Medicare

This federal health care program is available to Social Security beneficiaries and persons with certain disabilities. Coverage is provided for hospital care and post-hospital nursing services. It also makes available supplementary low-cost insurance programs that help pay for doctor services and prescription drug expenses. Medicare is financed by payroll taxes on employers and employees.

Medicaid

This is one of the largest in-kind transfer programs. Medicaid provides medical services to eligible people with low incomes under age 65 who pass a means test as well as to people with disabilities. The Affordable Care Act of 2010 expanded eligibility and created new eligibility guidelines based on Modified Adjusted Gross Income (MAGI). Many states have chosen to participate, while others have not. It is financed by general tax revenues.

Supplemental Nutrition Assistance Program (SNAP)

SNAP (formerly food stamps) began in 1964 as a federally financed program administered by state governments. Originally, the government issued coupons or "stamps" to people experiencing poverty with dollar amounts corresponding to US currency, which could be used like money at the grocery store. The grocer would then cash the stamps at a local bank. Now, the program uses a debit card system. Benefits vary with the eligible recipient's income and family size. The SNAP program has become a major part of the welfare system in the United States.

Housing Assistance

Federal and state governments have a number of different programs to provide affordable housing for people experiencing poverty. The federal agency overseeing most of these programs is the Department of Housing and Urban Development (HUD). These programs include housing projects owned and operated by the government and subsidies to assist people who rent private housing. In both cases, recipients pay less than the market value for apartments and, therefore, receive an in-kind transfer.

Take Note

Government programs designed to aid people experiencing poverty sometimes provide cash assistance (such as Social Security, EITC, unemployment compensation, and TANF) and sometimes provide in-kind transfers of food, shelter, and medical care (such as Medicare, Medicaid, SNAP, and housing programs)

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12-3c. Welfare Criticisms

Most of the objections to welfare can be classified into the following major criticisms:

- **Work Disincentives** One issue is that because welfare provides income not earned by working, people experiencing poverty may be induced to reduce their work effort. In fact, the more a recipient earns from a job, the fewer the benefits they receive. Moreover, the taxes used to finance welfare payments have some disincentive effects on the work effort of taxpayers since taxes reduce take-home pay and thus reduce the reward for work.
- **Inefficiencies** Another concern is the bureaucracy associated with welfare programs. This criticism was expressed by economics professor Thomas Sowell as follows:

The amount necessary to lift every man, woman, and child in America above the poverty line has been calculated, and it is one-third of what is in fact spent on poverty programs. Clearly, much of the transfer ends up in the pockets of highly paid administrators, consultants, and staff as well as higher income recipients of benefits from programs advertised as antipoverty efforts.

- **Inequities** Another potential problem is that persons experiencing poverty with equal needs sometimes receive different benefits. For example, a family experiencing poverty in California might receive welfare benefits twice as great as those received by a family of the same size experiencing poverty in South Carolina. The reason is that benefits under TANF and Medicaid are essentially controlled by the states.

Am I on Track?

2. Which of the following programs was formerly known as food stamps?

SHOW ANSWER

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a. Temporary Assistance to Needy Families (TANF)

b. Medicaid

c. Supplemental Nutrition Assistance Program (SNAP)

d. None of the above

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12-4. Reform Proposals

Although there have been numerous proposals for reforming welfare, the various ideas can be classified into two broad approaches. First, the negative income tax offers a major transformation of the entire patchwork of federal, state, and local welfare programs. Second, workfare is a departure from the previous welfare system because it is based on work rather than entitlement.

In sum, many economists argue that the NIT system is preferable to the numerous current poverty-relief programs because it reduces taxpayers' expense, it increases poverty relief to those who are truly experiencing poverty, and it creates a greater incentive to work.

After years of discussion and study, the NIT has not gained wide political support. The NIT system is perceived as a political liability because voters perceive it as a "giveaway" of taxpayers' money. These critics believe in-kind welfare is preferable to cash assistance. When a recipient is given subsidies that can only be spent on food or housing, they acquire food and housing, rather than, say, buying drugs and gambling. NIT proponents point out, however, that it is known that some in-kind benefits are sold illegally for cash, which is then used to buy drugs, alcohol, or whatever. Finally, some critics argue that a generous guaranteed minimum income paid in cash might create a disincentive to work rather than an incentive to work.

Am I on Track?

3. In the negative income tax plan presented in Exhibit 9, how much money would a family earning $5,000 receive from the government?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. $10,000

b. $2,500

c. $5,000

d. $7,500

12-4b. Workfare

The 1996 welfare reform bill titled the *Personal Responsibility and Work Reconciliation Opportunity Act* created TANF and gave the states block grants to run welfare programs. To overcome the disincentive to work characteristic of earlier welfare programs based on entitlement, this approach increases the work performed by welfare recipients and encourage their participation in job-training programs. To keep their benefits, welfare recipients must perform some work activities within two years of receiving welfare or risk losing benefits. This idea is called *workfare*. Workfare programs require adults without disabilities to work for the local government or any available private-sector employer in order to be eligible for welfare benefits. The paramount question thus becomes how to create jobs for welfare recipients who often lack basic literacy skills. A large public job plan would be costly and politically unpopular, especially among public employees who fear losing their jobs. Another option is for the government to pay employers to hire welfare recipients with the intent of providing on-the-job training. A variation on this idea is for the government to hire personnel firms that would earn a fee for each person placed in a job.

There are potential problems with providing subsidies for companies that hire welfare recipients. One problem is that subsidies can stigmatize welfare recipients and reduce their long-term employment prospects. Another potential problem is that subsidies could be a windfall payment to employers for hiring people who would have been hired without the subsidies. Finally, there is a displacement problem because a subsidized welfare-recipient worker can take the job of an unsubsidized worker who has never received welfare benefits.

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A Closer Look Applicable Concept: Welfare Reform

Pulling on the Strings of the Welfare Safety Net

Over time, the number of recipients on welfare receiving cash assistance (TANF) has fallen while other entitlement programs, such as SNAP (formerly food stamps), have increased sharply. * , The following is a sampling of articles describing the evolution of welfare after the Personal Responsibility and Work Opportunity Reconciliation Act of 1996.

As reported in *The Washington Post*, Los Angeles County provides a striking contrast of welfare before and after reform in 1996. Prior to 1996, Los Angeles County had a traditional welfare program that provided education and job training without work requirements. After the welfare reform act of 1996, independent researchers found that 43 percent of families experiencing poverty who were required to participate in the city's new welfare reform program with work requirements got jobs, while only 32 percent of families randomly selected to remain in the traditional welfare program did. This represented an increase of one-third over the old welfare program. The typical welfare family subject to the new reform initiatives earned $1,286 in the first six months of the program, while "control group" families earned $879, a difference of 46 percent. *

A 2002 article in the *Los Angeles Times* concerned the new approach of the federal government providing block grants to states and mandating that people experiencing poverty find jobs rather than just handing them welfare checks:

> Before 1996, when the nation's welfare laws were radically altered, welfare families might have gotten a monthly welfare check for the rest of their lives. Martha Soria's job would have been mostly to shuffle their paperwork. But with welfare reform came time limits on such benefits and strict new work requirements. And while Soria still shuffles a lot of paperwork, her job as well as the jobs of welfare caseworkers across the state and nation have changed. They have had

> to master hundreds of new rules and regulations under welfare reform and take on new responsibilities as guidance counselor, job finder, cheerleader, and taskmaster. *

The following article argues that the states must do more to avoid racial bias:

> Under the 1996 law, states have the option to enforce time limits of their choosing. Because of this flexibility, states are left open to discriminate freely. Across the board, race was the determining factor affecting time limit lengths and their application. Observation of the enforcement of time limits shows that states with a higher proportion of African Americans or Latinos possess shorter time limits than the five-year guideline of the law. Over 20 states have opted to not allow exemptions to these time limits. Over 50 percent of African American families under welfare are subject to time limits shorter than the federal cutoff, as opposed to 30 percent of whites under welfare *

Reforms continue: A new federal rule in 2008 made it easier for welfare recipients to attend college by counting a year's worth of study, including homework time, as work. And in 2013, a bill was introduced in Congress but not passed that would require states to randomly drug test people who receive TANF payments. At the state level in 2014, a U.S. Circuit Court of Appeals upheld a lower court ruling that Florida's testing requirement violated the Constitution's ban on unreasonable search. In 2015, at least 12 states have passed legislation requiring drug testing for welfare recipients.

Critics of welfare reform point out that about one-third of the states have enacted even more stringent limits beyond the federal government's 5-year life-time limit on any cash assistance (TANF) an individual may receive, as well as other measures, that makes living in poverty unnecessarily harsh in these states. However, as reported in a *New York Times* article in May, 2016:

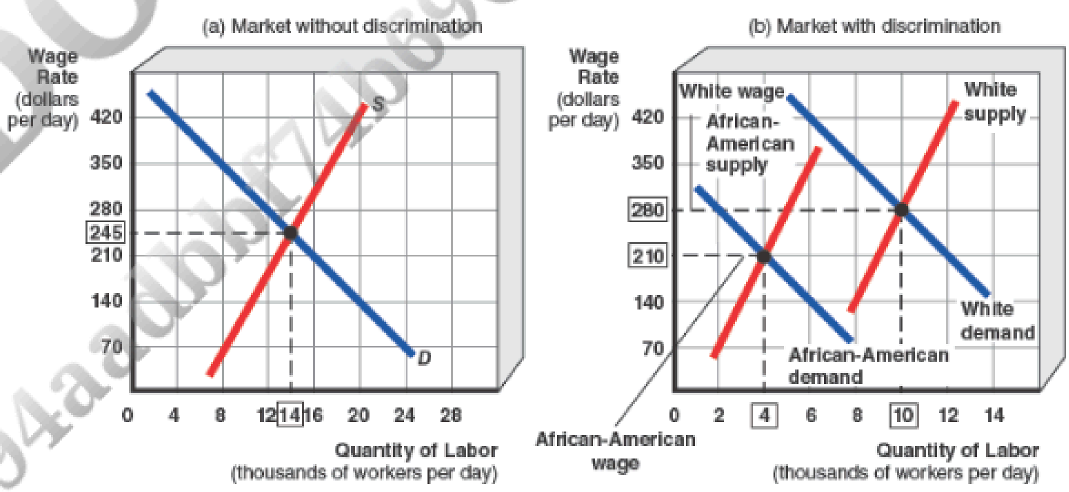
Ronald T. Haskins, who helped write the 1996 federal law as an aide to House Republicans, said that for some poor people, the erosion of cash benefits had been offset by increases in other programs, including the earned-income tax credit, nutrition assistance, and Medicaid. But, Mr. Haskins said, “It is reasonable and appropriate to worry about mothers and children in families with no earnings and no cash welfare.”

12-5. Discrimination

Poverty and discrimination in the workplace are related. Nonwhites and females earn less income when employer prejudice prevents them from receiving job opportunities. Discrimination also occurs when nonwhites and females earn less but do basically the same work as whites and males. Exhibit 10 uses labor market theory to explain how discrimination can cause the equilibrium wage to be lower for nonwhites than for whites.

Exhibit 10(a) assumes that employers do not discriminate. This means employers hire workers regardless of race—that is, on the basis of their contribution to revenue (their marginal revenue products, MRPs). Hence, the intersection of the market demand curve, *D*, and the market supply curve, *S*,
307 determines the equilibrium wage rate of $245 per day paid by nondiscriminating employers. The total number of African American and white workers hired is 14,000 workers.

Exhibit 10 Labor Markets without and with Racial Discrimination



Details

In part (a), there is no labor market discrimination against African Americans. In this case, the equilibrium wage for all labor is $245 per day

Americans. In this case, the equilibrium wage for all labor is $245 per day. Under discrimination in part (b), the labor demand and labor supply curves for white and African American workers differ. As a result, the equilibrium wage rate for white workers, $280, is higher than that for African Americans, $210.

If employers do practice job discrimination against African American workers, the result, shown in Exhibit 10(b), is two different labor markets—one for whites and one for African Americans. Because discrimination exists, the demand curve for labor for African Americans is to the left of the demand curve for labor for whites, reflecting unjustified restricted employment practices. The supply curve of labor for African Americans is also to the left of the supply curve of labor for white workers because there are fewer African Americans seeking employment than whites.

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308

Given the differences in the labor market demand and supply curves, the equilibrium wage rate for white workers of $280 is higher than the $210 paid to African American workers. Comparison of these wage rates with the labor market equilibrium wage rate of $245 reveals that the effect of discrimination is to change the relative wages of white and African American workers. Whites earn a higher wage rate than they would earn in a labor market that did not favor hiring them. Conversely, the African American wage rate is lower as a result of discrimination.

Take Note

Labor market discrimination results in lower wages and fewer employment opportunities for those being discriminated against.

12-5a. Comparable Worth

A controversial public policy aimed at eliminating labor market pay inequities is a concept called comparable worth. **Comparable worth** is the principle that employees who work for the same employer must be paid the same wages when their jobs, even if different, require similar levels of education, training, experience, and responsibility. Comparable worth is a nonmarket wage-setting remedy to the situation where jobs dominated by women pay less than jobs dominated by men. Because women's work is alleged to be undervalued, the solution is equal pay for jobs evaluated as having "comparable worth" according to point scores assigned to different jobs. In essence, comparable worth replaces labor-market-determined wages with bureaucratic judgments about the valuation of different jobs. For example, compensation paid to an elevator inspector and a nurse can be computed based on quantitative scores in a job-rating scheme. If the jobs' point totals are equal, the average elevator inspector and nurse must be paid equally by law.

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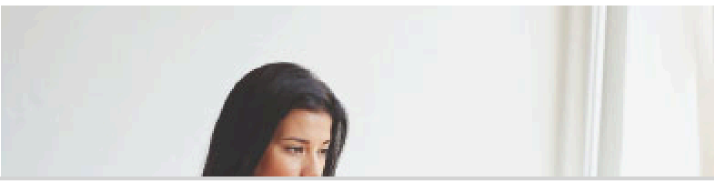
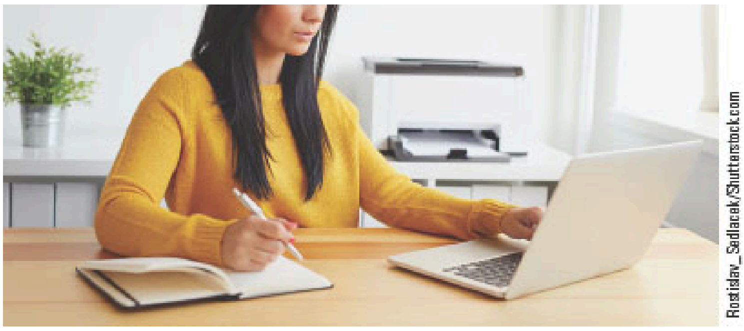
A Closer Look Applicable Concept: Comparable Worth

Is Pay for Women Fair?

In 2020, women working full-time earned on average about 84% of what men earned *. Discrimination in wages and employment on the basis of sex was made illegal in 1963 by the Equal Pay Act (EPA), which outlawed pay discrimination between men and women doing substantially the same job. This does not mean that unequal pay for the same work cannot exist, but if it does, the differential must be due to factors other than gender.

Proponents of comparable worth argue that the equal-pay-for-equal-work idea has failed. They maintain that women crowd into such female-dominated occupations as secretarial work, nursing, school teaching, and social work because of discrimination against women in male-dominated occupations such as engineering. The increased supply of female labor in female-crowded professions lowers the prevailing wage. If the courts follow the comparable worth principle, they will not consider whether employers intentionally pay less for “women’s jobs,” but only whether the employers are in compliance with a quantitative rating scheme. The best-known case occurred in the 1980s, when the American Federation of State, County, and Municipal Employees won the first federal court case against the state of Washington. The state was found guilty of wage discrimination against women because it had not followed a comparable worth point system. According to the point system, male-dominated jobs often paid more than female-dominated jobs even though the female jobs had greater “worth” and, therefore, “underpaid” female job classes should be raised rather than lowering the “overpaid” male job classes. The court ordered Washington to upgrade nearly 15,000 female employees and award back pay estimated at $377 million. The decision was appealed to higher courts, and the union ultimately lost the case.





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Critics of comparable worth argue that it is nearly impossible to measure all the factors that determine compensation for jobs, and the fact that female occupations earn less than male occupations is not necessarily evidence of discrimination. For example, women often seek occupations more compatible with childrearing. It had appeared that comparable worth was fading away until the Fair Pay Act of 2007 was introduced by Senator Tom Harkin (D-Iowa) and included then-Senator Barack Obama (D-Illinois) as one of the cosponsors. The premise is that the government has the duty to decide a job's worth. Under its provisions, employers must send the Equal Employment Opportunity Commission (EEOC) annual reports of how pay is determined in any jobs dominated by one gender. The goal is for the EEOC to decide pay for workers in dissimilar but "equivalent" jobs based on criteria established by the EEOC. Such calculations would serve as a basis for workers to sue their employers based on not being paid the same for "equivalent" work. Although this bill was not enacted, the Lilly Ledbetter Fair Pay Act of 2009 was passed to reset the statute of limitation for pay discrimination.

Finally, the National Equal Pay Task Force was created in 2010 to crack down on violations of equal pay laws. In addition to the Labor Department, members include the Equal Employment Opportunity Commission, the Department of Justice, and the Office of Personnel Management. In 2012, the Paycheck Fairness Act failed in the Senate that would have required employers to prove that pay differences between men and women are based on qualifications, education, and other "bona fides." And in 2013, a

National Partnership for Women and Families study reported that a gender-based wage gap exists in every state and in the country's 50 largest metropolitan areas. In 2015, an article in *International New York Times* examined female discrimination in Hollywood. The conclusion was that women in film are routinely denied jobs, credits, prizes, and equal pay. * Comparable worth pay efforts hit the headlines again with the passage of the California Equal Pay Act that went into effect on January 1, 2016. It "bars California employers from paying workers of one sex more than the workers of the opposite sex for 'substantially similar' work unless the employer can show that any pay gap is justified by a factor other than sex, such as a system that determines pay based on quantity or quality of production or that resulted from differences in education, training, or experience." *

Gender pay gap lawsuits continue. For example, the U.S. women's national soccer team has been in an ongoing battle with the U.S. Soccer Federation over claims that players on the U.S. women's team have been paid less than players on the men's team. The U.S. Soccer Federation calls it "a fundamental disagreement about what equal pay means under the law." * In May 2021, a district court judge ruled against the women's team, noting that they were actually paid more than the players on the men's team. In July 2021, the women's team appealed the ruling citing evidence that the reason they were paid similarly is because they were significantly more successful than the men, and had they been paid according to the men's contract they would have earned substantially more. The men's team in July filed an amicus brief that sided with the women and argued the women should have been paid more. At the time of this writing, the final outcome has not yet been decided.

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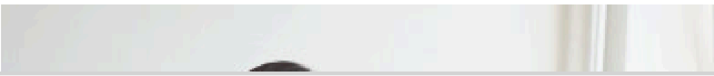

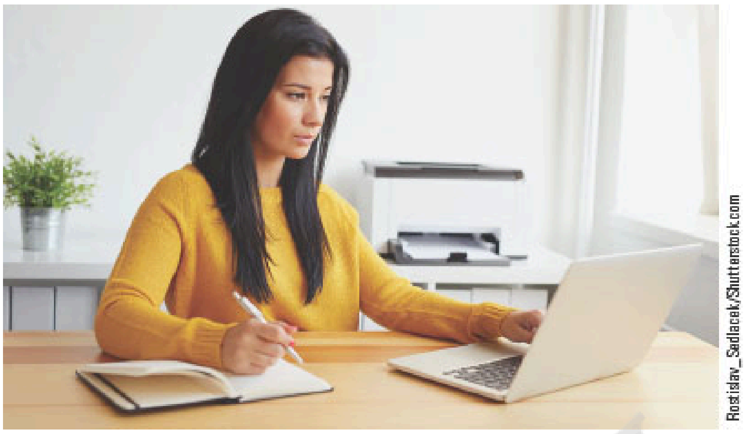

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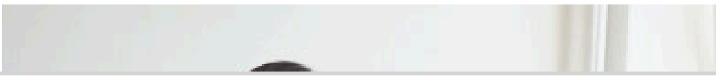

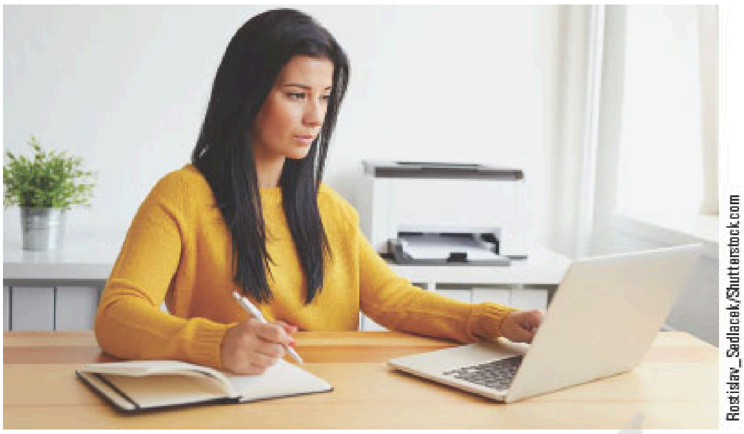

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Key Terms

Lorenz curve

Poverty line

In-kind transfers

Means test

Unemployment Compensation

Negative income tax (NIT)

Comparable worth

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Take Note Revisited

- A more equal distribution of income is preferred by those who favor equity over efficiency, while a more unequal distribution is preferred by those who favor efficiency over equity.
- The Lorenz curve allows us to visualize income inequality by comparing the actual cumulative distribution of income with a perfectly equal distribution of income.
- A comparison of Lorenz curves shows that the income distribution in the United States is more equal in 2020 than it was in 1929, but is less equal than it was in 1970. Additionally, comparing Lorenz curves across countries shows that Norway has a more equal distribution of income than the United States, while Brazil has a less equal distribution of income.
- *Absolute poverty* measures the number of families with incomes below a dollar value that is determined to represent a minimum level of income necessary to meet basic needs. *Relative poverty* identifies families with incomes at the bottom end of the income distribution with incomes that are low relative to the incomes of others.
- Government programs designed to aid people experiencing poverty sometimes provide cash assistance (such as Social Security, EITC, unemployment compensation, and TANF) and sometimes provide in-kind transfers of food, shelter, and medical care (such as Medicare, Medicaid, SNAP, and housing programs)
- A negative income tax is a plan where families below a certain level of

- A negative income tax is a plan where families below a certain level of income receive cash payments. These payments decrease as family incomes increase and are, therefore, inversely related to income.
- Labor market discrimination results in lower wages and fewer employment opportunities for those being discriminated against.

Sample Quiz

Please see Appendix B for answers to Sample Quiz questions.

1. "Dividing the economic pie more equally may reduce the size of the economic pie." This argument is characterized as

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. untrue.

b. a form of discrimination.

c. a conflict between equity and efficiency.

d. a conflict between full employment and economic growth.

2. The highest fifth of all families receive approximately what percent of the distribution of annual money income among families?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. 5 percent

a. 5 percent

b. 10 percent

c. 25 percent

d. 50 percent

3. Which of the following graphs shows the cumulative shares of income received by a family?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. Distribution curve

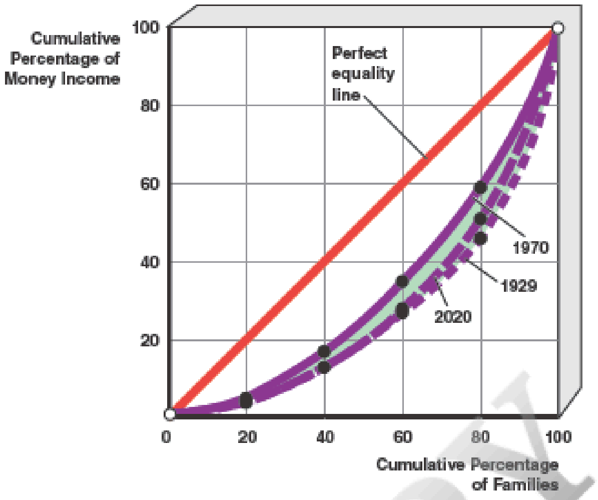
b. Lorenz curve

c. Ricardian curve

d. Quintile curve

4. As shown in Exhibit 11, the perfect equality line is drawn between points

Exhibit 11 Lorenz Curve



Details

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. *W* and *Z*.

b. *Z* and *Y*.

c. *W* and *Y* along the straight line.

d. *W* and *Y* along the curve.

5. As shown in Exhibit 11, 60 percent of families earned a cumulative share of about what percent of the income?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. 5 percent

b. 15 percent

c. 30 percent

d. 50 percent

6. When the Lorenz curve lies above the diagonal,

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. the poorest 20 percent of the population receive more than 20 percent of income.

b. the richest 20 percent of the population receive more than 20 percent of income.

c. everyone receives the same income.

d. the curve is wrong because it is impossible for the graph to look like this.

look like this.

7. The poverty line

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. separates those on welfare from those not on welfare.

b. was originally calculated to equal three times a family's food budget.

c. equals the median income level.

d. includes all of the above answers.

8. Which of the following government programs provides recipients with unrestricted cash payments?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. Temporary Assistance to Needy Families (TANF)

b. Medicaid

c. The food stamp program

d. Housing assistance programs

9. Medicaid and food stamps are

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. available only to families.

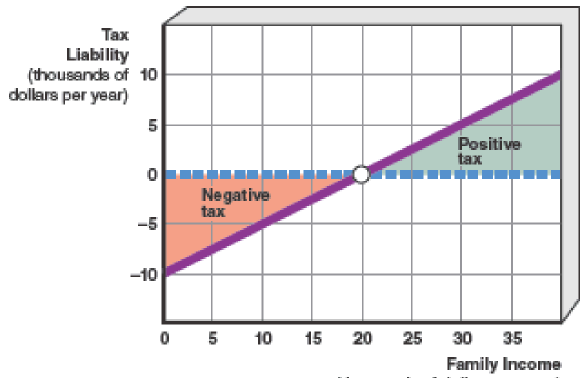
b. counterproductive.

c. forms of in-kind assistance.

d. forms of cash assistance.

10. As shown in Exhibit 12, a family of four pays income taxes at

Exhibit 12 Negative Income Tax



Family income
(thousands of dollars per year)

Details

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. an income of $5,000.

b. any income between zero and $40,000.

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c. all levels of income.

d. any income above $40,000.

11. As shown in Exhibit 12, a family of four with no earned income receives ________________ from the government.

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. zero payment

b. the break-even income of $40,000

c. a $20,000 payment

d. a $20,000 tax deferment

12. Under the negative income tax scheme in Exhibit 12, families earning between $10,000 and $40,000 would

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. receive the maximum negative income tax payment of $20,000.

b. receive payments under the negative income tax.

c. pay no income taxes but receive no payments.

d. do none of the answers above.

13. Which of the following might increase the supply curve of labor?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. Eliminating discrimination against African Americans

b. Eliminating discrimination against women

c. Easing licensing requirements

d. Doing all of the answers above

14. Consider a law that limits women's access to certain "dangerous" occupations such as coal mining and military combat service. Such a law would likely reduce women's wages because

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. women would be overqualified for "nondangerous" jobs.

b. the labor supply in female-intensive occupations would increase.

c. women would be less likely to obtain college degrees.

d. comparable worth would no longer exist between men's and women's occupations.

15. Comparable worth is the principle that

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. goods and services priced the same have about the same worth.

b. the wage rate equals the value of productivity.

c. men and women should be paid comparably.

d. employees who perform comparable jobs should be paid the same wage.

16. Which of the following graphs shows the cumulative percentage of the families on one axis and the cumulative percentage of income on the other?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. Budget-distribution curve

b. Income-consumption curve

c. Lorenz curve

d. Marx curve

17. If the Lorenz curve lies on the diagonal,

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. the poorest 20 percent of the population receives more than 20 percent of the income.

b. the richest 20 percent of the population receives more than 20 percent of the income.

c. the poorest 20 percent of the population and the richest 20 percent of the population each receive 20 percent of the income.

d. the country’s income has been rising over time.

e. the curve is wrong because it is impossible for the graph to look like this.

18. The official U.S. poverty line for a family was originally calculated by taking 3 times the annual cost of

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. public housing.

b. basic medical care.

c. utilities and transportation.

d. a minimal diet.

Chapter 13. Antitrust and Regulation

Chapter Objectives

1. Provide a brief history of antitrust legislation.
2. Discuss several key antitrust cases.
3. Contrast types of mergers.
4. Discuss the history of regulation and the rationale for its use.

Introduction

When Microsoft dominated the personal computer software industry, the U.S. government charged the firm and Bill Gates, its founder, with anticompetitive business practices. The media compared the case to John D. Rockefeller's Standard Oil monopoly case during the era of the "robber barons" of the 1890s. Antitrust laws have been used with varying success against the nation's largest corporations ever since. The threat of high legal costs from defending an antitrust lawsuit serves as a powerful deterrent, discouraging monopolies from engaging in unfair actions intended to eliminate rivals. We begin this chapter with a study of antitrust policy and explore several antitrust cases. When antitrust policy is successful, consumers benefit from lower prices and more output. We then return to the concept of government regulation first introduced in Chapter 4. We finish the chapter with a brief survey of regulation in the United States and explore some of the reasons for regulation as well as the consequences.

13-1. Antitrust

Before the Civil War, industries were populated by small firms, and few economic problems were caused by monopoly. After the Civil War, during the rapid industrialization of the 1870s and 1880s, the railroads and the telegraph linked diverse regions of the country and enabled firms to expand into national markets. To gain more control of expanding industries, many competing
316 companies merged or formed a trust. A **trust** is a combination of firms that place their assets in the custody of a board of trustees. The trust allows firms that have not actually merged to form a ***cartel***, a cohesive group of firms that controls an industry, in order to charge monopoly prices and earn higher profits. The long list of trusts formed during this period included the iron trust, sugar trust, copper trust, steel trust, coal trust, oil trust, tobacco trust, and even the paper-bag trust. The organizers of many of these trusts became widely known as *robber barons* because they exploited and bullied anyone in their way as they sought ever higher profits.

During the last decades of the nineteenth century, many trusts used various tactics to avoid competition. Standard Oil acquired oil fields, railroads, pipelines, and ships and then denied access to rivals. Thus, competing firms had to merge with Standard Oil or go out of business. With the competition eliminated, John D. Rockefeller, the best-known so-called robber baron, raised Standard Oil's prices and limited production, and consumers suffered along with Standard Oil's competitors.

Another anticompetitive strategy used by the industrial giants was predatory pricing. **Predatory pricing** is the practice of one or more firms temporarily reducing prices in order to eliminate competition and then raising prices. Often, trusts would sell a product below cost until their weaker competitors were unable to withstand mounting losses and were forced from the industry. Perhaps even more alarming, some trusts resorted to political corruption. For example, the railroad and petroleum trusts employed corrupt legislators and judges to gain a competitive edge.

By the end of the nineteenth century, the threat of continuing economic and political abuses created a public opinion quite hostile to big business. Newspapers regularly printed news of the trusts' questionable business practices. The numerous and politically influential farmers blamed the trusts for the high railroad charges that were making farming unprofitable. Consumers and labor unions also raised their voices against monopoly power. The influence of the trusts was discussed constantly in the halls of Congress. In 1888, both major political parties added antimonopoly planks to their campaign platforms. Hatred and distrust of the centralization of economic and political power originated in the Jeffersonian tradition of the United States. Against this background of populist (pro-people) fear of big business and its political power, Congress passed laws aimed at preventing firms from engaging in anticompetitive activities.

The following is a brief description of the major antitrust legislation that constitutes basic antitrust law.

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13-1a. The Sherman Act

The first antitrust law was the Sherman Act. The **Sherman Act of 1890** is the federal antitrust law that prohibits monopolization and conspiracies to restrain trade. Today, this act remains the cornerstone of antitrust policy in the United States. It has two main provisions:

> Section 1: Every contract, combination in the form of trust or otherwise, or conspiracy in restraint of trade or commerce among the several States, or with foreign nations, is hereby declared to be illegal....
>
> Section 2: Every person who shall monopolize, or attempt to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall

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be deemed guilty of a misdemeanor, and, on conviction thereof, shall be punished by a fine not exceeding five thousand dollars, or by imprisonment not exceeding one year, or by both said punishments, in the discretion of the court.

In response to the public outcry, Congress intended to craft this law with sweeping language against the trusts. But what does the Sherman Act really say? It is unclear exactly which business practices constitute a "restraint of trade" and, therefore, a violation of the law. As a result of the extremely vague language, there were numerous court battles, and the act was ineffective for years. For example, the federal government did not win its first notable cases until 1911; these cases were against Standard Oil and American Tobacco.

The serious consequences of violating the Sherman Act are reflected in the more recent case of Archer Daniels Midland (ADM) Company. In 1995, this agribusiness giant pleaded guilty to price fixing involving lysine and citric acid. It paid a $100 million fine. In 1998, a federal jury convicted three past and present executives of conspiring with competitors to fix the prices of these products. They were sentenced to serve two years in prison and to pay fines of $350,000 each.

13-1b. The Clayton Act

As explained above, the Sherman Act initially proved to be little more than a legislative mandate for the courts to spell out the meaning of antitrust laws. To define anticompetitive acts more precisely, Congress passed the Clayton Act. The **Clayton Act of 1914** is an amendment that strengthened the Sherman Act by making it illegal for firms to engage in certain anticompetitive business practices. Under this act, the following business practices are illegal when they "substantially lessen competition or tend to create a monopoly":

1. Price Discrimination. A firm charges different customers different prices for the same product when these price differences are not related to cost differences. (Recall the discussion of this topic in the chapter on monopoly.)

2. Exclusive Dealing. A manufacturer requires a retailer to sign an

2. Exclusive Dealing. A manufacturer requires a retailer to sign an agreement stipulating the condition that the retailer will not carry any rival products of the manufacturer.

3. Tying Contracts. The seller of one product requires the buyer to purchase some other product(s). For example, movie distributors cannot force theaters to purchase projection rights to a blockbuster movie only on the condition that they pay for a bundle of films with much less box office potential.

4. Stock Acquisition of Competing Companies. One firm buys the stock of a competing firm.

5. Interlocking Directorates. The directors of one company serve on the board of directors of another company in the same industry. Interlocking directorates are illegal, regardless of whether the effect may be to "substantially lessen competition."

Although more specific than the Sherman Act, the Clayton Act is also vague and leaves a key question unanswered: Exactly when does a situation or action "substantially lessen competition"? To this day, the task of interpreting this ambiguous phrase remains with the courts, and the interpretation changes over time.

13-1c. The Federal Trade Commission Act

Since the federal government faced a growing antitrust responsibility in the early 1900s, an agency was needed to investigate alleged anticompetitive practices and reach judgments. The Federal Trade Commission Act was enacted for this purpose. The **Federal Trade Commission Act of 1914** established the Federal Trade Commission (FTC) to investigate unfair competitive practices of firms. This act contains perhaps the most general language of any antitrust act. It declares illegal "unfair methods of competition in commerce." The act established a five-member commission appointed by the president to determine the exact meaning of "unfair methods." Today, the FTC is concerned primarily with

- enforcing consumer protection legislation
- prohibiting deceptive advertising
- preventing collusion

When a complaint is filed with the FTC, the commission investigates. If there is a violation, the FTC can negotiate a settlement, issue a cease-and-desist order, or initiate a lawsuit.

Exhibit 1 Summary of Major Antitrust Laws

Law (Date Enacted)	Key Provisions
Sherman Act (1890)	Prohibits interstate price fixing and other conspiracies and combinations that restrain trade and attempt to monopolize.
Clayton Act (1914)	Bolsters and clarifies the Sherman Act by prohibiting specific business practices, including exclusive dealing, tying contracts, stock acquisition of competitors, and interlocking directorates.
Federal Trade Commission Act (1914)	Established an agency (the FTC) to help enforce antitrust laws by investigating unfair and deceptive business practices.
Robinson–Patman Act (1936)	Amends the Clayton Act by broadening the list of illegal price discrimination practices to include quantity discounts, free advertising, and promotional allowances offered to large buyers and not to small buyers. The Robinson–Patman Act is often called the Chain Store Act.
Celler–Kefauver Act (1950)	Amends the Clayton Act by closing the loophole that permitted firms to merge by buying the assets of rivals, rather than by acquisition of stocks, as outlawed in the original Clayton Act.

	The Celler–Kefauver Act is often called the Antimerger Act.

Am I on Track?

1. The antitrust law that prohibits deceptive advertising by firms is the:

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. Federal Trade Commission Act

b. Clayton Act

c. Sherman Antitrust Act

d. Robinson–Patman Act

13-2. Key Antitrust Cases

Antitrust policy can be compared to the rules of baseball or other sports. The House and Senate of the U.S. Congress set the "rules of the game" for antitrust cases, just as the American and National Leagues set the rules of baseball. For example, the rules of baseball say that a player hitting a homer must run from first base to home plate, rather than from third base to home plate. Similarly, the Sherman Act forbids monopolization through predatory pricing by businesses. This brings us to the role of the umpire. After a game, a Little League player asked the first-base umpire, "What do you call when the runner and the ball reach first base at exactly the same time?" The umpire replied, "There's no such thing as a tie. It's always the way I call it." That's how it is with court decisions on antitrust laws, and just like many of the umpire's calls, not all the courts' decisions are "crowd pleasers." With this point in mind, let's look at some important "calls" of courts on antitrust cases.

A Closer Look Applicable Concept: Robinson–Patman Act

Is Utah Pie's Slice of the Pie Too Small?

The following is a classic and controversial case: In the 1950s, the market for frozen dessert pies was small but growing. The Salt Lake City market was supplied by distant plants in California that were owned by Carnation, Continental Baking, and Pet Milk. Until 1957, these three firms accounted for almost all the frozen fruit pies sold in the Salt Lake City market.

The Utah Pie Company had been baking dessert pies in Salt Lake City and selling them fresh for 30 years. This family-owned-and-operated business entered the frozen pie market in 1957. It was immediately successful and grabbed a huge share of the Salt Lake City market. The market shares of the various competitors at the time were as shown.

Utah Pie's strategy for penetrating the market was to set its prices below those of its competitors. Due to its immediate success, it built a new plant in 1958. Its local plants gave Utah Pie a locational advantage over its competitors. For most of the time in question, Utah Pie's prices were the lowest in the Salt Lake City market. The incumbent firms, of course, responded to Utah Pie's entry and lower prices by reducing their own prices. As a result, all the larger firms sold frozen pies in Salt Lake City at prices lower than those charged for pies of like grade and quality in other geographic markets considerably closer to their California plants. When the California firms lowered their pie prices in Utah, customers found these out-of-state pies more attractive and Utah Pie Company's market share dropped from 67 percent in 1958 to 46 percent or less in each of the next three years.

	1958	1959	1960	1961
Utah Pie	67%	34%	46%	45%

Pet	16	36	28	29
Carnation	10	9	12	9
Continental	1	3	2	8
All others	6	18	12	9

Details

AnjelikaGr/Shutterstock.com

Utah Pie sued these three firms, claiming price discrimination. Ultimately, the case was reviewed by the Supreme Court in 1967, which took a dim view of such pricing behavior: “Sellers may not sell like goods to different purchasers at different prices if the result may be to injure competition in either the sellers’ or the buyers’ market unless such discriminations are justified as permitted by the Act.” Consequently, the Supreme Court found the defendants guilty of price discrimination. Inasmuch as no competitors had been forced from the market, it appears that price discrimination does not have to have an obviously predatory impact to be ruled illegal. All the Court saw in this case was a pattern of falling prices. It feared that such a pattern could result in a lessening of competition if one or more competitors dropped out of the market.

Source: David L. Kaserman and John W. Mayo, *Government and Business: The Economics of Antitrust and Regulation* (Fort Worth: Dryden Press, 1995), p. 282.

13-2a. The Standard Oil Case (1911)

President Theodore Roosevelt's administration took action to break up Standard Oil under the Sherman Act. After ten years of litigation, the Supreme Court ruled in 1911 that Standard Oil had achieved its monopoly position in the oil refining industry through illegal business practices. John D. Rockefeller's trust had used railroad rebates, discounts, espionage, control of supplies to rivals, and predatory pricing to gain a monopoly. The remedy was for the Standard Oil Trust to be broken into competing companies: Standard Oil of New York became Mobil, Standard Oil of

California became Chevron, Standard Oil of Indiana became Amoco, and Standard Oil of New Jersey became Exxon.

The Standard Oil Trust case established a standard for antitrust rulings. The Supreme Court ruled that

1. Standard Oil was a monopoly with a 90 percent share of the refined-oil market
2. Standard Oil achieved its monopoly through illegal business behavior intended to exclude rivals

The Court stated that point (2) was critical to its decision and not point (1). This doctrine became known as the rule of reason. The **rule of reason** is the antitrust doctrine that the existence of a monopoly alone is not illegal unless the monopoly engages in illegal business practices. In other words, a monopoly *per se* is not illegal. Thus, “big is not necessarily bad.” Standard Oil and other dominant firms would be broken up not merely because of their dominance but also because of their abusive behavior.

Between 1911 and 1920, the courts applied the rule of reason in breaking up the American Tobacco Trust and other trusts. In 1920, the Supreme Court also applied the rule of reason when it decided that U.S. Steel was not guilty under the Sherman Act. Although U.S. Steel controlled almost 75 percent of the domestic iron and steel industry, the Supreme Court ruled that it is not *size* that violates the law. Since there was no evidence of unfair pricing practices, U.S. Steel was a “good citizen” not in violation of the Sherman Act.

13-2b. The Alcoa Case (1945)

Thirty-four years after the Standard Oil case, the courts did a “flip flop” on the rule of reason. In 1940, the Aluminum Company of America (Alcoa) was the only producer of aluminum in the United States. Alcoa’s monopoly was primarily the result of its patents and its ownership of a unique resource, bauxite. Moreover, Alcoa kept its prices low to avoid competition and prosecution, behaving as a “good citizen” despite its size. A federal appeals court ruled that Alcoa had violated the Sherman Act and declared:

> Having proved that Alcoa had a monopoly of the domestic ingot market the government had gone far enough.... Congress did not condone "good trusts" and condemn "bad" ones; it forbade all. *

With the *Alcoa* decision, the courts turned from "big is not necessarily bad" to "big is bad." The rule of reason was transformed into the per se rule. The **per se rule** is the antitrust doctrine that the existence of monopoly alone is illegal, regardless of whether or not the monopoly engages in illegal business practices. Instead of judgments based on the performance of a monopoly, antitrust policy in the United States was switched by the court's interpretation to judgments based solely on the market structure. Interestingly, the court's solution was not to break up Alcoa. Instead, the federal government subsidized Alcoa's competitors. War plants were sold at bargain prices to Reynolds Aluminum and Kaiser Aluminum, and later, more rivals entered the aluminum industry.

Take Note

The *rule of reason* and *per se rule* are the two main doctrines the courts have used in interpreting antitrust law. Following the *per se rule*, the mere existence of a monopoly is illegal, while under the *rule of reason*, the existence of a monopoly alone is not illegal unless the monopoly engages in illegal business practices.

13-2c. The IBM Case (1982)

In 1969, the U.S. Department of Justice brought an antitrust action against IBM because of its dominance in the mainframe computer market. The government argued that IBM had a 72 percent share of the electronic digital computing industry. IBM argued that the relevant market was broader and included programmable calculators and other information-processing products. After 13 years of litigation, IBM had spent over $100 million on its defense and had constructed an entire building to store case documents. Finally, in 1982, the government dropped the case. One reason was that Digital Equipment, Apple Computer, and Japanese companies were competing with IBM. Another reason illustrates the mix of politics and antitrust policy. In 1982, Ronald Reagan was president, and he believed in a much less restrictive interpretation of antitrust laws. In any event, the IBM case represented a shift in the general sentiment among those enforcing the antitrust laws from the per se rule back to the rule of reason.

increases, and even fees for room and board. For example, one year, Dartmouth planned to raise faculty salaries by 8.5 percent. The other schools wanted to hold the line at 6.5 percent, so Dartmouth was persuaded to cave in. At other meetings, the group's goal was to make sure that each student who applied to more than one of the schools would be offered the same financial aid. At another meeting, Harvard and Yale accused Princeton of offering excessively generous scholarships to top students.

The U.S. Justice Department investigated and charged the eight Ivy League universities and MIT with an illegal conspiracy to fix prices. The Ivy League schools settled the case with a consent decree. This agreement required these schools to cease colluding on tuition, salaries, and financial aid in the future, and in return, none of the schools admitted guilt for a price conspiracy. MIT refused to sign the consent order, and in 1992, a federal district judge ruled that MIT had violated antitrust laws and concluded that students and parents have the right to compare prices when choosing a university. In 1993, an appeals court ordered a new trial, and the Justice Department dropped the charges with the agreement that MIT would cease comparing financial packages.

13-2f. The Microsoft Case (2001)

The Microsoft Corporation dominated the personal computer (PC) software industry with about a 90 percent share of the PC operating system software and Internet browser markets. And Microsoft had tied its Windows operating systems at zero price (predatory pricing) to its Internet Explorer browser in order to eliminate competition and establish a monopoly in the browser market. The remedies discussed included both conduct and structural remedies. A conduct remedy was a judicial instruction against engaging in specific behavior. For example, Microsoft could be required to include major rival browsers with its browser. Bill Gates likened this proposal to "requiring Coca-Cola to include three cans of Pepsi in every six-pack it sells." Moreover, Microsoft claimed that by integrating Internet Explorer with Windows, it was creating one product and not tying two products. In short, no one using the Windows operating system needed a separate browser.

A structural remedy is a "surgical fix" aimed at permanently altering a company so substantially that further violations are not possible. For example, Microsoft so substantially that further violations are not possible. For example, Microsoft could be split into three companies. One company would have operating systems, such as Windows. A second company could have applications, such as Word, Excel, and PowerPoint. The third company would get Internet Explorer and related Internet business. A major concern with this remedy was that a three-headed monopoly monster might destroy innovation and a seamless transition between Windows and other software applications. Another fear was that prices might rise, and software would become much more complicated.

In 2001, a federal appeals court ruled that Microsoft did violate antitrust law to protect a monopoly for its Windows operating system. However, the court ruled the government had failed to prove Microsoft illegally attempted to monopolize the Internet browser market. In response, Microsoft announced that it would allow PC manufacturers to continue adding icons of other technology companies to Microsoft's operating system. In 2002, a federal judge approved most of the provisions of the antitrust settlement reached the previous year with Microsoft.

The major antitrust cases are summarized in Exhibit 2.

Exhibit 2 Summary of Major Antitrust Cases

Case (Date)	Key Provision
Standard Oil (1911)	This case established the rule of reason, allowing a monopoly unless it engages in illegal practices.
Alcoa (1945)	This case overturned the rule of reason and established the per se rule, under which all monopolies are illegal.
IBM (1982)	The government dropped its case after 13 years and shifted antitrust policy back to the rule of reason.
AT&T (1982)	Technology made this government-regulated natural monopoly obsolete, and AT&T was found guilty of anticompetitive pricing.
MIT (1992)	Eight Ivy League schools agreed to stop colluding to fix prices, and MIT was found guilty of price fixing while attending open meetings. MIT and the Justice Department reached an agreement after an appeals court ordered a new trial.
Microsoft (2001)	Microsoft and the government reached a settlement after an appeals court held that the firm illegally protected its Windows monopoly.

Am I on Track?

2. Suppose Apple develops a new technology that enables the creation of many new applications that enhance the quality of life for millions. No other company can produce these products, so Apple possesses 100 percent market share. Apple is not otherwise undertaking illegal business practices. If a suit is brought against Apple as a monopoly and the courts rule that Apple is not in violation of any antitrust laws, then the courts must have based their decision on:

SHOW ANSWER

SHOW ANSWER

a. the price fixing rule.

b. the rule of reason.

c. the per se rule.

d. the natural monopoly rule.

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AT&T (1982)	Technology made this government-regulated natural monopoly obsolete, and AT&T was found guilty of anticompetitive pricing.
MIT (1992)	Eight Ivy League schools agreed to stop colluding to fix prices, and MIT was found guilty of price fixing while attending open meetings. MIT and the Justice Department reached an agreement after an appeals court ordered a new trial.
Microsoft (2001)	Microsoft and the government reached a settlement after an appeals court held that the firm illegally protected its Windows monopoly.

Am I on Track?

2. Suppose Apple develops a new technology that enables the creation of many new applications that enhance the quality of life for millions. No other company can produce these products, so Apple possesses 100 percent market share. Apple is not otherwise undertaking illegal business practices. If a suit is brought against Apple as a monopoly and the courts rule that Apple is not in violation of any antitrust laws, then the courts must have based their decision on:

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. the price fixing rule.

b. the rule of reason.

c. the per se rule.

d. the natural monopoly rule.

13-3. Mergers and Global Antitrust Policy

The decades of the 1980s and 1990s were characterized by a wave of mergers. Mergers are a concern to antitrust regulators because firms can avoid charges of price fixing by merging into one firm. The antitrust policy toward mergers depends on the type of merger and its likely effect on the relevant market.

Bush and Coors are hypothetical examples of horizontal mergers. Horizontal mergers raise a red flag because they decrease competition in a market. For example, in 1986, the government blocked the proposed merger between Coca-Cola and Seven Up. The merger between T-Mobile and Sprint was initially blocked by the Obama administration in 2016, but was allowed to move forward in 2020 under the Trump administration.

A **vertical merger** is a merger of a firm with its suppliers. This type of merger occurs between companies at different stages of a production process. Hypothetical examples of vertical mergers would be General Motors merging with a major tire company and Ford Motor Company merging with a large number of car dealerships. Although the government often challenges vertical mergers, global competition has reduced antitrust scrutiny of vertical mergers. This is especially true if this type of merger lowers costs by eliminating unnecessary supplier charges and U.S. firms become more competitive in world markets.

A **conglomerate merger** is a merger between firms in unrelated markets. Suppose an insurance company buys a computer software company, or a cigarette company merges with a hotel chain. Actual examples are Philip Morris merging with Miller Brewing Company and General Motors merging with Electronic Data Systems Corporation. No antitrust action was taken to prevent these mergers because the products of the two firms were considered to be unrelated. Conglomerate mergers are generally allowed because they do not significantly decrease competition.

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13-3b. Antitrust Policies in Other Countries

Early antitrust laws were aimed at the domestic economy with little concern for global competitiveness. Because of the internationalization of competition in recent decades, some economists call for a relaxation of antitrust laws to allow firms to merge and compete more effectively in the world economy. Other economists disagree and argue that strong antitrust laws are necessary because small firms create the most jobs and innovations.

One reason firms in other countries are so competitive with U.S. firms is that other countries' antitrust laws are weak in comparison to U.S. antitrust laws. For other countries' antitrust laws are weak in comparison to U.S. antitrust laws. For example, no other country breaks up companies for antitrust violations. There are two basic explanations. First, most other countries have smaller populations than the United States. Because other countries have fewer potential customers, they view the global market as the target and design weak antitrust laws accordingly. In other words, other countries must sell their products globally in order to achieve economies of scale and be competitive.

Second, other countries have weak antitrust laws based on their culture and history. In the United States, there is a strong belief in Adam Smith's individualistic competition among small firms. This "big is bad" ideology is the foundation of U.S. antitrust laws, but this belief is not prevalent in other countries. In other countries, "big is better," and in countries such as Japan and Germany, government and business work together to compete globally. In contrast, there is a general mistrust of big government working directly with big businesses in the United States.

Great Depression, the railroads were the primary target. During the 1930s, the Great Depression created a favorable environment in which regulation spread to the communications, financial, and other industries. After 1970, regulation increased steadily in the areas of health, safety, and the environment until the 1980s, when a deregulation movement began. That deregulation movement continued until the Obama administration, where regulation of the financial and healthcare industries, as well as environmental regulation, reemerged. The Trump administration pivoted back to a rather heavy emphasis on prioritizing deregulation, particularly regarding the environment. We will have to see what the future holds for the role of regulation in our economy. In any event, most economists are generally less interested in political or philosophical arguments over whether there ought to be more or less regulation per se. Instead, they are generally more pragmatic and focus on scientific evidence to suggest when it might be appropriate to regulate as well as how and to what extent more or less regulation should be undertaken where it does exist.

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13-4a. Historical Origins of Regulation

The Early Years

The railroads came under regulation in the late nineteenth century as a result of their unfair pricing practices. At that time in history, railroads faced little competition from other carriers, so there was little to prevent railroads from overcharging. Railroads also practiced price discrimination against isolated rural customers by charging them higher rates for short hauls than they charged city customers for long hauls. In 1887, the Interstate Commerce Commission (ICC) was established to regulate rail prices and to cut the costs of rail transportation by reducing duplicate trains, depots, and tracks. The Food and Drug Administration (FDA) was established in 1906 to oversee the safety of food and drugs.

The Great Depression Era

During the 1930s, regulation was extended to other industries. All surface transportation, including trucks, barges, and oil pipelines, came to be regulated by the Interstate Commerce Commission (ICC). The Civil Aeronautics Board (CAB) was created in 1938 to regulate air travel, and the Federal Communications Commission (FCC) was established in 1934 to regulate telephones, telegraphs, and broadcasting industries. In 1934, as a result of the stock market crash of 1929, the Securities and Exchange Commission (SEC) was stock market crash of 1929, the Securities and Exchange Commission (SEC) was created to combat fraud and malpractice in the securities industry.

The Health, Safety, and Environment Era

The Occupational Safety and Health Administration (OSHA) was created in 1970 to reduce the incidence of injury and death in the workplace. This agency cites and fines employers who violate safety and health rules. In the same year, the Environmental Protection Agency (EPA) was established to set and enforce pollution standards. In 1972, the Consumer Product Safety Commission (CPSC) was established to protect the public against injury from unsafe products. The CPSC has the power to ban the sale of hazardous products.

out of government restrictions on economic activity. Initially, the major thrust of deregulation was in the transportation and telecommunications industries. The *Airline Deregulation Act of 1978* removed regulated airfares and restrictions against competition in air travel markets. The *Staggers Rail Act of 1980* deregulated the railroads, the *Motor Carrier Act of 1980* deregulated trucking, the *Depository Institutions Deregulation and Monetary Control Act of 1980 deregulated banking*, and the *Bus Regulatory Reform Act of 1982* deregulated bus transportation. The Civil Aeronautics Board (CAB), established in 1938 to regulate airline fares and air routes, was abolished in 1984. The A Closer Look at the end of the chapter examines the effects on the airline industry.

In telecommunications, the most important case was the deregulation and dismantling of AT&T. As explained previously, technological innovations made competition in telecommunications possible, and because of an antitrust lawsuit, AT&T was broken up and forced to compete with MCI, Sprint, and other companies for long-distance service. In 1996, Congress passed a telecommunications bill that made additional changes in U.S. telecommunications. This bill deregulated cable television rates while allowing local and long-distance telephone companies and cable companies to compete. This bill also required television manufacturers to equip new sets with a computer chip to block shows parents do not wish their children to watch.

For nearly 100 years, electricity was a regulated industry in the United States. Privately held utility companies obtained the right to operate a monopoly in exchange for government regulations that set rates and capped profits. In 1992, Congress started the deregulation movement for power companies when it approved the *Energy Policy Act*, which opened competition at the wholesale level. By 2001, 24 states and the District of Columbia had approved deregulation plans, but the California power shortage created a deregulation backlash.

The principal functions of the federal regulatory agencies discussed are summarized in Exhibit 3.

Exhibit 3 Federal Regulatory Agencies

Agency	Year Created	Function

Interstate Commerce Commission (ICC)	1887 *	Regulated interstate ground transportation, including the railroad, trucking, bus, and water carrier industries.
Food and Drug Administration (FDA)	1906	Protects the health of the nation against impure and unsafe foods, drugs, and cosmetics. Develops policies regarding labeling of all drugs.
Securities and Exchange Commission (SEC)	1934	Provides for complete financial disclosure and protects investors in stock and other securities against fraud.
Federal Communications Commission (FCC)	1934	Regulates television, radio, telephone, and telegraph services; satellite transmissions; and cable TV.
Civil Aeronautics Board (CAB)	1938 *	Regulated airline fares and routes.
Occupational Safety and Health Administration (OSHA)	1970	Enforces rules in cases involving safety and health violations in the workplace.

Environmental Protection Agency (EPA)	1970	Regulates pollution in the areas of air, water, waste, noise, radiation, and toxic substances.
Consumer Product Safety Commission (CPSC)	1972	Protects the public against unreasonable risks of injury from consumer products.

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13-5. Three Cases for Government Regulation

Government regulation involves political, social, and economic factors, and the general justification for regulation is to protect the public. In this section, we examine three basic situations in which regulation is often imposed:

- Natural monopoly
- Externalities
- Imperfect information

In each of these cases, the argument in favor of regulation is *market failure*. Recall from Chapter 4 that market failure is a situation in which the market operating on its own fails to lead to an efficient allocation of resources.

What to do? Is there an option that does not require taxpayers' money? Yes! In practice, regulatory commissions have relaxed the objective of efficiency (marginal cost pricing) and have focused on establishing a "fair-return" price to be charged by the monopolist. In Exhibit 4, the commission would establish the fair-return price at $90 per month at point *B*, where the demand curve intersects the LRAC curve. Because the price ceiling equals long-run average cost, Vision Cable earns zero economic profit and serves 80,000 customers in the long run. However, remember from the chapter on production costs that in economics, cost includes a normal profit, which is just enough to keep the firm in the cable industry.

Take Note

Government regulators can achieve efficiency for a natural monopoly by setting a price ceiling equal to the intersection of the demand and the marginal cost curves, but this policy results in losses. An alternative is to set a price ceiling, called the fair-return price, that yields a normal profit but is somewhat inefficient.

Am I on Track?

3. Which of the following statements is true about a natural monopoly?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. Without regulation, overproduction occurs.

b. Marginal cost pricing results in firms earning positive profits.

c. The “fair-return” price results in an efficient allocation of resources.

d. The “fair-return” price results in firms earning a normal profit.

13-5b. Externalities

The case of pollution was treated in detail in Exhibit 4(a) in Chapter 4. To refresh your memory, recall that the individual firm in a competitive market has no incentive to eliminate pollution voluntarily. Pollution is an *external cost* imposed on *third parties* who neither produce nor consume the polluting good. Pollution causes polluting firms to overproduce by not paying the cost of controlling their pollution. If society wants less pollution, this type of market failure justifies government regulation from, say, the EPA. The exact nature of the regulation, however, may take a variety of forms, ranging from direct controls requiring specific pollution-control equipment to taxation.

Some products have *external benefits* for society. Without repeating the explanation given in Exhibit 4(b) in Chapter 4, note that the external benefits of a good, such as a vaccination, can lead to underproduction of the good. Again, regulation is necessary if society is to respond to externalities. In this case, the government solution to correct for the underproduction can take various forms, including requiring consumption or providing special subsidies.

13-5c. Imperfect Information

In some cases, consumers lack important information about a product, and they cannot make rational decisions. Without complete and reliable information, consumers may be unaware of the dangers of unsafe drugs, hazardous chemicals, and defective products. The source of imperfect information about products may be company errors. Much worse, companies may be able to boost sales by withholding valuable information about a problem with their products.

Let's consider a hypothetical case in which an unsafe Tucker Motors (TM) truck is sold. Suppose the safety defect is a gas tank that is located too close to the side of the truck. As a result, another vehicle can crash into the side of the TM truck and hit the gas tank. Such an accident can cause a deadly explosion. Assume further that TM is aware of this safety problem, but the cost of recalling and fixing the trucks exceeds the estimated cost of lawsuits caused by the defective gas tanks. The market incentive is, therefore, for TM to withhold knowledge of this defect from uninformed consumers.

A Closer Look Applicable Concept: Price Ceiling Regulation

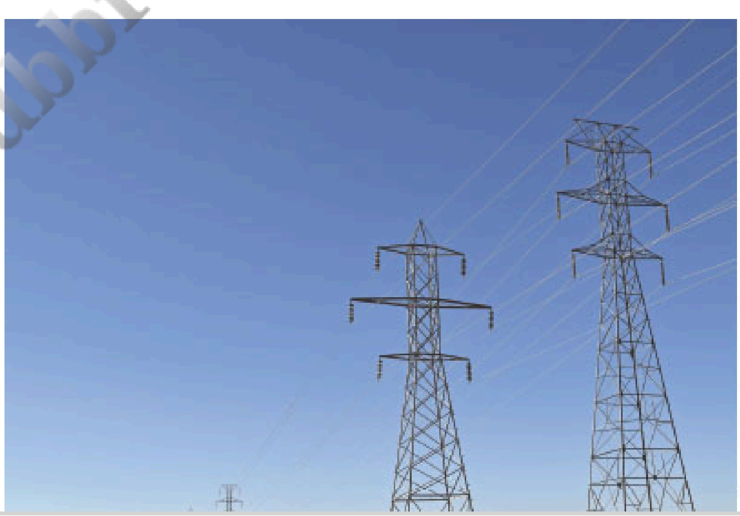
Who Turned out the Lights in California?

In order to keep electricity cheap for its state, the California legislature in 1996 set a retail ceiling price of 10 cents per kilowatt-hour. Moreover, no new power-generating plants were built during the 1990s. The plan was to require utilities to sell their power plants and import electricity as needed from the "spot market" through high-speed transmission lines from other states. In the deregulated wholesale electricity market, a spot market is one in which the price of electricity is determined by supply and demand conditions each hour.

The stage was set for the forces of supply and demand to "turn out the lights." First, demand soared during a heatwave in the summer of 2000 as consumers turned on their air conditioners. Second, there was a leftward shift in supply. High natural gas prices increased the cost of producing electricity in all states. Also, low snowpacks and a drought in the Pacific Northwest reduced the capacity of hydroelectric dams in this region.

Facing shortages from both increased demand and decreased supply, California utilities had no choice but to buy electricity on the spot market as prices soared tenfold over their normal levels. Since customer rates were capped, the price paid by consumers did not cover what the utilities were paying for electricity. The utilities quickly found themselves facing bankruptcy, and this threat caused additional spot rate increases. Duke Power Company of North Carolina, for example, stated that 8 percent of its spot price was a premium to cover the risk of selling to California utilities that might not pay their bills. A subsequent investigation by the Federal Energy Regulatory Commission (FERC) reported evidence that power companies such as Enron developed strategies to drive up prices.

Faced with this crisis, Gray Davis, who was governor of California at the time, called for more price caps. He convinced the FERC to cap wholesale prices in the West during hours of highest demand, combined with a daily regime of rolling blackouts and calls for conservation. In April 2001, Davis abandoned the 1996 price ceiling, thus sharply increasing the retail electricity price. Prices have oscillated ever since but remain high to this day.



Tony Craddock/Adobe Stock

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labels on cigarettes. In extreme cases, a product may be deemed too unsafe, and it is outlawed from sale. Others disagree with this view and argue that the government should only provide information. Once consumers have sufficient information, they should be free to choose.

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Key Terms

Trust

Predatory pricing

Sherman Act of 1890

Clayton Act of 1914

Federal Trade Commission Act of 1914

Robinson–Patman Act of 1936

Celler–Kefauver Act of 1950

Rule of reason

Per se rule

Horizontal merger

Vertical merger

Conglomerate merger

Deregulation

Marginal cost pricing

Summary

- A trust is a cartel that places the assets of competing companies in the custody of a board of trustees. During the last decades of the 19th century, trusts engaged in anticompetitive strategies to eliminate competition and raise prices.

- Predatory pricing is the anticompetitive practice of one or more firms temporarily reducing prices in order to eliminate competition and then raising prices.
- The Sherman Act of 1890 and the Clayton Act of 1914 are the two most important antitrust laws. The Sherman Act marked the first attempt of the U.S. government to outlaw monopolizing behavior. Because this act was vague, the Clayton Act was passed to define anticompetitive behavior more precisely. The Clayton Act prohibited
    - price discrimination
    - exclusive dealing
    - tying contracts
    - stock acquisition of competing companies
    - interlocking directorates
- The Federal Trade Commission Act of 1914 established the Federal Trade Commission (FTC) to investigate unfair competitive practices of firms.
- The Robinson–Patman Act of 1936 strengthened the Clayton Act by prohibiting certain forms of price discrimination. This law is called the "Chain Store Act" because it was aimed at large retail chain stores that were obtaining volume discounts.
- The Celler–Kefauver Act of 1950 strengthened the Clayton Act by declaring illegal the acquisition of the assets of one firm by another firm if the effect is to lessen competition.
- The rule of reason and the per se rule are the two main doctrines the courts have used in interpreting antitrust law. Under the rule of reason, monopolists were not subject to prosecution unless they acted in an anticompetitive manner. The court decision in the Alcoa case of 1945 replaced the rule of reason with the per se rule, which states that the mere existence of a monopoly is illegal. Today, the trend is in favor of dominant

firms because of global competition.

- A horizontal merger is a merger of two competing firms. A vertical merger is a merger of two firms in which one produces an input used by the other firm. A conglomerate merger is a merger of two firms producing unrelated products.

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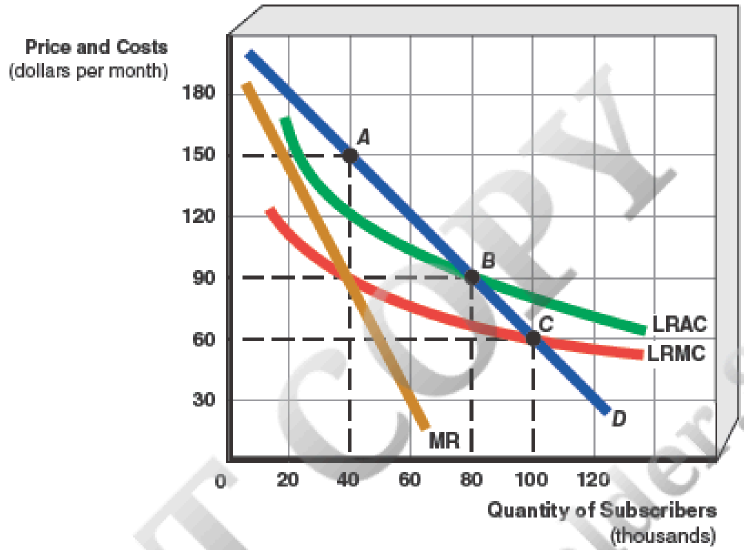


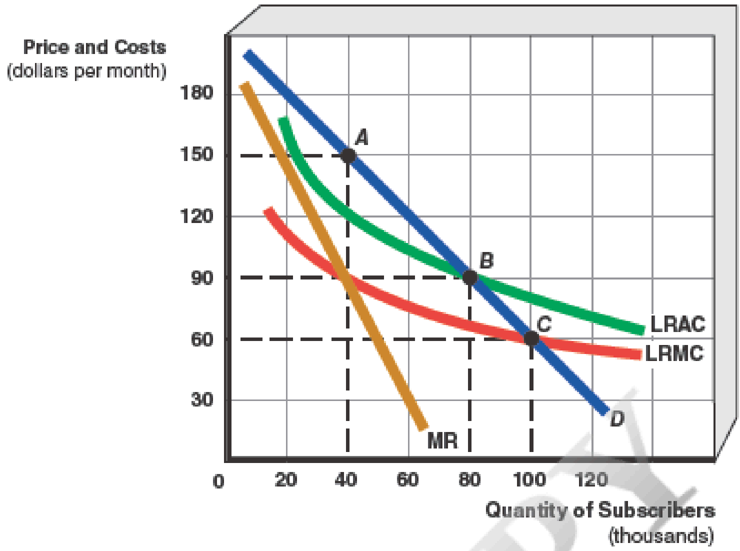
Details

Marginal Cost Pricing

- Deregulation is a movement that began in the late 1970s and 1980s to eliminate regulations primarily in the transportation, telecommunications, and banking industries. Today, the movement to further deregulate electric utilities is being questioned.

- Marginal cost pricing is a pricing strategy for a regulated natural monopoly designed to achieve a competitive production level. Using this approach, regulators set the monopolist's price equal to its marginal cost. Another method is for regulators to establish a fair-return price equal to the long-run average cost, and the monopolist earns zero economic profit. Regulation of a natural monopoly is justified on the basis of market failure. Two other economic justifications for regulation based on market failure include externalities and imperfect information.

- Insufficient information on unsafe products can cause consumers to overconsume a product.



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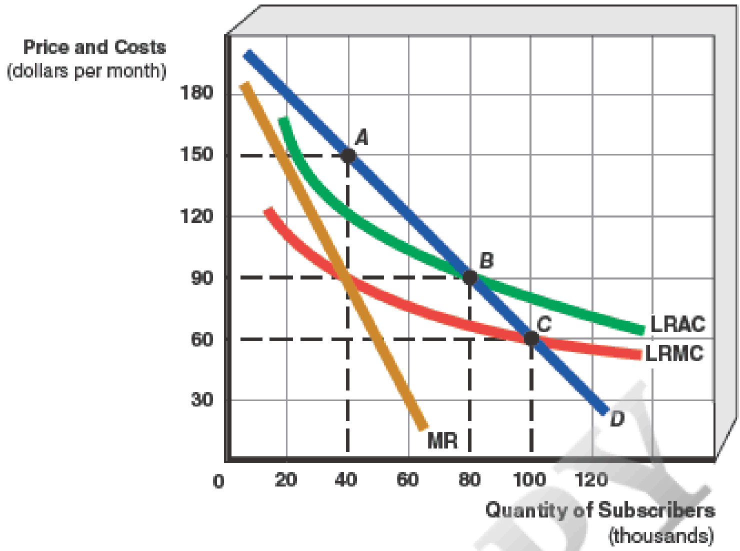

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- Insufficient information on unsafe products can cause consumers to overconsume a product.

Take Note Revisited

- The *rule of reason* and *per se rule* are the two main doctrines the courts have used in interpreting antitrust law. Following the *per se rule*, the mere existence of a monopoly is illegal, while under the *rule of reason*, the existence of a monopoly alone is not illegal unless the monopoly engages in illegal business practices.
- Government regulators can achieve efficiency for a natural monopoly by setting a price ceiling equal to the intersection of the demand and the marginal cost curves, but this policy results in losses. An alternative is to set a price ceiling, called the fair-return price, that yields a normal profit but is somewhat inefficient.
- Insufficient information on unsafe products can cause consumers to overconsume a product.

- Based on the antitrust laws, how would you expect the federal government to react to the following situations?

    - **a.** A college bookstore deliberately reduces prices until its only rival is driven out of business. The bookstore then raises its prices.

      The federal government will charge the bookstore with predatory pricing in order to monopolize its college market for books, which is a violation of the Sherman Act.

    - **b.** Real estate firms meet in an open meeting and agree to charge a given percent commission on sales.

      The federal government will charge the real estate firms with collusion to fix prices, which is a violation of the Sherman Act.

    - **c.** Microsoft merges with Apple by a stock acquisition.

      The federal government will charge a violation of the Clayton Act because the combined market share of this horizontal merger would substantially lessen competition in the personal computer market.

    - **d.** A small tax preparation company merges with a regional grocery store chain.

      The federal government will not charge a violation because this is a conglomerate merger between firms in unrelated industries.

- Based on the cases discussed in the chapter, is the following statement correct? "The antitrust laws in reality deal less with monopolies than with oligopolies."

- Assume a regulatory agency is given authority over prices and entry conditions for a given industry. Also, assume the agency decides to allow a new entry, as the CAB did before deregulation, only when it is proven to be "necessary." Would

CAB did before deregulation, only when it is proven to be "necessary." Would this condition be expected to favor existing regulated firms, new entrants, or consumers? Explain.

The "necessary" condition would be expected to favor existing regulated firms by eliminating or greatly restricting competition and raising prices. The existing regulated firms are better organized politically than either new competitors or consumers. While consumers favor competition and lower prices, regulators would be expected to interpret "necessary" to mean that the service provided by existing firms is sufficient without new firms.

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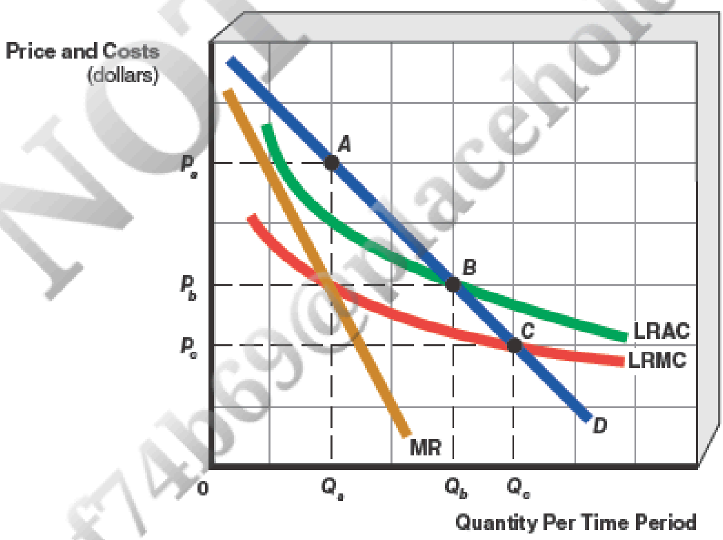
Exhibit 6 represents a natural monopolist.

Exhibit 6 Natural Monopolist



▸ Details

- **a.** If the monopolist is not regulated, what price will it charge, and what quantity will it produce?
- **b.** If the monopolist is required to use marginal cost pricing, what price will it charge, and what quantity will it produce? Why will the monopolist stay in business?

in business?

- **c.** Assume regulators set a fair-return price at P_b . Why would the monopolist stay in business?

•

Assume a natural monopolist is required to use marginal cost pricing, and a government subsidy covers the loss. What problems might be associated with a public subsidy?

Although a public subsidy achieves efficiency, marginal-cost pricing is usually unpopular with voters, who must provide the monopolist with public funds. Moreover, a public subsidy gives the monopolist a disincentive to minimize costs.

•

Do you agree that "cost does not really matter" as a principle for safety regulation, or do you believe that the cost of a safety device must be justified on the basis of the value of human life protected from a hazard?

•

The local water company is considered to be a natural monopoly, and the government prohibits other firms from competing with it. If a natural monopoly can produce water at a lower cost than two or more competing firms can, then why would the government protect the water company from competitors?

By protecting the water company from competitors, the government is preventing some inefficiency from occurring. As a natural monopoly with economies of scale, the water company can produce water at a lower cost (allowing for a lower price to be charged customers) than would result with two or more competing firms. If new firms were allowed to compete, they would need to build separate plants, dig up streets, lay their own water pipelines, etc. With these higher costs, they would leave the industry worse off with higher prices, and those resources that were used to compete would be wasted compared to a natural monopoly outcome.

Sample Quiz

Please see Appendix B for answers to Sample Quiz questions.

1. The antitrust law that prohibits firms from combining or conspiring to restrain trade in interstate commerce is the

   SHOW ANSWER

   SHOW ANSWER

   SHOW ANSWER

   a. Federal Trade Commission Act.

   b. Clayton Act.

   c. Sherman Antitrust Act.

   d. Robinson–Patman Act.

2. Price discrimination that tends to lessen competition is outlawed by the

   SHOW ANSWER

   SHOW ANSWER

   SHOW ANSWER

   a. Sherman Act.

b. Clayton Act as amended by the Robinson–Patman Act.

c. Federal Trade Commission Act.

d. Interstate Commerce Act.

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Chapter 14. Environmental Economics

Chapter Objectives

1. Use pollution as an example to graphically describe a negative externality.
2. Explain how command-and-control regulations impact a market with a negative externality.
3. Describe how incentive-based regulations impact a market with a negative externality.
4. Explain the Coase Theorem and its limitations.

Introduction

As we saw in Chapter 4, well-functioning competitive markets result in an efficient use of society's resources. Competitive markets work well when producers and consumers consider *all* costs in their decisions. But for some goods and services, external costs, also known as negative externalities, exist. For example, when I choose to purchase and drive a Jet Ski, I may not consider the noise that bothers you, the wildlife that are frightened away, or the pollution I'm adding to the lake with the gasoline powering the Jet Ski. Although these are local problems, other external cost problems such as climate change are global in scale.

This chapter begins with a review of why competitive markets may fail to sufficiently protect the environment by producing "too much pollution." We then look at ways government intervention might correct this market failure and improve our well-being, while also noting that there is the potential for government failure where government intervention might worsen the outcome.

14-1. Negative Externalities and Economic Inefficiency

While society values goods and services produced in markets, it also values air, water, and other environmental amenities. Air and water are shared resources that generally are not priced in the marketplace. The result is that markets often treat these resources as if they were free, resulting in their overuse. Competitive markets, which are ideal in efficiently allocating many goods and services, fail to achieve preferred levels of output when they treat valuable resources such as air and water as if they were free.

14-1a. Negative Externalities and the Environment

The competitive market has been shown in earlier chapters to achieve *economic efficiency*. This efficiency exists when the price to consumers, reflecting marginal benefit, equals marginal cost. Consumers, such as Jet Ski buyers, consider the purchase price, styling, and performance features, such as speed, when comparing models. Producers choose what type of Jet Ski to make based on their desire to maximize profits. Assuming perfect competition, profit maximization occurs where price equals marginal cost.

However, buyers and sellers consider only their personal or private benefits and costs. **Private benefits and costs** are benefits and costs to the decision maker, ignoring the benefits and costs to third parties. Third parties are people outside the market transaction who are affected by the product. As explained in Chapter 4, benefits and costs to third parties are known by a variety of names, including third-party effects, spillovers, and, most commonly, *external benefits and costs* or *externalities*. Recall that externalities are benefits or costs that are not considered by market buyers and sellers. Noise pollution is an externality that affects third parties that is not taken into consideration by Jet Ski buyers and sellers.

Other externalities that degrade the environment include sulfur emissions from coalburning electric power plants and the emission of chlorofluorocarbons (CFCs) associated with aerosol sprays and air conditioners. Sulfur emissions are widely thought to contribute to acid rain, resulting in tree deaths and fish kills. CFCs have been linked to a hole in the atmosphere's ozone layer, which increases the chance of skin cancer from the sun's ultraviolet rays. While CFCs have declined greatly because of a worldwide agreement known as the Montreal Protocol, the ozone hole is not expected to disappear before 2050. Automobile emissions contribute to air pollution, which reduces visibility and impairs health. Natural gas prices have fallen to their lowest level in years because of a technology known as hydraulic fracturing, or "fracking," which allows technology known as hydraulic fracturing, or "fracking," which allows producers to extract more natural gas than they could previously. But with fracking comes concerns about contaminated groundwater, air pollution and fracking-induced earthquakes.

Everyday externalities include the secondhand effects of cigarette smoke on the health of nonsmokers, as well as cigarette butts tossed out of car windows, farmers' use of pesticides that wash into the soil and water with detrimental health effects, and even noise from your next-door neighbor who is having a loud party while you are trying to study for an economics exam. Externalities can be positive as well as negative. For example, you benefit from your classmate's decision to get a flu vaccine.

When a producer of Jet Skis or any other product chooses a production method, the producer is motivated by profit maximization. To maximize profit, the firm must choose the most efficient, least costly production method. Production costs include the costs of capital, labor, natural resources (such as land or energy), and entrepreneurship. External costs to others, such as pollution, are not included in production costs because the firm considers only its private costs.

- too little production because producers do not consider external costs when making production decisions.

- too much production because producers only consider external costs when making production decisions.

- too little production because producers only consider external costs when making production decisions.

14-2. Achieving Environmental Efficiency

Competitive markets fail to produce the socially efficient quantity when there are externalities. Externalities are one cause of **market failure**. As explained in Chapter 4, market failure occurs when the private market fails to produce society's preferred outcome.

When there is market failure, we must consider alternatives to the market to achieve efficiency. Government has a potential role when market failure occurs. Government has the power to establish laws and taxes or to create permit systems so market participants pay for external costs.

Just as government can apply antitrust laws when an industry is not competitive, government can apply environmental laws when an industry ignores external costs. Environmental regulations force market participants to include externalities in their decision making. Not only are cars required to have catalytic converters, but many states also require annual inspections to make sure the converters are working properly.

Laws and legal regulatory requirements could also take the form of a ban on the production or consumption of a product. For example, U.S. regulations prohibit the use of CFCs in air conditioners, aerosol cans, and other products. Although regulations, such as the ban on CFCs, reduce emissions, they are not necessarily the most efficient approach to achieving less pollution. With the dramatic decrease in the legal supply of these products, price can rise to the point where some suppliers make the good available illegally. Still, if the undesirable external cost side effect is sufficiently dangerous, a ban may be appropriate.

As an alternative to banning an activity, the government can specify the goal but leave the method up to the firm. Suppose businesses wish to expand the production of goods with high levels of pollution. As an alternative to reducing their own emissions, they can pay another party to reduce its emissions to meet the regulated limited allowable level of pollution.

In the environmental arena, as in other areas of government intervention, there is always the possibility of government failure. **Government failure** occurs when the government fails to correct market failure. Government officials may fail to achieve an efficient outcome either by doing too little about pollution or by doing too much.

Government officials motivated to keep their jobs may be influenced by large campaign contributors as well as by voter desires. A Michigan legislator is likely to be sympathetic to the concerns of the auto industry and will also be aware of the autoworker layoffs and unemployment that accompany reduced car production. The official may be less motivated by externalities that are borne by third parties who do not vote in Michigan. On the other hand, a New York legislator may support an overly strict emissions standard for automobiles. New York voters benefit from cleaner air and are less concerned about auto industry job losses.

Much of the effort of environmental economists has gone toward improving the odds that government will help, not hinder, attempts to reach environmental goals. Economists generally favor incentive-based regulations over command-and-control regulations. **Incentive-based (IB) regulations** set an environmental goal but are flexible as to how buyers and sellers achieve the goal. Incentive-based regulations can make it profitable for firms to reduce emissions. **Command-and-control (CAC) regulations** set an environmental goal and

Command-and-control (CAC) regulations set an environmental goal and dictate how the goal will be achieved. Firms unable to meet the goal are penalized, and those that exceed it are not rewarded.

The advantage of IB over CAC regulations is comparable to the advantages of a market system over a command system. Market systems are more efficient because they allow gains from comparative advantage. Businesses can pursue activities with low opportunity costs. Similarly, allowing firms to choose how to achieve environmental goals encourages firms that can improve at a low cost to reduce emissions more than firms less able to achieve lower emissions.

Take Note

Incentive-based (IB) regulations set an environmental goal but are flexible as to how buyers and sellers achieve the goal. Command-and-control (CAC) regulations set an environmental goal and dictate how the goal will be achieved.

Let’s consider how CAC and IB regulations reduce auto emissions.

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Let's consider how CAC and IB regulations reduce auto emissions.

14-2a. Command-and-Control Regulations

In the 1970s, the U.S. government mandated the use of catalytic converters to reduce auto pollutants. The converter results in reduced hydrocarbon emissions associated with the burning of gasoline. While the catalytic converter undoubtedly reduces pollution, it suffers from several inefficiencies.

First, the requirement that cars have catalytic converters is uniform throughout the country. The marginal car in a high-pollution region, such as Los Angeles, has a much higher external cost than the same car driven across the prairies of Kansas. Efficiency calls for stricter regulations in automobile-intensive regions, such as Los Angeles. Second, there may be other technologies that can achieve the same reduced emissions at a lower cost. Finally, automakers have little incentive to invest in better future technology because the regulations require the firm to meet, but not beat, the standard.

A more subtle inefficiency is that CAC regulations may act as a barrier to entry to other firms, both domestic and international. The U.S. auto industry initially resisted environmental controls, knowing that controls would drive up costs. Foreign manufacturers, such as the Japanese automakers, already met the proposed U.S. standards but achieved their goal with a different technology. Catalytic converters put the Japanese manufacturers at a temporary cost disadvantage. Japanese cars were required to have catalytic converters even though they already met the air quality standard.

Another example of CAC regulations is the use of Corporate Average Fuel Economy (CAFE) standards. These oft-discussed standards require that each automaker achieve a minimum number of miles per gallon (mpg) for its fleet. For example, Ford's cars might be required to achieve at least 27 mpg. When this standard was imposed, Ford and other manufacturers invented minivans and sport utility vehicles (SUVs), which were classified as trucks and therefore not subject to the standard. Consumers shifted to minivans and SUVs despite their lower fuel efficiency until gas prices rose and returned to them when gas prices dropped. In the end, Ford met the higher fuel standard, but the average mpg of its vehicles actually on the road decreased. As of this writing, the National Highway Traffic Safety Administration (NHTSA) has proposed new, stricter standards for cars with model years 2024–2026. No doubt hybrid and electric cars will continue to be part of the solution. Only time will tell what ingenuity car companies will display to meet these new targets.

Am I on Track?

2. Emissions trading:

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. allows firms to buy and sell the right to pollute.

b. is an example of an incentive-based regulation.

c. is sometimes referred to as cap and trade.

d. All of the above are correct.

14-2c. Government and Environmental Efficiency

Market failure results when there are external costs of production. To achieve efficiency, buyers and sellers must consider external costs. As we have just explored, government has the power to establish laws and taxes or to create permit systems so market participants pay for external costs. Although government policy can potentially improve efficiency, there is no guarantee it will. For example, in the United States, a large number of U.S. Department of Defense sites are among the biggest environmental challenges. Hazardous wastes from the production of weapons resulted in toxic burial sites, including Oak Ridge, Tennessee, and Richland, Washington. Government environmental officials have gone to prison for illegally meeting with industry representatives officials have gone to prison for illegally meeting with industry representatives to weaken environmental regulations. And government has tended to ignore the cost to firms of complying with hundreds of thousands of pages of environmental legislation, a set of regulations more voluminous than the U.S. Tax Code. Government officials may pursue their own self-interest, which could favor polluting industries over societal interests as a whole, especially if industry executives are major campaign contributors. For all these reasons, as well as the widespread dissatisfaction with government in general, there is concern about the effectiveness of government policy in achieving environmental goals.

Take Note

Government has the power to establish laws and taxes or to create permit systems so market participants pay for external costs. Although government policy can potentially improve efficiency, there is no guarantee it will.

The Coase Theorem

Ronald Coase, an economist at the University of Chicago and the winner of the 1991 Nobel Prize in Economics, was among the first to caution against the assumption that government intervention in the environmental arena would improve upon private-sector environmental performance. In his famous 1960 paper "The Problem of Social Cost," he even questioned the fundamental assumption of market failure. According to the **Coase Theorem**, the private sector could achieve social efficiency with minimal government intervention. The role of the government should be limited to the legal establishment of property rights, with environmental disputes resolved with the help of the court. The Coase Theorem is the proposition that private market negotiations can achieve social efficiency regardless of the initial definition of property rights.

As an example of how the Coase Theorem works, consider a train that throws off sparks and occasionally burns a farmer's crops. Exhibit 3 shows railroad profits increasing and farm profits decreasing as more trains run. Each train has an

increasing and farm profits decreasing as more trains run. Each train has an external cost. Emitted sparks can cause fires, which reduce the farmer's crops. If the railroad ignores external cost, it appears that the railroad would choose to run five trains so as to maximize profit, leaving the farmer with no crops. It also
351 appears that to protect the farmer, there should be a law requiring the railroad to find a spark-free technology. Suppose the courts establish a law that farmers have the right to spark-free trains. How could the railroad meet this tougher environmental standard? The railroad could change to a new, higher-cost technology. The cost must be higher, or the railroad would have chosen this environmentally friendly technology in the first place. If the cost is too high, the railroad might go out of business or relocate its tracks away from farms. Alternatively, it may be less expensive to offer the farmer money for any burned crops.

Exhibit 3 Choosing the Efficient Amounts of Spark-Emitting Trains and Farm Crops

Number of Trains	Total Railroad Profit	Marginal Railroad Profit	Number of Crops	Total Farm Profit	Marginal Farm Profit
0	$0		10.5	$105	
		$20			$−5
1	20		10	100	
		20			−10
2	40		9	90	
		20			−20
3	60		7	70	
		20			−30
4	80		4	40	
		20			−40
5	100		0	0	

If the trains continue to throw off sparks, the first train will reduce the farmer's profits by $5 and will add $20 to the railroad's profits. The two parties will be able to negotiate a deal, with the farmer receiving a payment of between $5 and $20 from the railroad. What about a second train? This train will add another $20 to railroad profits but will reduce farm profits by $10. Again, the farmer will permit the railroad to run a second train as long as the railroad pays the farmer at least $10. If a third train runs, marginal social benefit will equal marginal social cost. Society will benefit from more train service but will lose from fewer crops. The third train will be marginally worthwhile, but additional trains will not run. The fourth train will add $20 to railroad profits but will reduce farm profit by $30. Thus, the railroad will lose money if it runs the fourth train. By clearly establishing the farmer’s right to spark-free trains, the number of trains will be decreased from five to three trains.

Notice that the farmer will be better off if they allow sparks as long as the railroad compensates the farmer for damage than if the government requires a spark-free technology. The farmer earns $105 when there are no sparks. With sparks, the farmer will earn at least $105, receiving between $5 and $20 for permitting the first train, at least $10 (and possibly as much as $20) for permitting the second train, and another $20 for the third train. With three trains, the farmer will still earn $70 from crops in addition to a minimum of $35 for allowing trains, for a total of at least $105.

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This outcome is similar to the government solutions examined earlier. Efficiency leads to the efficient amount of pollution, which is typically not zero. No sparks may mean no trains. But Coase asks, why assume that society is best served by assuming the railroad is the polluter and the farmer is the victim? In the 1800s, sparking engines may have been the best available technology, and an occasional fire may have been a natural consequence.

So consider the outcome if property rights to produce sparks are given to the railroads so trains are allowed to throw off sparks. If the farmer does nothing, the railroad will run five trains, and the farmer will end up with no crops and no profit. The farmer will increase profit by $40 if only four trains run. Since the fifth train will add only $20 to railroad profit, the farmer can afford to pay as much as $40 (or as little as $20) to stop the fifth train. Similarly, the farmer will gain $30 by stopping the fourth train, more than enough to pay the railroad for forgoing $20 in profit. Once again, negotiations will stop at three trains, the efficient number.

efficient number.

This example demonstrates the Coase Theorem: As long as the courts clearly establish property rights, markets may achieve social efficiency *regardless of the initial assignment of property rights*. Coase's great contribution was to focus attention on property rights, a focus that foreshadowed the emissions-trading approach that allows firms to negotiate by buying and selling the right to pollute. But Coase argues for an even more limited role for government. In his view, the government should establish clearly defined property rights and courts and then let markets negotiate.

Some Limitations on the Coase Theorem

Coase was instrumental in raising concern about government solutions. It might then seem a simple step to accept his claim that private markets would efficiently resolve environmental problems. In actuality, only a small number of environmental problems readily qualify for Coase Theorem solutions.

First, there are no transactions costs in the Coase Theorem. **Transactions costs** are the costs of negotiating and enforcing a contract. Turning to the courts is a costly process in terms of both time and money. And dealing with the source of the externality has its own costs. Have you ever tried to negotiate with a noisy neighbor at 2 a.m.? However, there are also transactions costs associated with government solutions. So, Coasean negotiations may be preferable to government intervention even when there are substantial private transactions costs.

Second, there are no differences in willingness to pay (WTP) and willingness to accept (WTA) in the Coase Theorem. Many studies have found that people's willingness to pay to acquire a property right, such as an improvement in air quality, is less than the compensation they require to give up a property right, such as accepting lower air quality. If the farmer has the right to spark-free air, they may require \$50 to allow sparks. Alternatively, if the farmer has to buy that right, they may be willing to pay only \$20. In other words, people may not view giving up an environmental right you already own as equivalent to buying a giving up an environmental right you already own as equivalent to buying a right you do not currently own.

Third, Coase assumes there are only two parties in the negotiation. Externalities are typically third-party problems, and there may be many third parties. Do all the farmers get together to negotiate with the railroad, and do all the neighbors get together to reduce noise from the party? With many participants, there is once again a free-rider problem. If noise levels decrease, I get the benefit whether or not I contribute to the negotiations. So why contribute? The **free-rider problem** is that if some individuals benefit while others pay, few will be willing to pay for the improvement of the environment or other public goods. As a result, these goods are under produced.

A Closer Look Applicable Concepts: Emissions Trading and Effluent Taxes

How Should Carbon Emissions Be Reduced: Cap and Trade or Carbon Taxes?

With the great success that was enjoyed until recently in sulfur dioxide trading and the more modest success of trading in nitrous oxides, we may eventually turn to emissions trading to reduce carbon emissions in the United States. In fact, Europe has already instituted such an exchange. In 2005, the European Union instituted a carbon permit system for electric utilities and other major emitters such as steel companies. However, smaller emitters such as smaller industries and nonpoint sources such as automobiles are not covered.

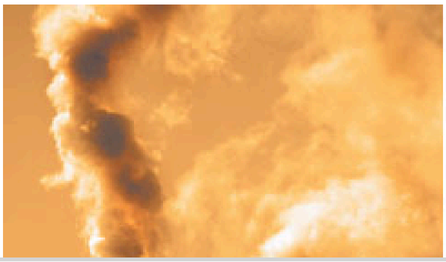
In some ways, carbon would seem ideally positioned for emissions trading. To the extent that it contributes to global warming, the effect is the same regardless of where that emission takes place. Whether carbon is emitted in France, Spain, or, for that matter, the United States or China, its effect on the global atmosphere is the same. In this way, carbon is a better candidate for trading than is sulfur, which has a greater impact in the vicinity of its release.

release.

But there is increasing questioning of whether or not carbon trading is preferable to a tax on carbon. One contributing argument is the initial European experience was disappointing. Early projections anticipated that carbon contracts would trade for about $50/ton, given the high cost to industry of reducing carbon. By mid-2006, the price of contracts had collapsed to €10/ton (approximately $15). The primary factor for the lower-than-expected price was that numerous national governments had issued enough permits that covered producers did not find it necessary to buy permits. In fact, carbon emissions increased in many countries during the first year of the carbon trading regime.

Since that time, there have been reforms in the trading system, and prices have risen. While price jumped to €30 by the middle of 2008, it is now back down to €4 (US $6). The possibility that an emissions trading system might not reduce carbon emissions has given impetus to those who argue for a carbon tax. *

For those who prefer the tax approach, perhaps the most widespread reason is that the tax will raise revenue. The revenue could provide a double dividend if it is used to reduce taxes that discourage productive activities, such as the income tax. Of course, the revenues could go toward research and the development of carbon-reducing technologies or reduction of the national debt. (Or tax opponents would point out it could simply be wasted on pork barrel projects.) While permits could raise revenue if they were auctioned off rather than given away, the auction would negate one of the main reasons for favoring permits—that industry is willing to support the permit approach because they do not have to pay for the permits.



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Lane V. Erickson/Shutterstock.com

Other reasons to favor the tax approach include its ability to be more comprehensive, covering all carbon emissions, rather than being limited primarily to large point sources. It could also be fashioned to include other greenhouse gases, such as methane; farmers, for example, would pay a tax based on the number of cows they owned and perhaps on other animals that emit methane. * Some prefer the carbon tax on equity grounds. Particularly if coupled with a reduction in income taxes, the tax could offer relief to lower-income households. In contrast, the main beneficiaries of giving away permits are stockholders, who may represent wealthier citizens. *

The latest twist is that cap and trade has been spurned by the United States with its opponents calling it a disguised tax that will show up in higher prices for all carbon-emitting goods. In a recent court decision, carbon was declared a pollutant, giving the U.S. Environmental Protection Agency the right to regulate carbon emissions. New regulations aimed at carbon will likely mean the end of new coal-fired electric plants. But existing plants will still pour carbon into the air unless there is a program that imposes a cost on all carbon emissions.

A Closer Look Applicable Concepts: Emissions Trading and Effluent Taxes

Why Is the Climate Change Problem So Hard to Solve?

The United Nations Framework Convention on Climate Change (UNFCCC) adopted its first treaty on May 9, 1992, and it has adopted several more since then. The latest is the 2015 Paris Climate Agreement (also known as the Paris Accords).

The central goal of the Paris Climate Agreement, which was adopted by 196 nations, is to prevent the global average temperature from increasing more than 2 degrees Celsius above pre-industrial levels. The global average temperature has already risen about 1 degree Celsius. Unfortunately, the Paris Accords are unlikely to meet that goal since even if every signatory country meets their current pledges to reduce greenhouse emissions, the world is still expected to warm by more than 2 degrees.

The actual reductions in emissions are set to begin in 2020, and the emissions reduction target will be reevaluated every 5 years. The deal is supposed to reach zero net emissions by "mid-century." Zero net emissions implies that any greenhouse emissions emitted could be offset by an equivalent amount extracted from the atmosphere by, for example, growing forests that absorb carbon dioxide.

Although developing countries are given some time and leeway in meeting emission reductions, developed countries are expected to reduce their
355 emissions right away. To encourage underdeveloped countries to meet their pledged reduction in emissions, the developed world is expected to provide $100 billion each year to assist them in switching away from less-expensive fossil fuels. The United States has pledged $3 billion per year, the largest total amount pledged and the 11th largest amount pledged per capita.


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▸ Details

MANDEL NGAN/AFP/Getty Images

The United States initially signed on during the Obama administration, then President Trump withdrew from the Paris Climate Accords in 2017.

He argued that the Paris Accords unfairly advantaged foreign nations and asserted that the deal placed “draconian” financial burdens on the American people.

As you might expect, this is a hot political issue. Critics of President Trump’s withdrawal from the Paris Accords worried about the consequences this might have on the global environment. President Biden rejoined the Paris Climate Agreement in 2021.

The Paris Climate Agreement is not the first attempt at combating climate change. The Kyoto Protocol agreement of 1997 was another attempt; however, it failed, perhaps because the United States declined to sign over its concerns that it was a “legally” binding treaty. We will have to wait and see if the Paris Agreement will be able to achieve its goals.

Why is this problem proving so difficult to solve? There has been widespread, although not universal, agreement that human activity is contributing to a warming planet, which could lead to flooding, desertification, weather events such as stronger hurricanes, and the spread of tropical diseases to warming countries.

One of the continuing controversies that has run through many climate change treaties is whether countries, developed and developing, should receive credit for offsets. Brazil, for example, wants credit for slowing or reversing the rate at which it is cutting down its rain forest. Trees store carbon. Countries could receive carbon credits for planting trees or possibly for slowing the rate at which trees are being cut down. Brazil and other developing countries want developed countries to pay them, as they claim they are slowing their own development by growing new forests or slowing the conversion of existing forest to agricultural resources.

In addition, there is not even agreement over which countries are still developing. For the purpose of avoiding the cost of slowing emissions, never mind reducing them; it is advantageous to claim you are still developing. The argument is that developed countries were able to grow and emit greenhouse gases with impunity; it is only fair that developing countries be able to do the same. Developed countries have benefited from industrialization without having to pay for their emissions, so is it fair that developing countries should do so now?

But perhaps most fundamentally, a viable solution will have to address the problems of externalities and public goods. Consumers and producers of carbon-emitting products, such as coal-burning power plants and gasoline-burning automobiles, will, in the absence of government intervention, ignore emissions. Furthermore, any global agreement to reduce emissions will benefit everyone, whether an individual has borne the expense of reducing emissions or not, a classic example of a public good. The benefits are nonrival and nonexcludable.

And agreeing on whether we will actually reduce emissions or simply slow them down will be contentious. Nor is CO_2 the only greenhouse gas. Methane, of which cows are a major emitter, is smaller in volume but more potent in effect.

So, in sum, taking action to slow or stop climate change is one of the most difficult problems humans have faced. There may be some doubt on the extent to which humans have contributed to the problem and some disagreement on what countries are responsible for paying for the solution as well as disagreement about how to develop a mechanism that can overcome externalities and public goods problems. However, if left unaddressed, we may find ourselves left to adapt to climate change, abandoning low-lying lands, accepting millions of immigrants from those countries, switching to hot weather crops, and losing flora and fauna that cannot adapt, unless we can develop effective approaches to address this challenge.

Key Terms

Private benefits and costs

Social benefits and costs

Free rider

Market failure

Government failure

Incentive-based regulations

Command-and-control regulations

Effluent tax

Emissions trading

Offset

New-source bias

Hot spot problem

Coase Theorem

Transactions costs

Free-rider problem

Tragedy of the Commons

Sustainability

Summary

- Externalities are benefits or costs that fall on third parties who are neither buyers nor sellers. Pollution is a negative externality or an external cost that is a by-product of many industrial production processes.

- Market failure is present when the market produces a socially inefficient outcome (for example, when there are externalities). All firms, including competitive firms, consider private costs but disregard external costs in making decisions.

- Government failure occurs when public-sector actions or lack of actions fail to improve an inefficient market outcome. Government failure stems from corruption, ignorance, or special-interest group pressure. For example, government officials seeking campaign contributions and votes may choose environmental measures that favor wealthy contributors over society's best interests.

- Command-and-control regulations occur when the government dictates the approach to achieving an environmental goal. Command-and-control regulations are generally inefficient on three grounds: They do not distinguish between high-and low-pollution areas, they do not allow firms to choose lower-cost technologies that could achieve the environmental standard, and they do not encourage investment in improved technology to lower future emissions.

- Incentive-based regulations build on markets to achieve environmental efficiency. Effluent taxes are taxes that reflect external costs. Emissions trading allows firms to buy and sell the "right to pollute."

- The hot spot problem applies to emissions that do not disperse uniformly, and, therefore, emissions may be higher in locations where firms buy permits that allow them to increase emissions.

- The Coase Theorem maintains that markets can be efficient in the presence of externalities with minimal government intervention. Even in the presence of externalities, markets may produce efficient outcomes as long as property rights are clearly established.

- Transactions costs, income effects, and free-rider problems are obstacles to achieving environmental efficiency through markets. Transaction costs are the costs of negotiating an agreement, income effects are present when limited income prevents one party from being able to afford the efficient solution, and free-rider problems are present when participants are better off hiding than revealing their willingness to pay for an environmental improvement.

- Tragedy of the Commons predicts that individuals will use fisheries and grazing areas to exhaustion because they base their use on their private benefits, disregarding the effects of their use on others. The "tragedy" has been questioned by Elinor Ostrom, who finds that individuals will establish institutions converting open access property to common property so the resource can be sustained over time.

Take Note Revisited

- Social benefits include both private benefits and external benefits. Social costs include both private costs and external costs. Social welfare is maximized when production occurs at the quantity at which the marginal social benefit equals the marginal social cost.
- When negative externalities are present, a competitive market results in a lower price and a larger quantity produced and consumed than is socially efficient.
- Incentive-based (IB) regulations set an environmental goal but are flexible as to how buyers and sellers achieve the goal. Command-and-control (CAC) regulations set an environmental goal and dictate how the goal will be achieved.
- Economists generally believe that incentive-based regulations are more efficient than command-and-control regulations.
- Government has the power to establish laws and taxes or to create permit systems so market participants pay for external costs. Although government policy can potentially improve efficiency, there is no guarantee it will.

- Explain why consumers would not be willing to pay the full costs of a less polluting car in the absence of government regulations.

Consumers will share in the benefits of cleaner air if any individual buys a less polluting car. Since they enjoy the same benefit whether they pay extra or their neighbor pays extra for a cleaner car, they will let the neighbor buy the cleaner car. Of course, because their neighbor uses the same reasoning, no one ends up paying extra to buy a cleaner car.

- Evaluate the following statement: "When products pollute, government solutions are more efficient than market solutions."

- Provide an example of a market where you think the Coase Theorem applies. Explain why you think the market satisfies assumptions regarding transactions costs, income effects, and free riders.

It is very difficult to find markets where the transaction costs of reaching an agreement are near zero. It is also difficult to find two-party situations, because most pollution spills over to many individuals. With many individuals involved, the free-rider problem arises, as a given individual wants to benefit from pollution agreements, but let others bear the cost. There can often be income effects, as fighting pollution may take a large amount of one's income. Candidates for markets where the Coase Theorem might apply include convincing your neighbor to leash her dog (you might help finance invisible fencing), enforcing laws concerning the fencing of cattle (see question 12 for further discussion), and settling disputes when one builder interferes with the views of existing homes.

- In a study of ranching laws in the 1800s, an economic researcher found that as these laws restricted the ability of cattle to roam freely, agricultural output increased. Does this researcher's findings support the Coase Theorem? Explain.

- If we are to take action against global warming, we must reduce carbon emissions. Explain how to reduce carbon emissions by using

  - **a.** command-and-control regulation.

    Command-and-control regulation would dictate the use of an alternative technology with lower carbon emissions.

  - **b.** an effluent tax.

    An effluent tax would place a tax on carbon emissions so firms could no longer ignore these costs. In turn, prices of carbon-emitting products would increase, and quantities would decrease.

  - **c.** emissions trading.

    Permits would be issued giving the right to emit carbon. The number of permits would equal the socially efficient emissions level. Firms would be allowed to buy or sell these permits. Firms with higher marginal costs of emissions abatement would buy permits, while firms that could reduce emissions at a lower cost would profit from selling permits.

- A global agreement known as the Montreal Protocol led to the phase-out of chlorofluorocarbons (CFCs), chemical compounds found in aerosol cans and refrigerants. CFCs may have contributed to the growing hole in the ozone layer. With a diminished ozone layer, there is an increased chance of skin cancer. Explain the effect of this agreement on the price of deodorants and air conditioning. Also, is a ban on CFCs an efficient approach to the ozone hole problem?

- Explain the "Tragedy of the Commons" as described by Garrett Hardin. Why does Elinor Ostrom disagree with Hardin's prediction that fisheries and other "commons" will collapse?

"commons" will collapse?

According to Garrett Hardin, individuals will use a common property resource as long as their marginal benefits exceed their marginal costs. They will disregard the external costs to others if additional fishing or grazing subtracts from the fish or grass available to others using the common. As all users of the common will behave in this way, the commons will be used beyond the efficient point, and potentially to the point of exhaustion, where the availability of the commons will collapse.

Elinor Ostrom has studied fisheries and other commons and finds that those who are using the resource will attempt to establish institutions that will lead to optimal use. Rather than leave the commons as open access, they will convert it to common property. They will limit who can access the property and limit its use, so that the commons will not be fished or grazed into exhaustion.

- Distinguish between the concepts of social efficiency and sustainability. Provide an example to demonstrate the distinction.

- Suppose you live next door to a hog farm. It is estimated that the smell from the hog farm reduces the value of your home by $7,000. For $5,000, you can purchase technology that reduces the hog smell by half, so your house value would decrease by only $3,500. Assuming the hog farm has the property right to locate next door and that it is not required to reduce the hog smell, what will you do? Will you do nothing or buy the new technology? Explain.

It is not efficient to purchase the new odor reducing technology. It would cost $5,000, but would increase your house value by only $3,500. It is not efficient to cut the odor by half if the market will not compensate you sufficiently for reduced hog odors. If your only option is to do nothing or to buy the new technology, then you should do nothing. A third option is to pay the hog farm to locate elsewhere. You would be willing to pay up to $7,000 to avoid the $7,000 lost due to the smell of the nearby farm.

Sample Quiz

Please see Appendix B for answers to Sample Quiz questions.

1. Private costs are

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. the full resource costs of an economic activity.

b. always less than social costs.

c. the costs of an economic activity borne by the producer.

d. All of the above answers are correct.

2. When negative externalities such as pollution exist, competition leads to

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. a socially efficient outcome.

b. too few goods being bought and sold.

c. a market equilibrium price that is too high.

d. more production than would be efficient.

3. From an economic viewpoint, the optimal amount of pollution

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. is zero because all pollution imposes costs on society.

b. is that amount firms create when they maximize economic profits by setting their marginal private costs equal to market price.

c. is that amount where the marginal social costs of producing a good precisely equals the price of the good.

d. Answers b and c are both correct.

Road Map for Chapters 12, 13, and 14

Road Map: Microeconomics Policy Issues

This road map feature helps you tie together material in this part as you travel the Economic Way of Thinking Highway. The following are review questions listed by chapter from the previous part. The key concept in each question is given for emphasis. The correct answers to the multiple-choice questions are given in Appendix C.

Chapter 12: Income Distribution, Poverty, and Discrimination

1. Key Concept: Income Distribution

Which of the following *most* closely represents the share of total U.S. income to the poorest 20 percent of all U.S. families?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. 5 percent

b. 10 percent

c. 25 percent

d. 50 percent

2. Key Concept: Lorenz Curve

When the Lorenz curve becomes more bowed out away from the 45-degree line, then the distribution of income

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. is equal.

b. becomes more equal.

c. becomes more unequal.

d. becomes negative.

3. Key Concept: Negative Income Tax

With a negative income tax, families with the lowest levels of income

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. neither pay taxes nor receive income from the government.

b. have the same tax rate as other families.

c. have a higher tax rate than other families.

d. receive a guaranteed income from the government.

Chapter 13: Antitrust and Regulation

4. Key Concept: Antitrust Laws

Which of the following is concerned primarily with price discrimination?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

Sherman Act

Clayton Act

Celler–Kefauver Act

Robinson–Patman Act

5. Key Concept: Imperfect Information

Which of the following may be the result of a higher equilibrium price for a product?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

Advertising

Expectations

Imperfect information

All of the answers are correct.

None of the answers above are correct.

6. Key Concept: Imperfect Information

Deficient information on unsafe products can cause:

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

overconsumption of a product.

waste of resources used to produce a product.

consumers paying a higher price for a product.

All of the answers above are correct.

None of the answers above are correct.

Chapter 14: Environmental Economics

7. Key Concept: Incentive-based regulations

Which of the following is *true* about incentive-based regulations?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

They set an environmental goal but are flexible on how to achieve the goal.

They obtain more efficiency gains than is obtainable from CAC regulations.

Effluent taxes are an example of incentive-based regulations.

All of the answers are correct.

8. Key Concept: Negative Externality

To increase society's total welfare (social efficiency), a production process that produces a negative externality should be

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

taxed.

provided by the government.

ignored.

subsidized.

9. Key Concept: Effluent Tax

A government policy that charges coal producers a fee per ton of coal produced (an “effluent charge”), where the fee is determined by the amount of pollutants discharged into the air or water will lead to a(an)

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

decrease in the market equilibrium quantity of coal produced.

decrease in the market equilibrium price of coal.

increase in the market equilibrium price of coal.

Both answers a and c are correct.

10. Key Concept: Command-and-Control

An example of the command-and-control approach to environmental policy is

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

requiring electric utilities to install scrubbers to reduce sulfur dioxide emissions (which contribute to acid rain).

placing a tax on high-sulfur coal to reduce its use and the corresponding sulfur emissions (which contribute to acid rain).

allowing coal producers to buy and sell permits to allow sulfur emissions.

allowing individuals to sue coal producers if sulfur emissions exceed government-set standard.

- allowing individuals to sue coal producers if sulfur emissions exceed government-set standard.

Chapter 15. International Trade and Finance

Chapter Objectives

1. Summarize the benefits and costs to a nation from international trade.
2. Distinguish a comparative advantage from an absolute advantage.
3. Describe the different types of trade barriers and their consequences, and evaluate the arguments for protectionism.
4. Outline the elements of a nation's balance of payments.
5. Explain how international exchange rates are determined and their impact on a nation's exports and imports.

Introduction

Just imagine your life without world trade. For openers, you could not eat bananas from Honduras or chocolate from Nigerian cocoa beans. Nor could you sip French wine, Colombian coffee, or Indian tea. Also, forget about driving a Japanese motorcycle or automobile. In addition, you could not buy Italian shoes, televisions, and personal computers because they are foreign made. The list goes on and on, so the point is clear. World trade is important because it gives consumers more power by expanding their choices. Not only do consumers have a wider variety of products from which to choose because of global trade, they also enjoy a greater quantity of higher quality products as well. And all of this at lower prices!

However, global trade is not without its drawbacks. Critics have pointed to globalization as the source of many problems ranging from worker exploitation to global warming. Without a doubt there are "victims of globalization." Some businesses and their workers may have their livelihoods jeopardized when faced with an increasingly globally competitive market environment. This can explain many lobbying efforts to persuade government to restrict free trade by imposing tariffs and other protectionist trade barriers.

This chapter begins with an examination of the theoretical reason why countries should specialize in producing certain goods and trade them for imports. We also look at the arguments for and against trade barriers, often motivated to protect businesses from "unfair" foreign competition. In the second half of the chapter, you will learn how nations pay each other for world trade. Here, you will explore international bookkeeping and discover how supply and demand forces determine foreign exchange rates, for example, why 1 dollar is worth 100 Japanese yen. You will discover that changes in exchange rates have predictable impacts on a country's exports and imports, for example, why a stronger dollar will decrease U.S. exports, increase U.S. imports, and create a trade deficit.

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15-1. Why Nations Need Trade

The United States leads the world in imports while also being one of the top exporters in the world. Exhibit 1 reveals which regions are our major trading partners (exports plus imports). Leading the list of nations are China, Canada, Mexico, and Japan. Leading U.S. exports are machinery, agricultural products, computers, automobiles, chemicals, and airplanes. Major imports include petroleum, cars, trucks, clothing, and electronics. Why does a nation even bother to trade with the rest of the world? Does it seem strange for the United States to import goods it could produce for itself? Indeed, why doesn’t the United States become self-sufficient by growing all its own food, including bananas, sugar, and coffee, making all its own cars, and prohibiting

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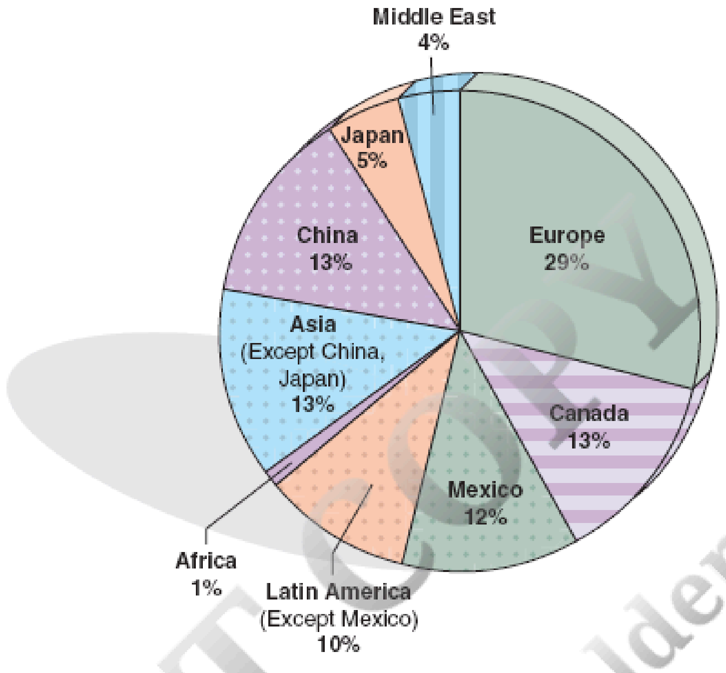
sales of all foreign goods? This section explains why specialization and trade are a nation's keys to a higher standard of living.

Exhibit 1 U.S. Trading Partners, 2020



Details

Source: Bureau of Economic Analysis, *U.S. International Transactions by Area*, https://www.bea.gov/international/bp_web/tb_download_type_modern.cfm?list=11&RowID=0, Table 1.3.

In 2020, Canada, China, Mexico, and Japan accounted for over 40 percent of U.S. trade (exports plus imports).

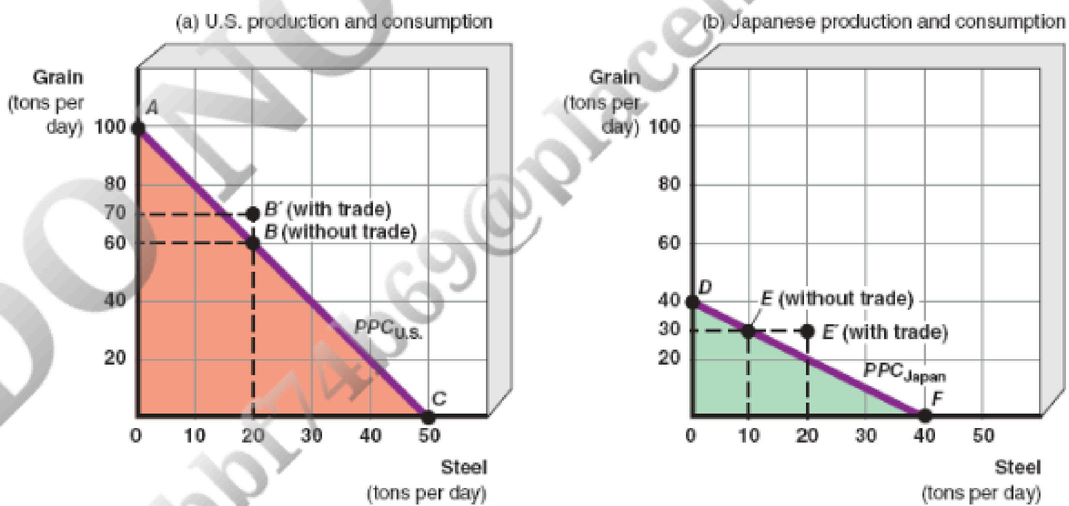
15-1a. The Production Possibilities Curve Revisited

Consider a world with only two countries—the United States and Japan. To keep the illustration simple, also assume that both countries produce only two goods—grain and steel. Accordingly, we can construct a *production possibilities curve* for each country in Exhibit 2. We will also set aside the *law of increasing opportunity costs*, explained in Chapter 2, and assume workers are equally suited to producing grain or steel. This assumption transforms the bowed-out shape of the production possibilities curve into a straight line.

Exhibit 2. The Benefits of Specialization and Trade

As shown in part (a), assume the United States chooses point *B* on its production possibilities curve, $PPC_{\text{U.S.}}$ Without trade, the United States produces and consumes 60 tons of grain and 20 tons of steel. In part (b), assume Japan also operates along its production possibilities curve, PPC_{Japan}, at point *E*. Without trade, Japan produces and consumes 30 tons of grain and 10 tons of steel.

Now assume the United States specializes in producing grain at point *A* and imports 20 tons of Japanese steel in exchange for 30 tons of grain. Through specialization and trade, the United States moves to consumption possibility point B', outside its production possibilities curve. Japan also moves to a higher standard of living at consumption possibility point E', outside its production possibilities curve.



▸ Details

Comparing parts (a) and (b) of Exhibit 2 shows that the United States can produce more grain than Japan. If the United States devotes all its resources to this purpose, 100 tons of grain are produced per day, represented by point *A* in Exhibit 2(a). The maximum grain production of Japan, on the other hand, is only

40 tons per day because Japan has less labor, land, and other factors of production than the United States. This capability is represented by point *D* in Exhibit 2(b).

Now consider the capacities of the two countries for producing steel. If all their respective resources are devoted to this output, the United States produces 50 tons per day (point *C*), and Japan produces only 40 tons per day (point *F*). Again, the greater potential maximum steel output of the United States reflects its greater resources. Both countries are also capable of producing other combinations of grain and steel along their respective production possibilities curves, such as point *B* for the United States and point *E* for Japan.

15-1b. Specialization without Trade

Assuming no world trade, the production possibilities curve for each country also defines its *consumption possibilities*. In other words, we assume that both countries are *self-sufficient* because without imports, they must consume only the combination chosen along their production possibilities curve. Under the assumption of self-sufficiency, suppose the United States prefers to produce and consume 60 tons of grain and 20 tons of steel per day (point *B*). Also assume Japan chooses to produce and consume 30 tons of grain and 10 tons of steel (point *E*). Exhibit 3 lists data corresponding to points *B* and *E* and shows that the total world output is 90 tons of grain and 30 tons of steel.

Exhibit 3 Effect of Specialization without Trade on World Output

	Grain Production (tons per day)	Steel Production (tons per day)
Before specialization		
United States (at point *B*)	60	20
Japan (at point *E*)	30	10
Total world	90	30

output		
After specialization		
United States (at point *A*)	100	0
Japan (at point *F*)	0	40
Total world output	100	40

Take Note

When countries specialize, total world output increases, and, therefore, the potential for greater total world consumption also increases.

Now suppose the United States specializes by producing and consuming at point *A* rather than point *B*. Suppose also that Japan specializes by producing and consuming at point *F* rather than point *E*. As shown in Exhibit 3, specialization in each country increases total world output per day by 10 tons of grain and 10 tons of steel. Because this extra world output has the potential for making both countries better off, why wouldn't the United States and Japan specialize and produce at points *A* and *F*, respectively? The reason is that although production at these points is clearly possible, neither country wants to consume these combinations of output. The United States prefers to consume less grain and more steel at point *B* compared to point *A*. Japan, on the other hand, prefers to consume more grain and less steel at point *E*, rather than point *F*.

Now suppose the United States specializes by producing and consuming at point *A* rather than point *B*. Suppose also that Japan specializes by producing and consuming at point *F* rather than point *E*. As shown in Exhibit 3, specialization in each country increases total world output per day by 10 tons of grain and 10 tons of steel. Because this extra world output has the potential for making both countries better off, why wouldn't the United States and Japan specialize and produce at points *A* and *F*, respectively? The reason is that although production at these points is clearly possible, neither country wants to consume these combinations of output. The United States prefers to consume less grain and more steel at point *B* compared to point *A*. Japan, on the other hand, prefers to consume more grain and less steel at point *E*, rather than point *F*.

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15-1c. Specialization with Trade

Now let's return to Exhibit 2 and demonstrate how world trade benefits countries. Suppose the United States agrees to specialize in grain production at point *A* and to import 20 tons of Japanese steel in exchange for 30 tons of its grain output. Does the United States gain from trade? The answer is yes. At point *A*, the United States produces 100 tons of grain per day. Subtracting the 30 tons of grain traded to Japan leaves the United States with 70 tons of its own grain production to consume. In return for grain, Japan unloads 20 tons of steel on U.S. shores. Hence, specialization and trade allow the United States to move from point *A* to point B', which is a consumption possibility *outside* its production possibilities curve in Exhibit 2(a). At point B', the United States consumes the same amount of steel and 10 more tons of grain compared to point *B* (without trade).

Japan also has an incentive to specialize by moving its production mix from point *E* to point *F*. With trade, Japan's consumption will be at point E'. At point E', Japan has as much grain to consume as it had at point *E* (30 tons), plus 10 more tons of steel (now totaling 20 tons). Thus, point E' is a consumption possibility that lies *outside* Japan's production possibilities curve.

Take Note

Global trade allows a country to consume a combination of goods that exceeds its production possibilities curve.

uses to produce a ton of grain or steel. For example, Japan might have an absolute advantage in producing *both* grain and steel. In our example, compared to the United States, Japan might use fewer resources per ton to produce grain and steel. Maybe the Japanese work harder or are more skilled. In short, the Japanese may be more productive producers, but their absolute advantage does not matter in specialization and world trade decisions. If Japan has a comparative advantage in steel, it should specialize in steel even if, compared to the United States, it can produce both grain and steel with fewer resources.

Take Note

Specialization and trade are based on opportunity costs (comparative advantage) and not on absolute advantage.

15-2b. Comparative Advantage

Engaging in world trade permits countries to consume more than they ever could without trade. The decision of the United States to specialize in and export grain and the decision of Japan to specialize in and export steel are based on comparative advantage. Continuing our example from Exhibit 2, we can calculate the opportunity costs for the two countries and use comparative advantage to determine which country should specialize in grain and which should specialize in steel. For the United States, the opportunity cost of producing 50 tons of steel is not producing 100 tons of grain, so 1 ton of steel costs 2 tons of grain $(100/50 = 2)$. For Japan, the opportunity cost of producing 40 tons of steel is 40 tons of grain, so 1 ton of steel costs 1 ton of grain $(40/40 = 1)$. Japan's steel is, therefore, cheaper in terms of grain forgone. This means Japan has a comparative advantage in steel production because it must give up less grain to produce steel than the United States. In other words, the opportunity cost of steel production is lower in Japan than in the United States. Because Japan has a lower opportunity cost in producing steel, Japan has a comparative advantage in steel production.

The other side of the coin is to measure the opportunity cost of grain in terms of steel. For the United States, the opportunity cost of producing 100 tons of grain is not producing 50 tons of steel. This means 1 ton of grain costs 1/2 ton of steel

$(50/100) = 1/2$. For Japan, the opportunity cost of producing 40 tons of grain is 40 tons of steel, so 1 ton of grain costs 1 ton of steel $(40/40 = 1)$. The United States has a comparative advantage in grain because its opportunity cost in terms of steel forgone is lower. Thus, the United States should specialize in grain because it is more efficient in grain production. Japan, on the other hand, is relatively more efficient at producing steel and should specialize in this product.

Take Note

World output and consumption are maximized when each country specializes in producing and trading goods for which it has a comparative advantage or lower opportunity cost.

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Am I on Track?

1. Which of the following statements is *false* about international trade?

SHOW ANSWER

SHOW ANSWER

a. Specialization and trade based on comparative advantage enables all countries involved to experience consumption possibilities that exceed their production possibilities.

b. International trade results in a greater quantity, quality, and variety of products at lower prices.

c. A nation has a comparative advantage in the production of good X if it has a lower opportunity cost of producing good X.

d. Nations will import those goods for which they have a comparative advantage.

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15-3. Free Trade Versus Protectionism

In theory, global trade should be based on comparative advantage and free trade. **Free trade** is the flow of goods between countries without restrictions or special taxes. In practice, despite the advice of economists, to some degree, every nation protects its own domestic producers from foreign competition. Behind these barriers to trade are special interest groups whose members feel that their jobs and incomes are threatened, so they clamor to the government for protectionism. **Protectionism** is the government's use of embargoes, tariffs, quotas, and other trade restrictions to protect domestic producers from foreign competition.

15-3c. Quota

Another way to limit foreign competition is to impose a quota. A **quota** is a limit on the quantity of a good that may be imported in a given time period. For example, the United States may allow 10 million tons of sugar to be imported over a one-year period. After this quantity is reached, no more sugar can be imported for the year. There are import quotas on sugar, dairy products, textiles, steel, and even ice cream. Quotas can limit imports from all foreign suppliers or from specific countries. Critics argue that, like all barriers to trade, quotas invite nations to retaliate with their own measures to restrict trade, and consumers are harmed by higher prices because of the lack of competition from lower-priced imports. In addition to embargoes, tariffs, and quotas, some nations use subtler measures to discourage trade, such as setting up an overwhelming number of bureaucratic steps that must be taken to import a product.

Take Note

Protectionist trade barriers may benefit the protected few but result in a restricted supply of imported goods, which drives up prices to consumers.

15-4. Arguments for Protection

Free trade provides consumers with lower prices as well as a greater quantity and variety of higher quality products from which to choose. Thus, removing import barriers could save families a lot of money in lower prices alone, not to mention the other benefits of free trade. The problem, however, is that imports could cost some workers their jobs and thousands of dollars per year from lost income. Hence, it is no wonder that in spite of the greater total benefits from free trade to consumers, trade barriers exist. The reason is primarily because each worker and owner from import-competing firms has substantially more at stake than individual consumers, so they go to Washington and lobby for protection. The following are some of the most popular arguments for protection. These arguments have strong political or emotional appeal but weak support from economists.

15-4b. National Security Argument

Another common argument is that defense-related industries must be protected with embargoes, tariffs, and quotas to ensure national security. By protecting critical defense industries, a nation will not be dependent on foreign countries for the essential defenserelated goods it needs to defend itself in wartime. The *national defense argument* has been used to protect a long list of industries, including petrochemicals, munitions, steel, and rubber.

This argument gained validity during the War of 1812. Great Britain, the main trading partner of the United States, became an enemy that blockaded our coast. Today, this argument makes less sense for the United States. The government stockpiles missiles, sophisticated electronics, petroleum, and most goods needed in wartime.

Although the wage rate is 5 times higher in the United States, U.S. productivity is 20 times higher because a U.S. worker can produce 20 rugs in 20 hours, while the worker in India produces only 1 rug in the same amount of time. Sometimes, U.S. companies move their operations to foreign countries where labor is cheaper. Such moves are not always successful because the savings from paying foreign workers a lower wage rate are offset by lower productivity. Other disadvantages of foreign operations include greater transportation costs to U.S. markets and perhaps greater uncertainty due to political instability.

15-4e. Free-Trade Agreements

The trend in recent years has been for nations to negotiate a reduction in trade barriers. In 1993, Congress approved the *North American Free Trade Agreement (NAFTA)*, which linked the United States to its second-and third-largest trading partners, Canada and Mexico. Under NAFTA, which became effective January 1, 1994, tariffs were phased out, and other impediments to trade and investment were eliminated among the three nations. For example, elimination of trade restrictions allows the United States to supply Mexico with more U.S. goods and to boost U.S. jobs. On the other hand, NAFTA was expected to raise Mexico's wages and standard of living by increasing Mexican exports to the United States. Note that NAFTA made no changes in restrictions on labor movement, and workers must enter the United States under a limited immigration quota or illegally. The success of NAFTA remains controversial. At the conclusion of this chapter, we will use data to examine its impact. In 2005, the *Central American Free Trade Agreement (CAFTA)* was signed by six additional Central American countries and extended the NAFTA free-trade zone to include Costa Rica, Guatemala, El Salvador, Honduras, Nicaragua, and the Dominican Republic.

The United States and other countries are considering other free-trade agreements. In Europe, 27 nations are members of the *European Union (EU)*, which is dedicated to removing all trade barriers within Europe, thereby creating a single European economy almost as large as the U.S. economy. See the Birth of the Euro boxed feature in this chapter.

The *Asia-Pacific Economic Cooperation (APEC)* was formed in 1989 and today has

The *Asia-Pacific Economic Cooperation* (APEC) was formed in 1989 and today has 21 member nations, including China, Hong Kong, Russia, Japan, and Mexico. This organization is based on a nonbinding agreement to reduce trade barriers between member nations. Eleven of APEC's nations negotiated the Trans-Pacific Partnership (TPP) agreement to lower trade tariffs and reduce trade barriers. In 2017, before the agreement went into effect, President Trump withdrew the United States from this deal.

Critics are concerned that regional free-trade accords will make global agreements increasingly difficult to achieve. Some fear that trading blocs may erect new barriers, creating "Fortress North America," "Fortress Europe," and similar impediments to the worldwide reduction of trade barriers.

Take Note

Economists are generally free-trade advocates because although the arguments in favor of protectionist trade barriers can be politically appealing, they rarely make economic sense.

Am I on Track?

2. Which of the following statement is true about trade barriers and arguments for protectionism?

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. A quota is a tax imposed on an imported product and will raise revenue for the imposing government.

b. A tariff is a limit on the quantity of a good that may be imported.

c. All trade barriers decrease the supply of imports, increasing the prices domestic consumers must pay.

d. The argument that new domestic industry needs protection because it is not yet ready to compete with established foreign competitors is the "national security argument" for protectionism.

15-5. The Balance of Payments

When trade occurs between the United States and other nations, many types of financial transactions are recorded in a summary called the **balance of payments**. The balance of payments is a bookkeeping record of all the international transactions between a country and other countries during a given period of time. This summary is the best way to understand interactions between economies because it records the value of a nation's spending inflows and outflows made by individuals, firms, and governments. Exhibit 5 presents a simplified U.S. balance of payments for 2020.

Exhibit 5 U.S. Balance of Payments, 2020 (billions of dollars)

Type of Transaction	
Current account	
1. Goods exports	$ + 1,429
2. Goods imports	− 2,351
3. Service exports	+ 706
4. Service imports	− 460
Trade balance (lines 1–4)	− 676
5. Income (net)	+ 61
Current account balance (lines 1–5)	− 615

Capital account	
6. U.S. capital inflow	+ 1,457
7. U.S. capital outflow	− 809
Capital account balance (lines 6–7)	+ 648
8. Statistical discrepancy	− 33
Net balance (lines 1–8)	0

Source: Bureau of Economic Analysis, U.S. International Transactions, https://www.bea.gov/international/bp_web/tb_download_type_modern.cfm?list=1&RowID=1, Table 1.1.

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Birth of the Euro

In 1958, several European nations formed a Common Market to eliminate trade restrictions among member countries. The Common Market called for gradual removal of tariffs and import quotas on goods traded among member nations. Later, the name was changed to the *European Economic Community (EEC)*, and it is now called the *European Union (EU)*. This organization established a common system of tariffs for imports from nonmember nations and created common policies for economic matters of joint concern, such as agriculture and transportation. The EU now comprises the 27 nations listed in the following table.

In 1999, 11 European countries, joined later by Greece, followed the United States as an example and united in the *European Economic and Monetary Union (EMU)*. In the United States, the 50 states are linked with a common currency, and the Federal Reserve serves as the central bank by conducting currency, and the Federal Reserve serves as the central bank by conducting monetary policy for the nation. Among the states, trade, labor, and investment enjoy freedom of movement. In 2002, many of the EMU members replaced their national currencies with a single currency, the euro. The objective was to remove exchange rate fluctuations that impede cross-border transactions. This is why the U.S. Congress created a national currency in 1863 to replace state and private bank currencies.

The EU faces many unanswered questions. Unlike the states of the United States, the EU's member nations do not share a common language or a common government. This makes maintaining common macro policies difficult, and in recent years, Greece and several other members have experienced financial crises. France, for example, might seek to use fiscal or budgetary policies to control inflation, whereas Germany has reducing unemployment as its highest fiscal priority. Coordinating monetary policy among EU nations is also difficult. Although the EU has established the *European Central Bank*, headquartered in Frankfurt, Germany, with sole authority over the supply of euros, the central banks of member nations still function. But these national central banks operate similar to the district banks of the Federal Reserve System in the United States. Only time will tell whether EU nations will perform better with a single currency than with separate national currencies. Currently, 19 EU countries have adopted the euro as their national currency.

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European Union (EU) Members

Austria	France	Malta
Belgium	Germany	Netherlands
Bulgaria	Greece	Poland
Croatia	Hungary	Portugal
Cyprus	Ireland	Romania
Czech Republic	Italy	Slovakia
Denmark	Latvia	Slovenia
Estonia	Lithuania	Spain
Finland	Luxembourg	Sweden

Note the pluses and minuses in Exhibit 5. A transaction that is a payment to the United States is entered as a positive amount. A payment by the United States to another country is entered with a minus sign. As our discussion unfolds, you will learn that the balance of payments provides much useful information.

Birth of the Euro

In 1958, several European nations formed a Common Market to eliminate trade restrictions among member countries. The Common Market called for gradual removal of tariffs and import quotas on goods traded among member nations. Later, the name was changed to the *European Economic Community (EEC)*, and it is now called the *European Union (EU)*. This organization established a common system of tariffs for imports from nonmember nations and created common policies for economic matters of joint concern, such as agriculture and transportation. The EU now comprises the 27 nations listed in the following table.

In 1999, 11 European countries, joined later by Greece, followed the United States as an example and united in the *European Economic and Monetary Union (EMU)*. In the United States, the 50 states are linked with a common currency, and the Federal Reserve serves as the central bank by conducting monetary policy for the nation. Among the states, trade, labor, and investment enjoy freedom of movement. In 2002, many of the EMU members replaced their national currencies with a single currency, the euro. The objective was to remove exchange rate fluctuations that impede cross-border transactions. This is why the U.S. Congress created a national currency in 1863 to replace state and private bank currencies.

The EU faces many unanswered questions. Unlike the states of the United States, the EU's member nations do not share a common language or a common government. This makes maintaining common macro policies difficult, and in recent years, Greece and several other members have experienced financial crises. France, for example, might seek to use fiscal or budgetary policies to control inflation, whereas Germany has reducing unemployment as its highest fiscal priority. Coordinating monetary policy among EU nations is also difficult. Although the EU has established the *European Central Bank*, headquartered in Frankfurt, Germany, with sole authority over the supply of euros, the central banks of member nations still authority over the supply of euros, the central banks of member nations still function. But these national central banks operate similar to the district banks of the Federal Reserve System in the United States. Only time will tell whether EU nations will perform better with a single currency than with separate national currencies. Currently, 19 EU countries have adopted the euro as their national currency.

Gd_project/Shutterstock.com

European Union (EU) Members

Austria	France	Malta
Belgium	Germany	Netherlands
Bulgaria	Greece	Poland
Croatia	Hungary	Portugal
Cyprus	Ireland	Romania
Czech Republic	Italy	Slovakia

Denmark	Latvia	Slovenia
Estonia	Lithuania	Spain
Finland	Luxembourg	Sweden

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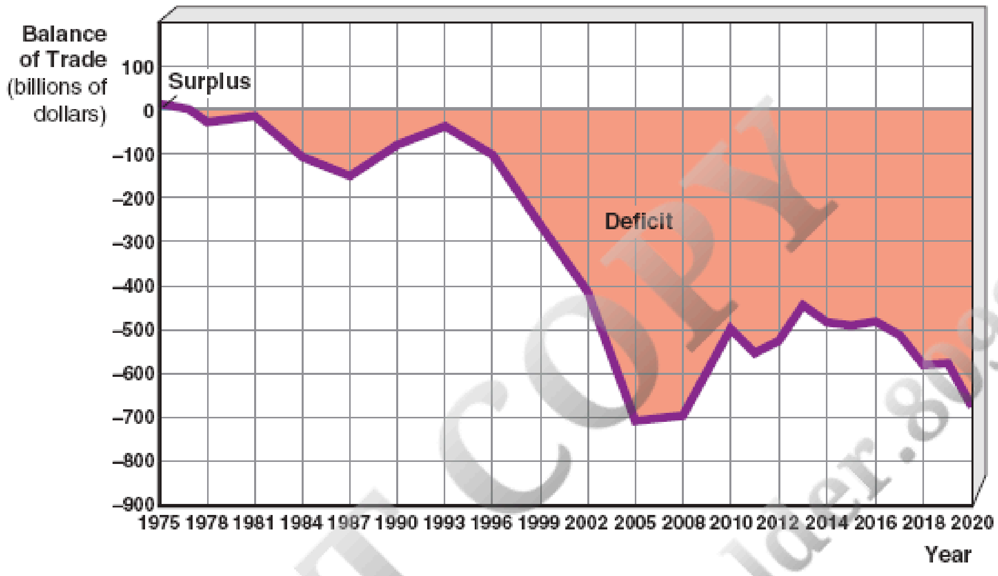
15-5a. Current Account

The first section of the balance of payments is the *current account*, which includes trade in goods and services and income receipts and payments. The most widely reported part of the current account is the balance of trade, also called the trade reached record-breaking levels of about $700 billion due in part to the rising price of oil imports. Trade deficits trended downward for a few years after that, only to move up again to $676 billion in 2020.

Exhibit 6 U.S. Balance of Trade, 1975–2020 (billions of dollars)



▸ Details

Source: Bureau of Economic Analysis, U.S. International Transactions, https://apps.bea.gov/iTable/iTable.cfm?ReqID=62&step=1, Tables 1.1 and 1.2.

Since 1975, the United States has experienced trade deficits in which the value of goods and services imported has exceeded the value of goods and services exported. These trade deficits attract much attention because, in part, they reflect the popularity of foreign goods in the United States. During the recession in 2001, the U.S. trade deficit narrowed briefly before continuing an upward trend. The deficit grew to an all-time high of about $700 billion between 2005 and 2008 before declining to $445 billion in 2013 and then began to rise again to $676 billion in 2020.

Lines 3–5 of the current account in Exhibit 5 list ways other than the trade of goods that move dollars back and forth between the United States and other countries. Services include insurance, banking, transportation, and tourism. For example, a Japanese tourist who pays a hotel bill in Hawaii buys an export of services, which is a plus, or credit, to our current account (line 3). Similarly, an American visitor to foreign lands buys an import of services, which is a minus, or debit, to our services and, therefore, a minus to our current account (line 4). As shown on line 5, income flowing back from U.S. investments abroad, such as plants, real estate, and securities, is a payment for use of the services of U.S. capital. Foreign countries also receive income receipts flowing from the services of their capital owned in the United States. This category also includes gifts made by our government, charitable organizations, or private individuals to other governments or private parties elsewhere in the world. For example, this item includes U.S. foreign aid to other nations. Similar unilateral transfers into the United States must be subtracted to determine net income transfers. In 2020, line 5 of the table reports a net income flow of $61 billion to the United States.

Adding lines 1–5 gives the current account balance deficit of −$615 billion in 2020. This deficit means that foreigners sent us more goods, services, and income than we sent to them. Because the current account balance includes more than just goods and services, it is a broader measure than the trade balance. Since 1982, the trend in the current account balance has followed the same trend as what is shown by just the trade balance in Exhibit 6.

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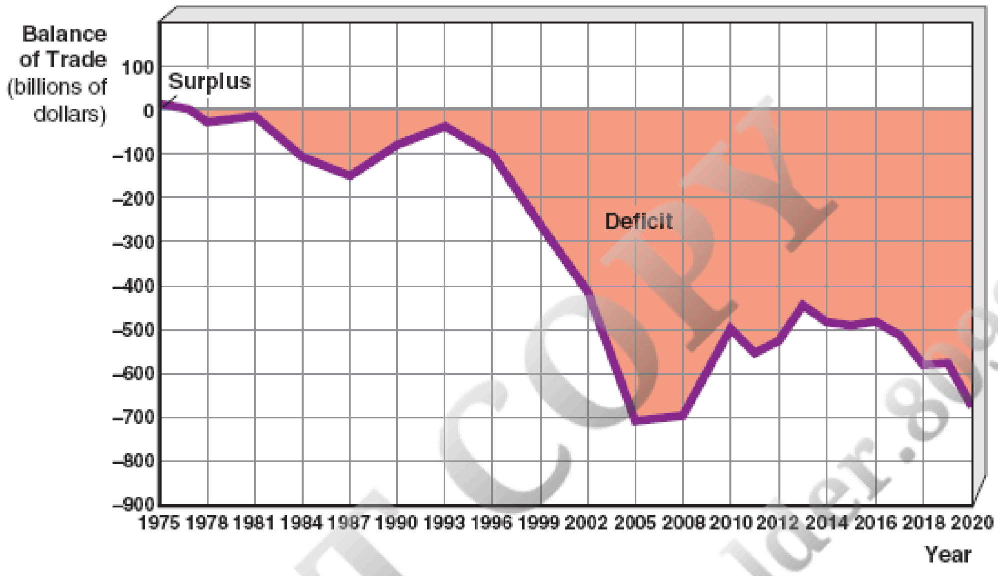

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15-5b. Capital Account

The second section of the balance of payments is the *capital account*, which records payment flows for financial capital, such as real estate, corporate stocks, bonds, government securities, and other debt instruments. For example, when Chinese investors buy U.S. Treasury bills or Japanese investors purchase farmland in Hawaii, there is an inflow of dollars into the United States. As Exhibit 5 shows, foreigners made payments of $1,457 billion to our capital account (line 6). This exceeded the $809 billion outflow (line 7) from the United States to purchase foreign-owned financial capital.

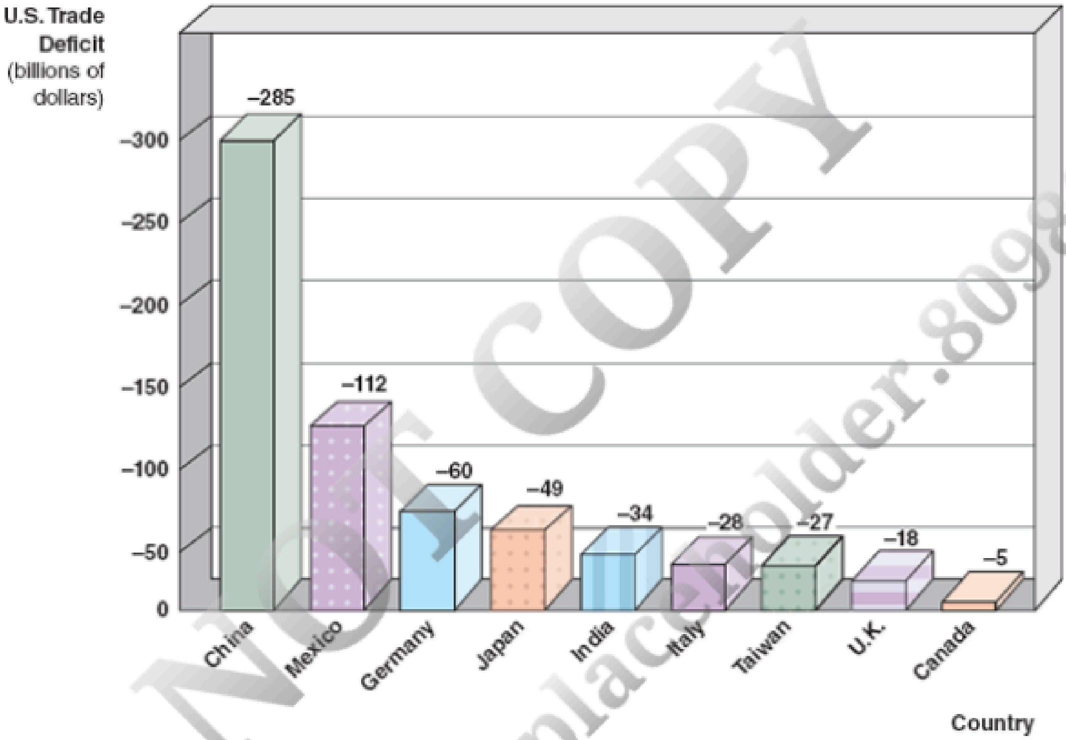
An important feature of the capital account is that the United States finances any deficit in its current account from this account. The capital account balance in 2020 was $648 billion. This surplus indicates that there was more foreign investment in U.S. assets than U.S. investment in foreign assets during this year.

The current account deficit should equal the capital account surplus, but line 8 in the exhibit reveals that the balance of payments is not perfect. The capital account balance does not exactly offset the current account balance. Hence, a credit or debit amount is simply recorded as a statistical discrepancy; therefore, the balance of payments always balances, or equals zero.

15-5c. The International Debt of the United States

If each nation's balance of payments is always zero, why is there so much talk about a U.S. balance-of-payments problem? The problem is with the *composition* of the balance of payments. Suppose the United States runs a $500 billion deficit in its current account. This means that the current account deficit must be financed by a net annual capital inflow in the capital account of $500 billion. That is, foreign lenders, such as banks and businesses, must purchase U.S. assets and grant loans to the United their investments, the United States would be forced to run a trade surplus. Stated differently, we would be forced to tighten our belts and accept a lower standard of living. How a change in foreign willingness to purchase U.S. assets also affects the international value of the dollar is the topic to which we now turn.

Exhibit 7 U.S. Balance of Trade with Selected Countries, 2020 (billions of dollars)



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Source: Bureau of Economic Analysis, U.S. International Transactions, https://www.bea.gov/international/bp_web/tb_download_type_modern.cfm?list=1&RowID=1, Tables 1.1 and 1.2.

The United States has its greatest trade deficits with China, Mexico, Germany, and Japan.

Take Note

Trade deficits are paid for by selling off national assets to foreigners.

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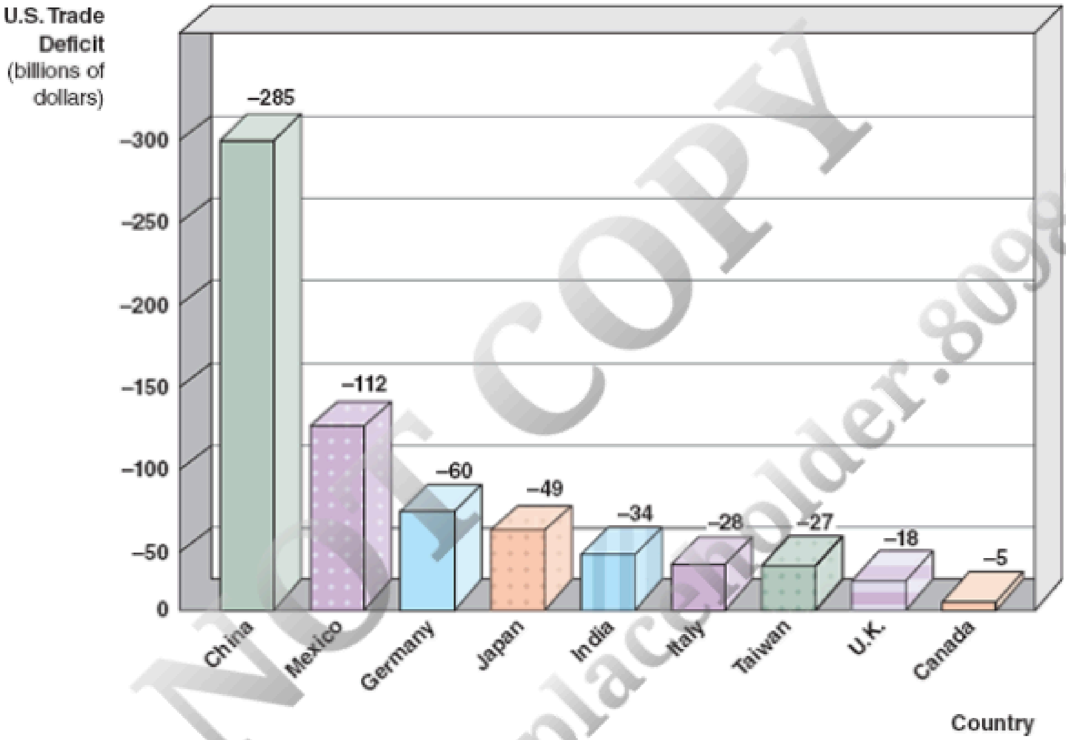

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15-6. Exchange Rates

Each transaction recorded in the balance of payments requires an exchange of one country's currency for that of another. Suppose you buy a Japanese car made in Japan, say, a Mazda. Mazda wants to be paid in yen and not dollars, so dollars must be traded for yen. On the other hand, suppose Pink Panther Airline Company in France purchases an airplane from Boeing in the United States. Pink Panther has euros to pay the bill, but Boeing wants dollars. Consequently, euros must be exchanged for dollars.

The critical question for Mazda, Pink Panther, Boeing, and everyone involved in world trade is, "What is the exchange rate?" The **exchange rate** is the number of units of one nation's currency that equals one unit of another nation's currency. For example, assume 1.30 dollars can be exchanged for 1 British pound. This means the exchange rate is $1.30 \text{ dollars} = 1 \text{ pound}$. Alternatively, the exchange rate can be expressed as reciprocals. Dividing 1 British pound by 1.30 dollars shows that 0.769 pounds is worth one dollar. Now suppose you are visiting England and want to buy a T-shirt with a price tag of 10 pounds. Knowing the exchange rate tells you the T-shirt costs $ 13.00 (10 pounds × $1.30/pound).

Take Note

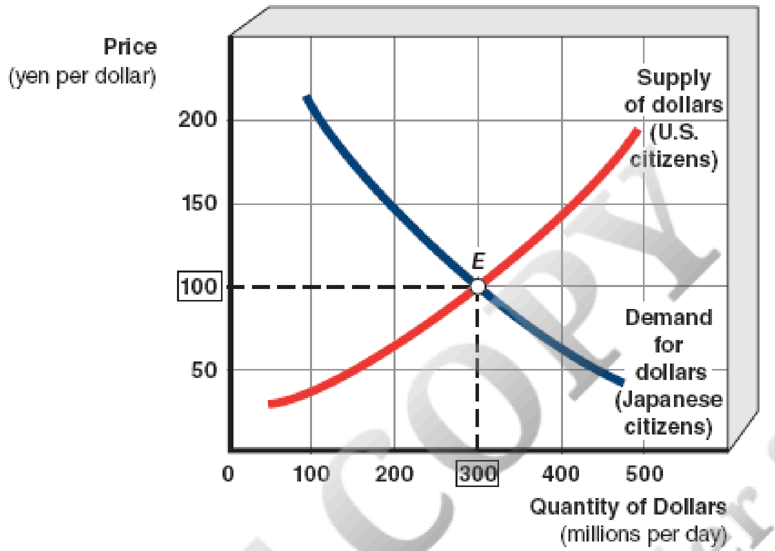
An exchange rate is the value of one nation's currency in terms of another's and can be expressed as reciprocals of each other.

15-6a. Supply and Demand for Foreign Exchange

The exchange rate for dollars, or any nation's currency, floats, which means it rises and falls subject to global forces of supply and demand. For example, consider the exchange rate of yen to dollars, shown in Exhibit 8. Like the price and the quantity of any good traded in markets, the quantity of dollars exchanged is measured on the horizontal axis, and the price per unit is measured on the vertical axis. In this case, the price per unit is the value of the

U.S. dollar expressed as the number of yen per dollar.

Exhibit 8 The Supply of and Demand for Dollars



Details

The number of Japanese yen per dollar in the foreign exchange market is determined by the demand for dollars by Japanese citizens and the supply of dollars by U.S. citizens. The equilibrium exchange rate is 100 yen per dollar, and the equilibrium quantity is $300 million per day.

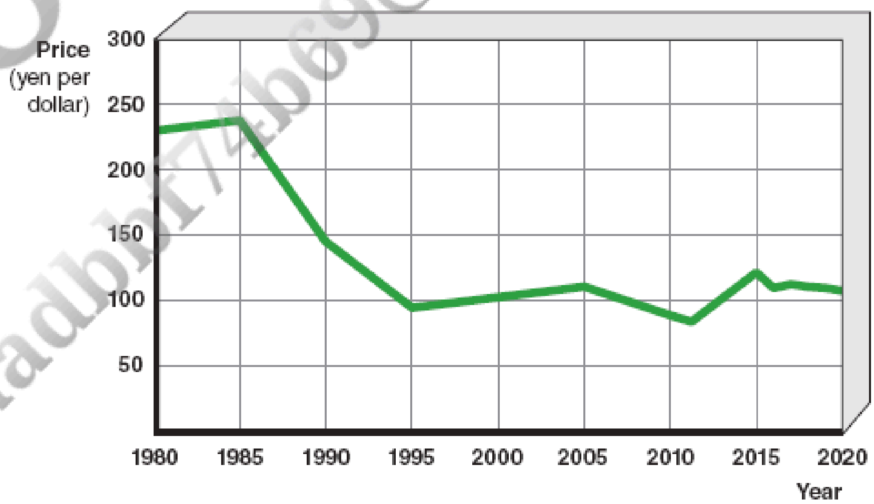
The demand for dollars in the world currency market comes from Japanese individuals, corporations, and governments that want to buy U.S. exports. Because the Japanese buyers must pay for U.S. exports with dollars, they *demand* dollars with their yen so they can pay for the U.S. exports they are purchasing. As expected, the demand curve for dollars or any foreign currency is downward sloping. A decline in the price of the dollar means fewer yen are required to buy a single dollar. This means U.S. goods and investment opportunities are less expensive to Japanese buyers because they must pay fewer yen for each dollar. Thus, as the yen price of dollars decreases, the quantity of dollars demanded by the Japanese to purchase Fords, stocks, land, and other U.S. products and investments increases. For example, suppose a U.S. produced

exchange rate falls. On the other hand, below equilibrium, there will be a shortage of dollars in the world currency market. In this case, the Japanese are demanding more dollars than Americans supply, and the exchange rate rises.

15-6b. Shifts in Supply and Demand for Foreign Exchange

For most of the years between World War II and 1971, currency exchange rates were *fixed*. Exchange rates were based primarily on gold. For example, the German mark was fixed at about 25 cents. The dollar was worth 1/35 of an ounce of gold, and 4 German marks were worth 1/35 of an ounce of gold. Therefore, 1 dollar equaled 4 marks, or 25 cents equaled 1 mark. In 1971, Western nations agreed to stop fixing their exchange rates and to allow their currencies to *float* according to the forces of supply and demand. Exhibit 9 illustrates that these rates can fluctuate widely. For example, in 1980, 1 dollar was worth about 230 Japanese yen. After gyrating up and down over the years, the exchange rate hit a postwar low of 80 yen per dollar in 2011. In 2020, the rate rose to 107 yen per dollar.

Exhibit 9 Changes in the Yen-per-Dollar Exchange Rate, 1980–2020



Details

Source: Foreign Exchange Rates, https://fred.stlouisfed.org/series/DEXJPUS, Fred, Federal Reserve Bank of St. Louis.

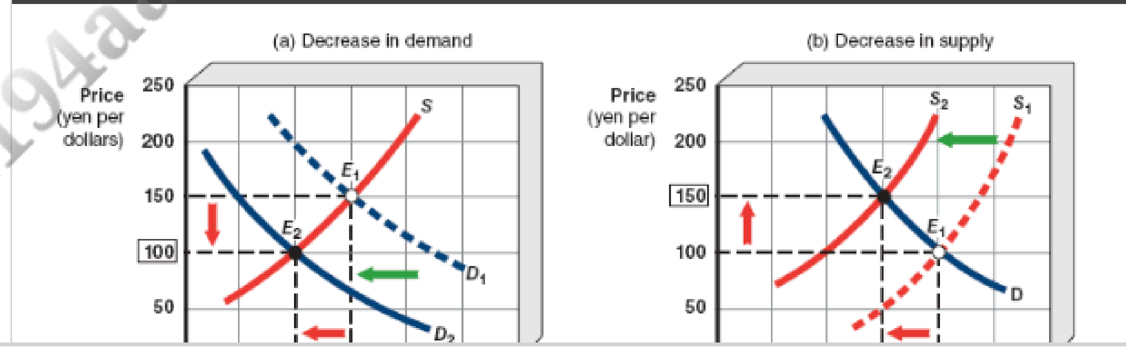
Today, most economies are on a system of flexible (or “floating) exchange rates. As the demand and supply curves for currencies change, exchange rates change. In 1980, 1 dollar was worth about 230 Japanese yen. By 2011, the exchange rate had dropped to a postwar low of 80 yen per dollar. In 2020, the rate rose to 107 yen per dollar.

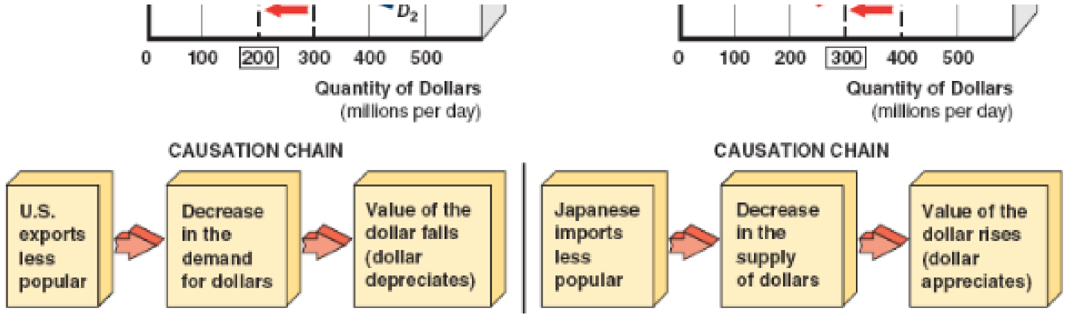
Recall from Chapter 3 that the equilibrium price for products changes in response to shifts in their supply and demand curves. The same supply and demand analysis applies to equilibrium exchange rates for foreign currency. There are four important sources of shifts in the supply and demand curves for foreign exchange. Let’s consider each in turn.

Tastes and Preferences

Exhibit 10(a) illustrates one important factor that causes the demand for foreign currencies to shift. Suppose the Japanese lose their “taste” for tobacco, U.S. government bonds, and other U.S. products and investment opportunities. This
387 decline in the popularity of U.S. products in Japan decreases the demand for dollars at each possible exchange rate, and the demand curve shifts leftward from D_1 to D_2. This change causes the equilibrium exchange rate to fall from 150 yen to the dollar at E_1 to 100 yen to the dollar at E_2. Because the number of yen to the dollar declines, the dollar is said to *depreciate* or become *weaker*. **Depreciation of currency** is a fall in the price of one currency relative to another.

Exhibit 10 Changes in the Supply and Demand Curves for Dollars





Details

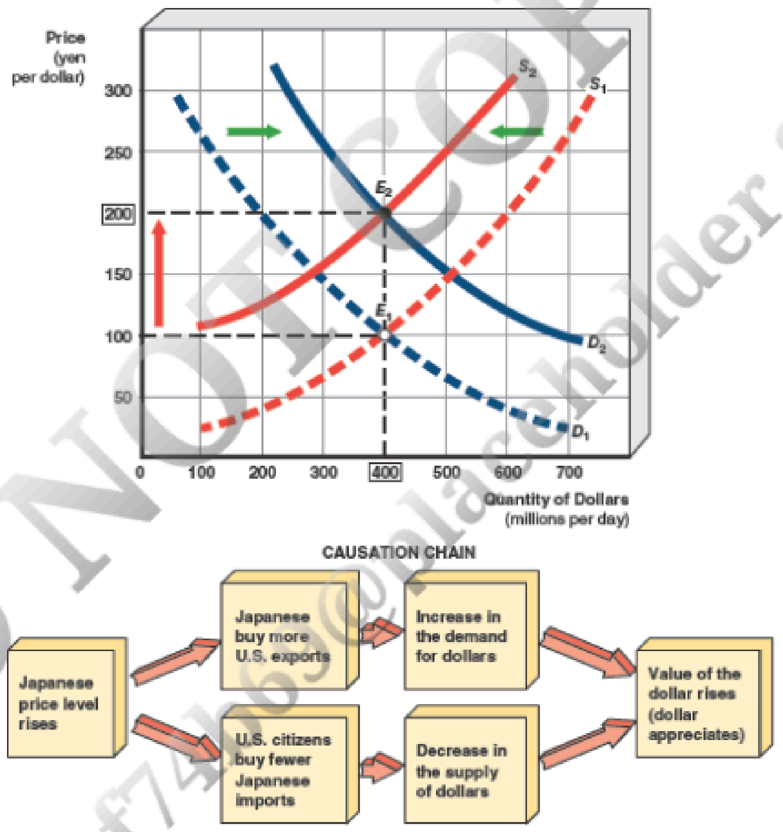
Part (b) assumes U.S. citizens are influenced by the “Buy American” idea. In this case, our demand for Japanese imports decreases, and U.S. citizens supply fewer dollars to the foreign currency market. The result is that the supply curve shifts leftward from S_1 to S_2 , and the equilibrium exchange rate rises from 100 yen per dollar at E_1 to 150 yen per dollar at E_2 .

In part (a), U.S. exports become less popular in Japan. This reduced taste or preference for U.S. products and investments decreases the demand for dollars, and the demand curve shifts leftward from D_1 to D_2 . As a result, the equilibrium exchange rate falls from 150 yen to the dollar at E_1 to 100 yen to the dollar at E_2 .

What happens to the exchange rate if the “Buy American” idea changes our tastes and the demand for Japanese imports decreases? In this case, U.S. citizens supply fewer dollars at any possible exchange rate, and the supply curve in Exhibit 10(b) shifts leftward from S_1 to S_2 . As a result, the equilibrium exchange rate rises from 100 yen to the dollar at E_1 to 150 yen to the dollar at E_2 . Because the number of yen per dollar rises, the dollar is said to *appreciate* or become *stronger*. **Appreciation of currency** is a rise in the price of one currency relative to another.

assume the price level increases in Japan but remains constant in the United States. The Japanese, therefore, want to buy more U.S. exports because they have become cheaper relative to Japanese products. This willingness of the Japanese to buy U.S. goods and services shifts the demand curve for dollars rightward from D_1 to D_2 . In addition, U.S. products are cheaper for U.S. citizens compared to Japanese imports. As a result, the willingness to import from Japan is reduced at each exchange rate, which means the supply curve of dollars decreases from S_1 to S_2 . The result of the shifts in both the demand and supply curves for dollars is to establish a new equilibrium at point E_2 , and the exchange rate reaches 200 yen per dollar.

Exhibit 11 The Impact of Relative Price Level Changes on Exchange Rates



Details

Begin at E_1 , with the exchange rate equal to 100 yen per dollar. Assume prices in Japan rise relative to those in the United States. As a result, the demand for dollars increases, and the supply of dollars decreases. The new equilibrium is at E_2 when the dollar appreciates (rises in value) to 200 yen per dollar.

Take Note

A rise in a trading partner's relative price level causes the dollar to appreciate.

Relative Real Interest Rates

Changes in relative real (inflation-adjusted) interest rates can have an important effect on the exchange rate. Suppose real interest rates in the United States rise, while those in Japan remain constant. To take advantage of more attractive yields, Japanese investors buy an increased amount of bonds and other interest-bearing securities issued by private and government borrowers in the United States. This change increases the demand for dollars, which increases the equilibrium exchange rate of yen to the dollar, causing the dollar to appreciate (or the yen to depreciate).

There can also be an effect on the supply of dollars. When real interest rates rise in the United States, our citizens purchase fewer Japanese securities. Hence, they offer fewer dollars at each possible exchange rate, and the supply curve for dollars shifts leftward. As a result, the equilibrium exchange rate increases, and the dollar appreciates from changes in both the demand for and supply of dollars.

Take Note

Higher real interest rates in the U.S. will cause the dollar to appreciate.

15-6c. The Impact of Exchange Rate Fluctuations

Now it is time to stop for a minute and draw some important conclusions. As you have just learned, exchange rates between most major currencies are flexible. Instead of being pegged to gold or another fixed standard, their value floats as determined by the laws of supply and demand. Consequently, shifts in supply and demand create a weaker or a stronger dollar. But it should be noted that exchange rates do not fluctuate with total freedom. Governments often buy and sell currencies to prevent wide swings in exchange rates. Governments attempt to manipulate exchange rates since the strength, weakness, and volatility of any nation's currency have a profound impact on its economy.

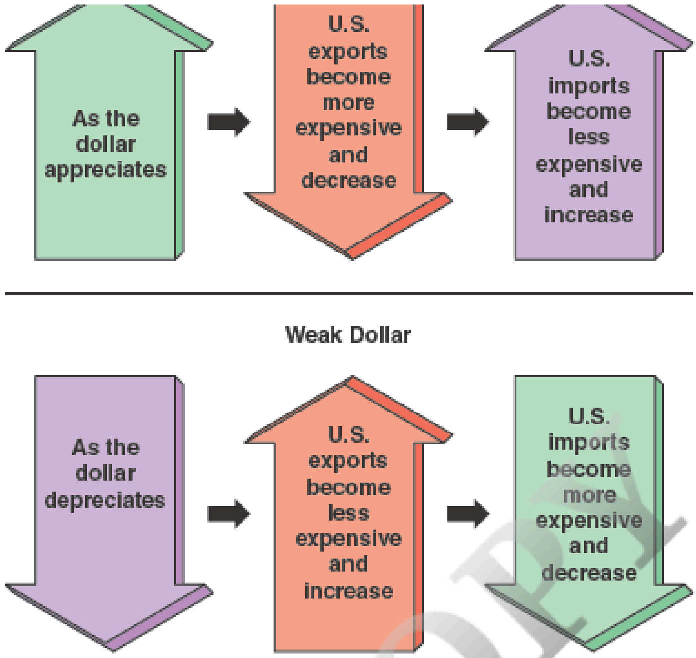
A weak dollar is a "mixed blessing." Ironically, a weak dollar makes U.S. producers happy. Because foreigners pay less of their currency for dollars, this means U.S. producers' exports are less expensive to foreign buyers and they sell more abroad. As export sales rise, jobs are created in the United States. On the other hand, a weak dollar makes foreign producers and domestic consumers unhappy because the prices of imports, like Japanese cars, French wine, and Italian shoes are higher. As U.S. imports fall, jobs are lost in foreign countries.

Take Note

When the dollar is weak, or depreciates, U.S. goods and services cost foreign consumers less, so the U.S. exports more. At the same time, a weak dollar means foreign goods and services cost U.S. consumers more, so the U.S. imports less.

A strong dollar is also a "mixed blessing." A strong dollar makes our major trading partners and domestic consumers happy. U.S. buyers pay fewer dollars for foreign currency, which means the prices of Japanese cars, French wine, and Italian shoes are lower and the U.S. imports more from abroad. A strong dollar, on the other hand, makes U.S. producers unhappy because their products are more expensive to foreigners, and export sales fall and related jobs decline. Exhibit 12 summarizes the weak versus strong dollar effects.

Exhibit 12 Effects of a Strong or Weak Dollar on U.S. Trade



Details

A strong dollar leads to a decrease in exports and an increase in imports. A weak dollar leads to an increase in exports and a decrease in imports.

Take Note

When the dollar is strong, or appreciates, U.S. goods and services cost foreign consumers more, so the U.S. exports less. At the same time, a strong dollar means foreign goods and services cost U.S. consumers less, so the U.S. imports more.

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A Closer Look Applicable Concept: Exchange Rates

Return to the Yellow Brick Road?

Gold is always a fascinating story. *The Wonderful Wizard of Oz* was first published in 1900, and this children's tale has been interpreted as an allegory for political and economic events of the 1890s. For example, the Yellow Brick Road represents the gold standard, Oz in the title is an abbreviation for ounce, Dorothy is the naive public, Emerald City symbolizes Washington, D.C., the Tin Woodman represents the industrial worker, the Scarecrow is the farmer, and the Cyclone is a metaphor for a political revolution. In the end, Dorothy discovers magical powers in her *silver* shoes (changed to ruby in the 1939 film) to find her way home and not in the fallacy of the Yellow Brick Road. Although the author of the story, L. Frank Baum, never stated it was his intention, it can be argued that the issue of the story concerns the election of 1896. Democratic presidential nominee William Jennings Bryan (the Cowardly Lion) supported fixing the value of the dollar to both gold and silver (bimetallism), but Republican William McKinley (the Wicked Witch) advocated using only the gold standard. Since McKinley won, the United States remained on the Yellow Brick Road.

The United States adopted the gold standard in 1873, and until the 1930s, most industrial countries were on the gold standard. The gold standard served as an international monetary system in which currencies were defined or pegged in terms of gold. Under the gold standard, a nation with a balance of payments deficit was required to ship gold to other nations to finance the deficit. Hence, a large excess of imports over exports meant a corresponding outflow of gold from a nation. As a result, that nation's money supply decreased, which, in turn, reduced the aggregate demand for goods and services. Lower domestic demand led to falling prices, lower production, and fewer jobs. In contrast, a nation with a balance of payments surplus would experience an inflow of gold and the opposite effects. In this case, the nation's money supply increased, and its aggregate demand for goods and services rose. Higher aggregate spending, in turn, boosted employment and the price level. In short, the gold standard meant that governments could not control their money supplies to conduct monetary policy.

The gold standard worked fairly well as a fixed exchange rate system as long as nations did not face sudden or severe swings in flows from their stocks of gold. The Great Depression marked the beginning of the end of the stocks of gold. The Great Depression marked the beginning of the end of the gold standard. Nations faced with trade deficits and high unemployment began going off the gold standard rather than contracting their money supplies by following the gold standard.

In 1933, President Franklin D. Roosevelt took the United States off the gold standard and ordered all 1933 gold double eagle coins already manufactured to be melted down and not circulated. Through a long, twisted story worthy of a Sherlock Holmes mystery novel involving the Smithsonian Institution, the former king of Egypt, the Treasury Department, the Justice Department, the U.S. Mint, and a long list of intriguing supporting characters, one 1933 double eagle surfaced and was sold for $7.59 million in 2002. This was double the previous record for a coin.

Once the Allies felt certain they would win World War II, the finance ministers of Western nations met in 1944 at Bretton Woods, New Hampshire, to establish a new international monetary system. The new system was based on fixed exchange rates and an international central bank called the *International Monetary Fund (IMF)*. The IMF makes loans to countries faced with short-term balance-of-payments problems. Under this system, nations were expected to maintain fixed exchange rates within a narrow range. In the 1960s and early 1970s, the Bretton Woods system became strained as conditions changed. In the 1960s, inflation rates in the United States rose relative to those in other countries, causing U.S. exports to become more expensive and U.S. imports to become less expensive. This situation increased the supply of dollars abroad and caused an increasing surplus of dollars, thus putting downward pressure on the exchange rate. Monetary authorities in the United States worried that foreign central banks would demand gold for their dollars, the U.S. gold stock would diminish sharply, and the declining money supply would adversely affect the economy.

Something had to give, and it did. In August 1971, President Richard Nixon announced that the United States would no longer honor its obligation to sell gold at $35 an ounce. By 1973, the gold standard was dead, and most of our trading partners were letting the forces of supply and demand determine exchange rates.

Today, some people advocate returning to the gold standard. These gold buffs do not trust the government to control the money supply without the discipline of a gold standard. They argue that if governments have the freedom to print money, political pressures will sooner or later cause them to increase the money supply too much and let inflation rage.

One argument against the gold standard is that no one can control the supply of gold. Big gold discoveries can cause inflation and have done so in the past. On the other hand, slow growth in the stock of mined gold can lead to slow economic growth and a loss of jobs. Governments, therefore, are unlikely to return to the gold standard because it would mean turning monetary policy over to uncontrollable swings in the stock of gold.

Key Terms

Absolute advantage

Comparative advantage

Free trade

Protectionism

Embargo

Tariff

World Trade Organization (WTO)

Quota

Balance of payments

Balance of trade

Exchange rate

Depreciation of currency

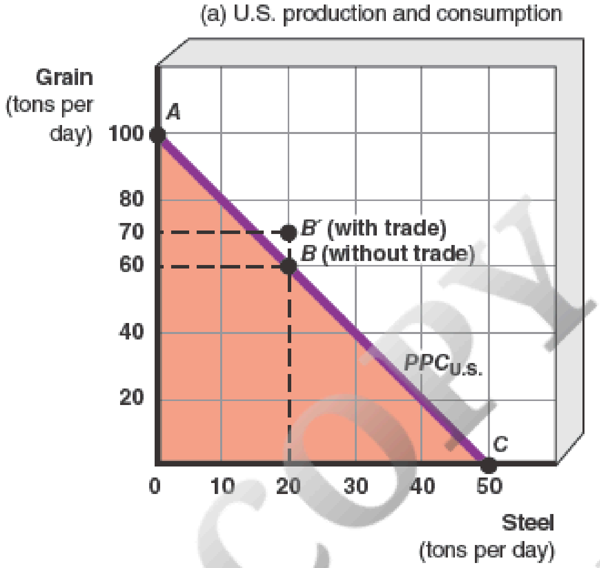
Appreciation of currency

Summary

- **Absolute advantage** is the ability of a country to produce more of a good using the same or fewer resources as another country.
- **Comparative advantage** is a principle that allows nations to gain from trade. Comparative advantage exists when a nation has a lower opportunity cost of producing a good in terms of the production of another product. If nations specialize in producing what they have a comparative advantage for and trade with other countries, then world output increases, and each nation ends up with a higher standard of living

by consuming more goods and services than would be possible without specialization and trade.

Comparative Advantage



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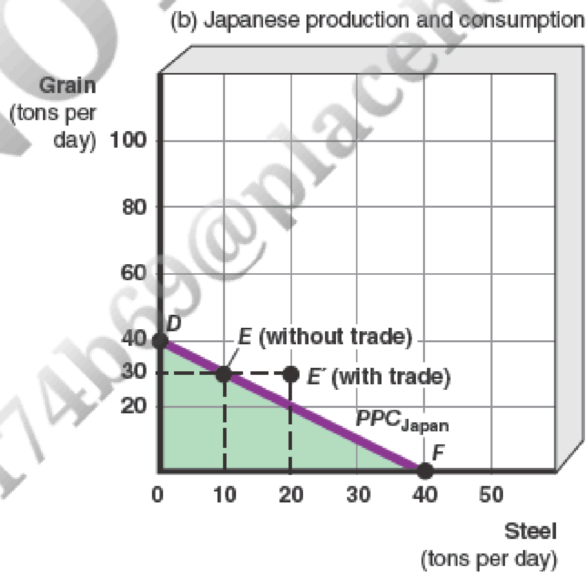


▸ Details

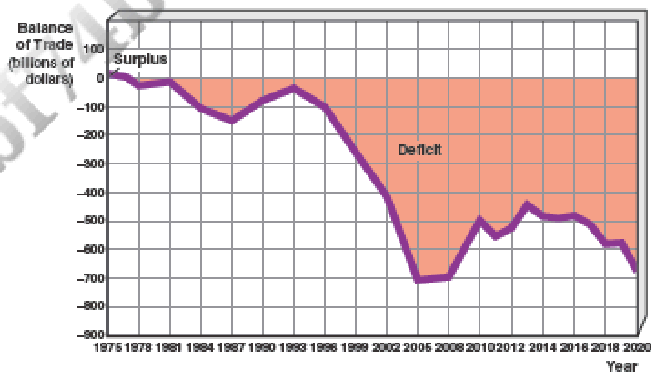
- **Free trade** benefits a nation as a whole because we get a greater quantity, quality, and variety of products at lower prices. However, some individuals may lose their businesses or their jobs as a result of global competition.

- **Protectionism** is a government's use of **embargoes**, **tariffs**, **quotas**, and other methods to impose trade barriers intended to both reduce imports and protect particular domestic industries. *Embargoes* prohibit the import or export of particular goods. *Tariffs* discourage imports by making them more expensive. *Quotas* limit the quantity of imports or exports of certain goods, which also drives their prices up. Trade barriers are often the result of successful political lobbying efforts by those domestic industries who can benefit by being protected from foreign competition.

- The **balance of payments** is a summary bookkeeping record of all the international transactions a country makes during a year. It is divided into different accounts, including the *current account*, the *capital account*, and the *statistical discrepancy*. The current account summarizes all transactions in currently produced goods and services. The overall balance of payments is always zero after an adjustment for the statistical discrepancy.

- The **balance of trade** is the value of a nation's imports subtracted from its exports. A balance of trade can be in deficit or in surplus. The balance of trade is the most widely reported and largest part of the current account. Since 1975, the United States has experienced balance of trade deficits.

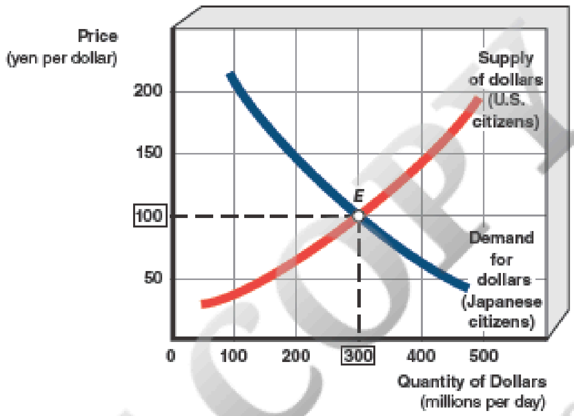
  Balance of Trade



▸ Details

- An **exchange rate** is the price of one nation's currency in terms of another nation's currency. Foreigners who wish to purchase U.S. goods, services, and financial assets demand dollars. The supply of dollars reflects the desire of U.S. citizens to purchase foreign goods, services, and financial assets. The intersection of the supply and demand curves for dollars determines the number of units of a foreign currency per dollar.

Exchange Rate



Details

- Shifts in supply and demand for foreign exchange result from changes in such factors as tastes, relative income levels, relative price levels, and relative real interest rates.
- **Depreciation of a currency** occurs when one currency becomes worth fewer units of another currency. If a currency depreciates, it becomes weaker. Depreciation of a nation's currency increases its exports and decreases its imports.
- **Appreciation of a currency** occurs when one currency becomes worth more units of another currency. If a currency appreciates, it becomes stronger. Appreciation of a nation's currency decreases its exports and increases its imports.

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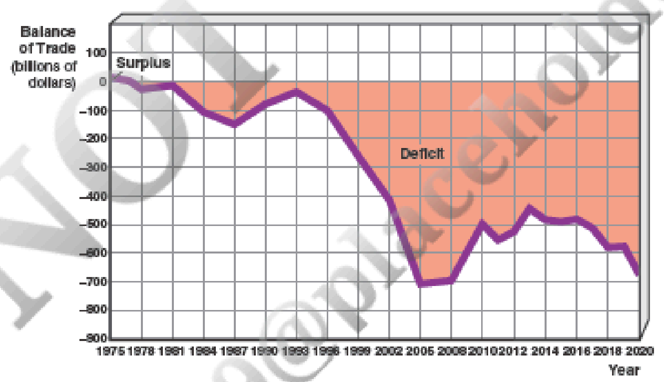

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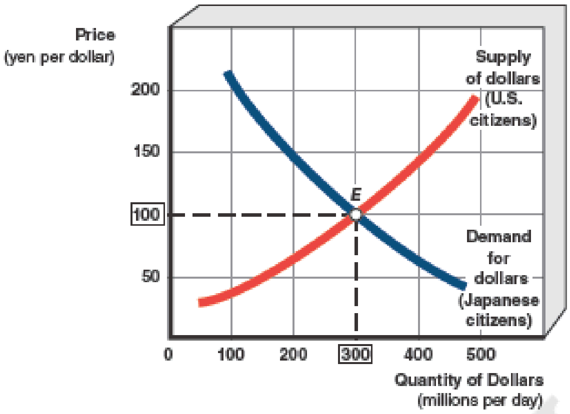

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Take Note Revisited

- When countries specialize, total world output increases, and, therefore, the potential for greater total world consumption also increases.
- Global trade allows a country to consume a combination of goods that exceeds its production possibilities curve.

- Specialization and trade are based on opportunity costs (comparative advantage) and not on absolute advantage.
- World output and consumption are maximized when each country specializes in producing and trading goods for which it has a comparative advantage or lower opportunity cost.
- Protectionist trade barriers may benefit the protected few but result in a restricted supply of imported goods, which drives up prices to consumers.
- Economists are generally free-trade advocates because although the arguments in favor of protectionist trade barriers can be politically appealing, they rarely make economic sense.

- Trade deficits are paid for by selling off national assets to foreigners.
- An exchange rate is the value of one nation's currency in terms of another's and can be expressed as reciprocals of each other.
- An expansion in relative U.S. income causes a depreciation of the dollar.
- A rise in a trading partner's relative price level causes the dollar to appreciate.
- Higher real interest rates in the U.S. will cause the dollar to appreciate.
- When the dollar is weak, or depreciates, U.S. goods and services cost foreign consumers less, so the U.S. exports more. At the same time, a weak dollar means foreign goods and services cost U.S. consumers more, so the U.S. imports less.
- When the dollar is strong, or appreciates, U.S. goods and services cost foreign consumers more, so the U.S. exports less. At the same time, a strong dollar means foreign goods and services cost U.S. consumers less, so the U.S. imports more.

Study Questions and Problems

Please see Appendix A for answers to the odd-numbered questions. Your instructor has access to the answers to even-numbered questions.

1. The countries of Alpha and Beta produce diamonds and pearls. The following production possibilities schedule describes their potential output in tons per year:

Points on Production Possibilities Curve	Alpha		Beta	
	Diamonds	Pearls	Diamonds	Pearls
A	150	0	90	0
B	100	25	60	60
C	50	50	30	120
D	0	75	0	180

Using the data in the table, answer the following questions:

a. What is the opportunity cost of diamonds for each country?

SHOW ANSWER

b. What is the opportunity cost of pearls for each country?

SHOW ANSWER

c. In which good does Alpha have a comparative advantage?

SHOW ANSWER

d. In which good does Beta have a comparative advantage?

SHOW ANSWER

e. Suppose Alpha is producing and consuming at point B on its

e. Suppose Alpha is producing and consuming at point *B* on its production possibilities curve, and Beta is producing and consuming at point *C* on its production possibilities curve. Use a table such as Exhibit 3 to explain why both nations would benefit if they specialized.

SHOW ANSWER

f. Draw a graph, and use it to explain how Alpha and Beta benefit if they specialize and Alpha agrees to trade 50 tons of diamonds to Beta. and Alpha receives 50 tons of pearls in exchange.

SHOW ANSWER

2. Bill can paint either two walls or one window frame in 1 hour. In the same time, Frank can paint either three walls or two window frames. To minimize the time spent painting, who should specialize in painting walls, and who should specialize in painting window frames?

3. Consider this statement: "The principles of specialization and trade according to comparative advantage among nations also apply to states in the United States." Do you agree or disagree? Explain.

SHOW ANSWER

4. Would the U.S. government gain any advantage from using tariffs or quotas to restrict imports?

5. Suppose the United States passed a law stating that we would not purchase imports from any country that imposed any trade restrictions on our exports. Who would benefit and who would lose from such retaliation?

SHOW ANSWER

6. Now consider Question 5 in terms of the law's impact on domestic producers that export goods. Does this policy adversely affect domestic producers that export goods?

- Consider this statement: “Unrestricted foreign trade costs domestic jobs.” Do you agree or disagree? Explain.

  Although some domestic jobs may be lost, new ones are created by international trade. Stated differently, the economy as a whole gains when nations specialize and trade according to the law of comparative advantage, but imports will cost jobs in some specific industries.

- Do you support a constitutional amendment to prohibit the federal government from imposing any trade barriers, such as tariffs and quotas, except in case of war or national emergency? Why or why not?

- Discuss this statement: “Because each nation’s balance of payments equals zero, it follows that there is actually no significance to a balance of payments deficit or surplus.”

  Although each nation’s balance of payments equals zero, its current and capital account balances usually do not equal zero. For example, a current account deficit means a nation purchased more in imports than it sold in exports. On the other hand, this nation’s capital account must have a surplus to offset the current account deficit. This means that foreigners are buying more domestic capital (capital inflow) than domestic citizens are buying foreign capital (capital outflow). Thus, net ownership of domestic capital stock is in favor of foreigners.

- For each of the following situations, indicate the direction of the shift in the supply curve or the demand curve for dollars, the factor causing the change, and the resulting movement of the equilibrium exchange rate for the dollar in terms of foreign currency:

  - **a.** American-made cars become more popular overseas.
  - **b.** The United States experiences a recession, while other nations enjoy

economic growth.

- **c.** Inflation rates accelerate in the United States, while inflation rates remain constant in other nations.
- **d.** Real interest rates in the United States rise, while real interest rates abroad remain constant.
- **e.** The Japanese put quotas and high tariffs on all imports from the United States.
- **d.** Tourism from the United States increases sharply because of a fare war among airlines.

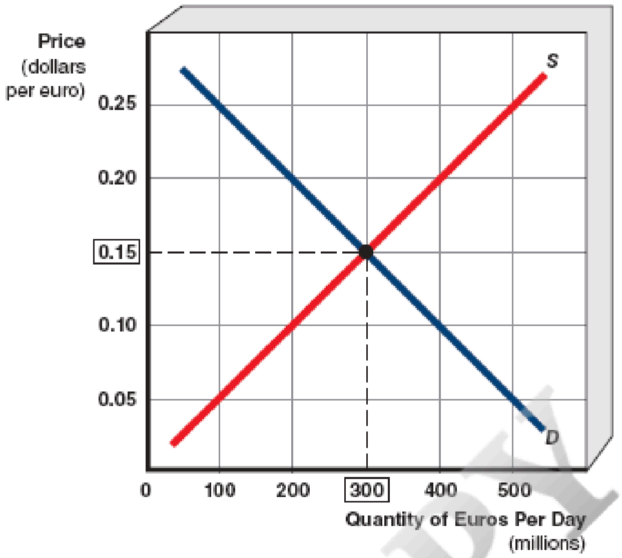
-

The following table summarizes the supply and the demand for euros:

	U.S. Dollars per Euro				
	$0.05	$0.10	$0.15	$0.20	$0.25
Quantity demanded (per day)	500	400	300	200	100
Quantity supplied (per day)	100	200	300	400	500

Using the previous table:

- **a.** Graph the supply and demand curves for euros.



Details

- **b.** Determine the equilibrium exchange rate.

  $0.15 per euro

- **c.** Determine what the effect of a fixed exchange rate at $0.10 per euro would be.

  An excess quantity of 200 million euros would be demanded.

- Comparing labor productivity, suppose the United States has an absolute advantage over Costa Rica in the production of calculators and towels. In the United States, a worker can produce 4 calculators or 400 towels in 10 hours. In Costa Rica, a worker can produce 1 calculator or 100 towels in the same amount of time. Under these conditions, would the United States and Costa Rica find it advantageous to specialize and trade? If so, then which country would specialize in producing calculators and which country would specialize in producing towels?

- Nations keep balances of payments and calculate accounts such as their trade deficit or surplus. If nations need these accounts, the 50 states should also maintain balances of payments to manage their economies. Or should they? What about cities?

The principal purpose of the balance of payments is to keep track of payments of national currencies. Because states and cities within the same nation use the same national currencies, payments for goods and services traded between these parties do not represent a loss (outflow) or gain (inflow). Therefore, only nations, and not states or cities, need to use the balance of payments to account for flows of foreign currency across national boundaries.

Sample Quiz

Please see Appendix B for answers to Sample Quiz questions.

1. The theory of comparative advantage suggests that a (an)

SHOW ANSWER

SHOW ANSWER

SHOW ANSWER

a. industrialized country should not import.

b. country that is not competitive should import everything.

c. country specialize in producing goods or services for which it has a lower opportunity cost.

d. None of the above answers are correct.

Chapter 16. Economies in Transition

Chapter Objectives

1. Outline the traditional, market, and command economic systems and explain the strengths and weaknesses of each.
2. Contrast capitalism, socialism, and communism and evaluate their strengths and weaknesses.
3. Summarize the transition since the early 1990s away from a centrally planned economy toward more capitalism within Cuba, Russia, and China.
4. Distinguish privatization and nationalization.

> The inherent vice of capitalism is the unequal sharing of blessings. The inherent virtue of communism is the equal sharing of miseries.
>
> — **Winston Churchill**

Introduction

The emergence of the market system in Russia, China, and other countries continues while leaders of these countries who were once devoted followers of Marxist ideology now embrace the efficiency of markets and their many other benefits. The failure of communism and the transformation toward a market system is personified by the success of McDonald's in Russia and Walmart in China. Today, Russia and other countries continue to experience economic problems during their restructuring, but the commitment to free-market reforms remain. In contrast, in 2009, the media reported news that the United States was nationalizing banks and General Motors in response to the global financial collapse. And in 2011 and 2012, a protest movement called Occupy Wall Street spread across the United States. The anticapitalism slogan of the protests was "We are the 99 percent." The main issues protested were inequity between the wealthiest 1 percent and the rest of the population and corrupt influence of corporations on government. And the emergence of the COVID-19 pandemic in 2020 reignited concerns over fairness and equity in the marketplace. What caused these astonishing turns of events?

400

To understand how the pieces of the global economic puzzle fit together, this chapter begins with a discussion of the three basic types of economies. Then, you will examine the pros and cons of the "isms"—capitalism, socialism, and communism. Here, you will explore the worldwide clash between the ideas of Adam Smith and Karl Marx and study their current influence on economic systems. Finally, you will examine economic reforms in Cuba, Russia, and China.