



**United States Academic Decathlon  
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***Economist Profiles  
& Case Studies***

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## **ADAM SMITH**

Adam Smith (1723–1790) was a British philosopher and economist. He was born in Scotland and later developed a close association with the Scottish philosopher David Hume, who influenced Smith’s philosophical and economic theories. Smith is best known for his landmark work, *An Inquiry into the Nature and Causes of the Wealth of Nations* (1776). The central thesis of this text is that capital is best used for the production and distribution of wealth under conditions of government noninterference and free trade.

Smith believed that if each person were allowed to pursue his or her own self-interest, the actions of that individual would not only be in his or her own best interest but would also be in the best interest of society as a whole. Smith described this notion via his principle of the “invisible hand”; he stated that every individual is led—as if by an invisible hand—to do what is best not only for him or herself but what is best for all. Thus, Smith favored a laissez faire government that allowed the forces of the free market to run their course uninterrupted.

## **DAVID RICARDO**

David Ricardo (1772–1823) was born in London in 1772. He began work at a brokerage at age fourteen and was wealthy by his mid-twenties. His early work stressed the importance of a strong monetary system backed by precious metal. His most important book, *Principles of Political Economy and Taxation*, was written in 1817. He and many others feared that population growth would cause a shortage of good land, and he feared that without more productive land, wealth could not be developed.

Ricardo favored a theory of free international trade that emphasized specialization, the use of comparative advantages, and competition. He supported the labor theory of value, which contends that wages are determined by the price of food, which is determined by the cost of production. Ricardo shared this belief that cost is a function of the amount of labor required to produce the food with many other notable thinkers, including Karl Marx.

*The produce of the earth—all that is derived from its surface by the united application of labour, machinery, and capital, is divided among three classes of the community; namely, the proprietor of the land, the owner of the stock or capital necessary for its cultivation, and the labourers by whose industry it is cultivated.<sup>1</sup>*

The theory of comparative advantage was based on the relative costs (labor) of production in different regions or nations. If a nation specialized in the products that could be produced with the lowest cost and traded for other goods, there would be a net gain. If each nation specialized, each would trade to its own advantage.

Modern theory of comparative advantage is not dependent on the labor theory of value as in Ricardo’s day. The principle holds true when the real cost of a good or service, including land, labor, capital, and entrepreneurship, is included.

## **JOHN MAYNARD KEYNES**

John Maynard Keynes (1883–1946) was a British economist whose theories have had a tremendous influence on the economic policies of governments on both sides of the Atlantic.

Keynes was an advisor to the British Treasury during both World Wars, although he resigned temporarily in protest after the signing of the Treaty of Versailles in 1919. In *The Economic Consequences of Peace* (1919) Keynes contended that the harsh terms of the Treaty of Versailles would lead to a rise in German nationalism and militarism, and history ultimately proved Keynes' belief to be a valid one.

Unemployment crises spurred Keynes to write *A Treatise on Money* (1930) and *The General Theory of Employment, Interest, and Money* (1936). In the latter text, Keynes proposed that economic depressions were not self-correcting. According to Keynes, levels of business investment varied too much to reliably ensure high unemployment and adequate flow of income. In times of recession, Keynes argued, government spending must compensate for inadequate business investment in order to increase production and thereby increase employment. Keynes' theories had a noted influence on the New Deal policies of President Franklin Delano Roosevelt's administration. However, as the entrance of the U.S. into the World War II spurred economic growth, it is difficult to isolate the true impact that Keynesian policies had on the economy.

### **MILTON FRIEDMAN**

Milton Friedman (1912– ) strongly believed that the forces of the free market were a more effective means to ensure a balanced non-inflationary rate of economic growth than government programs and legislation. Friedman strongly discouraged government intervention in economic matters unless the government could do something to assist the forces of the market. He was a fervent supporter of capitalism and saw a distinct connection between a free market and political freedom; according to Friedman, "History suggests that capitalism is a necessary condition for political freedom." (*Capitalism and Freedom*, 1962)

Long a defender of free markets and an advocate of government playing a minimal role in the economy, Friedman was awarded the Nobel Prize for Economic Science in 1976. Although he is recognized for his contributions to monetary policy analysis and history, Friedman may be best known for his PBS series *Free to Choose*, which brought economic analysis into the popular media. Friedman encouraged a greater awareness and appreciation of the numerous mechanisms of the market economy that impact our daily lives as evidenced by the following quotation from *Free to Choose*.

*Every day each of us uses innumerable goods and services—to eat, to wear, to shelter us from the elements, or simply to enjoy. We take it for granted that they will be available when we want to buy them. We never stop to think how many people have played a part in one way or another in providing those goods and services. We never ask ourselves how it is that the corner grocery store—or nowadays, supermarket—has the items on its shelves that we want to buy, how it is that most of us are able to earn the money to buy those goods.<sup>2</sup>*

Friedman felt that economic policy ought to leave markets alone unless there is something that government could do to better allow the free market to work. Asked to assess President Clinton's role in the sustained growth of the U.S. economy in the 1990s, Friedman gave the economy a rating of "A," but he gave credit to the fact that with a Democrat in the White House and a Republican-controlled Congress, no laws were passed that got in the way of growth. Moreover, Friedman traced the current boom back to the Reagan administration's efforts to deregulate. He also gave credit to Federal Reserve Chairman Alan Greenspan for his judicious use of monetary policy tools to facilitate growth without inflation.<sup>3</sup> Friedman firmly believes that the Federal

Reserve System ought to encourage economic stability by increasing the money supply at a fairly fixed rate as opposed to sharply expanding or contracting it.

Friedman advocates letting competition deal with issues such as school reform and declining test scores in public education. Competition among schools, he suggests, would result in lower costs and improved quality—the same predictable results of promoting competition in any other industry. According to Friedman, smaller government, with lower taxes and fewer regulations, will result in more investment, more spending, and more growth. In his estimation, the government should get out of the way whenever possible.

### **ALAN GREENSPAN**

Who was the second most powerful person in the U.S. economy in the 1990s? Many say it was Alan Greenspan (1926–), the Chairman of the Federal Reserve, whose opinions about inflation, growth, employment, and even the stock markets were second only to President in their impact on the media and markets.

Greenspan holds Bachelors, Masters, and Ph.D. degrees in economics from New York University. His first position in government was as Director of Domestic Policy Research in President Nixon's campaign. Although Greenspan declined to accept a position in Nixon's first administration, he accepted the position of Chairman of the President's Council of Economic Advisers during Nixon's second term in office. (By the time Greenspan started the job, Nixon had already resigned and thus Greenspan worked under President Ford).

Alan Greenspan took office as Chairman of the Board of Governors of the Federal Reserve on August 11, 1987 to fill an unexpired term. Dr. Greenspan was reappointed to the Board for a full fourteen-year term and has been designated Chairman by Presidents Reagan, George Bush, Sr., Clinton, and George W. Bush. Chairman Greenspan also serves as Chairman of the Federal Open Market Committee, the system's principal monetary policy-making body.

Under Alan Greenspan's leadership, the Federal Reserve has singled out inflation as the number one enemy of the economy. The Federal Reserve was very active in the late 1990s, using slight increases in interest rates to cool economic growth to more acceptable levels and to reduce inflationary pressures. Even Greenspan's more casual comments provoke serious speculation about the future of the economy. A comment about stock prices sent those markets into a tumble in 1996. Traders interpreted his question, "How do we know when irrational exuberance has unduly escalated asset values?" to mean, "stock prices are too high." They responded with a sell-off of 3–4 percent.<sup>4</sup> Later, Greenspan sought to moderate the effects of his comments and to reassure the markets that he did not see the problem as being quite as bad as his comments had been perceived. Nonetheless, Wall Street continues to wait on Greenspan's comments and Fed actions with bated breath.

### **INDIVIDUAL RESPONSES TO INCENTIVES: THE TRAGEDY OF THE COMMONS**

One central economic problem is that the perfectly rational behaviors of individuals may be harmful to the community or society as a whole. People respond rationally to incentives albeit in different ways. In 1968 Garrett Hardin wrote an article in the journal *Science* that captured this dilemma. Hardin's *Tragedy of the Commons* is paraphrased here.

*In a rural village, a large central parcel of land was set aside for the common use of the village's cattle herders. Because each herder could use the land for grazing at no explicit cost, there was an incentive for each individual to increase the size of the herd in order to increase the herder's individual wealth. As no one owned the commons, there was no incentive for anyone to control the use of the commons or to maintain it. As the number of cattle increased, overgrazing destroyed the commons and left all of the herders with no resources with which to feed their cattle. The cattle industry died out, and the village was abandoned.<sup>5</sup>*

Were the actions of the individuals rational? Yes. To seek to benefit at as low a cost as possible is a perfectly normal behavior. To avoid the cost of maintaining property you do not own or to which you do not have any exclusive right is a normal behavior. Why did the commons, the herding industry, and the village die? No one took care of the commons. If no one owns the resource and has no claim to it in the future, then it would be in the herders' self-interest to use as much as they could in the present. But, because no one conserved the town's most valuable resource, it was depleted.

The logic of the tragedy has modern applications. Should we use as many of the earth's resources as we can to improve our lives now, or should we save them for future generations? Will people take as much interest in protecting public property and resources as they will in protecting resources that they own? Why are there so many chickens and so few whales? People take care of chickens because they own them and receive individual benefits from their use. No one owns the whales, so who has a stake in their future value?

The *Tragedy of the Commons* captures the essence of a basic economic problem—the dilemma of how to decide who uses resources, how they are used, and who should receive the benefit from their use.

## **ROLE OF GOVERNMENT: ENVIRONMENTAL PROTECTION**

A principal role of government is to solve problems created when private economic activities impose costs on others. Production of a good or service can often create externalities—unintended consequences of the production. For example, when a chemical plant leaks refuse into a river or smoke into the air, those who use the river for pleasure or those who breathe the air may pay some of the cost of the production, yet not benefit from the actual production.

Is it the role of government to step in and stop the polluter, clean up the pollution, or to find an equitable solution that protects jobs and the rights of others? In 1970 Congress created the United States Environmental Protection Agency (EPA), combining regulatory responsibilities that had previously been divided among three cabinet departments. The EPA's initial responsibility was to enforce provisions of the *Clean Air Act* of 1970 in order to decrease air pollution from industries and motor vehicles.

The debate over the powers of the EPA is often posed as a conflict between those who favor a greater level of production and job growth and those who favor a cleaner environment and the reduction of diseases that result from poor air quality. Often the final decision is made via a benefit/cost analysis of the alternatives—the relative values of the options. How much is a cleaner environment worth? One hundred jobs? One thousand jobs? Ten thousand jobs? What is a job worth? Is a job worth some number of pounds of pollution or so many parts per million of

pollutants in the air?

More often than not, the solution is a matter of the marginal value of a job or a degree of cleanliness. These kinds of issues are not usually all-or-nothing, but instead necessitate a compromise determined by the optimum balance between the benefits and costs of both options. Perhaps the solution is to require the chemical plant to clean the air to the degree that the health effects are limited and a large number of jobs are preserved—a compromise that would allow the government to fulfill its dual role as an entity that is charged with encouraging economic growth while at the same time being responsible for protecting the environment. Unfortunately, it is not possible to have the maximum achievement of both goals.

## **THE DEMAND FOR AND SUPPLY OF EDUCATION**

The demand for education—the amount that people will consume at various prices—viewed in concert with the supply of education—the amount that producers are willing to supply at various prices—should, in theory, form a picture of the quantity of education that will be exchanged and the market price. But, given the system of education in the United States, there is something wrong with this picture.

The first problem with the supply and demand analysis is that most of the education that is produced and consumed in the United States is not exchanged in competitive markets. When a good or service, such as education, is produced by businesses with monopoly advantages, such as a “guaranteed” demand, the factors influencing supply are very different. Efficiency is not an incentive, and quality is not as much of a market force. Additionally, when those who use a good or service are not the same as those who pay for the good or service, the demand is very different. Those who do not pay the full cost will demand more than if they paid the full cost.

If the production of education is not driven by profit, there will be less incentive to be efficient in the use of resources. Furthermore, if there is little or no competition, there will be less incentive to improve the product. When the demand for the good or service is relatively inelastic—meaning that the quantity demanded responds only slightly to changes in price—producers are not as well prepared to respond to change.

Whether or not to transition from a regulated monopoly system to one of competition is a complicated issue. The notion of making education more effective and efficient seems to have won the day. It is just a matter of how and when it will happen. When it does, the suppliers will respond to market forces and make market-focused decisions.

### *The Role and Value of Education*

Investment in education—which allows for the development of skills and knowledge that can be used in production—has two predictable outcomes. First, for an individual, an increase in skills and knowledge, all other factors being equal, will increase income. Assuming that the individual increases skills that are demanded in the workplace, employers will be willing to purchase more of those skills or will pay more for the skills. In either case, income will increase. Second, on the whole, an increase in productive skills and knowledge in an economy will result in increased output even as other resources are held constant. Of course, this assumes that the level of aggregate demand is enough to put those resources to work.

There is a direct relationship between level of educational attainment and income, as shown in

Figure 1. Using a simple comparison of lifetime income over thirty-five years, a high school diploma is worth approximately \$250,000 over a thirty-five year career. A bachelor's degree provides an average lifetime income increase of \$615,405 over a high school diploma. Post-graduate studies, on average, provide an additional lifetime income of \$788,270 over a bachelor's degree. As you can see, all other things being equal, education is a very good investment.

<b>Figure 1: Educational Attainment and Average Income, 1997<sup>5</sup></b>				
<b>Education Level:</b>	Post-graduate Degree	Bachelor's Degree	High School Diploma	High School Drop-out
<b>Average Annual Income:</b>	\$63,000	\$40,478	\$22,895	\$16,124

### *The Real Cost of Education*

If it is so predictable that education will result in greater income, why do so many people elect not to increase their education? If we assume that people respond to incentives in predictable ways—and they do—this happens because the cost is greater than the benefit. A person will choose to invest in education because the benefit, e.g., more income or some other incentive, is greater than the cost. If there is no perceived benefit, or if the perceived benefit is less than the cost, the choice will be to not increase education.

The real costs of education are in the present time; they include forgone income (opportunity cost or implicit cost), tuition, books, and living expenses. The marginal benefits of education are spread out over some number of years, thirty-five in the previous example. For a sixteen year-old who is considering dropping out, the minimum wage income of approximately \$12,000 in a year is a big cost for the potential of \$6,000 more in income several years later. Similarly, for the high school graduate, a forgone income of \$16,000 in a year is a high cost to pay for four years of college, plus educational expenses, for the potential of \$17,000 more in pay a few years later.

The explicit, or out-of-pocket, cost (tuition, books, room and board) of a four-year degree program in a public college or university in the United States in 1998–99 was \$3,243, giving a bachelor's degree a total cost of about \$13,000. For a private institution, the average cost for a four-year degree was approximately \$58,000.<sup>6</sup> For education to be a good investment, it must be viewed as a long-term investment. Looking at today's costs and benefits, such an investment may not look so good to all people.

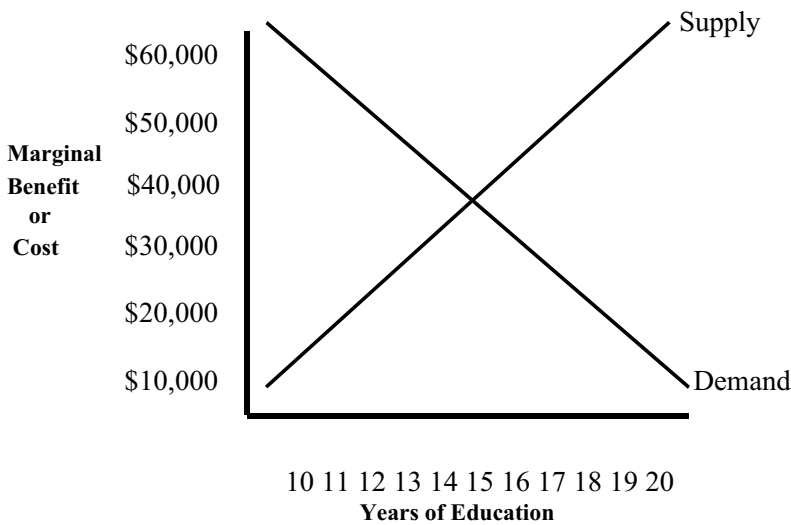
One caveat here is that these estimates are based on historical earning rates. If there were a substantial change in how workers acquire productive skills and knowledge it would clearly make a difference. Although some people have predicted that the value of degrees will change and that there will be other ways that employers determine wage rates, there is, nevertheless, no reason to believe that the general relationship of education to income will change.

### *Supply and Demand for Education*

How much education will people consume at various prices? This is the critical question when analyzing the demand for education in a competitive market. How much education are producers willing to supply at various prices is the key question on the other side of the equation. Put the two measures together, and you will get the quantity of education that will be exchanged and the market price for that education. In this case, the vertical axis is the value of additional years of education and the number of years is on the horizontal axis.

As a rule, a person should demand more additional years of education if the marginal benefit is greater than the marginal cost. (Refer to Figure 2.) If an investment of one more year could increase income by \$60,000 for this person or group, there would be a large quantity demanded. As the number of years increases, the quantity demanded decreases. If it takes ten additional years (post-graduate work) to get that benefit, there will be a smaller quantity demanded. The number of years is a proxy in this example for the cost of the increase in benefit. A change in the perceived benefit or cost of education would shift the curve left or right.

**Figure 2: Demand and Supply for Education**



As for the supply illustrated in Figure 2, the figures are more abstract. The vertical axis would approximate the cost of producing the education. Hopefully, it is correlated with the benefit the students receive. If more education could be supplied (number of years), the willingness of producers to supply each additional unit of education would increase. This is not a precise example, but it works for illustrative purposes. The intersection of supply and demand indicates the equilibrium of the benefit/cost and years of education demanded. Assume for this purpose that the supply curve for education is fixed. If students perceive an increase in the benefit of more education, the demand curve will shift to the right and more years of education will be demanded at all levels of perceived benefit.

The problem with this supply and demand analysis is that most of the education that is produced and consumed in the United States is not exchanged in competitive markets. When a good or service is produced by businesses with monopoly advantages, something strange happens to supply. Likewise, when those who use a good or service are not the same as those who pay for the good or service, strange things happen to demand.

### *Factors Influencing Supply and Demand*

The supply and demand for education is a product of many conflicting forces. Public schools face a problem rare among most producers in that schools often have a very difficult time identifying their customer. It is the school's students, the children, who directly benefit, yet their families do not individually pay for their education. Although parents can exert much influence over schools, they share the cost of schooling with taxpayers who do not have children. Also, though businesses have a significant stake in the output of the schools since they need a well-prepared workforce, business cannot dictate how their tax dollars will be spent.

Public schools have a third-party payment system that significantly alters the demand. Children of poor families can consume as much public education, to a point, as the children of higher income families. Given how markets are supposed to work, the effect is that the amount of public education demanded by poor families is artificially increased. At the same time, many higher income families choose not to directly use the public education that they pay for with their taxes. How often do people pay for something and then decide not to "use" it? Many high-income families can afford to demand a private education at an even higher price. At the same time, even some middle-income or relatively low-income families choose to pay for a private education. The use of property taxes as the primary funding mechanism for public schools is based on the principle that all citizens benefit from a public school system, whether or not they directly use the school system.

It is generally true that the more education a person has, the more income that person will receive in the market. Of course, this and all similar generalizations are based on averages, not individual cases—almost everyone knows of someone who dropped out and is now quite wealthy. Nonetheless, on average, a high school diploma is worth a lifetime income increase of over \$250,000 when compared with the lifetime earnings of a high school dropout. In the United States in 1999, the median annual income premium for someone with less than a high school diploma was \$19,700. The premium for high school graduation was \$6,300 in additional annual income (median). There was another annual premium of \$14,100 for a bachelor's degree (median), and those who went on to advanced degrees could reasonably expect \$10–30,000 more annually. Moreover, in 1999 a high school dropout was 75 percent more likely to be unemployed than a high school graduate, and the unemployment rate among college graduates was less than half of the rate for high school graduates.<sup>7</sup>

Why, then, do so many people still drop out? The conventional wisdom in economic analysis is that if the benefit of an option outweighs the cost, relative to the benefit/cost difference of other options, a person will logically choose that option. Apparently, many people do not perceive the benefit of more education, no matter what the numbers seem to tell us. Or perhaps, they may perceive the cost as being too high regardless of the long-term benefit.

If a person does not understand or believe that more education will actually increase future income, or if there is a very desirable short-term incentive to do something else, it is a logical decision for that person not to demand more education. For instance, for someone with a family to feed and rent to pay, taking the time to further his or her education has an extremely high opportunity cost. The real cost of education is not just the tuition and books, but also the forgone income from the time spent in school. Even at the minimum wage of \$5.15 an hour, the cost of spending forty hours a week in class and studying is over \$800 per month. People at this income level do have some alternatives to pay for further education, but the perceived costs nonetheless remain quite high.

## HOW INFLATION CAN AFFECT WAGES

Oh boy, a 3 percent raise! Sounds like good news, but is it? Raises, or increases in wages, usually come annually, if at all, for most workers. Those who work a set number of hours and who choose not to work additional jobs depend on wage increases to improve or to just maintain their ability to purchase goods and services. The real impact of an increase in wage is offset by the effects of inflation, as inflation diminishes purchasing power.

In the example above, if wages were increased by 3 percent and inflation were even a relatively low 3 percent, the net effect on purchasing power would be zero. The raise just offsets the loss to inflation. If the purpose of the raise was to maintain a real wage level, it worked. But, if the wage earner was counting on a pay raise to increase consumption, it did not work. A pay raise of 4 percent would have a net effect of increasing purchasing power by just 1 percent. Maintaining one's standard of living or purchasing power requires that the increase in one's income exceeds increases in the costs of goods and services.

Keep in mind that the above discussion is only relevant if the work and purchasing pattern of the people involved remain constant. One important factor that has improved family income over the past half century has been the increase in the number of two-income families. In 1950 just 33 percent of adult women were in the labor force. By 1997 that percentage had increased to 60 percent. Of all married women with children under six years of age, 64 percent were in the workforce. The increase in the standard of living of families in the U.S. can, to a certain degree, be attributed to a larger number of wage earners rather than significant real increases in wages.

Another trend in the U.S. in the late 1900s was a growing disparity between income groups. While average incomes gained significantly more than inflation, the lowest income households did not make gains. From 1979 to 1999, the upper limit of income of the lowest one-fifth of households increased from \$7,009 to \$17,196—145 percent in current dollars. But, adjusted for inflation, the real increase was just under 9 percent over the twenty-year period. Although the dollar increase seems significant, inflation seriously eroded this group's buying power.

During the same period of time, the lower income limit of the top one-fifth of households increased from \$29,097 to \$79,375 in current dollars, a 272 percent gain. Adjusted for inflation, the increase in their incomes during the twenty years was just over 21 percent. The lower income limit of the top 5 percent of households saw a real increase of almost 33 percent from 1979 to 1999, significantly better than other income groups. Generally, inflation over the last twenty years has more seriously affected the lives of the lower-income households than upper-income households. The real increase of the top half of households was significantly more than the real increase of the bottom half.

The government, then, is naturally quite concerned with the level of inflation as it has widespread effects on the health and well being of the economy. The *Employment Act of 1946* established inflation, growth, and wage stability as three national priorities. Unfortunately, policies that reduce inflation may tend to also keep wages down. Policies that encourage growth may be inflationary. Policies that inhibit growth in times of inflationary pressure may cause more unemployment. Good economic policy that balances price stability, full employment, and growth is difficult. The anti-inflationary policies of the late 1990s, aimed at reducing inflation, threatened to end the long period of economic growth. Prices remained stable, at the potential loss of output and jobs.

## **THE EURO**

On January 1, 1999, member nations of the European Community (EC) pegged the values of their individual currencies to the euro, a new EC currency unit, setting into place the final stage of the monetary union of the EC and the eventual European Central Bank. This event culminated a process begun in 1979 with the formation of the European Monetary System, intended to coordinate monetary policies and stabilize exchange rates on the continent through the development of the European Currency Unit (ECU), the predecessor of the euro. The process formally began with the final ratification of the Maastricht Treaty.

The European Union established the European Monetary Institute in 1994 to begin the formation of a European Central Bank. Without one central bank, monetary policy within Europe would be impossible, and the single currency would not work. The euro became the currency for the eleven EU member states (Belgium, Germany, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal, and Finland) on January 1, 1999. The eleven national currencies became subunits of the euro, and their value was permanently fixed to the euro. The euro is currently used for bank and government transfers. The transition to using the euro will last from 1999 through 2001. Euro banknotes and coins will go into use on January 1, 2002, and at that time, the national currencies and coins will be taken out of circulation.

The euro holds great promise for Europe as a means to reduce transaction costs and facilitate the free movement of goods, services, and capital within the member states. Its value as a currency depends on the faith that the people of different nations have in it as money. It will both require and force economic cooperation within Europe.

## **HOW INTEREST RATES AFFECT INDIVIDUALS' BEHAVIORS**

Interest rates are a key determinant of economic decisions. In an economy that is built on consumer debt, interest rates are both a monitor and predictor of individual purchasing behavior. If rates increase, the real costs of purchasing increase. And, if costs increase, simple demand analysis tells us that consumers will purchase fewer goods and services. Conversely, if interest rates decline, consumers will purchase more. A consumer's budget is based on expected expenses, including interest payments on loan and credit card balances.

One market that is impacted very much by interest rate changes is the housing market. Home loan payments are a function of the base—the loan principal—and the rate of interest. A change of just one percentage point can increase or decrease mortgage payments significantly. A \$100,000 mortgage at an interest rate of 7 percent over a thirty-year mortgage requires a payment of \$665 per month. Raising the interest rate to 8 percent increases the payment to \$734. A rate of 9 percent raises the monthly payment to \$805.<sup>8</sup> When the Federal Reserve influences home loan rates to increase in order to calm fears of inflation, the downside is that the Fed potentially blocks thousands of consumers from home loans.

## **CAPITAL GAINS TAXES**

One continuing issue in overall tax policy is the effect of taxes on incentives to invest. Individuals who invest and realize gains in the value of capital assets—such as stocks, bonds, real estate, businesses, precious metals, and certain other assets—pay a tax on their capital gains. The tax is

based on the increase in value, i.e., the sale price reduced by the basis or purchase price. *The Taxpayer Relief Act* of 1997 and the *IRS Restructuring and Reform Act* of 1998 created the current (2000) capital gains tax law. The gain on assets held short-term (less than one year) is taxed at a rate of 28 percent. For most people, the gain on assets held long-term (one year or more) is taxed at a maximum rate of 20 percent, with just a few exceptions. Those in the 15 percent tax bracket for regular income also pay a 15 percent tax rate on capital gains. The purpose of the higher rate for short-term investments is to provide an incentive for people to hold assets longer and thus reduce short-term speculation.<sup>9</sup>

Capital gains taxes create some major policy issues. One key issue is whether or not capital gains should be taxed at the same, lower, or higher tax rate than income earned through work. One argument is that those who work should be rewarded, and those who do not work but earn income through the use of other resources should not be rewarded with lower tax rates. The bias of this argument is that labor is a more “valuable” resource than capital. This point raises the issue of whether or not tax laws should reflect values or be neutral.

Tax laws have regularly been used to promote certain behaviors and to discourage others. In the case of capital gains, the issue is compounded by the fact that those with higher incomes are much more likely to make additional income from capital gains. Therefore, a lower capital gains tax benefits those with higher-incomes more than it benefits those with lower-incomes. Many supporters of low capital gains taxes contend that those who risk investment in capital assets should not be penalized with higher tax rates.<sup>10</sup>

Some believe that a high tax rate on capital gains would benefit those who provide labor. But, the opposite argument is that without the investments that create capital gains, there would be fewer jobs for people to earn income by working. This argument raises the issue of whether or not capital gains taxes reduce incentives to invest and are thus a drag on economic growth. (Keep in mind that the imposition of capital gains taxes on the gain in the value of one’s home is a separate issue.) Those who invest in the stock market may anticipate a certain gain. However, built into this gain, and thus into the investment decision, is the reduction in real gain caused by the tax. If an investor expects a real gain of \$1,000 on an investment, the dollar gain must be \$1,250 at a tax rate of 20 percent. A dollar gain of \$1,000 would yield a net gain of just \$800 after the tax payment.

The 1997 and 1998 laws that reduced capital gains were intended to encourage long-term investment. The 8 percent reduction in the tax rate on longer-held assets would be an incentive for some to invest more and over a longer period of time. For some, the marginal gain of 8 percent would be enough to offset the risk of these kinds of investments. That this advantage benefits those with higher incomes more than those with lower incomes is a continuing issue.

#### **LESS-DEVELOPED COUNTRIES: NIGERIA**

The Federal Republic of Nigeria is Africa’s most populous nation with 124 million people in an area twice the size of California. It is located in Western Africa, bordering the Gulf of Guinea, ten degrees north of the equator. Nigeria has an endowment of potentially productive resources, including large reserves of oil. The economy has long been dependent on oil exports, which in 1999 accounted for 20 percent of GDP, 95 percent of foreign exchange, and 65 percent of government revenues. Nigeria is the world’s sixth largest oil-exporter. A variety of other resources, including cocoa, rubber, coal, and agricultural land provide additional productive capacity. In 1999 Nigeria’s GDP was the equivalent of 30 billion U.S. dollars, \$230 per capita.<sup>11</sup>

Given its valuable oil reserves and other resources, why has Nigeria not prospered?

Thirty-four percent of Nigeria's people live below the poverty threshold while 54 percent of the labor force is in the agricultural sector, and in recent years, unemployment has remained at over 20 percent. Although Nigeria is a net exporting nation, it still depends on foreign aid and external debt to provide government services. Telecommunications and other utility services are inadequate for the large population. Agricultural production, making up 33 percent of GDP, has not kept pace with fast population growth, and Nigeria must import food. Eighty-nine percent of the school-age children attend primary school, but only 30 percent attend secondary school, and just 4 percent receive a post-secondary education.

Historically, Nigeria's development has been plagued by recurring problems. Periodic droughts hindered development at times, but they also raised agricultural prices and created incentives for investment in agricultural infrastructure. Regional and ethnic divisions have continually threatened the nation's development and stability; Nigeria's political independence, established in 1960 was soon followed by civil strife, and civil war broke out in 1967 and lasted until 1970.

In the mid-1970s, rising oil prices generated great wealth, but efforts to invest in a more diverse economy were not effective, and hence, when oil prices dropped, Nigeria's economy suffered badly. Continuing efforts to plan economic growth, including government investment in oil companies, have failed, and unemployment has persisted as many educated people move from agricultural to urban areas for work.

Perhaps Nigeria's worst problem has been the inability of the government to provide adequate infrastructure and to encourage private investment. Corruption, regional conflicts, and an over-dependence on fluctuating oil prices have made economic planning difficult. Without political stability, investment is risky as is Nigeria's dependence on one export industry. As a result of its lack of economic and political stability, Nigeria faces a problem common to many LDCs—the so-called “brain drain.” Well-educated Nigerians are leaving their home country for better opportunities in the United States and elsewhere. One third of Nigeria's college graduates live and work outside Africa.<sup>12</sup>

The new Nigerian government, under President Olesgun Obasanjo, has ambitious plans for development. Recently, the rate of inflation has been more controlled, and corruption in government has come under scrutiny. What Mr. Obasanjo must do is restore confidence in the stability of Nigeria's economy to encourage domestic and foreign investment. The rise of oil prices in 2000 helped to increase Nigeria's export income. Investing this new income in future productive capacity, including infrastructure, manufacturing capability, and Nigeria's human capital, is critical to the nation's future.<sup>13</sup>

#### **TRADE SANCTIONS: SOUTH AFRICA AND CHINA**

One very powerful tool of international diplomacy in recent years has been the use of trade sanctions to influence nations to change military, political, or social policies. The intended effect of a trade embargo against a nation is to inhibit that nation's ability to sell its resources, goods, and services and to inhibit the nation's ability to purchase the resources, goods, and services it wants. The concept of an embargo is one of simple supply and demand. If fewer nations allow a nation's goods to be imported, then that nation will lose income as its goods receive lower prices, if any. An embargo denies the affected nation the economic benefits of specialization and trade.

Without free access to capital markets, an embargoed nation will have higher investment costs and little ability to build productive capacity. In many cases, the use of trade sanctions has brought about significant change. In some cases, they have been less effective.

From its inception in 1948, the South African policy of apartheid had been condemned by the major nations of the world for many years. Nonetheless, it was not until the late 1980s, when many nations and major global companies effectively closed world markets to South African products and cut off much of South Africa's export income that the South African government was spurred to change its policies.

Many people believe that the United States and other nations should use trade sanctions against China to influence the Chinese government to change its repressive human rights policies. At the same time, China is a growing economic power, a significant producer of goods imported into the United States, and a huge potential market for U.S. exports. The use of sanctions against China will carry a great cost to those who decide not to purchase relatively inexpensive Chinese goods or those who hope for profit in the Chinese market. Closing a large market for U.S. goods and services will lower the price of those goods and services. Cutting off the supply of low-cost goods from China will effectively raise the price of the same goods that U.S. citizens purchase from other nations.

#### **RELATIVE WEALTH IN THE U.S., GERMANY, AND JAPAN**

Per capita GDP is significantly greater in Western Europe, Japan, and the United States (\$25,890 average in 1997) than in South Asia (\$380), Sub-Saharan Africa (\$510), and East Asia and the Pacific Islands (\$970). The nations in the Middle East had a per capita GDP of \$2,070 in 1997 while the nations of Eastern Europe and Central Asia had a per capita income of \$2,310, and the nations of Latin America and the Caribbean had a per capita GDP of \$3,890.

The distribution of wealth in these regions can vary widely. In other countries of the world, income is sometimes more evenly distributed than in the U.S., but it is often much more unevenly distributed. The distribution of wealth does not seem to have any correlation to a nation's wealth or the relative standard of living in an economy. Per capita GDP does seem to be a good indicator of relative standard of living for the "average" person or family when comparing one economy to another. The world's fifty-four "high-income" nations, with a total population of 927 million, had a per capita GDP of \$25,890 in 1997. The sixty-one "low-income" nations, with a total population of 5,820 million, had a per capita GDP of \$250 in 1997.

Nonetheless, comparing nations by income is still difficult. Look at three high-income nations in 1997: Germany, Japan, and the United States. In 1997, Germany had an estimated GDP of \$1.74 trillion (\$28,280 per capita), a real growth rate of 2.4 percent, and an unemployment rate of 12 percent. For the same year, Japan had an estimated GDP of \$3.08 trillion (\$38,160 per capita), a real growth rate of 0.9 percent, and an unemployment rate of 3.4 percent. The United States had a GDP of \$8,083 trillion (\$29,080 per capita), a real growth rate of 3.8 percent, and an unemployment rate of 4.9 percent.

Adjusted for parity purchasing power, when compared to the United States, Germany's 1997 per capita GDP drops to \$21,219, and Japan's 1997 per capita GDP drops to \$24,444. Parity purchasing power involves a ratio of the price levels in two countries. As you can see from the numbers cited above, purchasing power was significantly greater in the United States than in Japan or Germany in 1997. Switzerland, with the world's highest per capita GDP in 1997 of

\$43,060, had a real purchasing power of only \$23,800. From these figures, we can conclude that in Switzerland it took approximately \$12,860 more income in 1997 to purchase the same level of goods and services as in the United States.<sup>14</sup>

## **THE SUPPLY OF AND DEMAND FOR COMPUTER PROGRAMMERS**

That information technology (IT) is a key to economic growth in the twenty-first century seems to be a consensus opinion among business leaders and economists. Much of the productivity growth of the early 1990s was due to improvements in technologies and advances in the manufacturing of computers and related equipment. As manufacturing of computer equipment moved to other nations, computer services grew rapidly in the United States. Export of these and other services was a bright spot in the U.S. trade balance in the 1990s.

The demand for computer data, communications, and Internet services derived a demand for computer engineers, technicians, and programmers. These jobs required higher skill levels and provided higher wages than the computer manufacturing jobs that were lost.<sup>15</sup> Between October 1999 and November 2000, the number of persons employed in “data processing and preparation” services grew by 5 percent to 1,976,500 workers. Approximately 700,000 of these were classified as programmers.

The Bureau of Labor Statistics’ (BLS) summary of the market for computer programmers in 2000 indicated that while the demand for programmers was rising, the education and experience required by employers was also increasing, due to the more technical nature of the work. Statistics also reveal that larger numbers of programmers were working independently on a contract basis. In 1999, the median income for computer programmers was \$47,550 while starting salaries for programmers averaged \$40,800.<sup>16</sup> The small difference between the starting salaries and the median may be a result of two factors. One factor is the recent increase in employment and the short tenure of programmers. A second factor is the recent increase in starting salaries due to the more technical requirements of the jobs and the fact that a bachelor’s degree is increasingly becoming a requirement for employment.

## **HOW MANY FARMERS DO WE NEED?**

Can there be too many farmers? Or, are they just too good?

In 1609, the Powhatan Indians taught the settlers of Jamestown, Virginia Colony how to grow corn. The Jamestown settlers knew that just about every able-bodied person would have to work to grow food for the settlers to survive. By 1850, farming techniques were such that it took 75–90 hours of labor with a walking plow, harrow, and hand planting to produce one hundred bushels of corn at a yield of about forty bushels per acre. By 1900, it took only 25–40 hours of labor using a two-bottom gangplow, disk and peg harrow, and a two-row planter. The yield per acre remained about the same, but the labor productivity improved considerably.

In 1935, there were a total of 6.8 million farms in the United States. In 1950 the use of commercial fertilizers had improved the yield of corn to about fifty bushels per acre. A farmer with a tractor, three-bottom plow, disk, harrow, four-row planter, and a two-row picker needed to invest only 10–14 hours of labor to produce one hundred bushels. At this point in history, farmers made up 12.2 percent of the U.S. population.

In the year 2000, only two hours of labor and one acre were required to produce over one hundred bushels of corn using a tractor, five-bottom plow, twenty-five-foot plow, twenty-five-foot tandem disk, planter, twenty-five-foot herbicide applicator, fifteen-foot self-propelled combine, trucks, and computers. And, by 2000, the farm population had shrunk to just 1.9 percent of the total U.S. population. Today there are approximately 2.1 million farms in the United States. Total farm acreage has dropped from 1.04 billion acres in 1908 to 947 million acres in 2000. Whereas in 1950, one farmer fed approximately fifty people, today one U.S. farmer grows the food for 129 people—101 in the United States and twenty-eight in other nations. In the U.S. today, 69.8 million acres of corn production can be used to produce everything from corn flakes cereal to ink, diapers, plastics, and fuel for automobiles. Sales of corn in the United States in 1999 totaled 20.5 billion dollars.

In the U.S. the average person spends just 10.9 percent of their income on food, compared to 14.8 percent in France, 17.6 percent in Japan, 24.5 percent in Mexico and 51.3 percent in India. Clearly, U.S. farmers are incredibly efficient—a testament to their entrepreneurship, investment decisions, research successes, human capital, and free markets.<sup>17</sup>

On December 15, 2001, the Chicago Board of Trade commodity price of corn for delivery in January 2001 was just \$2.1025 per bushel.<sup>18</sup> At this price, U.S. farmers cannot afford to grow corn without government crop support programs. U.S. farmers are so productive that, given the current supply and demand for crops such as corn, they cannot generate enough income to maintain their standard of living. Keep in mind that only twenty cents of each dollar spent on food goes to farmers. The other eighty cents goes to “off-farm” marketing, processing, wholesaling, distribution, and retail sales.<sup>19</sup>

The simple answer to this dilemma is that there are too many farmers who are too good at producing food. If there were fewer farmers or if the farmers produced less output, crop prices would increase by the laws of demand and supply. Unfortunately, the reduced volume might not improve incomes unless the price increase was substantial. Will people pay that much more for food? Yes, they will. But, a significant problem is that other producers around the world can and will pick up the slack in production if the price rises.<sup>20</sup>

Commodities are sold at global prices in global markets, and therefore, reducing the supply in the United States is an inadequate answer. What options are there then? U.S. farmers have technological advantages that make them low-cost producers. Continued increases in productivity will lower production costs.

## **THE HOMESTEAD STEEL STRIKE**

In 1892 in Homestead, Pennsylvania, life revolved around work and the income from the Carnegie Steel Company mill. The mill employed 3,800 workers in a city of 12,000 inhabitants. Andrew Carnegie and Henry Clay Frick nearly had monopoly power over the production of steel, and thus, nearly had a monopoly of power over the employment of steel workers.

The Amalgamated Association of Iron and Steel Workers at the Homestead Works was a model for unions. It was well organized and had an effective leadership. It was in the preparation for the regular, usually calm, wage negotiations that the seeds of a deadly strike were sown. Wages were tied to the production of the plant, a usual custom in those days. Previous labor actions among coke oven workers had prepared Carnegie and Frick for the fight. The workers organized, and the company responded by hiring several hundred men dressed as Pinkerton guards to keep the mill

open. A strike vote was taken, and the entire union workforce was fired. A large number of the Pinkerton guards were brought to the mill to resist any efforts by the union to shut down the mill.

On July 6, 1892 the inevitable battle began. The next day, ten men were dead, including seven union members and three Pinkerton detectives. Murder trials against workers and an attempted murder of Henry Clay Frick followed. Subsequent litigation and negotiation absolved most of the workers of legal responsibility, and the strike leaders alone were held responsible. Although the company prevailed, its power was never the same, and public attention was drawn to the rights of workers.

The passage of the *Wagner Act* in 1935 paved the way to improvements in the rights of labor by giving workers the right to self-organize and the right to engage in collective bargaining.

### **AIR TRAFFIC CONTROLLERS STRIKE**

In 1981, 13,000 members of the Professional Air Traffic Controllers Organization (PATCO) went on strike against their employer, the Federal Aviation Administration, demanding a substantial raise, a shorter workweek, and an improved retirement plan. Within forty-nine hours, President Reagan fired the 11,350 controllers who refused to return to work and banned them from future employment by the FAA. The union controllers felt justified in demanding a package that would keep them on the job and address their concerns about air traffic safety. But the government believed that organized work stoppages would unfairly disrupt important commercial and personal economic activities.

The critical differences between the PATCO strike and most other strikes was that the action was against a government agency, and the strike was, as perceived by President Reagan, a threat to the public safety. Since the air traffic controllers were federal employees, their striking was against federal law. Like other such actions, this strike was about market power. If one side or the other could control either the supply or the demand for labor, that side could then control the price. If the union could control the number of hours each controller worked and/or the wage for that work, it could impact supply. If the FAA could control the wage or number of hours, they could control the demand for labor. If either side were to prevail, then that side would gain some degree of monopoly power.

Of course, the arguments on both sides were rather more complex than portrayed here. The impact of new technologies, the effects of stress, air traffic volume, training, and the whole system of employment of controllers were all relevant factors. In the end, it was the monopsony power of the FAA that prevailed. There was only one buyer of the labor of air traffic controllers—the FAA. The 13,500 controllers lost their jobs as President Reagan fired them for their actions. Supervisors, military controllers, and others replaced the fired controllers until the FAA was able to hire and train a new workforce. It took ten years for the union movement to reemerge among air traffic controllers. This strike was significant, in part, because it led to a period of union concessions in labor negotiations for several years.

### **THE LAFFER CURVE**

The trick in many cases of policy and pricing is to find just the perfect price, the one that maximizes benefits or profits without unintended negative effects. Setting tax rates is no exception. What is the tax rate that will raise the necessary amount of revenue without

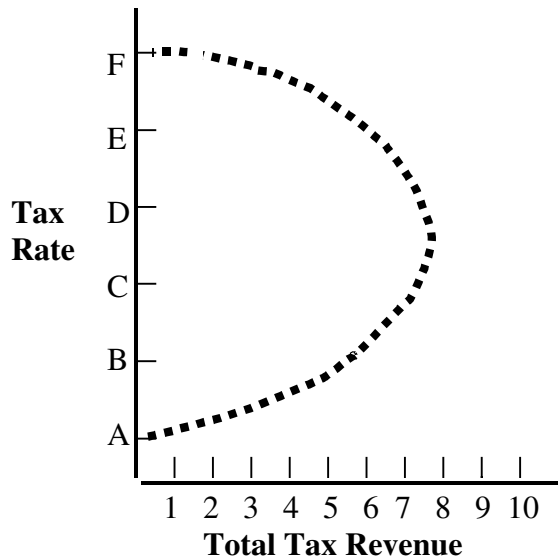
discouraging work and investment? In 1974 the economist Arthur Laffer proposed a mathematical model, the Laffer curve, which suggested that there is an optimum tax rate that maximizes revenues without discouraging working and investment.

The theoretical Laffer curve is illustrated in Figure 3. The potential tax rates are on the vertical axis, and the total revenue raised by the tax is on the horizontal axis. From the lowest tax rate, A, total tax revenues increase as the rate increases to rate B and rate C. At some tax rate, between C and D on this model, the tax will be so onerous that it will discourage investment and work. At that point, increasing the tax rate will actually reduce total tax revenues.

The Laffer curve argument supports supply-side economic theory, which contends that reducing the burden of regulation and taxes will cause the economy to grow since lower tax rates will encourage more work and investment, which will increase the tax base. Supply-side theorists contend that the increase in the base will have a greater effect on the total revenue than the reduction in the tax rate. However, a tax rate that is too low will result in decreased revenues if it does not marginally increase the base enough. On the other hand, a tax rate that is too high will discourage workers and producers, resulting in a diminished base and lower total revenue.

While the accuracy of the Laffer curve has been neither proved nor disproved, the Laffer curve did draw the attention of President Reagan because it fit very nicely into the supply-side theory that he supported. It does seem to make sense that there is a tax rate so onerous that it will discourage the work and investment that creates more income. Likewise, it seems likely that there may be a tax rate so low that people will decide not to work and produce more. Using Laffer's theory, it is assumed that, all things being equal, states and nations with lower tax rates will draw investment. Of course, tax rates are just one of many variables in investment decisions.

**Figure 3: The Laffer Curve**



#### LIMITS ON WELFARE ELIGIBILITY

Economic policy decisions often have clear goals for growth, income security, minimal health

standards, or protection of resources. However, these intended purposes can often have unintended consequences—behavioral changes or incentives that cause unintended benefits or costs. This phenomenon is demonstrated by the evolution of welfare programs in the U.S.

Early in U.S. history, providing a minimum standard of living, food, clothing, shelter, healthcare and other “necessities” was primarily a function of civic groups, churches, and charitable organizations, which were financed through private donations. Today, many private efforts continue to be made to provide direct financial aid, housing, education, and healthcare to lower-income people. These private efforts are driven somewhat by the willingness of individuals to freely share their resources with others; somewhat by incentives such as tax deductions for charitable giving; and somewhat by a concern that the problems of poverty comprise a threat to the good of the whole of society.

Modern government-funded welfare programs in the U.S. really began with the Great Depression. An underlying principle of the government’s fiscal policy was to provide incomes that would demand goods and services and derive demand for new jobs. The key assumption was that with some assistance, those receiving aid would be able to find employment and improve their positions. Welfare was intended as a “stop-gap” measure.

What the designers of welfare programs did not anticipate was the somewhat natural response to the incentives that the programs created. If a person receiving aid received the benefit (income) and did not pay the cost (work), there was no real incentive to leave the program. Moreover, if the level of support was based on the number of children, some argued that there was an incentive for poor families to have even more children. For many, welfare became a self-perpetuating system. However, for others, the satisfaction of working and supporting themselves overcame these institutional incentives.

Through the 1980s, welfare roles continued to increase. President Lyndon Johnson’s Great Society programs of the 1960s created even more direct aid programs for the poor. Clearly, these programs have had a major impact on the well being of many, but for others, the programs and the incentives they created kept them at subsistence level. Since any additional private income reduced the aid, there was little incentive to work to earn income.

Public and political concern over this cycle of poverty generated the *Personal Responsibility and Work Opportunity Reconciliation Act* (PRWORA) passed by Congress and signed by President Clinton in August of 1996. This law forced the states that administer the welfare programs to set a five-year limit on welfare eligibility for adults who are able to work. Aid to Families with Dependent Children (AFDC) and programs for the disabled or elderly were revised under the new Temporary Assistance for Needy Families (TANF) program. The purpose of the time limit was to eliminate the incentive that caused people to make choices that kept them in the programs.

With an approaching deadline for eligibility, aid recipients now have an incentive to seek training or to find employment. Welfare caseloads have declined since 1996, due to a variety of factors, including welfare reform, a lower unemployment rate, and a minimum wage increase. A report of The President’s Council of Economic Advisors suggested that between 1996 and 1998 one-third of the welfare caseload decline was the result of welfare reform.<sup>21</sup>

## **SCHOOL VOUCHERS**

If the production of education is not driven by profit, there will be less incentive to be efficient in

the use of resources. If there is little or no competition, there will be less incentive to improve the product. When the demand for the good or service is relatively inelastic, producers are not as well prepared to respond to change. The public schools are now facing competition from a variety of producers, including the traditional private and parochial schools, charter schools, and even nearby public schools as state laws reduce the old monopoly power of the public schools. Some public school systems that invested in resources to serve a stable demand are now faced with stranded costs—buildings and other capital that may sit unused.

The Milwaukee, Wisconsin schools began a voucher program in 1990, under which 9,000 children received aid to attend private or parochial schools. The program remains in operation despite legal challenges. The primary argument against vouchers is that their use violates the separation of church and state since vouchers can be used to fund an education at a parochial school. Research has not determined how the use of vouchers affects overall performance or whether they provide an economic benefit that justifies their cost. Other cities have attempted to institute voucher programs similar to that found in Milwaukee. However, one such program, the Cleveland, Ohio voucher program was declared unconstitutional on the basis of separation of church and state in 2000. The Supreme Court has yet to rule on its constitutionality. The final decision—social or legal—may rest more on whether the private system is able to improve the product of education.

The use of vouchers to provide school choice threatens the old monopoly system. Rather than breaking up the monopoly or forcing a reduction in price, the voucher system creates a threat by subsidizing the previously high-cost competition. Whether vouchers are fair or not, a violation of the separation of church and state or not, or available to everyone or only certain income groups, how to smoothly transform from a regulated monopoly system to one of competition seems to be the real issue. Improving the quality of schooling in the United States seems to have across-the-board support. It is just a matter of how and when it will happen.

## **TRADE POLICY AND HUMAN RIGHTS**

Should a consumer in Iowa not purchase a less-expensive bicycle because it was made in China by a worker who makes the equivalent of \$4.00 a day and who is not protected by meaningful health and safety regulations? Should a chemical company in Malaysia not be allowed to sell its product to the United States because the Malaysian government does not protect the rights of ethnic minorities? If young children in other nations choose to work in dangerous conditions, should they be allowed to? These are just some scenarios that face U.S. trade representatives as they try to do business around the world.

Trade benefits both parties but often has very different costs and benefits for the two sides. Is it right for one side, one culture with its unique set of values, to enforce its values on a potential trade partner? A nation or group that chooses not to trade based on differences in values or beliefs faces economic consequences. If people in the United States cannot or choose not to purchase shirts made in sweatshops in Asia, the price of the shirts they do buy will most likely be higher. If we do not purchase resources from a country because we do not like their domestic policies, this choice might effectively increase the cost of the resources we do buy. The final question of trade policy based on human rights is whether the benefit of the “right” is worth the economic cost.

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## RESOURCES

***The following resources contain information relevant to the case studies and economist profiles. However, teams should be aware that this information can be found in many other sources as well. Information on the case studies and profiled economists is available on numerous web sites and in most economic textbooks.***

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- Capital Gains Taxes—Internal Revenue Service, <http://www.irs.ustreas.gov/>
- Central Intelligence Agency World Factbook, <http://www.odci.gov/cia/publications/factbook>
- U.S. Census Bureau, [www.census.gov](http://www.census.gov)
- The World Bank. *World Development Report 1998/99*. New York: Oxford University Press, 1999 (or more recent editions).
- International Monetary Fund, [www.imf.org](http://www.imf.org)
- The World Bank Group, [www.worldbank.int](http://www.worldbank.int)
- There are many sources, commentaries and interpretations, about Garrett Hardin's "Tragedy of the Commons" on the Internet.

U.S. Environmental Protection Agency. <http://www.epa.gov>

*Case Study: Inflation* – Just about any Economic text

*Case Study: The Euro* – <http://europa.eu.int/euro/html/home5.html>

*Profile: Alan Greenspan* – Numerous sources on the Internet and in recent textbooks

*Case Study: Interest Rates and Individual Behaviors* – any text reference on interest rates

*Case Study: Capital Gains* – “Citizen’s Guide to the Federal Budget”  
<http://w3.access.gpo.gov/usbudget/fy2001/guide02.html>

*Case Study: Relative Wealth:* International Monetary Fund, [www.imf.org](http://www.imf.org) The World Bank Group,  
[www.worldbank.int](http://www.worldbank.int) CIA World Factbook

*Case Study: Supply of and Demand for Education* – no specific source. There are many references in labor economics textbooks.

*Case Study: The Supply and Demand for Computer Programmers* US Bureau of Labor Statistics.  
“Computer Programmers” Occupational Outlook Handbook <http://stats.bls.gov/oco/ocos110.htm#earnings>

*Case Study: How Many Farmers Do We Need?* – David Kelly. “Farm Facts” American Farm Bureau Federation, 2000.

*Case Study: PATCO Strike* – Numerous references on the Internet

*Case Study: Limits on Welfare Eligibility.* Council of Economic Advisors. “The Effects of Welfare Policy and Economic Expansion on Welfare Caseloads: An Update, 1999.”  
<http://www.urban.org/news/factsheets/welfareFS.html>

*Case Study: Trade Policy and Human Rights* – Many references on the Internet