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Overview of the U.S. Economy

Introduction

The economy of the United States is so large and complex that it is hard to know how to present an overview. We have selected topics that correspond to our interests in macroeconomics, public finance, law and economics, and financial economics. We have tried to convey both a sense of how economic life is organized in this country and why the United States has an economy that is remarkably successful, at least in comparison to economies in other places and other times.

We begin with a comparison of the U.S. economy to the other economies of the world. The United States does well in this comparison—the country leads all others in output per worker, plant and equipment per worker, and education. The United States also does well in productivity, although a few countries are ahead in this area. We examine some of the general characteristics of the country that contribute to this success. The fact that the United States has an honest and effective government—in comparison to most other countries—emerges as a leading factor.

We describe the role of the government in the economy both in terms of its use of resources and the way that the tax system and borrowing provide those resources.

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A key source in the success of the U.S. economy is its capital market. The United States relies much more heavily on the public trading of shares in the stock market than to other large, high income countries.

Finally, we look at the structure of interactions of businesses made possible by the advanced legal system of the United States. We observe that the country has network relations among separate companies, based on legal contracts. Other successful economies, especially in Asia, rely more heavily on large families of affiliated companies. Disputes are resolved in the United States with the assistance of lawyers instead of being handled within corporate families, as they are in many other countries.

Comparing the U.S. Economy to Others

A good overall measure of the performance of an economy is its output per worker. Robert Summers and Alan Heston have developed data on output for about 150 countries, with careful attention to consistency across countries in measuring output. Figure 1 shows the distribution of output per worker across countries in 1988. To avoid distortion from small oil-producing countries, the measurement of output excludes the oil and mining industries.

The United States ranks first among the 149 countries in output per worker. Not far behind are the advanced countries of northwestern Europe whose economies are similar to the U.S. economy. At the other end of the spectrum are countries such as Burma and Ethiopia whose output per worker is about 5 percent of the level achieved by the United States and similar economies.

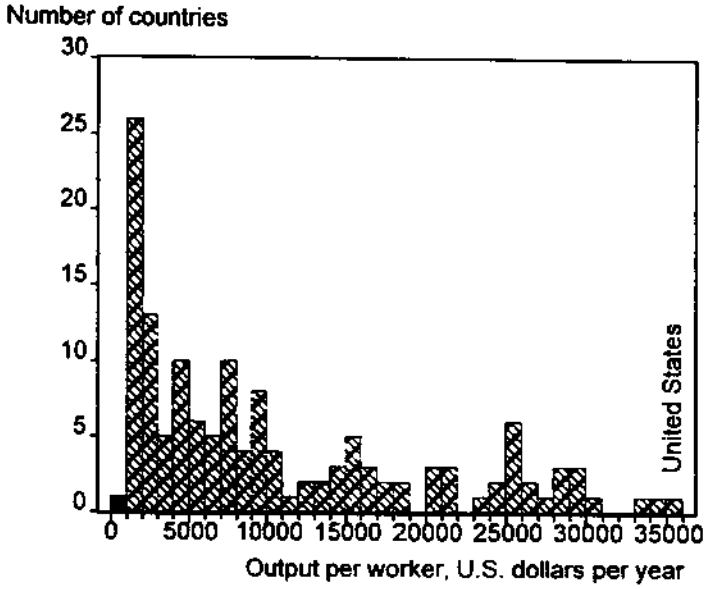

Figure 1. Distribution of Output per Worker across Countries

In 1988, Korea ranked 40th in output per worker out of the 149 countries in the study. It produced about 38 percent as much per worker as did the United States. Korea has grown much faster than other countries since 1988 and has moved up in the distribution.

Output per worker can be broken down into three determinants—physical capital (plant and equipment) per worker, human capital (investment in education and training) per worker, and productivity. Although the United States has frequently been criticized for low rates of capital formation, it leads all other countries in the amount of physical capital per worker. Because the United States has such a high level of output, even a modest fraction of output devoted to capital formation results in a high level of capital. While the United States does not have as high a flow of investment as it did several decades ago, when its advantage in output level was even higher than it is today, it has sustained sufficient flows of investment to retain its position as the country with the highest capital per worker.

The United States is also the world leader in human capital per worker. New Zealand, Canada, and Hungary are close behind.

It is the extremely high levels of physical and human capital together, not productivity, that explain U.S. pre-eminence in output per worker. A number of other countries, including Italy, Hong Kong and Mexico, achieve higher levels of output per unit of total factor input. In a sense, they are outdoing the United States in that they get more output from the investments they have made in real and human capital than the U.S. does. But the U.S. has such a much higher level of both physical and human capital, it remains the country with highest output per worker even though its productivity levels are not the highest. Table 1 shows data for a number of East Asian countries in comparison to the United States.

Table 1. Comparison of East Asian Economies to the United States.

Country	*Output per worker*	*Capital per worker*	*Human capital per worker*	*Productivity*
	As a percent of the U.S. level			
Hong Kong	60.8	27.1	79.9	109.0
Singapore	60.6	61.0	58.0	102.7
Japan	58.7	72.5	82.3	74.4
Korea	38.1	27.9	82.0	66.4
Malaysia	26.7	27.2	63.2	56.0
Philippines	12.6	7.2	68.9	38.9
Indonesia	11.0	8.3	50.8	39.8
China	6.0	4.5	62.0	23.2

Recent research has explored the relationship between output per worker and various quantitative determinants of output.[1] The

[1] Robert E. Hall and Charles I. Jones, "The Productivity of Nations" NBER Working Paper 5812 December 1996.

determinants are measures of countries' social infrastructures and climates. The measures of infrastructure are (i) an index of government policies that favor productive activities and discourage activities such as corruption that inhibit production, (ii) an index of government policies that favor international trade, (iii) a measure of the economy's reliance on private rather than government-operated productive enterprises and (iv) a measure of a country's affiliation with certain leading groups of countries through the speaking of a common language, such as Spanish or Arabic. Climate is measured by the distance of a country from the equator.

This research shows dramatic differences in output per worker associated with the measured determinants. An unambiguous finding is that economies with honest and effective governments, with policies favoring production and curbing Mafia activity, squatting, lobbying, corruption, and theft, will have much higher levels of output per worker. The difference in output per worker attributed to government effectiveness between the country with the most effective policies, Luxembourg, and the country with the worst policies, Liberia, is 240 percent. This dimension of policy is much more important than is the dimension of government-operated productive units against private enterprise. Although the countries with the very highest levels of output per worker are strongly capitalist, countries with effective governments achieve high levels of output even if many important industries are operated by the government. And countries with completely ineffective or malignant governments have low levels of output even if their economies are capitalist.

Countries that facilitate international trade tend to have much higher levels of output per worker than those with quotas, high tariffs, or other trade barriers. Not only does trade facilitate the acquisition of productive ideas from other countries, but policies favoring trade are a sensitive indicator of many other policies as well. Countries with policies that interfere with trade also tend to interfere with other aspects of production.

Countries with strong ties of language to other countries generally achieve higher levels of output per worker. The ability to engage in subtle commercial relations through a common language is one factor contributing to this advantage. Another is that countries with language ties tend to have common economic institutions as well, and the

institutions associated with major international languages are more fully developed than others. Although the dissemination of successful British legal and other institutions through former colonies is a leading example of this phenomenon, the research finds that the advantages of international languages other than English is just as large.

Finally, a striking finding of the research is the large advantage in output per worker enjoyed by countries that are distant from the equator. A Scandinavian country enjoys a level of output per worker between three- and four-fold (369 percent) higher than an equatorial country, after adjusting for all the other differences between the two countries.

All of these factors help explain why the United States has such a high level of output per worker compared to other countries. Although the United States is not at the very top according to each measure, it is at the very top in considering all of the measures together. The factors that contribute to the advantage are as follows:

- The United States scores well on measures of the honesty and effectiveness of government—only a few countries in western Europe are rated above the United States in this respect.
- The United States is in the top category with respect to trade policy. Not only does the country have among the lowest trade barriers in the world, but it has maintained a policy of relatively free trade throughout its history, so that it has accumulated the benefits of an open economy over a long period.
- By speaking English, the country participates in the benefits of easy interaction with other countries that are sources of innovation and favorable institutions, notably Great Britain.
- And the country's temperate climate, relatively far from the equator, is a substantial advantage.

The Role of Government in the U.S. Economy

Government is an influential and important part of the U.S. economy and every other modern economy. Some functions are widely agreed to be the government's responsibility—national defense and law

enforcement, in particular. Other programs, such as agricultural subsidies and national retirement programs, are found in almost every nation, but are less widely agreed to be essential responsibilities of government. All around the world, including the United States governments took on huge responsibilities over the past 50 years, so that government is at least a quarter of the economy in almost every country and is close to half the economy in many countries. In the past decade, citizens everywhere have questioned big government and voted to decrease its size. But voters have been more enthusiastic about lower taxes than reduced spending programs. As a result, large government deficits—shortfalls of revenue compared to spending—have been the rule around the world. The United States has been a leader in this trend. A major tax cut enacted in 1981, not matched by spending cuts, led to large deficits in every year since then. The total debt owed by the federal government to bond holders here and around the world is now a staggering $3.3 trillion.

Government Purchases

The federal government absorbs resources from the private economy through its purchases of goods and services. To understand purchases, it is essential to divide them into military purchases and other purchases. Figure 2 shows the history of federal purchases with this breakdown. One fact is immediately apparent—the federal government itself uses a tiny fraction of national resources for any purposes other than defense. Non-military purchases—the total payrolls of all federal agencies outside the Defense Department plus their purchases of buildings, equipment, and supplies—account for a stable, low 2 percent of GDP. Concerns about bloated federal bureaucracies and growth of federal activities cannot be about the non-military use of resources within the federal government.

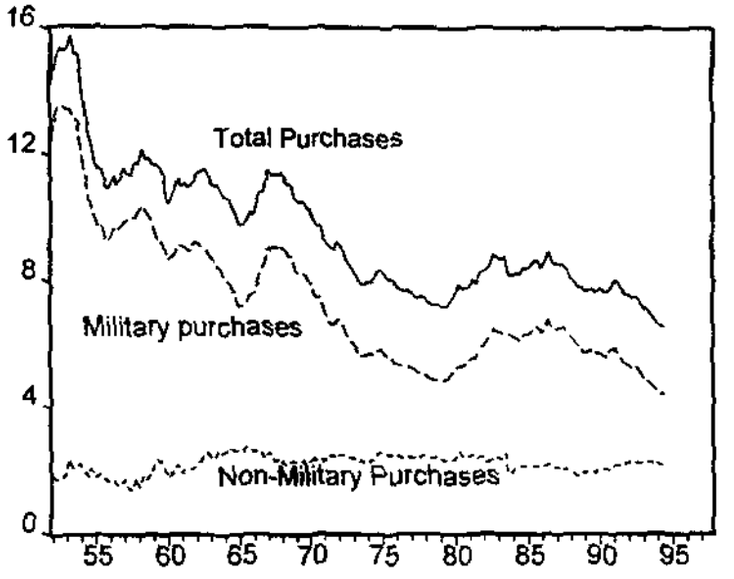

Figure 2. Federal Purchases as a Percentage of GDP

Military purchases, as shown in the second line in Figure 2, reached a peak of 12 percent of GDP during the Korean War in the 1950s and then fell almost continuously to a level of 4 percent recently. Two buildups interrupted the decline, one associated with the Vietnam War in the late 1960s and the other during the Reagan Administration in the 1980s. Both were transitory. There is a debate today whether military spending can drop much below 4 percent without compromising the United States' position as the primary policeman of the world, but there is little chance of another buildup rivaling the two shown in the figure.

The decline of military spending freed up resources amounting to 8 percent of GDP over the span shown in Figure 2. The decline in military spending in relation to GDP since the 1950s has made huge amounts of resources available for other purposes. Because military spending is now only 4 percent of GDP and probably cannot drop much further, there cannot be any similar flow of resources in coming decades.

This flow of resources eased many otherwise tough decisions about resource allocation in the economy. In particular, the flow made it easy for the federal government to provide huge increases in resources to some parts of the population, through transfers, the topic of the next section.

Social Security and Other Transfers

Transfer programs provide benefits to people whom the federal government designates as needing help. Figure 3 shows the three major categories of transfers; they are roughly equal in size. Retirement benefits are the benefits provided by the social security system to retired people. Although the benefits are related to past contributions to the social security system, workers whose earnings are low receive benefits that are worth far more than their contributions. And after age 72, even someone with no history of contributions will receive the minimum benefit.

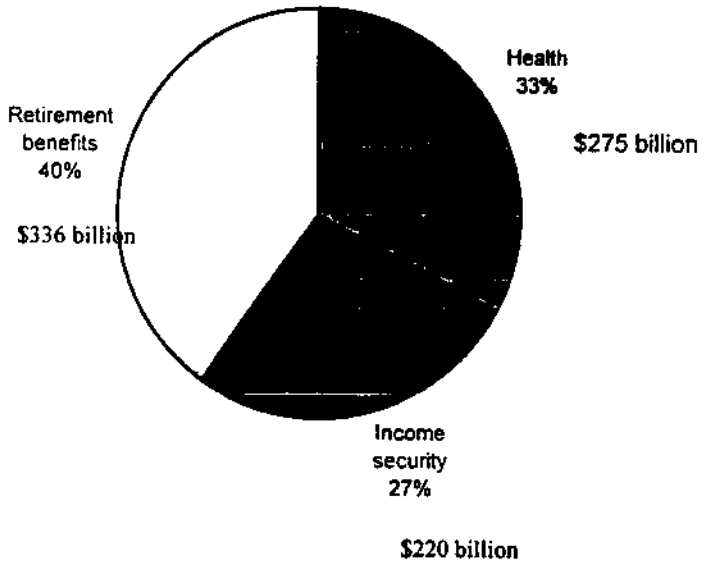

Figure 3. Federal Transfer Programs in 1995

The second largest category of transfers occurs in health programs. The social security system provides health benefits to everyone aged 62 and over through Medicare. This is a health insurance plan where people can go to any doctor they choose, as often as they want, and Medicare will pay 80 percent of the bills. Most people on Medicare have private supplementary insurance to pay the remaining 20 percent, so that the marginal cost of medical care to them is zero. While virtually all private medical insurance imposes some discipline on the use of doctors and other services, Medicare continues to be completely open-ended.

Reform of Medicare to reduce its rapidly growing cost has been proposed but little progress has been made so far.

In addition to Medicare, the federal government finances state-operated health plans for the poor, often called Medicaid. The cost to the government of these programs has been rising rapidly as well.

The third and smallest of the three categories of transfers is income security. These programs provide help to poor families. The largest by far is the food stamp program, which gives coupons or special credit cards to qualified families that are good only for buying food. Welfare payments—known as Aid to Families with Dependent Children—are also in this category, but are much smaller than food stamps.

All three categories of transfer programs have grown rapidly in recent decades, and Figure 4 shows that total transfer payments as a percentage of GDP have risen as well. Growth was most rapid in the 1970s during the Nixon Administration. During this period retirement benefits became much more generous, food stamps were introduced, Medicare expanded, and the welfare explosion began. Transfers remained high but did not grow further during the 1980s, in relation to GDP. Transfers are sensitive to the ups and downs of the economy. Noticeable bulges in transfers relative to GDP occur in recessions, as in 1974, 1981, and 1991, when the number of needy recipients rises and GDP falls.

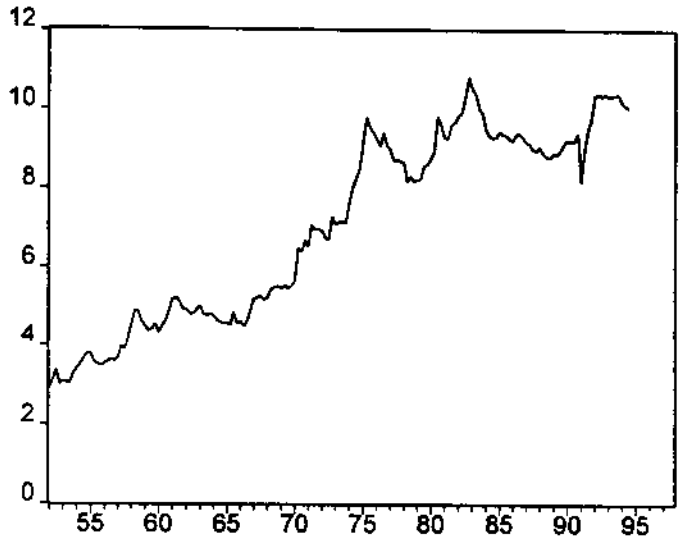

Figure 4. Federal Transfer Payments as a Percentage of GDP

Total Government Spending

Federal spending has three components—purchases of goods and services, transfers, and interest on the debt. Figure 5 shows total spending in relation to GDP. There is a sharp increase in spending in each recession—this is the jump in transfers shown in Figure 4. Also visible are the increases in military spending for the Korean War in the 1950s and the Vietnam War in the late 1960s. Apart from these jumps, another fact stares out of the figure—federal spending as a percentage of GDP has been rising along a trend line. Although there was a large amount of publicity about scaling back the federal government starting in 1994, what shows in the figure is no more than the normal decline in spending when the economy is in good shape.

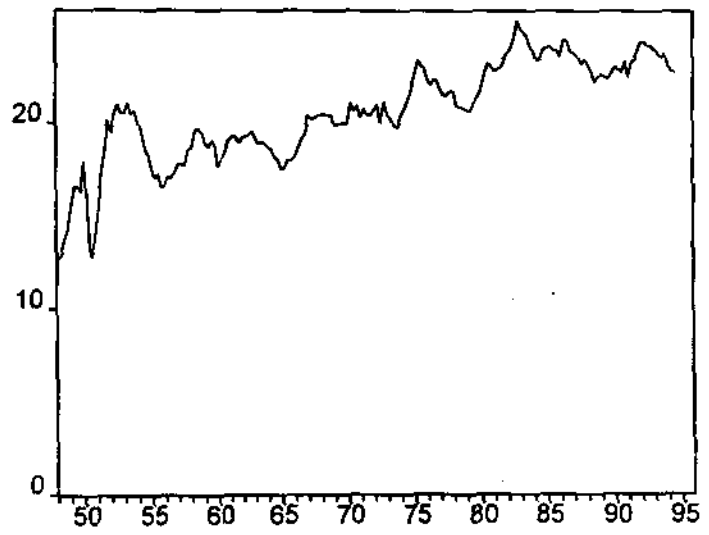

Figure 5. Total Federal Spending as a Percentage of GDP

Federal spending is rising slowly as a percentage of GDP. Transfer payments have been a big factor in the rise.

The U.S. Tax System

The federal government gets most of its revenue from two sources—the personal income tax and the social security tax. Table 2 breaks down the revenue from these and the other less important sources.

Table 2. Sources of Federal Revenue, 1996

Source	Revenue, billions of dollars
Personal income taxes	652
Corporate income taxes	170
Social security taxes	508
Excise taxes	54
Other sources	65
Total	1450

Source: Congressional Budget Office, *The Economic and Budget Outlook, August 1996*, Table 3

The Personal Income Tax

Not only is the personal income tax the most important source of revenue for the federal government, but it is the most conspicuous and painful. Almost every adult has to file form 1040 or one of its shorter cousins. One of the signs of success as an American is seeing your federal tax return swell to the size of a magazine. Proposals to reduce both the amount you have to pay and the complexity of the return are immensely popular.

The personal income tax is designed to be progressive—it seeks most of its revenue from prosperous families and excuses poor families from paying any tax at all. Table 3 shows how the tax works on paper. It shows the amount of tax a family of four pays if it takes the standard deduction.[2]

[2] The federal government allows households to deduct certain expenses (like medical care or the costs of moving to a new job) from their income before calculating the tax that they owe, or – alternatively – to deduct a standard amount from their incomes, regardless of their spending patterns.

Table 3. The Personal Income Tax for a Married Couple

Income	*Tax*	*Average tax rate*	*Marginal tax rate*
10,000	0	0	0
20,000	518	3	15
30,000	2,018	7	15
50,000	5,018	10	15
75,000	11,296	15	28
150,000	33,472	22	31
250,000	68,964	28	36
400,000	127,534	32	40

Calculated from the 1995 Form 1040 Tax Table with the standard deduction of $6,550 and 4 exemptions.

Table 3 shows that progressivity and high marginal rates are related. If we want to excuse the poor from taxation, to put a low average tax rate on the middle class, and to collect a lot of revenue from those with high incomes, we cannot avoid putting high marginal rates on incomes above the middle-class level. Yet the entrepreneurs, scientists, and executives whose response to incentives may be most important for economic growth are likely to be in the high-income brackets, if they are successful. The tension between progressivity and high-income incentives has made the personal income tax unstable. In 1986, a new set of tax rates went into effect that taxed the highest incomes at only 28 percent, down from 50 percent the year before. By 1993, the desire for more progressivity had pushed the top rate back up to 40 percent.

From Table 3, one might project that the federal personal income tax would collect 15 or even 20 percent of people's incomes. After all, we know that the upper 20 percent of incomes account for over half of all income, and they are taxed at average rates of over 20 percent. But that projection would be wrong. The average rate actually collected from the federal personal income tax is only about 10 percent of total personal income. The tax system shown in the table does not do justice to the ways that people can avoid tax. Many people have deductions far above the standard deduction. And some people earn income that they never report to the government, and on which they avoid paying taxes entirely.

People can shelter income in an employer's retirement plan or in a plan of their own. So both the revenue that the tax generates and the adverse effects of high marginal tax rates are less than they might seem from the table. Nonetheless, many economists feel that we would be better off with a tax that had a broader base—fewer opportunities for untaxed income—and lower rates. It could raise the same amount of revenue with fewer bad incentive effects.

The Social Security Tax

The social security tax applies to wage and salary income only. It was put in place to finance the social security system when the system was created in 1936 and has always been closely associated with the system. Generally, benefits paid to retired workers are about equal to the revenue from the social security tax.

Where the personal income tax is a nightmare of complex forms and rules, the social security tax is remarkably simple. It is currently 15.7 percent of payrolls. The only slight complication is that part of the tax is applied only to earnings below a ceiling of about $70.000 per year. While there is a huge amount of leakage in the income tax. there is amazingly little leakage in the social security tax. In 1995, the average rate of the tax—the ratio of revenue to total earnings in the economy—was 15.3 percent, just a hair below its official rate.

Because lower-income families are excused completely from the income tax, while they pay the social security tax on all of their earnings, the social security tax is actually the largest tax paid by many Americans. For example, the family with $30,000 of earnings in Table 21.2 pays $2,018 in federal income tax but $4,710 in social security tax.

What are the incentive effects of the social security tax? Part of the answer is easy. For people with higher incomes—above the ceiling of about $70,000—the marginal rate is less than 3 percent, so the disincentive to work harder because of added social security tax is minimal.

The incentive effects for middle-class workers are more complicated. On the one had, if earnings are below the ceiling, the taxpayer and employer pay $157 in added taxes for each $1000 of additional earnings. That by itself would be a significant disincentive. But, unlike the income tax, the social security tax has some direct

personal value. The government calls it a "contribution for social insurance." The retirement benefits depend, in part, on how much a worker paid in social security taxes before retirement. For some people, that extra $157 is buying several hundred dollars worth of later benefits. For them, the effect of the social security system—taxes and benefits—may be a subsidy rather than a tax. Generally, the workers who are subsidized have lower levels of earnings. Higher-earning workers face a substantial net disincentive from the social security system.

There is a growing movement to restructure the social security system. The restructuring would bring it closer to the kind of retirement system that more and more employers are offering. This type of retirement plan is called a 401K after the part of the Internal Revenue Code that makes them legal. In a 401K plan, workers are required to contribute a certain amount of their earnings to a personal retirement fund, but they can contribute even more if they want to. They have some choice in deciding how to invest their own funds, and, at retirement age, some choice in how to use the accumulated money to pay for retirement. If social security were more like a 401K, it would solve two incentive problems that we have discussed. First, it would provide a much stronger incentive to save through social security, because it would link the benefits that people receive to the amount they saved. The current system pays generous benefits even to those who contributed only a little. Second, a close linkage of social security contributions to later benefits would eliminate the disincentive to work and earn income that currently exists, especially for higher-earning workers. The government's term—contributions to insurance—would become an accurate description, and we would no longer talk about a social security tax.

Other Federal Taxes

Table 2 shows that the federal government also collects about $300 billion from other taxes. The most important is the corporate profits tax, which raises $170 billion by taxing the profits earned by corporations at a rate of 35 percent. The tax is widely condemned by economists because of two important distortions. First, the tax only applies to corporations. It can be avoided completely by running a business as a partnership. The tax causes many businesses not to take advantage of the

benefits of being corporations because of the extra tax they would have to pay. Second, the corporation tax puts a double layer of taxation on the portion of corporate profits that corporations pay to their owners: they pay once when the corporation is taxed, and again when the profits are included as part of their personal income. The corporation tax is thus a prime target for tax reform. Almost all reform proposals put forward by economists involve integrating the taxation of corporations into the tax system in away that avoids these two distortions.

The federal government also imposes taxes on certain products such as gasoline, alcohol, tobacco, and air travel. These are called excise taxes. The tax on gasoline is in part a fee on drivers for the use of federal highways, though its revenue is far higher than the amount the government spends on highways. The taxes on alcohol and tobacco are intended to discourage consumption of these harmful products.

Trends in Federal Revenue

Figure 6 shows total federal revenue, from all the taxes we just discussed, as a percentage of GDP. Over the 50 years shown in the figure, revenue has been remarkably stable at around 20 percent. Although, as we will see, there have been huge changes in the ways that the government collects its revenue and in the ways that it spends the revenue, the government's diversion of resources from private activities by taxation has been held by some invisible law at around 20 percent.

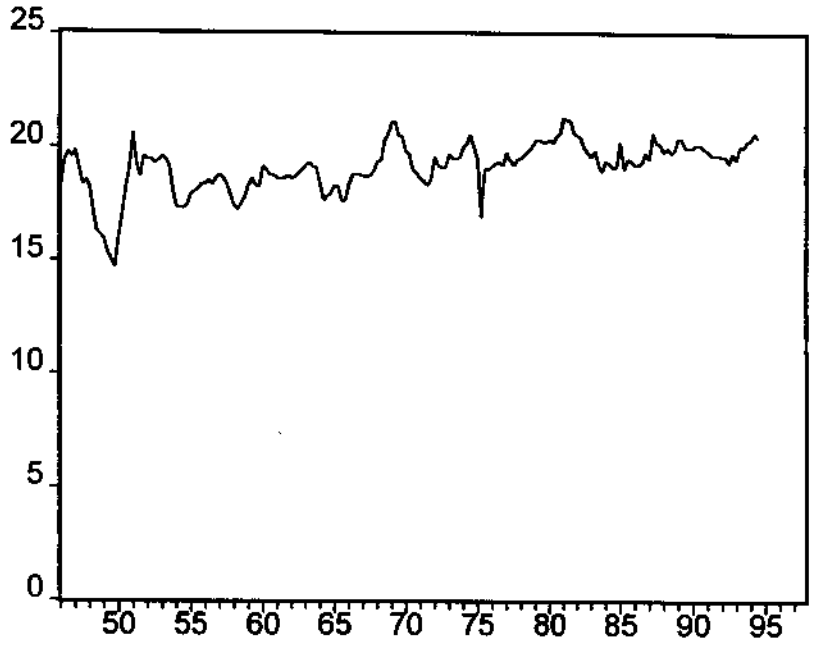

Figure 6. Federal Revenue as a Percentage of GDP.

Figure 7 divides total federal revenue into social security taxes, on the one hand, and all other taxes, on the other hand. Notice the steady upward trend in the flow of resources into the social security system. We will explain the reasons for this trend shortly. The other sources of revenue—led by the personal income tax—have declined just enough over the same period to keep total federal revenue at its stable level of 20 percent. Needless to say, there have been corresponding changes in spending and borrowing that lie behind this shrinkage of revenue outside the social security system.

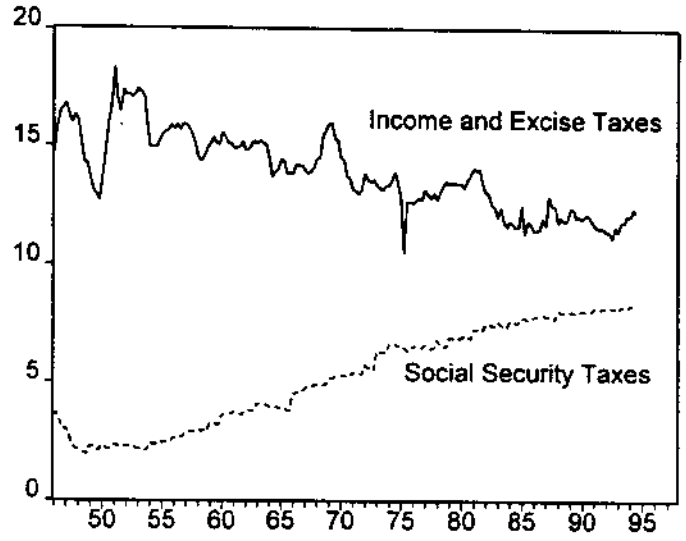

Figure 7. Income and Excise Taxes and Social Security Taxes as Percentages of GDP

Figure 6 shows that federal revenue is locked below 20 percent of GDP. The last time federal spending was as low as 20 percent of GDP was in the 1960s. Ever since then, the federal government has spent more than it has taken in. The upward trend in spending means that the shortfall has been worsening over time. This bring us to the critical issue of the deficit—the gap between spending and revenue.

The Federal Deficit and Debt

The deficit is the difference between the federal government's spending (on purchases, transfers, and interest) and the government's revenue. Figure 8 shows the history of the deficit in recent decades. This figure is actually just the difference between Figure 5, showing spending, and Figure 6, showing revenue, but the deficit looks much choppier because the scale of the diagram is different. Until 1970, the deficit averaged around zero; the budget was balanced on the average

and surpluses were as common as deficits. From 1970 on, however, deficits were the strict rule.

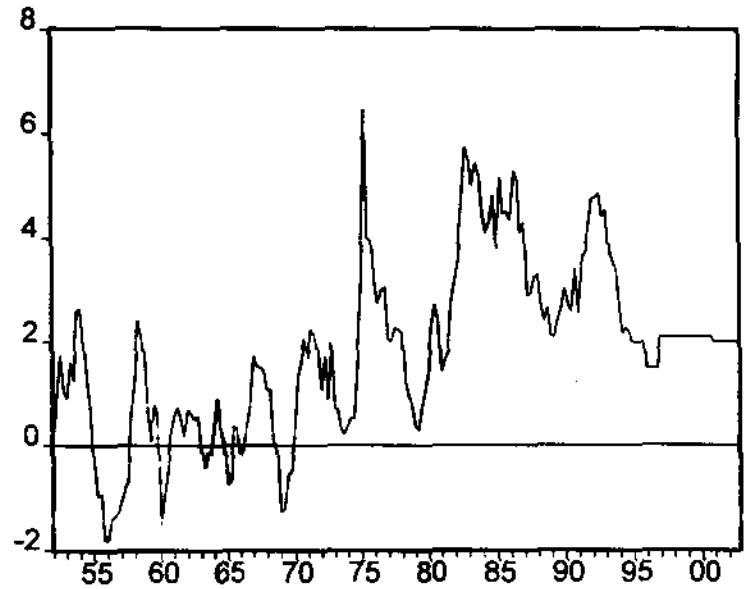

Figure 8. The Federal Deficit as a Percentage of GDP

The large rise in the deficit in the early 1980s was the combined result of a severe recession, which caused transfers to rise as shown in Figure 4, the buildup in military spending shown in Figure 2, and the income tax cut shown in Figure 7. Since 1983, the deficit has generally declined, though it jumped up again in the recession in 1991. With a strong economy, tax increases, and declining military spending, the deficit fell to around 2 percent by 1994. Figure 8 shows a projection of the deficit made in August 1996 by the Congressional Budget Office, an organization with a reputation for honest analysis of controversial economic matters. The projection shows a continuation of the deficit at 2 percent of GDP.

The federal government can run a deficit because it can borrow—that is, it can sell bonds to obtain the funds it needs to cover the gap between spending and tax revenue. When there have been many years of

past deficits, the government will be deeply in debt. Figure 9 shows the debt that the government owed investors over the past few decades, in relation to GDP. As of 1996, the debt was about half of annual GDP. It was around a quarter of GDP when it reached bottom in 1974. Notice that the debt was almost 35 percent of GDP in 1968, although the government had not run a deficit in years.

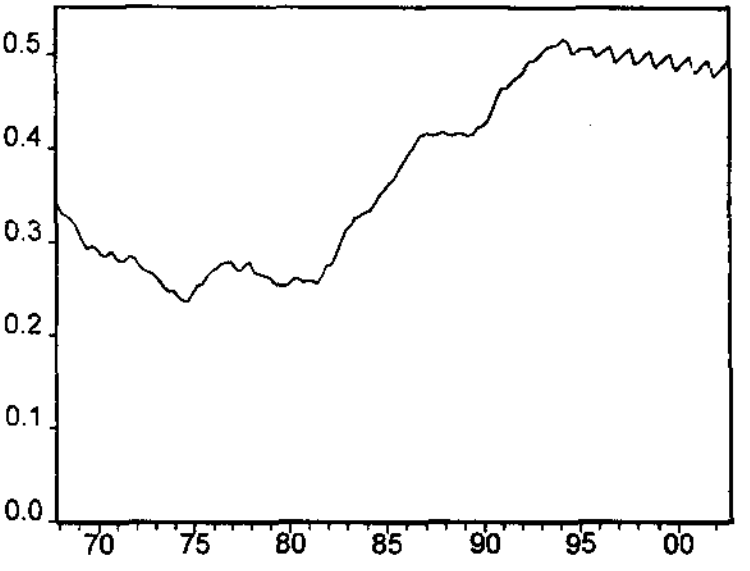

Figure 9. Federal Debt as a Ratio to GDP

Figure 9 shows the CBO's projection for federal debt until 2002—it will decline a little in the coming years.

The U.S. Corporation and the Financial Institutions and Capital Markets that Support It

In the United States, virtually anyone may establish a business. There are fewer standards for establishing a business than for driving a car! (which requires a person to be at least sixteen years of age, to carry

insurance, and to pass tests for good vision and knowledge of the rules of the road). While some very special lines of business have relevant restrictions (for example, someone convicted of securities fraud cannot establish a business in securities), the legal obligations of a business, once established, are mainly limited to the payment of taxes on the income from the business, maintenance of liability insurance in amount depending on the nature of the business, and compliance with federal and local laws.

There are roughly 25 million corporations in the United States. These 25 million include all the huge companies whose names are household words, plus all of the tiny establishments that are small merchants, dry cleaners, restaurants, hairdressers, plus individuals who sell services as diverse as accounting, law, and medicine, housekeeping and pet care for people away from home.

U.S. companies generally have three features that define the modern corporation: perpetual succession, transferable shares, and limited liability. The transferability of shares was the first feature found to be indispensable by corporations. When the evolution of the modern corporation began, in England, roughly 500 years ago, companies could operate only with a charter obtained from the crown. The charter limited the duration of the existence of the business, specified the people who could be shareholders, and restricted the lines of business.

As these early companies and their shareholders' fortunes unfolded, situations arose where some investors needed to sell their investments to obtain funds for other purposes, and other people, sometimes persons who were not already shareholders, wanted to invest in the enterprise. The pressure to buy and sell shares gave rise to many applications to the monarch for approval, and soon a regime of fairly easy transfer of ownership was established. An organized market for company shares existed by the late 1600s.

Soon it became clear that transferable ownership would enable a second very useful feature of modern corporations: perpetual succession. It nearly always made more sense to sell shares in a company than to wind up the company, both for individual shareholders and for the shareholders as a group. This is because the company's assets are worth more together as a working unit than they are sold separately. This organizational capital is the combination of the value of the already

assembled assets, plus the human capital that lies in the knowledge and familiarity of the employees in running the business.

Once transferable shares and perpetual succession were in place, limited liability could not be far behind. If company shares are transferable, the company's creditors never know what shareholder assets might lie behind the assets of the company itself. As a result, it is less risky and more straightforward (lower cost, in essence) for those doing business with a firm to base their relationships and prices on just the company's assets (including its insurance policies) rather than to attempt to know, and if necessary, recover from, the individual shareholders. Parties a firm does business with know that companies have limited liability, and base their terms on this knowledge. Limited liability thus does not exploit any customer, supplier, or lender to a company so long as transactions acknowledge and reflect limited liability. The only party who *could* be exploited by limited liability is someone who is injured by a company but has no commercial relationship with it—the unlucky passer-by upon whom a brick falls. Hence the requirement for liability insurance. (Each year, U.S. corporations pay more in insurance premiums than they pay to their shareholders in dividends!)

Most of the 25 million corporations in the U.S. are financed mainly by an investment provided by their sole proprietors and their families. Varying amounts of capital are supplied to all of these businesses by suppliers through "accounts payable." Fewer than half of these corporations have any bank debt. But while these "Mom and Pop" establishments are extremely numerous, the great majority of capital lies in the large corporations whose ownership is not merely transferable, but liquid and traded every day in an organized stock market.

The number of companies with shares that are eligible to be traded in the stock market in the U.S. is about 12,000, a tiny fraction of the 25 million corporations in the U.S. Of these 12,000, about 3,000 are listed on the nation's largest stock market, the New York Stock Exchange. These companies, together with a hundred or so other large companies traded through NASDAQ or on the AMEX rather than through the NYSE, comprise a large fraction of the assets of U.S. business enterprises.

The NYSE limits its membership to large companies. Very few companies start out large. Thus, the typical life of a U.S. company

begins with a small company started by an individual. If the company grows in production and sales, and becomes profitable enough, it can attract investment from a few other individuals and organizations, including perhaps, venture capitalists who specialize in making investments in small, growing companies with good prospects.

The next step is to "go public," which means to issue stock to be sold in a public stock market, with hopes that the stock will do well enough and be traded enough to establish a liquid market, enabling further issues of securities and growth in assets. The typical initial public offering is for a company with total assets of under $100 million, and even after the issue, whose owners still hold roughly 70 percent of the interest in the company. As companies' total assets grow, ownership generally becomes more diffuse, and ownership by insiders declines.

In addition to having capital raised through the stock market, the largest among U.S. companies also have capital raised through the bond market. Part of the decision to finance with debt (bonds or bank loans) is driven by the fact that under U.S. tax law, interest on debt is a deductible expense for a business, while dividends paid to shareholders are not. Not too surprisingly, the bond market grew tremendously after the introduction of the income tax in 1914. Prior to that time, there were only a few debt issues of note—the railroads built in the U.S. during the 19th century used substantial amounts of debt financing.

Despite its large tax advantages, debt financing is used heavily mainly by companies that are large—large enough to be among the NYSE companies, and in lines of business that enable a contract. Contracts give the bondholders sufficient comfort that they are likely to be repaid and ensure that the managers of the company are not going to take some larger-than-expected risk with their money. Yet at the same time, contracts do not greatly restrict what the owners of the business can do, and thus they can do a profitable job of running their business. So at one extreme, the U.S. has regulated public utilities, such as local telephones and electricity, that are financed with 90 percent debt and 10 percent equity. Virtually all heavy manufacturing has sufficient economies of scale to be large, and lines of business sufficiently straightforward to be financed with roughly 50 percent debt. On the other extreme, we have the U.S. pharmaceutical companies, which are large ($20 to $50 billion in total assets), old, and highly profitable companies—and virtually no debt. Companies in the electronic

equipment and software businesses also use very little debt. These companies have highly intangible and flexible assets (laboratories and highly educated and skilled employees) and evidently it is very difficult to write a debt contract that can satisfy both the bondholders and the owners.

U.S. regulation of companies that sell stock to the public is at once very liberal and very strict. There are no restrictions on the line of business, or profitability of the business, or who is involved in the business (with some limited exceptions, as noted for firms in the securities business) so long as the business complies with other laws. Even foreign companies may sell stock in the U.S. But all companies wishing to sell securities to the public must register their securities with the U.S. Securities and Exchange Commission and must report their results quarterly and annually to their shareholders. The reports must be done in accordance with U.S. GAAP. The single biggest hurdle for foreign companies wishing to sell stock in the United States appears to be compliance with U.S. accounting standards, which evidently require companies to reveal more about their operations than the standards of any other country. Even so large a company as Daimler Benz had to reveal facts it had not before revealed when it sought to list on the NYSE.

Besides its success in promoting honesty, another reason why the securities market is so robust in the U.S. lies in the flaws of U.S. banking institutions. During the 19th century, when banking institutions were developing in earnest, the United States was physically very large and a relatively diverse country. The outlying regions of the country, especially the Midwest and southern farming states, had a great fear of the powerful and large banks of New York City. If the New York banks were allowed to do business in their states, they feared these banks would suck up all the capital and lend it in New York, and that little would be lent to local borrowers. Whether or not their fears were justified, U.S. banking law, both at the State and Federal levels, reflects this fear right up into the current era. Restrictions on interstate, and in many cases even intrastate banking were formal and restrictive until the deregulations of the 1980s. As a result of these laws, banks in the U.S. were not as large and their assets were not as diversified as those of other industrialized countries. Evidence that this made the U.S. system more vulnerable lies in a comparison of U.S. vs. Canadian bank failures

in the Great Depression. In the U.S., one-third of all banks failed and were closed between 1930 and 1933. In Canada, the country in every other way the most similar to the U.S., no banks failed. Canada had five banking institutions, all of which were nationwide.

While nearly all of these restrictions are gone now, there are still differences in state banking law that still discourage "foreign" banks from entering a new state. In addition, the existing business relationships, established under the old regime, do not dissolve overnight. As a result, U.S. banking patterns are much more regional than that of any other industrialized countries. This is an interesting demonstration of how much institutional choice matters, and how much inertia these choices can have.

With its relatively hobbled banking institutions, it is not so surprising that U.S. businesses turned to the securities markets. The amount of capital raised through securities markets in the U.S. is an order of magnitude higher in the U.S. than in any other country. For example, the amount of financing in the form of securities held outside of banks in the U.S. is, in per capita terms, ten times that of Germany.

Another financial institution of great importance in the U.S. is the mutual fund, or investment company. Mutual funds did not really exist until the 20th century, and did not experience substantial growth until after World War II. A big stimulus to the growth of mutual funds was the creation, by tax law in the 1980s, of individual retirement programs that could hold securities and mutual funds directly (in contrast to the older style of defined benefit pension plans run by companies for their employees). As of 1980, only ten percent of U.S. citizens had ever owned a security directly. By 1995, this figure had risen to 37 percent, fueled mainly by the purchase of securities through mutual funds in individual retirement plans. Including the spouses and children of those with retirement plans, well over half of the individuals in the U.S. are investors in securities, either directly or though mutual funds.

The mutual fund business itself is an astonishing aspect of the U.S. economy. The number of mutual funds now stands at more than 7,000, including the money market mutual funds, and the number of mutual funds that invest in stocks is larger than the number of companies listed on the NYSE! The securities industry, including mutual funds, are clearly of tremendous importance to the U.S. economy.

The regulation of mutual funds in the U.S. is very restrictive. The Investment Company Act of 1940 restricts mutual funds to holding mainly only liquid securities. Mutual funds are also restricted in the fraction of their portfolio they may invest in any one security, and also restricted in the fraction of a company that they are allowed to hold. Most important, they are allowed only one model for compensating the fund managers: fund managers can be compensated only as a percentage of the fund's total net asset value. Nonetheless, there is huge variation in the risk of funds offered, from extremely conservative money market mutual funds to funds with more than five times the risk (on the basis of variance of returns) of the overall stock market. Clearly, the dangers of allowing the legislature to design such an essential institution did not yield disastrous results. The model institution envisioned in the 1940 Act has been a huge success.

U.S. Legal Institutions

Compared to other advanced economies, the United States has a network character. Companies tend to be smaller and do fewer things, but they have more interactions with other companies in order to reach their productive goals. Functions that are carried out within firms in other countries are done across firms in the United States. An interesting example is the sale of catalog merchandise by telephone. The traditional function of the retail store is replaced by a coalition of specialists. One firm chooses the merchandise and prepares the catalog. Another selects the list of people to receive the catalog. Two separate telephone companies collaborate to provide the toll-free telephone service to the customer. A separate firm operates the facility that takes the orders. Often the merchandise is warehoused, selected, and packed by yet another independent specialist. And two major firms deliver the merchandise to the customer's home.

The network economy rests on a legal system that supports complex contractual relations among firms. The system, inherited from Britain, provides a clear framework for commercial relations. In the event of a breach of a contract, the system prescribes well understood remedies for the victim. The remedy is enough to deter breaches that are harmful to the joint interests of the parties, but not so high as to prevent

the termination of a relationship when the termination is in their joint interest.

The United States has courts administered by the states and by the federal government to resolve disputes about contracts. Because the laws governing contracts are well understood by businesses and their attorneys, and because the courts reliably enforce these laws, almost no contract disputes reach the courts for resolution. Rather, the parties make private agreements that approximate the likely outcome in court. As a result, businesses can be reasonably confident as they enter into complex relationships with networks of parties that they will not fall victim to exploitation by their partners, nor are they likely to face a costly trial in court if a dispute arises.

An important implication of the network economy is that the services needed for building complex relationships in the first place and for resolving disputes that inevitably arise in those relationships as they evolve are part of the network economy. In countries where these relationships operate within the boundaries of firms or families of affiliated firms, these services are provided by managers. In the U.S. economy, the same services are provided under contractual relationships by outside law firms. The result is that the United States has vastly more lawyers than any other country. This feature of the U.S. economy is often misunderstood—it is taken to mean that the nation wastes resources in litigation. Instead, it should be seen as just another aspect of the network structure of the economy. It is no more significant that the United States has large numbers of lawyers than that it has so many formatters—the firms that specialize in taking orders for catalog merchandise over the telephone.

The U.S. legal system also supports economic activity by deterring harmful conduct occurring outside of contractual relationships. One important element of the system is antitrust law. The U.S. economy relies on competition among firms to deliver high-quality products at low prices to consumers. Antitrust law helps to preserve the benefits of competition against acts that threaten to decrease competition, lower product quality and variety, and raise prices.

U.S. antitrust law forbids almost all forms of collaboration among firms who compete against each other. Firms may not coordinate their prices or agree to divide markets among themselves. No contractual relationship among rivals is permitted if it has any tendency to raise

prices. The victim of a price increase may recover three times the amount of the loss, and the government may seek criminal penalties against violators. The enforcement of laws barring cooperation among rivals is more vigorous in the United States than in other countries. U.S. law forbids the merger of rival firms if there is a chance of more than a slight diminution of competition. Here too, U.S. law is stricter than the laws of other countries. Greater reliance on laws to protect competition is the natural counterpart of the low levels of regulation in the U.S. economy.

A second branch of antitrust law forbids predatory acts against rivals if the effect is to reduce competition and raise prices. Vigorous competition inherently involves a healthy form of predation—it is harmful to Ford if Toyota sets a low price, but good for the consumer and for the economy. The trend in U.S. antitrust law since 1980 has been to apply more and more stringent tests to claims of predatory conduct. The government's investigation of complaints about Microsoft is a good illustration. Many of the complaints from Microsoft's rivals were about the firm's policies of selling software at low prices—for example, for bundling software into operating systems. Despite intense pressure from the disappointed rivals who were hurt by the low prices, the government did not challenge the low prices. Instead, the government condemned policies that created an unnecessary barrier to entry into the software business, which Microsoft agreed to discontinue. The Microsoft investigation, along with the government's dismissal of an earlier case against IBM, makes it clear that it is not a violation of antitrust law for a firm to come to dominate a market by developing superior products and selling them at reasonable prices.

Another branch of law protects intellectual property from unauthorized use. The ability to control the use of intellectual property and the resulting ability to charge for its use is the way that the U.S. economic system provides incentives for innovation and development of many kinds. Direct public support for these activities is modest and is concentrated in military applications. Intellectual property is protected by patents, copyrights, trademarks, and by trade secret laws.

The United States has remarkably little regulation in comparison to other countries. We mentioned in the previous section that anybody can start a business and sell almost any product they choose. Because there is little prior approval of business activities, there is correspondingly

more legal review of situations where harm has occurred. For example, most products do not have to be approved for safety by the government before they are placed on the market. But if a product turns out to be unsafe, its maker or seller is held to a strict standard of responsibility, Victims of unsafe products can recover compensation for their injuries even decades after the injury occurs. The anticipation of the possibility of having to pay the compensation provides a strong incentive for designers of new products to pay close attention to safety issues. Consistent with the general principles of the economy, private action to avoid unsafe products occurs as a result of incentives provided by government, but no direct government action is required.