist (and adviser to Democratic presidents) Alan Blinder suggested the following advice for the country, and perhaps also for today’s students:

Rich countries such as the United States will have to reorganize the nature of work to exploit their big

advantage in non-tradable services: they are close to where the money is. That will mean, in part, specializing more in the delivery of services where personal presence is either imperative or highly beneficial. Thus, the U.S. work force of the future will likely have more divorce lawyers and fewer attorneys who write routine contracts, more internists and fewer radiologists, more salespeople and fewer typists. The market system is very good at making adjustments like these, even massive ones. It has done so before and will do so again. But it takes time and can move in unpredictable ways.

GRAPHICAL ANALYSIS OF COMPARATIVE ADVANTAGE

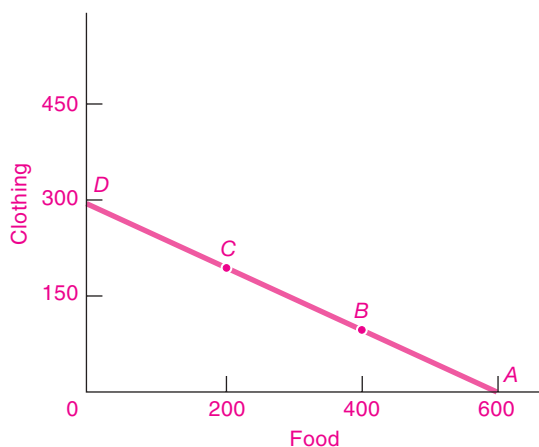
We can use the production-possibility frontier (*PPF*) to expand our analysis of comparative advantage. We will continue with the simple numerical example developed in this chapter, but the theory is equally valid in a competitive world with many different inputs.

America without Trade

Chapter 1 introduced the *PPF*, which shows the combinations of commodities that can be produced with a society’s given resources and technology. Using the production data shown in Table 18-2, and assuming that both Europe and America have 600 units of labor, we can easily derive each region’s *PPF*. The table that accompanies Figure 18-1 shows the possible levels of food and clothing that America can produce with its inputs and technology. Figure 18-1 plots the production possibilities; the green line *DA* shows America’s *PPF*. The *PPF* has a slope of $-\frac{1}{2}$, which represents the terms on which food and clothing can be substituted in production. In competitive markets with no international trade, the price ratio of food to clothing will also be one-half.

So far we have concentrated on production and ignored consumption. Note that if America is isolated from all international trade, it can consume only what it produces. Say that, for the incomes and demands in the marketplace, point *B* in Figure 18-1 marks America’s production and consumption in the absence of trade. Without trade, America produces and consumes 400 units of food and 100 units of clothing.

We can do exactly the same thing for Europe. But Europe’s *PPF* will look different from America’s



America's Production-Possibility Schedule
(1-to-2 constant-cost ratio)

Possibilities	Food (units)	Clothing (units)
A	600	0
B	400	100
C	200	200
D	0	300

FIGURE 18-1. American Production Data

The constant-cost line *DA* represents America's domestic production-possibility frontier. America will produce and consume at *B* in the absence of trade.

because Europe has different efficiencies in producing food and clothing. Europe's price ratio is $\frac{3}{4}$, reflecting the relative cost of food and clothing in that region.

Opening Up to Trade

Now allow trade between the two regions. Food can be exchanged for clothing at some price ratio. We call the ratio of export prices to import prices the **terms of trade**. To indicate the trading possibilities, we put the two *PPF*s together in Figure 18-2. America's green *PPF* shows its domestic production possibilities, while Europe's blue *PPF* shows the terms on which it can domestically substitute food and clothing. Note that Europe's *PPF* is drawn closer to the origin than America's because Europe has lower productivities in both industries; it has an absolute disadvantage in the production of both food and clothing.

Europe need not be discouraged by its absolute disadvantage, however, for it is the difference in

relative productivities or comparative advantage that makes trade beneficial. The gains from trade are illustrated by the outer lines in Figure 18-2. If America could trade at Europe's pretrade relative prices, it could produce 600 units of food and move northwest along the outer blue line in Figure 18-2(a)—where the blue line represents the price ratio or terms of trade that are generated by Europe's *PPF*. Similarly, if Europe could trade at America's pretrade prices, Europe could specialize in clothing and move southeast along the green line in Figure 18-2(b)—where the green line is America's pretrade price ratio.

This leads to an important and surprising conclusion: Small countries have the most to gain from international trade. Small countries affect world prices the least and therefore can trade at world prices that are very different from domestic prices. Additionally, countries that are very different from other countries gain most, while large countries have the least to gain. (These points are raised in question 3 at the end of this chapter.)

Equilibrium Price Ratio. Once trade opens up, some set of prices must hold in the world marketplace depending upon the overall market supplies and demands. Without further information we cannot specify the exact price ratio, but we can determine what the price range will be. The prices must lie somewhere between the prices of the two regions. That is, we know that the relative price of food to clothing must lie somewhere in the range between $\frac{1}{2}$ and $\frac{3}{4}$.

The final price ratio will depend upon the relative demands for food and clothing. If food were very much in demand, the food price would be relatively high. If food demand were so high that Europe produced food as well as clothing, the price ratio would be that of Europe's pretrade relative prices, or $\frac{3}{4}$. On the other hand, if clothing demand were so strong that America produced clothing as well as food, the terms of trade would equal America's pretrade price ratio of $\frac{1}{2}$. If each region specializes completely in the area of its comparative advantage, with Europe producing only clothing and America producing only food, the price ratio will lie somewhere between $\frac{1}{2}$ and $\frac{3}{4}$. The exact ratio will depend on the strength of demand.

Assume now that the demands are such that the final price ratio is $\frac{2}{3}$, with 3 units of food selling for

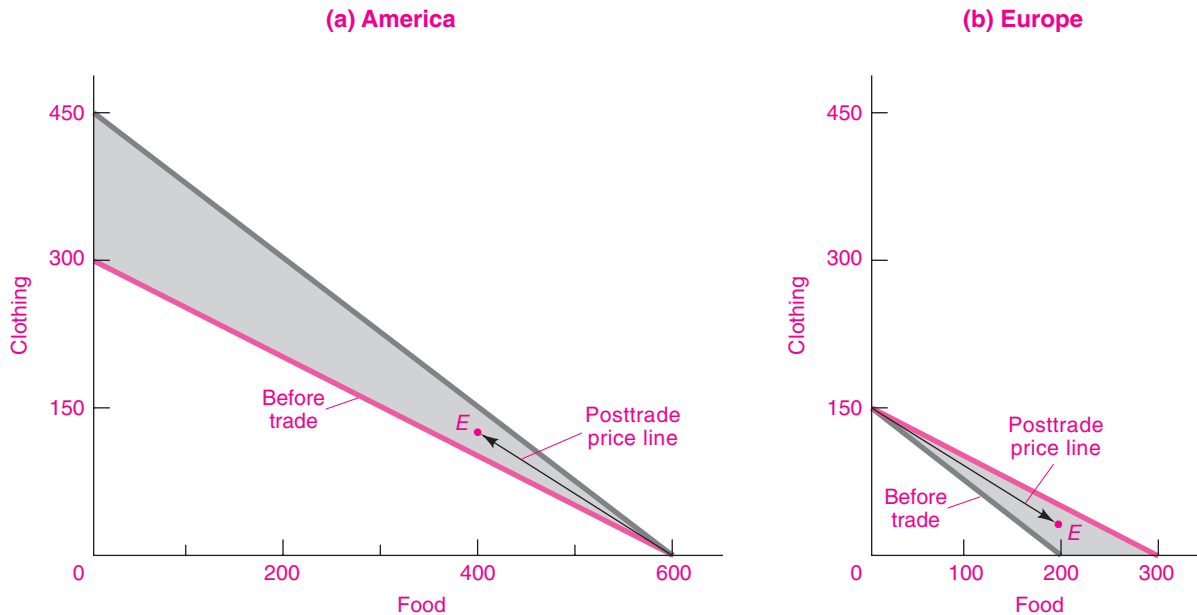


FIGURE 18-2. Comparative Advantage Illustrated

Through trade, both Europe and America improve their available consumption. If no trade is allowed, each region must be satisfied with its own production. It is therefore limited to its production-possibility curve, shown for each region as the line marked “Before trade.” After borders are opened and competition equalizes the relative prices of the two goods, the relative-price line will be as shown by the arrows. If each region is faced with prices given by the arrows, can you see why its consumption possibilities must improve?

2 units of clothing. With this price ratio, each region will then specialize—America in food and Europe in clothing—and export some of its production to pay for imports at the world price ratio of $\frac{1}{2}$.

Figure 18-2 illustrates how trade will take place. Each region will face a consumption-possibility curve according to which it can produce, trade, and consume. *The consumption-possibility curve begins at the region’s point of complete specialization and then runs out at the world price ratio of $\frac{1}{2}$.* Figure 18-2(a) shows America’s consumption possibilities as a thin blue arrow with a slope of $-\frac{1}{2}$ coming out of its complete-specialization point at 600 units of food and no clothing. Similarly, Europe’s posttrade consumption possibilities are shown in Figure 18-2(b) by the blue arrow running southeast from its point of complete specialization with a slope of $-\frac{1}{2}$.

The final outcome is shown by the points *E* in Figure 18-2. At this free-trade equilibrium, Europe specializes in producing clothing and America

specializes in producing food. Europe exports $133\frac{1}{3}$ units of clothing for 200 units of America’s food. Both regions are able to consume more than they could produce alone; both regions have benefited from international trade.

Figure 18-3 illustrates the benefits of trade for America. The green inner line shows the *PPF*, while the blue outer line shows the consumption possibilities at the world price ratio of $\frac{1}{2}$. The green arrows show the amounts exported and imported. America ends up at point *B'*. Through trade it moves along the blue line *D'A* just as if a fruitful new invention had pushed out its *PPF*.

The lessons of this analysis are summarized in Figure 18-4. This figure shows the *world* production possibility frontier. The world *PPF* represents the maximum output that can be obtained from the world’s resources when goods are produced in the most efficient manner—that is, with the most efficient division of labor and regional specialization.

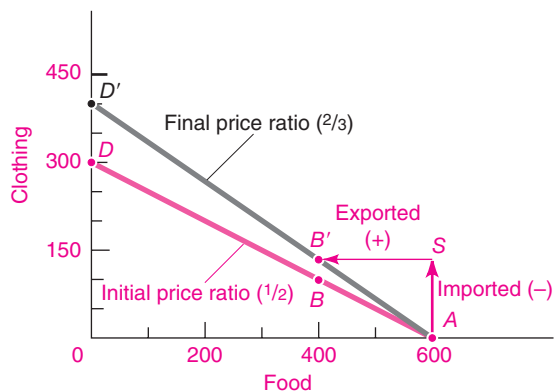


FIGURE 18-3. America before and after Trade

Free trade expands the consumption options of America. The green line DA represents America's production-possibility curve; the blue line $D'A$ is the new consumption-possibility curve when America is able to trade freely at the price ratio of $\frac{2}{3}$ and, in consequence, to specialize completely in the production of food (at A). The green arrows from S to B' and A to S show the amounts exported (+) and imported (-) by America. As a result of free trade, America ends up at B' , with more of both goods available than would be the case if it consumed only what it produced along DA .

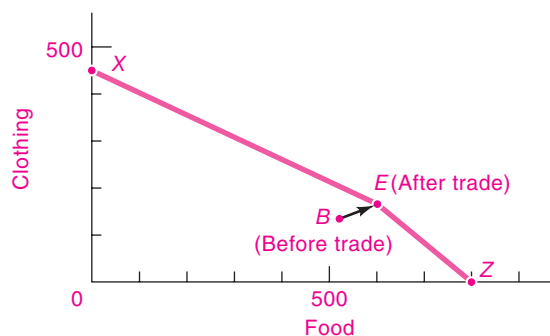


FIGURE 18-4. Free Trade Allows the World to Move to Its Production-Possibility Frontier

We show here the effect of free trade from the viewpoint of the world as a whole. Before trade is allowed, each region is on its own national PPF. Because the no-trade equilibrium is inefficient, the world is inside its PPF at point B .

Free trade allows each region to specialize in the goods in which it has comparative advantage. As a result of efficient specialization, the world moves out to the efficiency frontier at point E .

The world PPF is built up from the two regional PPFs in Figure 18-2 by determining the maximum level of world output that can be obtained from the individual regional PPFs. For example, the maximum quantity of food that can be produced (with no clothing production) is seen in Figure 18-2 to be 600 units in America and 200 units in Europe, for a world maximum of 800 units. This same point (800 food, 0 clothing) is then plotted in the world PPF in Figure 18-4. Additionally, we can plot the point (0 food, 450 clothing) in the world PPF by inspection of the regional PPFs. All the individual points in between can be constructed by a careful calculation of the maximum world outputs that can be produced if the two regions are efficiently specializing in the two goods.

Before opening up borders to trade, the world is at point B . This is an inefficient point—inside the world PPF—because regions have different levels of relative efficiency in different goods. After opening the borders to trade, the world moves to the free-trade equilibrium at E , where countries are specializing in their areas of comparative advantage.

Free trade in competitive markets allows the world to move to the frontier of its production-possibility curve.

EXTENSIONS TO MANY COMMODITIES AND COUNTRIES

The world of international trade consists of more than two regions and two commodities. However, the principles we explained above are essentially unchanged in realistic situations.

Many Commodities

When two regions or countries produce many commodities at constant costs, the goods can be arranged in order according to the comparative advantage or cost of each. For example, the commodities might be microprocessors, computers, aircraft, automobiles, wine, and croissants—all arranged in the comparative-advantage sequence shown in Figure 18-5. As you can see from the figure, of all the commodities, microprocessors are least expensive in America relative to the costs in Europe. Europe has its greatest comparative advantage in croissants. Two decades ago, America was dominant in the commercial-aircraft market, but

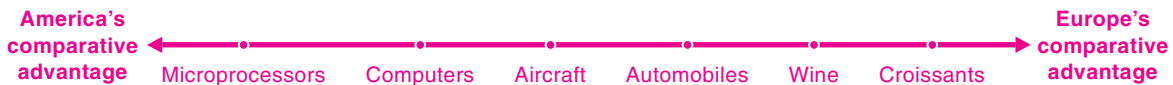


FIGURE 18-5. With Many Commodities, There Is a Spectrum of Comparative Advantages

Europe has now gained a substantial market share, so aircraft have been moving right on the line.

We can be virtually certain that the introduction of trade will cause America to produce and export microprocessors, while Europe will produce and export croissants. But where will the dividing line fall? Between aircraft and automobiles? Or wine and croissants? Or will the dividing line fall on one of the commodities rather than between them? Perhaps automobiles will be produced in both places.

You will not be surprised to find that the answer depends upon the demands and supplies of the different goods. We can think of the commodities as beads arranged on a string according to their comparative advantage; the strength of supply and demand will determine where the dividing line between American and European production will fall. An increased demand for microprocessors and computers, for example, would tend to raise the relative prices of American goods. This shift might lead America to specialize so much more in areas of its comparative advantage that it would no longer be profitable to produce in areas of comparative disadvantage, like automobiles.

Many Countries

What about the case of many countries? Introducing many countries need not change our analysis. As far as a single country is concerned, all the other nations can be lumped together into one group as “the rest of the world.” The advantages of trade have no special relationship to national boundaries. The principles already developed apply between groups of countries and, indeed, between regions within the same country. In fact, they are just as applicable to trade between our northern and southern states as to trade between the United States and Canada.

Triangular and Multilateral Trade

With many countries brought into the picture, it will generally be beneficial to engage in *triangular* or *multilateral trade* with many other countries. Bilateral trade between two countries is generally unbalanced.

Consider the simple example of triangular trade flows presented in Figure 18-6, where the arrows show the direction of exports. America buys consumer electronics from Japan, Japan buys oil and primary commodities from developing countries, and developing countries buy computers from America. In reality, trade patterns are more complex than this triangular example.

QUALIFICATIONS AND CONCLUSIONS

We have now completed our look at the elegant theory of comparative advantage. Its conclusions apply for any number of countries and commodities. Moreover, it can be generalized to handle many inputs, changing factor proportions, and diminishing returns. But we cannot conclude without noting two important qualifications to this elegant theory:

1. *Classical assumptions.* From a theoretical point of view, the major defect of comparative-advantage theory lies in its classical assumptions. This theory assumes a smoothly working competitive economy. But trade might lead to worsening environmental problems if there are local or global public goods (see Chapter 14 for a further discussion). Moreover, inefficiencies might arise in the presence of inflexible prices and wages, business cycles, and involuntary unemployment. When there are macroeconomic or microeconomic

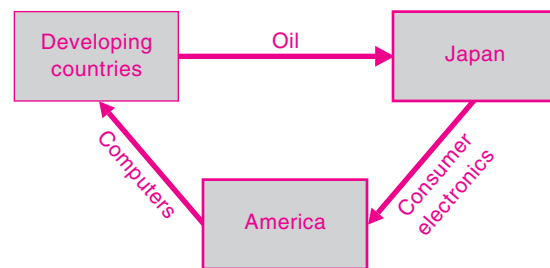


FIGURE 18-6. Triangular Trade Benefits All

In reality, international trade, like domestic trade, is many-sided.

market failures, trade might well push a nation *inside* its PPF. When the economy is in depression or the price system malfunctions because of environmental or other reasons, we cannot be sure that countries will gain from trade.

Given these reservations, there can be little wonder that the theory of comparative advantage sells at a big discount during business downturns. In the Great Depression of the 1930s, as unemployment soared and real outputs fell, nations built high tariff walls at their borders and the volume of foreign trade shrank sharply. Additionally, during the prosperous 1990s, free trade was increasingly attacked by environmental advocates, who saw it as a means of allowing companies to dump pollutants in oceans or in countries with lax regulations. Environmentalists were among the leading critics of the latest attempts to promote freer trade (see the section “Negotiating Free Trade” at the end of this chapter).

2. *Income distribution.* A second proviso concerns the impact on particular people, sectors, or factors of production. We showed above that opening a country to trade will raise a country’s national income. The country can consume more of all goods and services than would be possible if the borders were sealed to trade.

But this does not mean that *everyone* will benefit from trade, as shown by the Stolper-Samuelson theorem. We can illustrate this theorem using an example. Suppose that America has a relatively skilled labor force, while China has a relatively unskilled labor force. Moreover, suppose that skilled labor is used more heavily in aircraft, while unskilled labor is used more heavily in clothing. Now move from a situation of no trade to a situation of free trade. As in the example, we would expect that America will export aircraft and import clothing. The price of aircraft in America would rise, and the price of clothing would fall.

The interesting point is the impact on labor. As a result of the shift in domestic production, the demand for unskilled labor falls because of the decline in clothing prices and production, while the demand for skilled labor rises because of the rise in aircraft prices and production. In a world of flexible wages, this leads to a decline in the wages of unskilled labor and a rise in the wages of skilled labor in America. More generally, free trade tends to increase the prices of factors

that are intensive in exports and to reduce the prices of factors that are intensive in imports. (In a world with inflexible wages, it may lead to unemployment of unskilled workers, as our discussion of macroeconomics shows.)

Recent studies indicate that unskilled workers in high-income countries have suffered reductions in real wages in the last three decades because of the increased imports of goods from low-wage developing countries. Wage losses occur because imports of goods like clothing are produced by unskilled workers in developing countries. In a sense, these workers are close substitutes for the unskilled workers in the clothing industry of high-income countries. The increased international trade in clothing reduces the prices of clothing, and that tends to reduce the wages of unskilled workers in high-income countries.

The theory of comparative advantage shows that other sectors will gain more than the injured sectors will lose. Moreover, over long periods of time, those displaced from low-wage sectors eventually gravitate to higher-wage jobs. But those who are temporarily injured by international trade are genuinely harmed and are vocal advocates for protection and trade barriers.

Notwithstanding its limitations, the theory of comparative advantage is one of the deepest truths in all of economics. Nations that disregard comparative advantage pay a heavy price in terms of their living standards and economic growth.

C. PROTECTIONISM

Go back to the beginning of this chapter and reread the “Petition of the Candle Makers,” written by the French economist Frederic Bastiat to satirize solemn proposals to protect domestic goods from imports. Today, people often regard foreign competition with suspicion, and campaigns to “Buy American” sound patriotic.

Yet economists since the time of Adam Smith have marched to a different drummer. Economists generally believe that free trade promotes a mutually beneficial division of labor among nations; free and open trade allows *each* nation to expand its production and consumption possibilities, raising the

world's living standard. Protectionism prevents the forces of comparative advantage from working to maximum advantage.

This section reviews the economic arguments about protectionism.

SUPPLY-AND-DEMAND ANALYSIS OF TRADE AND TARIFFS

Free Trade vs. No Trade

The theory of comparative advantage can be illuminated through the analysis of supply and demand for goods in foreign trade. Consider the clothing market in America. Assume, for simplicity, that America is a small part of the market and therefore cannot affect the world price of clothing. (This assumption will allow us to analyze supply and demand very easily; the more realistic case in which a country can

affect world prices will be considered later in this chapter.)

Figure 18-7 shows the supply and demand curves for clothing in America. The demand curve of American consumers is drawn as DD and the domestic supply curve of American firms as SS . We assume that the price of clothing is determined in the world market and is equal to \$4 per unit. Although transactions in international trade are carried out in different currencies, for now we can simplify by converting the foreign supply schedule into a dollar supply curve by using the current exchange rate.

No-Trade Equilibrium. Suppose that transportation costs or tariffs for clothing were prohibitive (say, \$100 per unit of clothing). Where would the no-trade equilibrium lie? In this case, the American market for clothing would be at the intersection of *domestic*

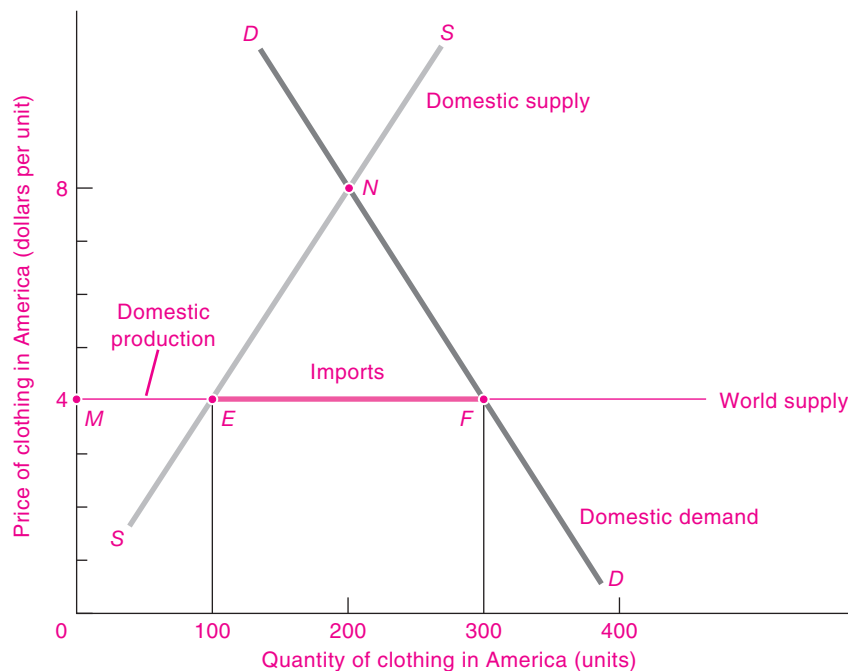


FIGURE 18-7. American Production, Imports, and Consumption under Free Trade

We see here the free-trade equilibrium in the market for clothing. America has a comparative disadvantage in clothing. Therefore, at the no-trade equilibrium at N , America's price would be \$8, while the world price is \$4.

Assuming that American demand does not affect the world price of \$4 per unit, the free-trade equilibrium comes when America produces ME (100 units) and imports the difference between domestic demand and domestic supply, shown as EF (or 200 units).

supply and demand, shown at point *N* in Figure 18-7. At this no-trade point, prices would be relatively high at \$8 per unit, and domestic producers would be meeting all the demand.

Free Trade. Now open the American clothing market to international trade. In the absence of transport costs, tariffs, and quotas, the price in America must be equal to the world price. Why? Because if the American price were above the Chinese price, sharp-eyed entrepreneurs would buy where clothing was cheap (China) and sell where clothing was expensive (America); China would therefore export clothing to America. Once trade flows fully adjusted to supplies and demands, the price in America would equal the world price level. (In a world with transportation and tariff costs, the price in America would equal the world price adjusted for these costs.)

Figure 18-7 illustrates how prices, quantities, and trade flows will be determined under free trade in our clothing example. The horizontal line at \$4 represents the supply curve for imports; it is horizontal, or perfectly price-elastic, because American demand is assumed to be too small to affect the world price of clothing.

Once trade opens up, imports flow into America, lowering the price of clothing to the world price of \$4 per unit. At that level, domestic producers will supply the amount *ME*, or 100 units, while at that price consumers will want to buy 300 units. The difference, shown by the heavy line *EF*, is the amount of clothing imports. Who decided that we would import just this amount of clothing and that domestic producers would supply only 100 units? A Chinese planning agency? A cartel of clothing firms? No, the amount of trade was determined by supply and demand.

Moreover, the level of prices in the no-trade equilibrium determined the direction of the trade flows. America's no-trade prices were higher than China's, so goods flowed into America. Remember this rule: *Under free trade, indeed in markets generally, goods flow uphill from low-price regions to high-price regions.* When markets are opened to free trade, clothing flows uphill from the lower-price Chinese market to the higher-price American market until the price levels are equalized.

Trade Barriers

For centuries, governments have used tariffs and quotas to raise revenues and influence the development

of individual industries. Since the eighteenth century—when the British Parliament attempted to impose tariffs on tea, sugar, and other commodities on its American colonies—tariff policy has proved fertile soil for revolution and political struggle.

We can use supply-and-demand analysis to understand the economic effects of tariffs and quotas. To begin with, note that a **tariff** is a tax levied on imports. A **quota** is a limit on the quantity of imports. The United States has quotas on many products, including textiles, watches, and cheeses.

Table 18-3 shows the average tariff rates for major countries in 2003. Note that tariffs vary widely for different goods in most countries. It would take deep study to understand why tariffs on imports of horses are zero while those on asses are 6.8 percent of value in the United States. On the other hand, it does not take much study to understand why textiles and steel have tight quotas or high tariffs, because these are industries with political clout in Congress or the White House.

Country or region	Average tariff rate, 2003 (%)
Hong Kong (China)	0.0
Switzerland	0.0
Japan	3.3
United States	3.9
Canada	4.2
European Union	4.4
Russia	11.3
China	12.0
Mexico	17.3
Pakistan	17.2
India	33.0
Iran	30.0
Average of major groups:	
Low-income countries	5.9
Middle-income countries	14.1

TABLE 18-3. Average Tariff Rates, 2003

Tariff rates vary widely among regions. The United States and regions like Singapore and Hong Kong (China) have low tariff rates today, although there are exceptions such as for textiles and steel. Countries like India and China continue to maintain protectionist trade barriers.

Source: World Trade Organization and government organizations.

Prohibitive Tariff. The easiest case to analyze is a *prohibitive tariff*—one that is so high that it chokes off all imports. Looking back at Figure 18-7, what would happen if the tariff on clothing were more than \$4 per unit (that is, more than the difference between America's no-trade price of \$8 and the world price of \$4)? This would be a prohibitive tariff, shutting off all clothing trade. Any importer who buys clothing at the world price of \$4 would sell it in America at the no-trade price of \$8. But this price would not cover the cost of the good plus the tariff. Prohibitive tariffs thus kill off all trade.

Nonprohibitive Tariff. Lower tariffs (less than \$4 per unit of clothing) would injure but not kill off trade. Figure 18-8 shows the equilibrium in the clothing market with a \$2 tariff. Again assuming no transportation costs, a \$2 tariff means that foreign clothing will sell in America for \$6 per unit (equal to the \$4 world price plus the \$2 tariff).

The equilibrium result of a \$2 tariff is that domestic consumption (or quantity demanded) is lowered from 300 units in the free-trade equilibrium to 250 units after the tariff is imposed, the amount of domestic production is raised by 50 units, and the quantity of imports is lowered by 100 units. This example summarizes the economic impact of tariffs:

A tariff will tend to raise price, lower the amounts consumed and imported, and raise domestic production of the covered good.

Quotas. Quotas have the same qualitative effect as tariffs. A prohibitive quota (one that prevents all imports) is equivalent to a prohibitive tariff. The price and quantity would move back to the no-trade equilibrium at *N* in Figure 18-8. A less stringent quota might limit imports to 100 clothing units; this quota would equal the heavy line *HJ* in Figure 18-8. A quota of 100 units would lead to the same equilibrium price and output as did the \$2 tariff.

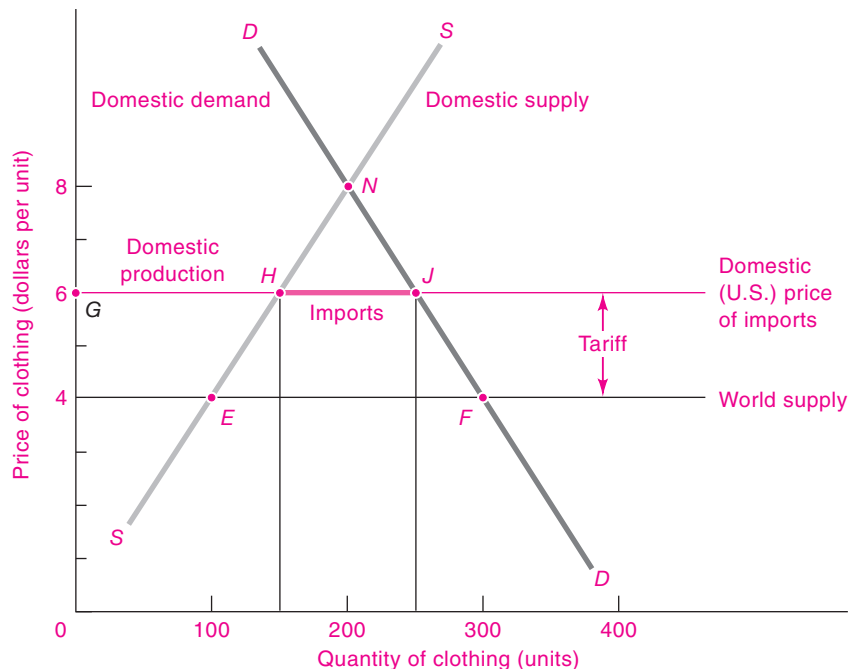


FIGURE 18-8. Effect of a Tariff

A tariff lowers imports and consumption and raises domestic production and price. Starting from the free-trade equilibrium in Fig. 18-7, America now puts a \$2 tariff on clothing imports. The price of Chinese clothing imports rises to \$6 (including the tariff).

The market price rises from \$4 to \$6, so the total amount demanded falls. Imports shrink from 200 to 100 units, while domestic production rises from 100 to 150 units.

Although there is no essential difference between tariffs and quotas, some subtle differences do exist. A tariff gives revenue to the government, perhaps allowing other taxes to be reduced and thereby offsetting some of the harm done to consumers in the importing country. A quota, on the other hand, puts the profit from the resulting price difference into the pocket of the importers or exporters lucky enough to get a permit or import license. They can afford to use the proceeds to wine, dine, or even bribe the officials who give out import licenses.

Because of these differences, economists generally regard tariffs as the lesser evil. However, if a government is determined to impose quotas, it should auction off the scarce import-quota licenses. An auction will ensure that the government rather than the importer gets the revenue from the scarce right to import; in addition, the bureaucracy will not be tempted to allocate quota rights by bribery, friendship, or nepotism.

Transportation Costs. What of transportation costs? The cost of moving bulky and perishable goods has the same effect as tariffs, reducing the extent of beneficial regional specialization. For example, if it costs \$2 per unit to transport clothing from China to the United States, the supply-and-demand equilibrium would look just like Figure 18-8, with the American price \$2 above the Chinese price.

But there is one difference between protection and transportation costs: Transport costs are imposed by nature—by oceans, mountains, and rivers—whereas restrictive tariffs are squarely the responsibility of nations. Indeed, one economist called tariffs “negative railroads.” Imposing a tariff has the same economic impact as throwing sand in the engines of vessels that transport goods to our shores from other lands.

The Economic Costs of Tariffs

What happens when America puts a tariff on clothing, such as the \$2 tariff shown in Figure 18-8? There are three effects: (1) The domestic producers, operating under a price umbrella provided by the tariff, can expand production; (2) consumers are faced with higher prices and therefore reduce their consumption; and (3) the government gains tariff revenue.

Tariffs create economic inefficiencies. When tariffs are imposed, the economic loss to consumers

exceeds the revenue gained by the government plus the extra profits earned by producers.

Diagrammatic Analysis. Figure 18-9 shows the economic cost of a tariff. The supply and demand curves are identical to those in Figure 18-8, but three areas are highlighted. (1) Area *B* is the tariff revenue collected by the government. It is equal to the amount of the tariff times the units of imports and totals \$200. (2) The tariff raises the price in domestic markets from \$4 to \$6, and producers increase their output to 150. Hence total profits rise by \$250, shown by area *LEHM* and equal to \$200 on old units plus an additional \$50 on the 50 new units. (3) Finally, note that a tariff imposes a heavy cost on consumers. The total consumer-surplus loss is given by area *LMJF* and is equal to \$550.

The overall social impact is, then, a gain to producers of \$250, a gain to the government of \$200, and a loss to consumers of \$550. The net social cost (counting each of these dollars equally) is therefore \$100. We can reckon this as equal to the sum of *A* and *C*. The interpretation of these areas is important:

- Area *A* is the net loss that comes because domestic production is more costly than foreign production. When the domestic price rises, businesses are thereby induced to increase the use of relatively costly domestic capacity. They produce output up to the point where the marginal cost is \$6 per unit instead of up to \$4 per unit under free trade. Firms reopen inefficient old factories or work existing factories extra shifts. From an economic point of view, these plants have a comparative disadvantage because the new clothing produced by these factories could be produced more cheaply abroad. The new social cost of this inefficient production is area *A*, equal to \$50.
- In addition, there is a net loss to the country from the higher price, shown by area *C*. This is the loss in consumer surplus that cannot be offset by business profits or tariff revenue. This area represents the economic cost incurred when consumers shift their purchases from low-cost imports to high-cost domestic goods. This area is also equal to \$50.

Hence, the total social loss from the tariff is \$100, calculated either way.

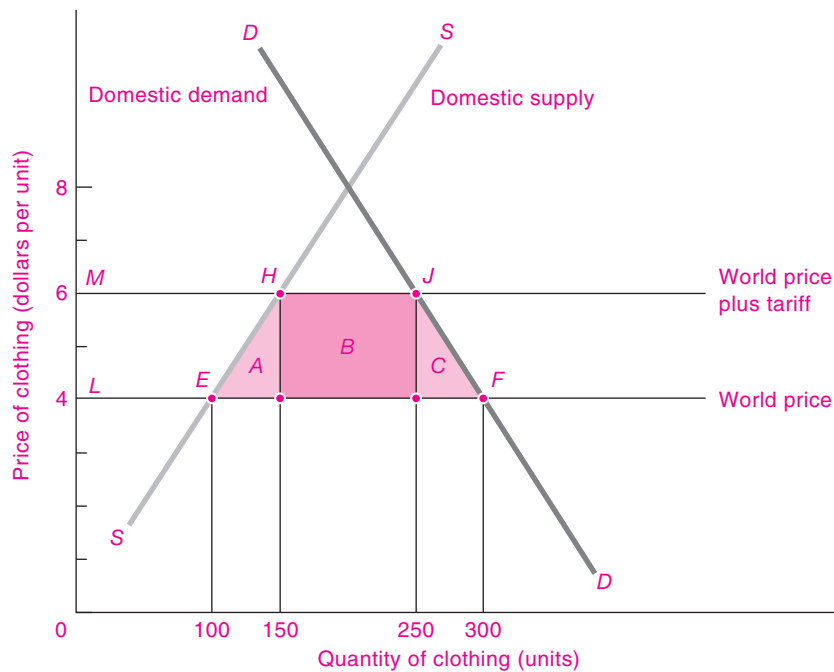


FIGURE 18-9. Economic Cost of a Tariff

Imposing a tariff raises revenues and leads to inefficiency. We see the impact of the tariff as three effects. Rectangle *B* is the tariff revenue gained by the government. Triangle *A* is the excess cost of production by firms producing under the umbrella of the tariff. Triangle *C* is the net loss in consumer surplus from the inefficiently high price. Areas *A* and *C* are the irreducible inefficiencies caused by the tariff.

Figure 18-9 illustrates one feature that is important in understanding the politics and history of tariffs. When a tariff is imposed, part of the economic impact comes because tariffs redistribute income from consumers to the protected domestic producers and workers. In the example shown in Figure 18-9, areas *A* and *C* represent efficiency losses from inefficiently high domestic production and inefficiently low consumption, respectively. Under the simplifying assumptions used above, the efficiency losses sum up to \$100. The redistribution involved is much larger, however, equaling \$200 raised in tariff revenues levied upon consumers of the commodity plus \$250 in higher profits. Consumers will be unhappy about the higher product cost, while domestic producers and workers in those firms will benefit. We can see why battles over import restrictions generally center more on the redistributive gains and losses than on the issues of economic efficiency.

Imposing a tariff has three effects: It encourages inefficiently high domestic production; it raises prices, thus inducing consumers to reduce their purchases of the tariffed good below efficient levels; and it raises revenues for the government. Only the first two of these necessarily impose efficiency costs on the economy.



The Cost of Textile Protection

Let's flesh out this analysis by examining the effects of a particular tariff, one on clothing. Today, tariffs on imported textiles and apparel are among the highest levied by the United States. How do these high tariffs affect consumers and producers?

To begin with, the tariffs raise domestic clothing prices. Because of the higher prices, many factories, which would otherwise be bankrupt in the face of a declining comparative advantage in textiles, remain open. They are just barely

profitable, but they manage to eke out enough sales to continue domestic production. Domestic employment in textiles exceeds the free-trade situation, although—because of pressure from foreign competition—textile wages are among the lowest of any manufacturing industry.

From an economic point of view, the nation is wasting resources in textiles. These workers, materials, and capital would be more productively used in other sectors—perhaps in aircraft or financial services or Internet commerce. The nation's productive potential is lower because it keeps factors of production working in an industry in which it has lost its comparative advantage.

Consumers, of course, pay for this protection of the textile industry with higher prices. They get less satisfaction from their incomes than they would if they could buy textiles from Korea, China, or Indonesia at prices that exclude the high tariffs. Consumers are induced to cut back on their clothing purchases, channeling funds into food, transportation, and recreation, whose relative prices are lowered by the tariffs.

Finally, the government gets revenues from tariffs on textiles. These revenues can be used to buy public goods or to reduce other taxes, so (unlike the consumer loss or the productive inefficiency) this effect is not a real social burden.

THE ECONOMICS OF PROTECTIONISM

Having examined the impact of tariffs on prices and quantities, we now turn to an analysis of the arguments for and against protectionism. The arguments for tariff or quota protection against the competition of foreign imports take many different forms. Here are the main categories: (1) noneconomic arguments that suggest it is desirable to sacrifice economic welfare in order to subsidize other national objectives, (2) arguments that are based on a misunderstanding of economic logic, and (3) analyses that rely on market power or macroeconomic imperfections.

Noneconomic Goals

If you are ever on a debating team given the assignment of defending free trade, you will strengthen your case at the beginning by conceding that there is more to life than economic welfare. A nation surely should not sacrifice its liberty, culture, and human rights for a few dollars of extra income.

The U.S. semiconductor industry provides a useful example here. In the 1980s, the Defense Department claimed that without an independent semiconductor industry, the military would become excessively dependent on Japanese and other foreign suppliers for chips to use in high-technology weaponry. This led to an agreement to protect the industry. Economists were skeptical about the value of this approach. Their argument did not question the goal of national security. Rather, it focused on the efficiency of the means of achieving the desired result. They thought that protection was more expensive than a policy targeting the domestic industry, perhaps a program to buy a minimum number of high-quality chips.

National security is not the only noneconomic goal in trade policy. Countries may desire to preserve their cultural traditions or environmental conditions. France argued that its citizens need to be protected from “uncivilized” American movies. The fear is that the French film industry could be drowned by the new wave of stunt-filled, high-budget Hollywood thrillers. As a result, France has maintained strict quotas on the number of U.S. movies and television shows that can be imported.

Unsound Grounds for Tariffs

Mercantilism. To Abraham Lincoln has been attributed the remark, “I don’t know much about the tariff. I do know that when I buy a coat from England, I have the coat and England has the money. But when I buy a coat in America, I have the coat and America has the money.”

This reasoning represents an age-old fallacy typical of the so-called mercantilist writers of the seventeenth and eighteenth centuries. They considered a country fortunate which sold more goods than it bought, because such a “favorable” balance of trade meant that gold would flow into the country to pay for its export surplus.

The mercantilist argument confuses means and ends. Accumulating gold or other monies will not improve a country’s living standard. Money is worthwhile not for its own sake but for what it will buy from other countries. Most economists today therefore reject the idea that raising tariffs to run a trade surplus will improve a country’s economic welfare.

Tariffs for Special Interests. The single most important source of pressure for protective tariffs is powerful

special-interest groups. Firms and workers know very well that a tariff on their particular products will help *them* even if it imposes costs on others. Adam Smith understood this point well when he wrote:

To expect freedom of trade is as absurd as to expect Utopia. Not only the prejudices of the public, but what is much more unconquerable, the private interests of many individuals, irresistibly oppose it.

If free trade is so beneficial to the nation as a whole, why do the proponents of protectionism continue to wield such a disproportionate influence on legislatures? The few who benefit gain much from specific protection and therefore devote large sums to lobbying politicians. By contrast, individual consumers are only slightly affected by the tariff on one product; because losses are small and widespread, individuals have little incentive to spend resources expressing an opinion on every tariff case. A century ago, outright bribery was used to buy the votes necessary to pass tariff legislation. Today, powerful political action committees (PACs), financed by labor or business, round up lawyers and drum up support for tariffs or quotas on textiles, lumber, steel, sugar, and other goods.

If political votes were cast in proportion to total economic benefit, nations would legislate most tariffs out of existence. But each dollar of economic interests does not get proportional representation. It is much harder to persuade consumers about the benefits of free trade than it is to organize a few companies or labor unions to argue against “cheap Chinese labor.” In every country, the special interests of protected firms and workers are the tireless enemies of free trade.

A dramatic case is the U.S. quota on sugar, which benefits a few producers while costing American consumers over \$1 billion a year. The average consumer is probably unaware that the sugar quota costs about a penny a day per person, so there is little incentive to lobby for free trade in sugar.

Competition from Cheap Foreign Labor. Of all the arguments for protection, the most persistent is that free trade exposes U.S. workers to competition from low-wage foreign labor. The only way to preserve high U.S. wages, so the argument goes, is to protect domestic workers by keeping out or putting high

tariffs on goods produced in low-wage countries. An extreme version of this contention is that under free trade U.S. wages would decline to the low level of foreign wages. This point was trumpeted by presidential candidate Ross Perot during the debates over the North American Free Trade Agreement (NAFTA) when he argued:

Philosophically, [NAFTA] is wonderful, but realistically it will be bad for our country. That thing is going to create a giant sucking sound in the United States at a time when we need jobs coming in, not jobs going out. Mexican wages will come up to \$7½ an hour and our wages will come down to \$7½ an hour.

This argument sounds plausible, but it is all wrong because it ignores the principle of comparative advantage. The reason American workers have higher wages is that they are on average more productive. If America’s wage is 5 times that in Mexico, it is because the marginal product of American workers is on average 5 times that of Mexican workers. Trade flows according to comparative advantage, not wage rates or absolute advantage.

Having shown that the nation gains from importing the goods produced by “cheap foreign labor” in which it has a comparative disadvantage, we should not ignore the impacts that trade may have on particular firms and workers. Remember the Stolper-Samuelson theorem explained above. If America has a comparative disadvantage in industries like textiles or toys, and these industries are intensive in unskilled labor, reducing trade barriers will tend to reduce the wages of unskilled labor in America. There may also be temporary effects on workers whose wages drop while they look for alternative jobs. The difficulties of displaced workers will be greater when the overall economy is depressed or when the local labor markets have high unemployment. Over the long run, labor markets will reallocate workers from declining to advancing industries, but the transition may be costly for many people.

In summary:

The cheap-foreign-labor argument is flawed because it ignores the theory of comparative advantage. A country will benefit from trade even though its wages are far above those of its trading partners. High wages come from high efficiency, not from tariff protection.

Retaliatory Tariffs. While many people would agree that a world of free trade would be the best of all possible worlds, they note that this is not the world we live in. They reason, “As long as other countries impose import restrictions or otherwise discriminate against our products, we have no choice but to play the protection game in self-defense. We’ll go along with free trade only as long as it is fair trade. But we insist on a level playing field.” On several occasions in the 1990s, the United States went to the brink of trade wars with Japan and China, threatening high tariffs if the other country did not stop some objectionable trade practice.

Those who advocate this approach argue that it can beat down the walls of protectionism in other countries. This rationale was described in an analysis of protection in the *Economic Report of the President*:

Intervention in international trade . . . even though costly to the U.S. economy in the short run, may, however, be justified if it serves the strategic purpose of increasing the cost of interventionist policies by foreign governments. Thus, there is a potential role for carefully targeted measures . . . aimed at convincing other countries to reduce their trade distortions.

While potentially valid, this argument should be used with great caution. Just as threatening war leads to armed conflict as often as to arms control, protectionist bluffs may end up hurting the bluffer as well as the opponent. Historical studies show that retaliatory tariffs usually lead other nations to raise their tariffs still higher and are rarely an effective bargaining chip for multilateral tariff reduction.

Import Relief. In the United States and other countries, firms and workers that are injured by foreign competition attempt to get protection in the form of tariffs or quotas. Today, relatively little direct tariff business is conducted on the floor of Congress. Congress realized that tariff politics was too hot to handle and has set up specialized agencies to investigate and rule on complaints. Generally, a petition for relief is analyzed by the U.S. Department of Commerce and the U.S. International Trade Commission. Relief measures include the following actions:

- The *escape clause* was popular in earlier periods. It allows temporary import relief (tariffs, quotas, or export quotas negotiated with other countries) when an industry has been “injured” by imports. Injury occurs when the output, employment, and

profits in a domestic industry have fallen while imports have risen.

- *Antidumping tariffs* are levied when foreign countries sell in the United States at prices below average costs or at prices lower than those in the home market. When dumping is found, a “dumping duty” is placed on the imported good.
- *Countervailing duties* are imposed to offset the cost advantage for imports that arises when foreigners subsidize exports to the United States. They have become the most popular form of import relief and have been pursued in hundreds of cases.

What is the justification for such measures? Import relief sounds reasonable, but it actually is completely counter to the theory of comparative advantage. That theory says that an industry which cannot compete with foreign firms ought to be injured by imports. *From an economic vantage point, less productive industries are actually being killed off by the competition of more productive domestic industries.*

This sounds ruthless indeed. No industry willingly dies. No region gladly undergoes conversion to new industries. Often the shift from old to new industries involves considerable unemployment and hardship. The weak industry and region feel they are being singled out to carry the burden of progress.

Potentially Valid Arguments for Protection

Finally, we can consider three arguments for protection that may have true economic merit:

- Tariffs may shift the terms of trade in a country’s favor.
- Temporary tariff protection for an “infant industry” with growth potential may be efficient in the long run.
- A tariff may under certain conditions help reduce unemployment.

The Terms-of-Trade or Optimal-Tariff Argument.

One valid argument for imposing tariffs is that doing so will shift the terms of trade in a country’s favor and against foreign countries. The phrase *terms of trade* refers to the ratio of export prices to import prices. The idea is that when a large country levies tariffs on its imports, the reduced demand for the good in world markets will lower the equilibrium price and thereby reduce the pretariff cost of the

good to the country. Such a change will improve the country's terms of trade and increase domestic real income. The set of tariffs that maximizes domestic real income is called the *optimal tariff*.

The terms-of-trade argument goes back over 150 years to the free-trade proponent John Stuart Mill. It is the only argument for tariffs that is valid under conditions of full employment and perfect competition. Suppose that the U.S. imposes an “optimal” tariff on imported oil. The tariff will increase the price of domestic oil and will reduce the world demand for oil. The world market price of oil will therefore be bid down. So part of the tariff actually falls on the oil producer. (We can see that a very small country could not use this argument, since it cannot affect world prices.)

Have we not therefore found a theoretically secure argument for tariffs? The answer would be yes if we could forget that this is a “begger-thy-neighbor” policy and could ignore the reactions of other countries. But other countries are likely to react. After all, if the United States were to impose an optimal tariff of 30 percent on its imports, why should the European Union and Japan not put 30 or 40 percent tariffs on their imports? In the end, as every country calculated and imposed its own nationalistic optimal tariff, the overall level of tariffs might spiral upward in the tariff version of an arms race.

Ultimately, such a situation would surely not represent an improvement of either world or individual economic welfare. When all countries impose optimal tariffs, it is likely that *everyone's* economic welfare will decline as the impediments to free trade become larger. All countries are likely to benefit if all countries abolish trade barriers.

Tariffs for Infant Industries. In his famous *Report on Manufactures* (1791), Alexander Hamilton proposed to encourage the growth of manufacturing by protecting “infant industries” from foreign competition. According to this doctrine, which received the cautious support of free-trade economists like John Stuart Mill and Alfred Marshall, there are lines of production in which a country could have a comparative advantage if only they could get started.

Such infant industries would not be able to survive the rough treatment by larger bullies in the global marketplace. With some temporary nurturing, however, they might grow up to enjoy economies of

mass production, a pool of skilled labor, inventions well adapted to the local economy, and the technological efficiency typical of many mature industries. Although protection will raise prices to the consumer at first, the mature industry would become so efficient that cost and price would actually fall. A tariff is justified if the benefit to consumers at that later date would be more than enough to make up for the higher prices during the period of protection.

This argument must be weighed cautiously. Historical studies have turned up some genuine cases of protected infant industries that grew up to stand on their own feet. And studies of successful newly industrialized countries (such as Singapore and Taiwan) show that they have often protected their manufacturing industries from imports during the early stages of industrialization. But subsidies will be a more efficient and transparent way of nurturing young industries. In fact, the history of tariffs reveals many cases like steel, sugar, and textiles in which perpetually protected infants have not shed their diapers after these many years.



Brazil's Tragic Protection of Its Computer Industry

Brazil offers a striking example of the pitfalls of protectionism. In 1984, Brazil passed a law actually banning most foreign computers. The idea was to provide a protected environment in which Brazil's own infant computer industry could develop. The law was vigorously enforced by special “computer police” who would search corporate offices and classrooms looking for illegal imported computers.

The results were startling. Technologically, Brazilian-made computers were years behind the fast-moving world market, and consumers paid 2 or 3 times the world price—when they could get them at all. At the same time, because Brazilian computers were so expensive, they could not compete on the world market, so Brazilian computer companies could not take advantage of economies of scale by selling to other countries. The high price of computers hurt competitiveness in the rest of the economy as well. “We are effectively very backward because of this senseless nationalism,” said Zelia Cardoso de Mello, Brazil's economy minister in 1990. “The computer problem effectively blocked Brazilian industry from modernizing.”

The combination of pressure from Brazilian consumers and businesses and U.S. demands for open markets

forced Brazil to drop the ban on imported computers in 1992. Within a year, electronics stores in São Paulo and Rio de Janeiro were filled with imported laptop computers, laser printers, and cellular telephones, and Brazilian companies could begin to exploit the computer revolution. Each country and each generation learns anew the lessons of comparative advantage.

Tariffs and Unemployment. Historically, a powerful motive for protection has been the desire to increase employment during a period of recession or stagnation. Protection creates jobs by raising the price of imports and diverting demand toward domestic production; Figure 18-8 demonstrates this effect. As domestic demand increases, firms will hire more workers and unemployment will fall. This too is a beggar-thy-neighbor policy, for it raises domestic demand at the expense of output and employment in other countries.

However, while economic protection may raise employment, it does not constitute an effective program to pursue high employment, efficiency, and stable prices. Macroeconomic analysis shows that there are better ways of reducing unemployment than by imposing import protection. By the appropriate use of monetary and fiscal policy, a country can increase output and lower unemployment. Moreover, the use of general macroeconomic policies will allow workers displaced from low-productivity jobs in industries losing their comparative advantage to move to high-productivity jobs in industries enjoying a comparative advantage.

This lesson was amply demonstrated in the 1990s. From 1991 to 1999, the United States created 16 million net new jobs while maintaining open markets and low tariffs; its trade deficit increased sharply during this period. By contrast, the countries of Europe created virtually no new jobs while moving toward a position of trade surpluses.

Tariffs and import protection are an inefficient way to create jobs or to lower unemployment. A more effective way to increase productive employment is through domestic monetary and fiscal policy.

Other Barriers to Trade

While this chapter has mainly spoken of tariffs, most points apply equally well to any other impediments to

trade. Quotas have much the same effects as tariffs, for they prevent the comparative advantages of different countries from determining prices and outputs in the marketplace. In recent years, countries have negotiated quotas with other countries. The United States, for example, forced Japan to put “voluntary” export quotas on automobiles and negotiated similar export quotas on televisions, shoes, and steel.

We should also mention the so-called nontariff barriers (or NTBs). These consist of informal restrictions or regulations that make it difficult for countries to sell their goods in foreign markets. For example, American firms complained that Japanese regulations shut them out of the telecommunications, tobacco, and construction industries.

How important are the nontariff barriers relative to tariffs? Economic studies indicate that nontariff barriers were actually more important than tariffs during the 1960s; in recent years, they have effectively doubled the protection found in the tariff codes. In a sense, nontariff barriers have been substitutes for more conventional tariffs as the latter have been reduced.

MULTILATERAL TRADE NEGOTIATIONS

Given the tug-of-war between the economic benefits of free trade and the political appeal of protection, which force has prevailed? The history of U.S. tariffs, shown in Figure 18-10, has been bumpy. For most of American history, the United States was a high-tariff nation. The pinnacle of protectionism came after the infamous Smoot-Hawley tariff of 1930, which was opposed by virtually every American economist yet sailed through Congress.

The trade barriers erected during the Great Depression helped raise prices and exacerbated economic distress. In the trade wars of the 1930s, countries attempted to raise employment and output by raising trade barriers at the expense of their neighbors. Nations soon learned that at the end of the tariff-retaliation game, all were losers.

Negotiating Free Trade

At the end of World War II, the international community established a number of institutions to promote peace and economic prosperity through cooperative policies.

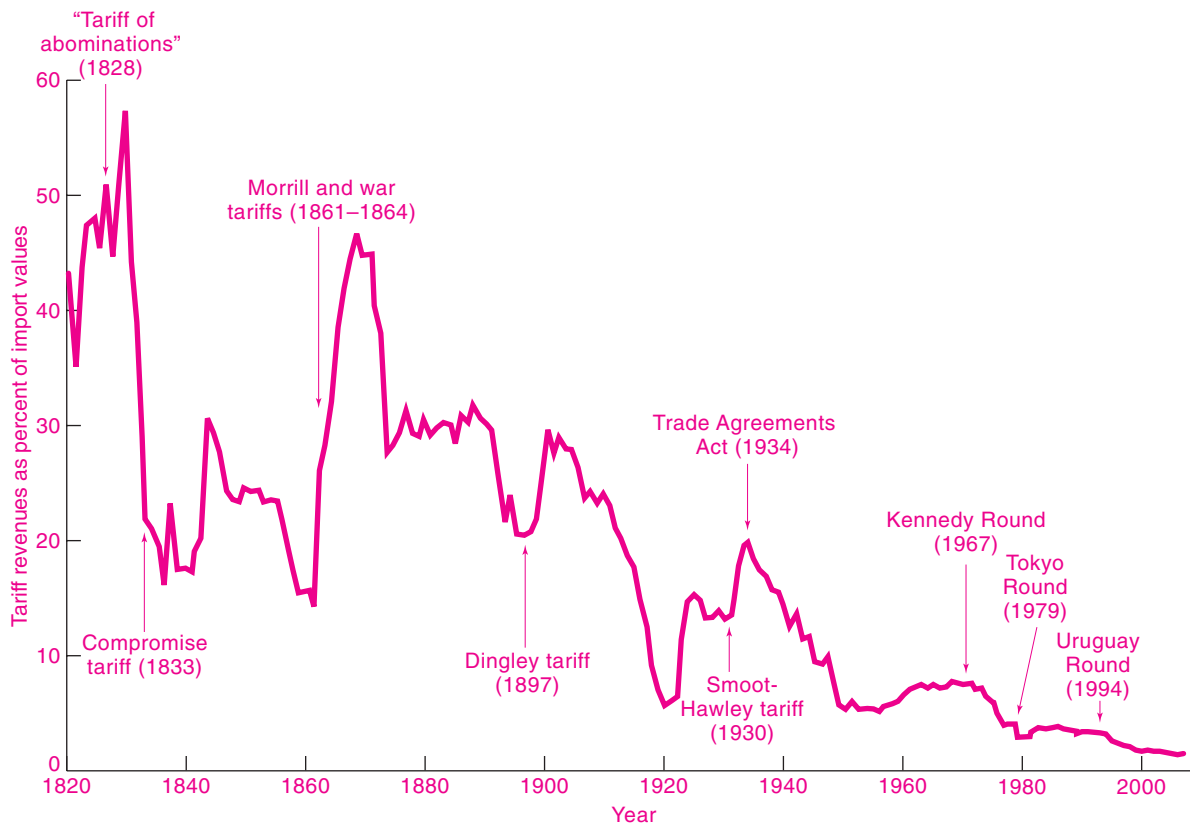


FIGURE 18-10. America Was Historically a High-Tariff Nation

Tariffs were high for most of our nation's history, but trade negotiations since the 1930s have lowered tariffs significantly.

Multilateral Agreements. One of the most successful multilateral agreements was the General Agreement on Tariffs and Trade (GATT). Its provisions were incorporated into the World Trade Organization (WTO) at the beginning of 1995. Their charters speak of raising living standards through "substantial reduction of tariffs and other barriers to trade and the elimination of discriminatory treatment in international commerce." As of 2008, the WTO had 153 member countries, which accounted for 90 percent of international trade.

Among the principles underlying the WTO are (1) countries should work to lower trade barriers; (2) all trade barriers should be applied on a non-discriminatory basis across nations (i.e., all nations should enjoy "most-favored-nation" status); (3) when a country increases its tariffs above agreed-upon

levels, it must compensate its trading partners for the economic injury; and (4) trade conflicts should be settled by consultations and arbitration.

Multilateral trade negotiations successfully lowered trade barriers in the half-century following World War II. The latest successful negotiations were the Uruguay Round, which included 123 countries and was completed in 1994. In 2001, countries launched a new round in Doha, Qatar. Among the items on the agenda are agriculture, intellectual property rights, and the environment. The new negotiations have been controversial both among developing countries, which believe that the rich countries are protecting agriculture too heavily, and among antiglobalization groups, which argue that growing trade is hurting the environment. In the face of deep divisions, the Doha Round has made no progress as of 2008.

Regional Approaches. Over the last few years, governments have taken a number of steps to promote free trade or to broaden regional markets. Among the most important were the following.

The most controversial proposal for lowering trade barriers was the North American Free Trade Agreement (NAFTA), which was hotly debated and passed by Congress by a close vote in 1993. Mexico is the third-largest trading partner of the United States, and most U.S.-Mexico trade is in manufactured goods. NAFTA not only allows goods to pass tariff-free across the borders but also liberalizes regulations on investments by the United States and Canada in Mexico. Proponents of the plan argued that it would allow a more efficient pattern of specialization and would enable U.S. firms to compete more effectively against firms in other countries; opponents, particularly labor groups, argued that it would increase the supply of goods produced by low-skilled labor and thereby depress the wages of workers in the affected industries.

Economists caution, however, that regional trading agreements like NAFTA can cause inefficiency if they exclude potential trading countries. They point to the stagnation in the Caribbean countries, which were excluded from the free-trade provisions of NAFTA, as a cautionary example of the dangers of the regional approach.

The most far-reaching trade accord has been the movement toward a single market among the major

European countries. Since World War II, the nations of the European Union (EU) have developed a common market with minimal barriers to international trade or movement of factors of production. The first step involved eliminating all internal tariff and regulatory barriers to trade and labor and capital flows. The most recent step was the introduction of a common currency (the Euro) for most of the members of the EU. European unification is one of history's most eloquent tributes to the power of an idea—the idea that free and open trade promotes economic efficiency and technological advance.

Appraisal

After World War II, policymakers around the world believed firmly that free trade was essential for world prosperity. These convictions translated into several successful agreements to lower tariffs, as Figure 18-10 shows. The free-trade philosophy of economists and market-oriented policymakers has been severely tested by periods of high unemployment, by exchange-rate disturbances, and recently by antiglobalization forces. Nevertheless, most countries have continued the trend toward increased openness and outward orientation.

Economic studies generally show that countries have benefited from lower trade barriers as trade flows and living standards have grown. But the struggle to preserve open markets is constantly tested as the political and economic environment changes.



SUMMARY

A. The Nature of International Trade

1. Specialization, division of labor, and trade increase productivity and consumption possibilities. The gains from trade hold among nations as well as within a nation. Engaging in international exchange is more efficient than relying only on domestic production. International trade differs from domestic trade because it broadens the market, because trade takes place among sovereign nations, and because countries usually have their own monies which must be converted using foreign exchange rates.
2. Diversity is the fundamental reason that nations engage in international trade. Within this general principle,

we see that trade occurs (a) because of differences in the conditions of production, (b) because of decreasing costs (or economies of scale), and (c) because of diversity in tastes.

B. Comparative Advantage among Nations

3. Recall that trade occurs because of differences in the conditions of production or diversity in tastes. The foundation of international trade is the Ricardian principle of comparative advantage. The principle of comparative advantage holds that each country will benefit if it specializes in the production and export of those goods that it can produce at relatively low cost.

Conversely, each country will also benefit if it imports those goods which it produces at relatively high cost. This principle holds even if one region is absolutely more or less productive than another in all commodities. As long as there are differences in *relative* or *comparative* efficiencies among countries, every country must enjoy a comparative advantage or a comparative disadvantage in the production of some goods.

4. The law of comparative advantage predicts more than just the geographic pattern of specialization and the direction of trade. It also demonstrates that countries are made better off and that real wages (or, more generally, total national income) are improved by trade and the resulting enlarged world production. Quotas and tariffs, designed to “protect” workers or industries, will lower a nation’s total income and consumption possibilities.
5. Even with many goods or many countries, the same principles of comparative advantage apply. With many commodities, we can arrange products along a continuum of comparative advantage, from relatively more efficient to relatively less efficient. With many countries, trade may be triangular or multilateral, with countries having large bilateral (or two-sided) surpluses or deficits with other individual countries.

C. Protectionism

6. Completely free trade equalizes prices of tradeable goods at home with those in world markets. Under trade, goods flow uphill from low-price to high-price markets.
7. A tariff raises the domestic prices of imported goods, leading to a decline in consumption and imports along with an increase in domestic production. Quotas have very similar effects and may, in addition, lower government revenues.
8. A tariff causes economic waste. The economy suffers losses from decreased domestic consumption and from the wasting of resources on goods lacking comparative advantage. The losses generally exceed government revenues from the tariff.
9. Most arguments for tariffs simply rationalize special benefits to particular pressure groups and cannot withstand economic analysis. Three arguments that can stand up to careful scrutiny are the following: (a) The terms-of-trade or optimal tariff can in principle raise the real income of a large country at the expense of its trading partners. (b) In a situation of less-than-full employment, tariffs might push an economy toward fuller employment, but monetary or fiscal policies could attain the same employment goal with fewer inefficiencies than this beggar-thy-neighbor policy. (c) Sometimes, infant industries may need temporary protection in order to realize their true long-run comparative advantages.
10. The principle of comparative advantage must be qualified if markets malfunction because of unemployment or exchange-market disturbances. Moreover, individual sectors or factors may be injured by trade if imports lower their returns. Opening up to trade may hurt the factors that are most embodied in imported goods.

CONCEPTS FOR REVIEW

Principles of International Trade

absolute and comparative advantage
(or disadvantage)
principle of comparative advantage
economic gains from trade
triangular and multilateral trade
world vs. national *PPFs*

consumption vs. production
possibilities with trade
Stolper-Samuelson theorem

Economics of Protectionism

price equilibrium with and without
trade

tariff, quota, nontariff barriers
effects of tariffs on price, imports, and
domestic production
mercantilist, cheap-foreign-labor, and
retaliatory arguments
the optimal tariff, unemployment,
and infant-industry exceptions

FURTHER READING AND INTERNET WEBSITES

Further Reading

The theory of comparative advantage was discovered and discussed by David Ricardo in *Principles of Political Economy and Taxation* (1819, various publishers).

This is online at several sites, including www.econlib.org/library/Ricardo/ricP.html. A classic review of the debate about free trade is Jagdish Bhagwati, *Protectionism* (MIT Press, Cambridge, Mass., 1990). Some of the best popular writing

on international economics is found in *The Economist*, which is also available at www.economist.com.

Mankiw's remarks on outsourcing, as well as some reactions, can be found at www.cnn.com/2004/US/02/12/bush.outsourcing/. Blinder's article, "Offshoring: The Next Industrial Revolution?" appeared in *Foreign Affairs*, March–April 2006, and is available at www.foreignaffairs.org/.

Websites

The World Bank (www.worldbank.org) has information on its programs and publications at its site, as does the International Monetary Fund, or IMF (www.imf.org). The United Nations website has links to most international

institutions and their databases (www.unsystem.org). Another good source of information about high-income countries is the Organisation for Economic Cooperation and Development, or OECD (www.oecd.org). U.S. trade data are available at www.census.gov.

You can find information on many countries through their statistical offices. A compendium of national agencies is available at www.census.gov/main/www/stat_int.html.

One of the best sources for policy writing on international economics is www.iie.com/homepage.htm, the website of the Peterson Institute for International Economics.

QUESTIONS FOR DISCUSSION

- State whether or not each of the following is correct and explain your reasoning. If the quotation is incorrect, provide a corrected statement.
 - "We Mexicans can never compete profitably with the Northern colossus. Her factories are too efficient, she has too many computers and machine tools, and her engineering skills are too advanced. We need tariffs, or we can export nothing!"
 - "If American workers are subjected to the unbridled competition of cheap Mexican labor, our real wages must necessarily fall drastically."
 - "The principle of comparative advantage applies equally well to families, cities, and states as it does to nations and continents."
 - The quotation from Ross Perot on page 356.
- Reconstruct Figure 18-1 and its accompanying table to show the production data for Europe; assume that Europe has 600 units of labor and that labor productivities are those given in Table 18-2.
- What if the data in Table 18-2 changed from (1, 2; 3, 4) to (1, 2; 2, 4)? Show that all trade is killed off. Use this to explain the adage "*Vive la différence!*" (freely translated as "Let diversity thrive!"). Why do the largest gains in trade flow to small countries whose pretrade prices are very different from prevailing world prices?
- Follow-up to question 3:* Suppose that the data in Table 18-2 pertain to a newly industrialized country (NIC) and America. What are the gains from trade between the two countries? Now suppose that NIC adopts American technology and has production possibilities identical to those in the American column of Table 18-2. What will happen to international trade? What will happen to NIC's living standards and real wages? What will happen to America's living standards?

Is there a lesson here for the impact of converging economies on trade and welfare?
- A U.S. senator wrote the following: "Trade is supposed to raise the incomes of all nations involved—or at least that is what Adam Smith and David Ricardo taught us. If our economic decline has been caused by the economic growth of our competitors, then these philosophers—and the entire discipline of economics they founded—have been taking us on a 200-year ride."

Explain why the first sentence is correct. Also explain why the second sentence does not follow from the first. Can you give an example of how economic growth of Country J could lower the standard of living in Country A? (*Hint:* The answer to question 4 will help uncover the fallacy in the quotation.)
- Modern protectionists have used the following arguments for protecting domestic industries against foreign competition:
 - In some situations, a country can improve its standard of living by imposing protection if no one else retaliates.
 - Wages in China are a tiny fraction of those in the United States. Unless we limit the imports of Chinese manufactures, we face a future in which our trade deficit continues to rise under the onslaught of competition from low-wage workers.
 - A country might be willing to accept a small drop in its living standard to preserve certain industries that it deems necessary for national security, such as supercomputers or oil, by protecting them from foreign competition.
 - For those who have studied macroeconomics:* If inflexible wages and prices or an inappropriate exchange rate leads to recession and high unemployment,

tariffs might increase output and lower the unemployment rate.

In each case, relate the argument to one of the traditional defenses of protectionism. State the conditions under which it is valid, and decide whether you agree with it.

7. The United States has had quotas on steel, shipping, automobiles, textiles, and many other products. Economists estimate that by auctioning off the quota rights,

the Treasury would gain at least \$10 billion annually. Use Figure 18-9 to analyze the economics of quotas as follows: Assume that the government imposes a quota of 100 on imports, allocating the quota rights to importing countries on the basis of last year's imports. What would be the equilibrium price and quantity of clothing? What would be the efficiency losses from quotas? Who would get revenue rectangle *B*? What would be the effect of auctioning off the quota rights?