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NATIONAL SAVING

Answers to Key Questions

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Abbreviations

BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
CBO	Congressional Budget Office
FFA	Flow of Funds Accounts
GDP	Gross domestic product
GNP	Gross national product
HI	Hospital Insurance
IRA	Individual Retirement Account
NIPA	National Income and Product Accounts
OASDI	Old-Age, Survivors, and Disability Insurance
OECD	Organization for Economic Cooperation and Development
R&D	Research and development
SAVER	“Savings are Vital for Everyone's Retirement” Act of 1997
SMI	Supplementary Medical Insurance

Preface

The term "saving" is used both when people discuss their own finances and when policymakers and economists discuss "national saving." For people and for the nation, saving means forgoing consumption today so they can enjoy a better standard of living in the future. National saving—the portion of a nation's current income not consumed—is the sum of saving by households, businesses, and all levels of government. National saving represents resources available for investment to replace old factories and equipment and to buy more and better capital goods. Higher saving and investment in a nation's capital stock contribute to increased productivity and stronger economic growth over the long term. Saving today increases a nation's capacity to produce goods and services in the future and, therefore, helps to increase the standard of living for future generations.

Since the 1970s, combined saving by households and business has declined. For much of that time, the federal government did not contribute to saving; instead it was a borrower, its deficits absorbing a share of the saving pool available for investment. For the nation as a whole, saving has rebounded somewhat from its low point in the early 1990s but remains relatively low by U.S. historical standards. In fiscal year 1998, the federal government began to contribute to the pool of saving by running its first surplus since 1969. Federal budget surpluses now are projected for at least the next decade. But even with the advent of federal government saving in the late 1990s, national saving available for new investment remains relatively low, in large part because personal saving has dramatically declined. The U.S. has been able to invest more than it saves by borrowing from abroad, but economists question whether this is a viable strategy for the long term.

Personal saving plays a dual role, ensuring both individuals' retirement security and the nation's economic security. While Social Security provides a foundation for retirement income, saving through pensions and by individuals on their own behalf contribute substantially to retirement income. Even as more people are accumulating balances through employer-sponsored 401(k) saving plans and individual retirement accounts, personal saving—which does not reflect gains on existing assets—has declined. The personal saving rate has plunged, with American households spending virtually all of their current income. Although aggregate household wealth has risen in part as a result of the stock market boom over the 1990s, many individual households have accumulated little, if any, wealth.

America faces a demographic tidal wave that poses significant challenges for individuals' retirement security and our economy as a whole. More

people are living longer in retirement, and there will be relatively fewer workers supporting each retiree in the future. Without meaningful reform, the Social Security and Medicare programs face long-term financing problems. Although public attention usually focuses on the dates by which the trust funds are projected to become insolvent, the effects associated with financing cash deficits for these programs will be felt sooner as the baby boom generation begins to retire. As the population ages, spending for Social Security and federal health programs will leave increasingly less room for spending on other national priorities.

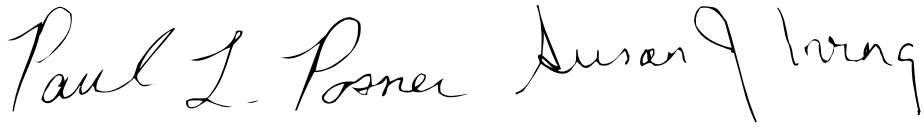
Increasing national saving is an important way to bolster retirement security for current workers and to allow future workers to more easily bear the costs of financing federal retirement and health programs while maintaining their standard of living. As we have reported in the past, the surest way for the federal government to affect national saving is through federal fiscal policy, particularly in what it chooses to do with the budget surpluses projected over the next decade. Policymakers appear to have agreed to save the Social Security surpluses, and the fiscal policy debate has centered on what to do with the balance of the anticipated surpluses. To the extent that they are used to reduce federal debt held by the public, surpluses represent an opportunity to increase national saving. In addition, how surpluses are used has long-term implications for future economic growth. Policy debates surrounding Social Security and Medicare reform also have implications for all levels of saving—government, personal, and, ultimately, national.

This report is designed to present information about national saving—as measured in the National Income and Product Accounts—and its implications for economic growth and retirement security in a concise and easily understandable manner. In general, this report is based on widely accepted economic principles, and we identify those areas where many economists do not agree. Although many excellent studies and books have been written on national saving and long-term economic growth, these discussions tend to be complex and technical. Also, most discussion of the decline in personal saving focuses on the adequacy of individuals' retirement saving rather than on the significance of personal saving for the economy as a whole. For example, one point that is sometimes overlooked is that low personal saving has consequences for U.S. reliance on foreign borrowing, long-term economic growth, and standards of living for future generations.

This report addresses the following questions: (1) What is personal saving, how is it related to national saving, and what are the implications of low personal saving for Americans' retirement security? (2) What is national saving and how does current saving in the United States compare to historical trends and saving in other countries? (3) How does national saving affect the economy and how would higher saving affect the long-term outlook? (4) How does federal fiscal policy affect national saving, what federal policies have been aimed at increasing private saving, and how would Social Security and Medicare reform affect national saving? And, (5) what are key issues in evaluating national saving? For a quick overview of the topics discussed in this report, see the summary section.

For easy access to definitions of key terms, we include a glossary at the end of this report. Terms contained in the glossary appear in **bold type** in the text the first time they are used in the major sections. For readers who are interested in more detailed information on the topics covered here, we also include a bibliography.

This report was prepared under the direction of Paul L. Posner, Managing Director of Federal Budget Analysis, and Susan J. Irving, Director of Federal Budget Analysis, who may be reached at (202) 512-9573 if there are any questions.



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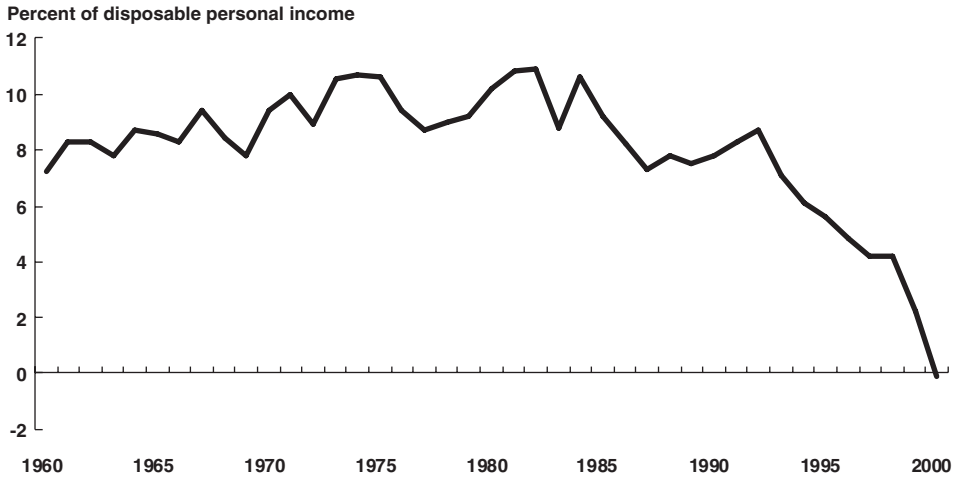
Summary of Major Sections

Personal Saving and Retirement Security

The personal saving rate—as measured in the National Income and Product Accounts (NIPA)—reflects how much households in aggregate are saving from their current disposable income. In evaluating personal saving, it is important to distinguish between saving as a way for an individual household to finance future consumption and saving as a way to finance the nation's capital formation. Strange as it may seem to the typical household, capital gains on its existing assets do not contribute to saving as measured in NIPA. That is because capital gains reflect a revaluation of the nation's existing capital stock and do not provide resources for financing investment that adds to the capital stock. Whereas employer contributions to pension funds as well as pension funds' interest and dividend income are part of personal income and contribute to personal saving, increases in the market value of assets held by pension funds, for example, are not counted as personal income and saving. Although an individual household can tap its wealth by selling assets to finance consumption or accumulate other assets, the sale of an existing asset merely transfers ownership; it does not generate new economic output.

The personal saving rate has largely declined since the 1980s, plummeting in recent years to levels not seen since the Great Depression, as shown in figure S.1. A low personal saving rate raises questions about whether households have adequate resources to sustain their rate of spending. A negative saving rate means that, in aggregate, households are spending more than their current income by drawing down past saving, selling existing assets, or borrowing.

Figure S.1: Personal Saving Rate (1960–2000)



Source: Bureau of Economic Analysis, Department of Commerce.

Economists use several theories to explain what motivates people to save. Despite a great deal of study, economists have found no single reason that convincingly explains the decline in the personal saving rate. One possible explanation is that surging household wealth in recent years contributed to the virtual disappearance of personal saving. Since the mid 1990s, aggregate household wealth has swelled relative to disposable personal income, largely due to increases in the market value of households' existing assets (see figure 1.2). Yet, despite the stock market boom of the 1990s, many households have accumulated little, if any, wealth (see figure 1.3), and half of American households did not own stocks as of 1998.

While Social Security provides a foundation for retirement income, Social Security benefits replace only about 40 percent of pre-retirement income for the average worker. As a result, Social Security benefits must be supplemented by private pensions, accumulated assets, or other resources in order for individuals to maintain a reasonable standard of living in retirement compared to their final working years. Pensions, income from accumulated assets, and earnings from continued employment largely determine which households will have the highest retirement income (see figures 1.4 and 1.5). Pensions are not a universal source of retirement income, and more than half of those working in 1998 lacked a pension plan. While most families say they recognize the need to save for retirement,

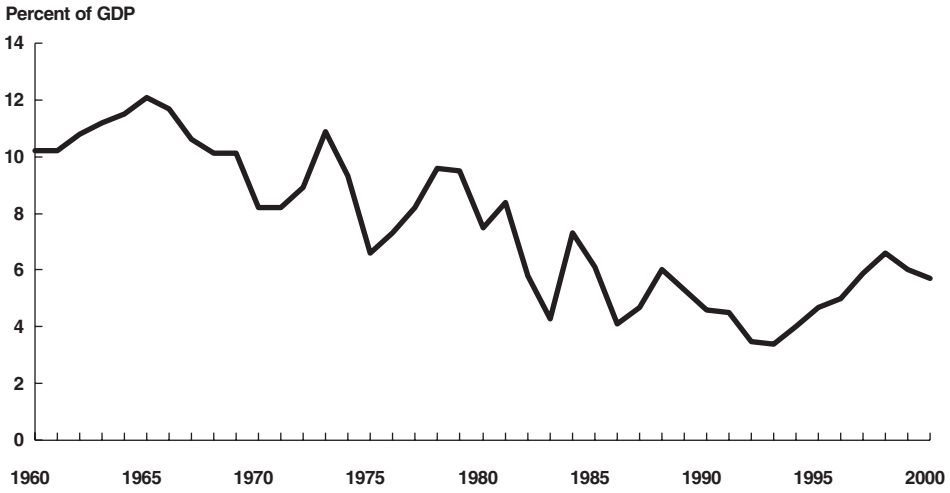
fewer than half of those surveyed in early 2001 had tried to calculate how much they need to save.

Over the next 75 years, the elderly population will nearly double as a share of the total U.S. population (see figure 1.6). As more people live longer, there will be relatively fewer workers supporting each retiree unless retirement patterns change. While today there are 3.4 workers for each Social Security beneficiary, by 2030, there will be only about 2 workers paying taxes to support each beneficiary (see figure 1.7). Both Social Security and Medicare face long-term financing problems, and the Social Security and Medicare's Hospital Insurance trust funds eventually will be exhausted as the baby boomers draw their benefits (see figures 1.8 and 1.9). Absent reform, Social Security and Medicare costs would constitute a substantial drain on the earnings of future workers (see figure 1.10). Anticipating potential benefit cuts, people could choose to save more now, work longer to delay retirement, or experience a lower standard of living in retirement. With an aging population and a slowly growing workforce, saving more today and increasing the nation's future economic capacity is critical to ensuring retirement security in the 21st century.

National Saving Overview

In the NIPA, national saving is the sum of saving by households, businesses, and all levels of government. Gross national saving—which reflects resources available both to replace old, worn out capital goods and to expand the capital stock—has rebounded as a share of gross domestic product (GDP) from its low in the 1990s but remains below the level of the 1960s (see figure 2.1). Depreciation as a share of GDP has increased slightly over the past 4 decades, and net national saving—which excludes depreciation—remains well below the 1960s average, as shown in figure S.2. Through much of the 1980s and early 1990s, federal deficits absorbed funds saved by households and businesses and reduced overall national saving available to finance private investment (see figure 2.2). Even as federal surpluses have contributed to national saving in recent years, personal saving has steadily declined as a share of GDP, and personal dissaving in 2000 absorbed resources that otherwise would have been available for investment. Although gross national saving in 2000 was low by U.S. historical standards, U.S. gross national saving has generally been lower than other major industrialized countries over the past 4 decades (see figure 2.3).

Figure S.2: Net National Saving as a Share of GDP (1960–2000)



Source: GAO analysis of NIPA data from the Bureau of Economic Analysis, Department of Commerce.

National saving represents resources available for investment in the nation's stock of capital goods, such as plant, equipment, and housing. The nation's human capital and knowledge—forms of intangible capital—are not part of the NIPA definitions of saving and investment. Also, NIPA focuses on the incomes arising from current production of goods and services and, thus, does not count revaluation of existing assets in national saving. Changes in the market value of existing tangible and financial assets, such as land and stocks, reflect expectations about the productive potential of the underlying capital, but fluctuations in asset values may not represent real, permanent changes in the nation's productive capacity.

National Saving and the Economy

National saving together with borrowing from abroad provides the resources for investment that can boost productivity and lead to higher economic growth and future living standards (see figure 3.1). Investment in new capital is an important way to raise the productivity of the slowly growing workforce as the population ages. Greater economic growth from saving more now would make it easier for future workers to achieve a rising standard of living for themselves while also paying for the government's commitments to the elderly. Economic growth also depends on education to enhance the knowledge and skills of the nation's work

force—the nation's human capital—as well as research and development to spur technological advances.

Even though national saving remains relatively low by U.S. historical standards, economic growth in recent years has been high because more and better investments were made. Each dollar saved bought more investment goods, and a greater share of saving was invested in highly productive information technology. Also, the United States was able to invest more than it saved by borrowing from abroad (see figure 3.2). Persistent U.S. current account deficits have translated into a rising level of indebtedness to other countries, i.e., net U.S. holdings of foreign assets (see figure 3.3). Many other nations currently financing investment in the United States also will face aging populations and declining national saving, so relying on foreign savers to finance a large share of U.S. domestic investment is not a viable strategy for the long run.

Current saving and investment decisions have profound implications for the nation's level of well-being in the future. Our simulations using a long-term economic growth model show that, even assuming the United States could maintain national saving constant at its 2000 share of GDP, future incomes would fall short of the rise in living standards enjoyed by prior generations whose income generally doubled every 35 years (see figures 3.4 and 3.5). Saving more would improve the nation's long-term economic outlook, but this requires consuming less now.

National Saving and the Government

Federal fiscal policy affects the amount of federal government saving and this in turn directly affects national saving. From the 1970s through the mid 1990s, federal deficits absorbed a large share of private saving and reduced the amount of national saving available for investment (see figure 4.1). Borrowing to finance these deficits added to the federal debt held by the public. In recent years, federal surpluses added to national saving and increased funds available for investment. So far, the federal government has used surplus funds to reduce its debt held by the public. Accumulating nonfederal financial assets, such as stocks, could be another way that government saving could translate into resources available for investment, but this idea is controversial. An additional dollar of government saving and debt reduction does not automatically increase national saving and investment by a dollar because changes in saving by households and businesses will tend to offset some of the change in government saving.

While attention has focused on budget surpluses projected over the next decade, the federal budget will increasingly be driven by one certainty—the population is aging and there will be fewer workers supporting each retiree. In our simulations, saving only the Social Security surpluses will not be sufficient to accommodate both the projected growth in Social Security and health entitlements as well as other important national priorities in the long term (see figure 4.2). Absent program changes, saving the Social Security surpluses—and even the Medicare surpluses—is not enough to ensure retirement security for the aging population without placing a heavy burden on future generations. Social Security and health spending alone eventually would exceed total federal revenue and squeeze out most or all other spending (see figure 4.3). Even if the entire unified surplus were saved, our simulations show that the rise in living standards—measured in terms of GDP per capita—would fall short of the rise enjoyed by prior generations whose income generally doubled every 35 years (see figure 4.4). Reforming retirement and health entitlement programs is critical to putting the federal budget on a more sustainable footing for the long term and to freeing up future resources for other competing needs.

Although increasing government saving is the most direct way for the federal government to increase national saving, budget surpluses also could be used to finance federal investment intended to promote long-term economic growth or to encourage personal saving. Whereas unified budget surpluses increase national saving available for private investment, increasing federal spending on national infrastructure, if properly designed and administered, can be another way to increase the nation's capital stock. In addition, federal spending on education and research and development—while not counting as investment in NIPA—can, if properly designed and administered, promote the nation's long-term productivity and economic growth. The federal government also has sought to encourage personal saving both to enhance households' financial security and to boost national saving. But, developing policies that have the desired effect is difficult. Tax incentives affect how people save for retirement but do not necessarily increase the overall level of personal saving. Even with preferential tax treatment for employer-sponsored retirement saving plans and individual retirement accounts, the personal saving rate has steadily declined. Economists disagree about whether tax incentives are effective in increasing the overall level of personal saving. The net effect of a tax incentive on national saving depends on whether the tax incentive induces enough additional saving by households to make up for the lower government saving resulting from the government's revenue loss. In recent

years, policymakers have explored using government matching or creating new individual accounts to encourage Americans to save more.

Congress found that a leading obstacle to expanding retirement saving has been that many Americans do not know how to save for retirement, let alone how much. The Department of Labor maintains an outreach program to raise public awareness about the advantages of saving and to help educate workers about how much they need to save for retirement. Other federal agencies also play a role in educating the public about saving. Individualized statements now sent annually by the Social Security Administration to most workers aged 25 and older provide important information for personal retirement planning, but knowing more about Social Security's financial status would help workers to understand how to view their personal benefit estimates.

Restoring Social Security to sustainable solvency and increasing saving are intertwined national goals. Saving for the nation's retirement costs is analogous to an individual's retirement planning in that the sooner we increase saving, the greater our benefit from compounding growth. The way in which Social Security is reformed will influence both the magnitude and timing of any increase in national saving. The ultimate effect of Social Security reform on national saving depends on complex interactions between government saving and personal saving—both through pension funds and by individuals on their own behalf. Various proposals would create new individual accounts as part of Social Security reform or in addition to Social Security. The extent to which individual accounts would affect national saving depends on how the accounts are funded, how the account program is structured, and how people adjust their own saving behavior in response to the new accounts.

The Medicare program is fiscally burdensome in its current form, and Medicare spending (see figure 4.5) is expected to drive federal government dissaving over the long run. Given the aging of the U.S. population and the increasing cost of modern medical technology, it is inevitable that demands on the Medicare program will grow. The current Medicare program lacks incentives to control health care consumption, and the cost of health care decisions is not transparent to consumers. Although future Medicare costs are expected to consume a growing share of the federal budget and the economy, pressure is mounting to expand Medicare's benefit package to cover prescription drugs, which will add billions to Medicare program costs. In balancing health care spending with other societal priorities, it is important to distinguish between health care wants, which are virtually

unlimited; needs, which should be defined and addressed; and overall affordability, which has a limit. Reducing federal Medicare spending would improve future levels of government saving, but the ultimate effect on national saving depends on how the private sector responds to the reductions.

Key Issues

In light of the virtual disappearance of personal saving, concerns about U.S. reliance on borrowing from abroad to finance domestic investment, and the looming fiscal pressures of an aging population, federal decisionmakers must consider how much of the anticipated budget surpluses to save, spend, or use for tax reductions. Economic growth will help society bear the burden of financing Social Security and Medicare, but it alone will not solve our long-term fiscal challenge. To participate in the debate over how to reform Social Security and Medicare, the public needs to understand the difficult choices the nation faces.

Personal Saving and Retirement Security

Q1.1. What is the Personal Saving Rate and What Does it Mean?

A1.1. The personal saving rate is the most widely cited statistic about how much households save, but most people do not know what the rate measures or what it means. First, it is necessary to distinguish "saving" from "savings." In everyday terms, "saving" means spending less than your income and "savings" are the assets accumulated over time. To better distinguish between these concepts in this report, the term "saving" means the money set aside from current income for future consumption—i.e., how much of each period's income is saved rather than spent. The terms "assets accumulated" and "wealth" are used for the cumulative stock of resources built over time—what people commonly think of as "savings."

The **personal saving rate**, as measured in the **National Income and Product Accounts (NIPA)**,[1] reflects how much American households are setting aside from current income. Under NIPA, **personal saving** is what is left over from personal income after taxes and personal spending for goods and services. **Disposable personal income** is the income available for personal spending and saving after federal, state, and local taxes as well as Social Security and Medicare payroll taxes are paid. The NIPA personal saving rate is calculated as the ratio of personal saving to disposable personal income.

To understand what the personal saving rate means, it is helpful to understand the NIPA definitions of "persons," personal income, and personal spending. For NIPA purposes, "persons" include not only individuals but also nonprofit institutions primarily serving individuals, pension funds, and private trust funds. NIPA personal income includes wages and salaries; interest and dividend income; rental income;[2] proprietors' income; government transfer payments, such as Social Security, veterans, and unemployment benefits; and employer contributions to pension plans as well as group health and life insurance plans. Contributions to traditional defined benefit pension plans and defined contribution plans—such as 401(k) plans—together with pension

[1]The national income and product accounts (NIPA) are the comprehensive set of accounts that show the composition of production and the distribution of incomes earned in production. NIPA data reflect production in the United States as well as U.S. transactions with the rest of the world. NIPA data are prepared by the Bureau of Economic Analysis of the Department of Commerce. For more information, see Eugene P. Seskin and Robert P. Parker, "A Guide to the NIPA's," *Survey of Current Business*, Vol. 78, No. 3 (March 1998), pp. 26–68.

[2]NIPA treats the net rental value on owner-occupied housing as personal income.

funds' interest and dividend income represent an important component of NIPA personal income and saving.[3] Benefits paid by pension plans are not a component of NIPA personal income, although pension benefits represent an important means for many retirees to finance consumption (see Q1.8). NIPA personal spending includes, for example, food, clothing, rent, utilities, and medical care; consumer interest payments; and **consumer durables**, such as cars and major appliances.[4]

Strange as it may seem to the average household, changes in the value of existing assets, such as stocks, bonds, or real estate, do not contribute to NIPA personal income and saving. That is because capital gains reflect a revaluation of the nation's existing **capital stock** and do not provide resources for financing investment that adds to the capital stock. Under the current NIPA methodology, realized gains do not count as personal income, but any taxes paid on such gains reduce disposable personal income and thus personal saving.

Although the NIPA personal saving rate is the measure most frequently cited by analysts and the media, an alternative macroeconomic measure of personal saving is available from the Federal Reserve's **Flow of Funds Accounts (FFA)**.[5] Whereas NIPA measures saving as what is left over from personal income after taxes and personal spending, FFA measures saving as the net increase in households' financial and tangible assets less the net increase in households' liabilities. Both the NIPA and FFA measures count household purchases of houses as saving. The FFA personal saving rate also counts household purchases of consumer durables as saving and, thus, is somewhat higher than the NIPA personal saving rate. Both the NIPA and FFA macroeconomic measures focus on saving from the economy's current production and do not include changes in the market value of households' existing portfolios. In this report, we use the NIPA measure of

[3]A defined benefit pension plan generally provides benefits based on a specific formula linked to the worker's earnings and tenure. Typically, a defined benefit plan is funded completely by the employer, who bears the investment risk of such as arrangement. Under a defined contribution plan, a percentage of pay is contributed by the employer to an account for each worker, with the worker bearing the investment risk. The increasingly popular 401(k) plans also allow contributions by workers.

[4]This refers to spending by "persons" in NIPA and not just by individuals.

[5]The Flow of Funds Accounts (FFA) measure the acquisition of physical and financial assets throughout the U.S. economy and the sources of funds used to acquire the assets. For more information, see *Guide to the Flow of Funds Accounts*, Vol. 1, Board of Governors of the Federal Reserve System (2000).

personal saving because it more closely represents the resources available from households for the nation's capital formation.

For the economy as a whole, the personal saving rate provides a measure of how much households are saving compared to current disposable personal income. A positive saving rate means that American households in aggregate are saving. A low personal saving rate means that households in aggregate are spending virtually all of their current income. A negative personal saving rate means that, in aggregate, American households are spending more than their current income—or "dissaving." Given that the personal saving rate is an aggregate measure, some individuals might be saving a lot even while others are drawing down past saving, selling existing assets, or borrowing to finance their current consumption.

Q1.2. Why Measure Personal Saving?

A1.2. For the economy as a whole, personal saving can be a vital source of the nation's saving available to finance private and government investment. NIPA personal saving is widely recognized by economists as the key measure of the resources that households contribute to national saving. A low personal saving rate—unless offset by relatively higher saving by businesses and/or government or by borrowing from abroad—limits how much the nation can invest and so ultimately limits future economic growth. A low personal saving rate can raise questions about whether current generations are setting aside enough to sustain the nation's productive capacity, especially if the other components of national saving are not correspondingly higher. Some analysts are concerned that the demand for household consumption is in part fueling the U.S. trade deficit. Section 2 discusses the trend and the components of national saving, and section 3 explains how saving affects long-term economic growth and living standards.

The personal saving rate also has implications for Americans' ability to sustain their current rate of spending. Personal spending represents about two-thirds of the U.S. economy. A low personal saving rate raises questions about whether Americans have adequate resources to withstand a financial emergency such as unemployment in the event of an economic downturn. In addition, many policymakers and analysts have questioned whether American households are saving enough to ensure their retirement security.

Having said this, it is important to recognize that macroeconomic measures such as the NIPA personal saving rate do not provide a complete picture of

the finances of individual households. A household's capacity to consume depends on both its current income and its **wealth**. One way to measure households' wealth is **net worth**, or the difference between households' assets and their liabilities.[6] The change in households' net worth is broader than the NIPA or FFA measures of personal saving and includes both the flow of saving from current income plus any increase (or decrease) in the market value of existing assets such as houses and stocks. For the economy as a whole, however, the change in households' net worth due to revaluation of households' existing assets does not represent resources available to invest in the nation's capital stock.[7]

Q1.3. How Has the Personal Saving Rate Changed Over Time?

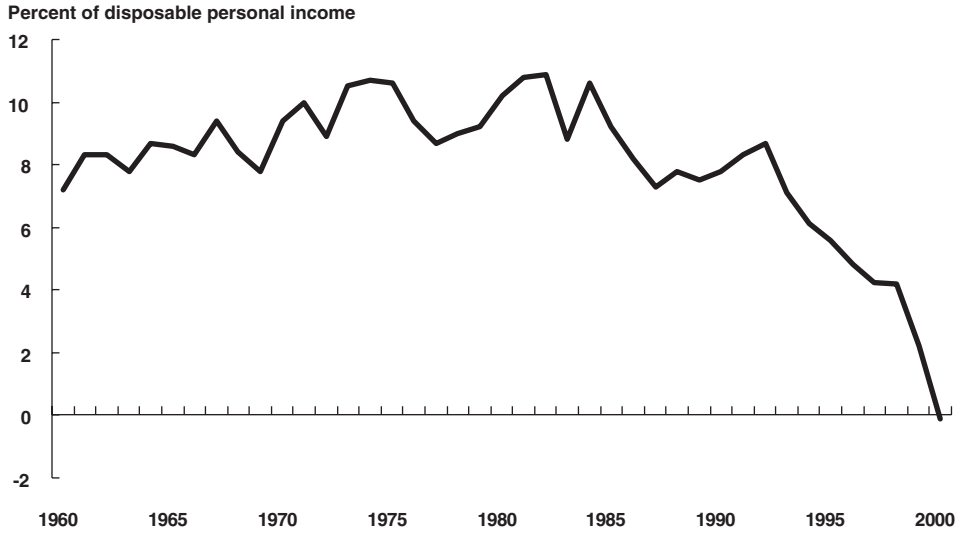
A1.3. Figure 1.1 shows the personal saving rate—expressed as a percentage of disposable personal income—over the past 4 decades. The personal saving rate averaged 8.3 percent over the 1960s and increased to an average of 9.6 percent over the 1970s. Within each of those 2 decades, annual saving rates were relatively steady, although they ranged from a low of 7.2 in 1960 to a high of 10.7 percent in 1974. Over the 1980s, the personal saving rate was slightly lower than in the 1970s. After peaking at 10.9 percent in 1982, the rate generally declined over the 1980s, dropping as low as to 7.3 percent in 1987; for the decade, the rate averaged 9.1 percent. The personal saving rate rebounded from 1987 to 1992 when it reached 8.7 percent. Since then, the personal saving rate has steadily declined and averaged only 5.9 percent over the 1990s. In the late 1990s, the personal saving rate dropped below the postwar low of 4.7 percent in 1947. In 1999, the personal saving rate plunged to 2.2 percent—an annual rate not seen since the Great Depression. As shown in figure 1.1, the personal saving rate in 2000 was estimated to be –0.1 percent.[8] With the personal saving rate around zero or negative, economists have questioned how to interpret the decline; see question 1.7.

[6]Households' aggregate net worth is available from the Flow of Funds Accounts' balance sheet for the household sector.

[7]For further discussion of whether revaluation of existing assets counts as saving, see questions 1.7 and 2.4.

[8]The last time the personal saving rate was negative was in 1932 (-0.8 percent) and 1933 (-1.5 percent).

Figure 1.1: Personal Saving Rate (1960–2000)



Source: Bureau of Economic Analysis, Department of Commerce.

Q1.4. Why Do People Save?

A1.4. Before trying to answer why people are saving less, let's start with the question of what motivates people to save. People save for a variety of reasons such as buying a house, taking a vacation, providing a college education for their children, or preparing for their own retirement. They may also save for general reasons such as for a "rainy day" or to leave money to their heirs. People with seemingly identical family and income situations may make different saving choices—some may save a great deal while others save little, if anything. Economists and other analysts use several theories in analyzing how individuals and households decide how much of their current income to save for the future.

The standard theory for explaining personal saving is the **life-cycle model**.[9] The basic hypothesis is that people save and accumulate assets to smooth out their consumption and standard of living over their lifetimes.

[9]A complementary theory of personal saving is the permanent-income hypothesis. Generally, people save a greater share of income when their annual income is higher than their expected long-run permanent income and save a smaller share when their income is lower than the expected long-run level.

Young people entering the workforce, anticipating that their incomes will increase over their careers, save little and may borrow to finance current spending. Workers in their peak earning years save to repay past borrowing and to accumulate assets for retirement. The life-cycle model predicts that saving is hump-shaped by age so that wealth accumulation peaks just before retirement. Upon leaving the workforce, the elderly run down their wealth—or "dissave." In saving for retirement, individuals theoretically take into account not only their expected retirement age and the number of years they expect to live in retirement but also project their expected income, real returns on assets accumulated, and inflation over their lifetime.

Although providing for retirement is a powerful motive for saving, the life-cycle model in its simplest form cannot fully explain how people decide to save. Faced with the difficulty of reconciling the standard life-cycle model with available empirical data, economists have examined other motives that may help explain saving behavior. While some evidence supports each motive, economists do not have a unified theory that fully explains how people choose to save.[10] In general, the other major incentives or reasons why people save are categorized as follows:

- **Precautionary saving motive.** This is saving to protect against unexpected expenses or possible emergencies, such as unemployment or illness. In particular, individuals who face greater uncertainty about their income and those who are risk-averse may tend to save more for a "rainy day." Precautionary saving may be over-and-above basic life-cycle saving for retirement. Some people may choose to save enough to maintain a buffer-stock or contingency reserve during their early working years and defer retirement saving until their 40s or 50s.[11]

- **Bequest saving motive**. This is saving beyond basic life-cycle saving for retirement. Some people may choose to save more in order to bequeath the accumulated wealth to future generations. The desire to leave a bequest may explain why the elderly do not fully deplete their wealth and some even continue to save during retirement. To some

[10]For a comprehensive review of personal saving literature, see Martin Browning and Annamaria Lusardi, "Household Saving: Micro Theories and Micro Facts," *Journal of Economic Literature*, Vol. XXXIV, No. 4 (1996), pp. 1797-1855.

[11]Christopher D. Carroll, "Buffer-Stock Saving and the Life Cycle/Permanent Income Hypothesis," *Quarterly Journal of Economics*, Vol. CXII, No. 1 (1997), pp. 1–56.

extent, bequests may be unplanned and thus reflect unspent retirement and precautionary saving.

- "**Big ticket" saving motive**. This is relatively short-term saving to accommodate a mismatch between current income and expenses during the life-cycle. Some people save to pay for big-ticket items such as cars, other consumer durables, or vacations. Some must save in advance because they cannot borrow, while others may prefer to save and avoid borrowing. Another big ticket is the down payment to buy a home; households largely borrow to buy homes and later save by repaying their mortgages. Paying for postsecondary education is a big ticket above and beyond life-cycle saving for retirement.

Given that people save for different purposes, increasing the rate of return on saving does not necessarily motivate people to save more. A higher rate of return has two opposing effects on personal saving. On the one hand, a higher rate of return may encourage people to save more because future spending becomes less costly relative to spending today—the **substitution effect**. On the other hand, given a higher rate of return, people need to save less now to finance a given level of future consumption. This reduced incentive to save as real rates of return increase is called the **income effect**.[12] How people react to an increase in the rate of return depends not only on their preferences about spending today versus spending in the future but also on the real after-tax rate of return—that is, the rate expected after taking into account inflation and taxes.[13]

Not everyone behaves like a life-cycle saver. Many people plan over shorter horizons—a few years or even paycheck-to-paycheck. Instead of trying to forecast lifetime income and economic conditions in the distant future, people may use simple rules of thumb, such as saving a fixed share of their income or avoiding debt.[14] Many people are "target savers" who aim for a fixed level of wealth or ratio of wealth to income in order to achieve

[12]Textbooks in microeconomics discuss these effects in detail. For a brief summary of substitution and income effects, see N. Gregory Mankiw, *Macroeconomics*, 4th Edition (New York, N.Y.: Worth Publishers, 2000), pp. 446–447.

[13]See section 4 for a discussion of federal tax incentives for personal saving.

[14]People can save for retirement using rules of thumb, such as saving a fixed percentage of income in an employer-sponsored retirement saving plan or saving $2,000 each year in an individual retirement account (IRA).

specific goals such as retirement, college education, a new car, or a vacation. Once target savers reach their wealth target, they may feel no need to save more. Individuals may use mental accounts—and even separate bank accounts—to earmark the money saved for different uses. To ensure saving discipline, people may use "contractual" or automatic mechanisms, such as payroll deductions, to save. A mortgage is a key form of contractual saving in which the homeowner's commitment to repay the principal borrowed compels future saving.

Even though economists have various theories to explain why people choose to save, some people do not save at all.[15] Low-income and even some moderate-income households may feel that they are unable to save. Others may be unwilling to save. Some people may be impatient and they may discount the future so heavily that retirement saving seems irrelevant compared to current spending.

Q1.5. Why Has the Personal Saving Rate Declined?

A1.5. No one is sure why the personal saving rate has declined. Despite a great deal of study, economists have found no single reason that convincingly explains the decline. Instead, research points to a combination of factors that influence the personal saving rate. These include—but are not limited to—demographics, government programs for the elderly, credit availability, and expectations about future income and wealth.[16]

- **Demographics**. Under the basic life-cycle model, one would expect that an increase in the elderly as a percentage of the total population would reduce the aggregate saving rate. However, empirical research has found that saving has declined across most age groups. There is no

[15]For more information, see Annamaria Lusardi, "Explaining Why So Many Households Do Not Save," Working Paper Series 00.1, Dartmouth College and The University of Chicago (January 2000); and Annamaria Lusardi, Jonathan Skinner, and Steven Venti, "Saving Puzzles and Saving Policies in the United States," Working Paper No. 8237 (Cambridge, MA: National Bureau of Economic Research, April 2001).

[16]Martin Browning and Annamaria Lusardi, in "Household Saving: Micro Theories and Micro Facts," *Journal of Economic Literature*, Vol. XXXIV, No. 4 (1996), pp. 1797–1855, identified 11 possible explanations offered for the decline in personal saving. Jonathan Parker, in "Spendthrift in America? On Two Decades of Decline in the U.S. Saving Rate," Working Paper No. 7238 (Cambridge, MA: National Bureau of Economic Research, July 1999), examined seven possible explanations for the decline.

consensus that the aging of the U.S. population caused the decline in the personal saving rate.

- **Programs for the elderly**. Medicare and Social Security affect people's incentives to save for their old age.[17] Medicare may reduce the elderly's perceived needs for precautionary saving to cover medical expenses. Social Security can have opposing effects on personal saving.[18] On the one hand, Social Security benefits reduce the amount people need to save on their own for retirement. On the other hand, Social Security may induce personal saving by encouraging workers to save for earlier retirement—the **retirement effect**. In a sense, Social Security makes retirement an attainable goal and thus can prompt individuals to plan for retirement. People may save more than they would have otherwise to supplement their Social Security benefits with additional retirement income or because they want to retire before they are eligible for Social Security and Medicare benefits. Nevertheless, some evidence suggests that the existence of Social Security may have reduced personal saving, and numerous studies have attempted to estimate the saving offset.[19] However, given that Social Security was established in 1935 and Medicare in 1965, it seems unlikely that these programs were major contributors to the decline in the personal saving rate over the 1980s and 1990s.

- **Credit availability**. Improved access to credit reduces the need to save before big-ticket purchases. Over the last 20 years, credit cards have become widely available, and a smaller down payment is needed to buy a house. Easier access to credit may have contributed somewhat to the saving decline. The ability to borrow together with a rise in the number of two-earner families may have reduced the perceived need for precautionary saving.

[17]Means-tested government programs, such as Medicaid, also may affect the incentive to save. For example, requirements specifying low levels of financial assets in order to qualify for government benefits may discourage personal saving.

[18]Employer-sponsored pension plans also affect individuals' incentives to save for retirement on their own. As noted above, employer pension contributions as well as pension funds' interest and dividend income are part of NIPA personal income and saving.

[19]For more on Social Security, see Congressional Budget Office Memorandum, *Social Security and Private Saving: A Review of the Empirical Evidence* (July 1998).

- **Expectations about future income and wealth**. People decide how much to save based not only on their current income but also on their expectations about their future lifetime income and wealth. Since March 1991, the United States has enjoyed its longest postwar economic expansion—unemployment and inflation have remained relatively low and stable, and the stock market has achieved record highs. Over the 1990s, the booming economy and stock market may have lulled people into a sense of complacency that good times were here to stay. People may have saved less because they were confident about future income prospects, and households were wealthier because of gains on their existing assets. As discussed below in question 1.6, increased household wealth in recent years appears to have contributed to the plunge in the personal saving rate over the late 1990s.

Q1.6. What Is the Relationship Between Personal Saving and Wealth?

A1.6. That Americans save little but households are wealthier is a paradox that can be confusing. It is widely known that saving from current income is the way to accumulate assets and repay past borrowing, thus increasing net worth. The flow of saving is essential to accumulating a stock of wealth—as a general rule someone who never saves will have no wealth.[20] Conversely, dissaving—spending more than current income—reduces the stock of wealth because amounts saved in the past must be drawn down, existing assets sold, or borrowing increased. Not only does saving affect the stock of wealth, but wealth in turn influences the choice to save.

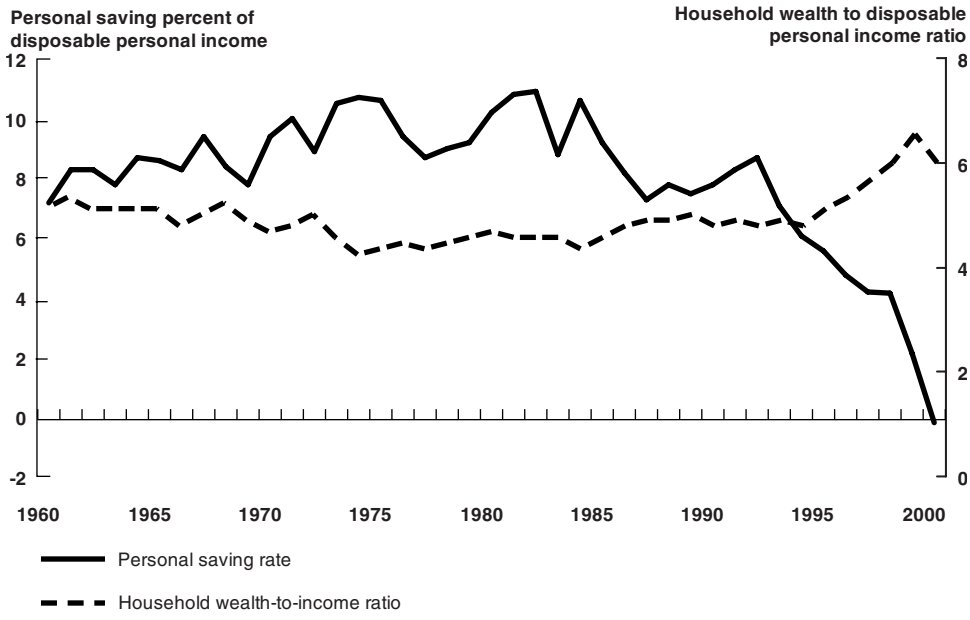
Under the life-cycle model, people save to accumulate assets to finance future consumption, and attaining their wealth-to-income target depends in part on the rate of return anticipated. Assets accumulated can generate income in the form of interest and dividends that in turn may be saved. Moreover, the change in net worth not only includes the saving flow from current income but also reflects changes in the market value of assets accumulated by households. Economists generally agree that saving and wealth are inversely related: increased wealth increases an individual's ability to consume in the future and thus reduces the incentive to save from current income. In other words, when households' existing assets increase in value, people can save less from current income and still achieve their wealth-income target. If households' existing assets lose value, people have to save more to attain their wealth-income target. While the idea of wealth

[20]A nonsaver could get lucky and receive an inheritance or win the lottery.

targets may seem abstract to the average household, increased wealth clearly influences personal saving through traditional defined-benefit pension plans. For example, gains on existing assets reduce the amount of an employer's contribution necessary to fund its pension liability.

Figure 1.2 shows that even as the personal saving rate has fallen, the ratio of aggregate household net worth to disposable personal income ("the wealth-income ratio") has risen in recent years. Over most of the last 4 decades, households' wealth-income ratio did not fluctuate widely from year to year. Over the 1960s through the mid 1990s, households' aggregate wealth ranged from a high of 5.3 times households' disposable income in 1961 and 1996 to a low of 4.3 in 1974. Since 1996, households' wealth-income ratio has increased rapidly—peaking at 6.4 in 1999. Although the surge in household wealth contributed to the plunge in the personal saving rate in recent years, economists agree that increased wealth does not fully explain the timing or magnitude of the decline over the 1980s and 1990s.

Figure 1.2: Comparison of the Personal Saving Rate and the Wealth-Income Ratio (1960–2000)



Source: Bureau of Economic Analysis, Department of Commerce, and GAO analysis of Flow of Funds Accounts data from the Federal Reserve Board of Governors.

Over the 1990s, aggregate household net worth doubled in nominal terms. Moreover, the mix of assets held by American households has changed dramatically. Traditionally, real estate has represented households' largest asset; while the total value of households' real estate holdings grew by 50 percent over the 1990s, real estate steadily declined as a share of households' total assets from 31 percent in 1990 to 23 percent in 1999. Meanwhile, the total value of households' stock holdings grew more than fourfold over the 1990s, and stocks as a share of households' total assets increased from 10 percent in 1990 to 28 percent in 1999.[21]

As figure 1.2 shows, household wealth accumulation has swelled relative to disposable personal income even as the flow of saving from current income has dwindled. Recent research estimated that the growth in households' aggregate net worth over the 1960s and during the early 1990s was roughly equally divided between traditional saving and the increase in the nominal value of existing assets. Over the 1970s and 1980s, the increase in the nominal value of existing assets was estimated to be about twice as large as the flow from saving.[22] In recent years, nominal gains on households' assets—particularly financial assets—have dwarfed the saving flow. For example, in 1999, even though personal saving was less than $150 billion, households' wealth still grew by $5.2 trillion (14 percent).

As Americans learned in 2000 when the stock market declined from its peak value, what goes up can come down. Aggregate household wealth in 2000 declined for the first time since data were available in 1945. According to the latest estimates, personal saving in 2000 was -$8.5 billion, but households' wealth declined by nearly $842 billion (2 percent) largely as a result of the drop in the market value of households' stock holdings. The total value of households' stock holdings declined by nearly 18 percent in 2000, and stocks as a share of households' total assets declined to less than 24 percent. Households' wealth-income ratio dropped from its 1999 peak of 6.4 to 5.9 in 2000 but remains relatively high compared to the 1960s through the mid 1990s.

The basic life-cycle model of saving holds that people are trying to smooth their standard of living over their lifetime. Therefore, life-cycle savers

[21]Households hold stocks directly as well as indirectly through mutual funds, pension funds, life insurers, and trusts.

[22]William G. Gale and John Sabelhaus, "Perspectives on the Household Saving Rate," *Brookings Papers on Economic Activity* (1:1999), pp. 181–224.

would not treat gains on existing assets as a windfall to spend today. The theory predicts that anticipated wealth changes would not affect planned lifetime spending. Likewise, changes in wealth perceived to be temporary due to fluctuating market values of assets would not affect planned spending. However, people can respond to an unexpected increase in wealth that they think will be permanent by spending more of their current income. This change in spending in response to a change in wealth is called the **wealth effect**. Some people may tap their wealth by selling stocks or borrowing against their home equity to boost current consumption. The wealth effect can also work in the opposite direction. A dramatic drop in household wealth—for example, due to an extended downturn in the stock market—could eventually dampen household consumption and lead to an increase in saving.

The increase in spending at any one time due to the wealth effect would be expected to be small, given a life-cycle saver's tendency to spread consumption of a significant change in wealth over time. Researchers estimate that each dollar in increased wealth increases consumption by a few cents. Estimates of the wealth effect range from 1 to 7 cents, and the typical estimate is about 3 to 4 cents. A recent study estimated that a wealth effect of 3 to 4 cents could explain two-fifths to about half of the decline in the personal saving rate since 1988.[23]

[23]Annamaria Lusardi, Jonathan Skinner, and Steven Venti, "Saving Puzzles and Saving Policies in the United States," Working Paper No. 8237 (Cambridge, MA: National Bureau of Economic Research, April 2001).

Q1.7. If Household Wealth Has Increased, Does It Matter if the Personal Saving Rate Has Declined?

A1.7. With the personal saving rate around zero or negative, economists have questioned the relevance of the NIPA personal saving measure.[24] Wealth measures, which reflect the value of existing assets based on current market conditions, show a fundamentally different trend, as illustrated in figure 1.2.[25] Although these supplementary measures may explain why individual households may choose to save less, the NIPA personal saving rate shows that people are consuming virtually all of their current income and saving little for the future.

In evaluating the level of personal saving, it is important to distinguish between saving as a source to finance the nation's capital formation and saving as a way for individual households to finance future consumption. A key difference between measuring the nation's saving and gauging a household's finances is the treatment of changes in the market value of existing assets. As discussed in section 2, it is saving from current income—not gains on existing assets—that is key to financing capital investment and increasing the nation's capacity to produce goods and services. Although an individual household can tap the increased value of its assets to finance additional consumption or accumulate other assets by selling an asset to another household, the transaction itself shifts ownership of the existing asset and does not generate new economic output. Thus, the nation as a whole may not be able to consume and invest more.[26] Moreover, all households may not be able to simultaneously tap their apparent wealth to finance consumption because large-scale asset sales could tend to depress market values.

[24]To some extent, spending wealth—like spending income—drives down the reported personal saving rate. As discussed in Q1.1, realized gains do not count as personal income, but any taxes paid on such gains reduce disposable personal income and thus saving. If households then spend a portion of their realized gains, this spending further reduces the saving residual and the saving rate.

[25]For alternative measures including changes in the market value of households' existing assets, see William G. Gale and John Sabelhaus, "Perspectives on the Household Saving Rate," *Brookings Papers on Economic Activity* (1:1999), pp. 181–224; and Richard Peach and Charles Steindel, "A Nation of Spendthrifts? An Analysis of Trends in Personal and Gross Saving," *Current Issues in Economics and Finance*, Vol. 6, No. 10 (September 2000).

[26]However, the sale of assets to foreigners can affect the nation's ability to consume and invest.

Although the personal saving rate is low, economists do not agree on whether this is a problem or whether private saving is inadequate to finance domestic investment. On the one hand, some economists are concerned that low personal saving is undercutting national saving and leaving the United States more dependent on foreign capital inflows to maintain domestic investment.[27] On the other hand, other economists have observed that strong consumer spending—boosted by low saving and the wealth effect discussed above—has fueled the surge in business investment and strong economic growth in the U.S. economy in recent years. Some economists and analysts are concerned that individual households are living beyond their means and some may have been counting on continued high gains on their assets to finance future consumption. If such expectations are not realized and, for example, there is a sustained stock market downturn or an economic downturn, households may have to scale back their consumption. This in turn could potentially slow economic growth given that household spending represents about two-thirds of the U.S. economy. However, some researchers suggest that the risk of a collapse in household spending that would hurt overall economic growth is exaggerated because households have greater resources than the personal saving rate suggests. [28]

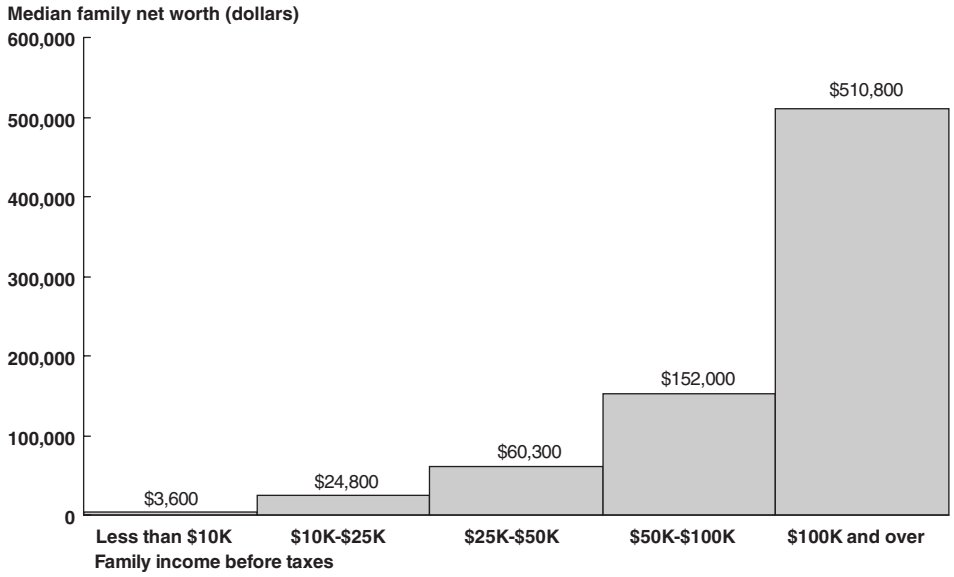
Although the aggregate wealth-income ratio rose in recent years, wealth is fairly concentrated and not all households have experienced gains in the stock market. To gauge the financial situation of individual households requires going beyond aggregate household data. The Survey of Consumer Finances provides detailed data on family net worth and holdings of assets and liabilities.[29] Figure 1.3 shows that many households have accumulated little, if any, net worth. As one might expect, high-income families typically have accumulated more net worth than low-income families.

[27]See Jagadeesh Gokhale, "Are We Saving Enough?" *Economic Commentary*, Federal Reserve Bank of Cleveland (July 2000).

[28]Richard Peach and Charles Steindel, "A Nation of Spendthrifts? An Analysis of Trends in Personal and Gross Saving," *Current Issues in Economics and Finance*, Vol. 6, No. 10 (September 2000).

[29]The Survey of Consumer Finances is a triennial survey of U.S. families sponsored by the Board of Governors of the Federal Reserve with the cooperation of the Department of Treasury. For results from the latest Survey of Consumer Finance, see Arthur B. Kennickell, Martha Starr-McCluer, and Brian J. Surette, "Recent Changes in the U.S. Family Finances: Results from the 1998 Survey of Consumer Finance," *Federal Reserve Bulletin* (January 2000).

Figure 1.3: Family Net Worth by Income Level in 1998



	Less than $10K	$10K-$25K	$25K-$50K	$50K-$100K	$100K and over
Percentage of families	12.6%	24.8%	28.8%	25.2%	8.6%

Note: Survey of Consumer Finances collects information on total cash income before taxes for the calendar year preceding the survey.

Source: Federal Reserve's 1998 Survey of Consumer Finances (January 2000).

Although a great deal of attention has been paid to the wealth effect from the stock market boom of the 1990s, half of American households did not own stocks as of 1998, according to the 1998 Survey of Consumer Finance. For most families, real estate remains the most important asset—two-thirds of households owned their homes in 1998. The rise in consumer borrowing over the 1990s has raised concerns that households are overextended. The ratio of total debt payments to total income is a common measure of a household's debt burden. According to one estimate using 1998 Survey of Consumer Finances data, the aggregate debt burden was nearly 15 percent of income, but nearly 13 percent of families had debt burdens greater than 40 percent.[30] About 10 percent of households did not

[30]Arthur B. Kennickell, Martha Starr-McCluer, and Brian J. Surette, "Recent Changes in the U.S. Family Finances: Results From the 1998 Survey of Consumer Finance," *Federal Reserve Bulletin* (January 2000).

even have a checking account. These households might be seen as outside the financial mainstream and thus unlikely to be saving.

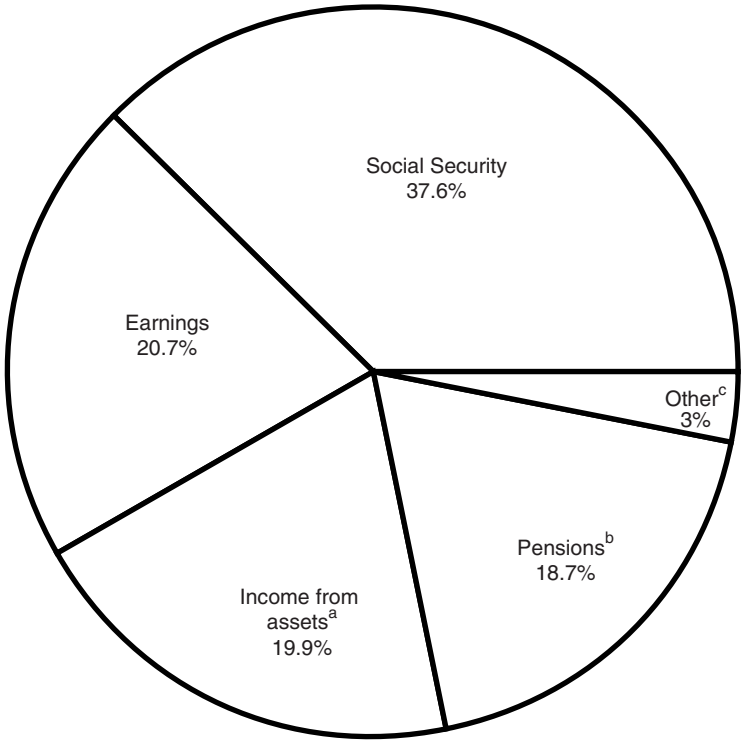
The key to accumulating wealth for retirement is simply the choice to save, although investment choices also matter. Some workers choose to save over their working lives for retirement while others choose to save little and spend more while working. Recent research found that even households with similar lifetime earnings approach retirement with vastly different levels of wealth.[31] Even though many low-income households have accumulated no wealth as they approach retirement, the researchers found that some low-income households had managed to accumulate fairly sizeable wealth. Moreover, the researchers found that a significant portion of higher-income households save little. Choices about whether to invest, for example, in the stock market or in less risky, lower-yielding assets such as a bank saving account also make a difference. Regardless of income level, those households that do not save much will have few assets on which to enjoy gains.

Q1.8. How Do Social Security and Personal Saving Compare as Sources of Retirement Income?

A1.8. Traditionally, retirement income was characterized as a "three-legged stool" comprising Social Security, employer pensions, and individuals' own saving for retirement. In 1998, Social Security benefits contributed 38 percent of the elderly's cash income. As figure 1.4 shows, saving, both through employer-sponsored pension plans and by individuals on their own behalf, provides a significant part of retirement income. Pension benefits accounted for 19 percent of the elderly's cash income in 1998 and income from individuals' accumulated assets for another 20 percent. In addition, the elderly and their spouses may supplement their retirement income by continuing to work. As shown in figure 1.4, earnings from continued employment represent a fourth leg on the retirement-income stool.

[31]Steven F. Venti and David A. Wise, "Choice, Chance, and Wealth Dispersion at Retirement," Working Paper No. 7521 (Cambridge, MA: National Bureau of Economic Research, February 2000).

Figure 1.4: Share of Elderly Households' Income by Source of Income, 1998



Note: Elderly households are individuals and married couples with at least one member aged 65 and older. Aggregate income represents the sum of cash income from reasonably regular sources—before taxes and Medicare premiums. This retirement income definition differs somewhat from the NIPA personal income definition discussed in Q1.1.

[a]Income from accumulated assets includes interest, dividends, royalties, income from estates and trusts, and rent. Capital gains (or losses) and lump-sum or one-time payments such as life insurance settlements are excluded. Cash rental income differs from NIPA rental income, which includes the imputed net rental value on owner-occupied housing.

[b]Benefit payments (not lump-sum payments) from private pensions or annuities and government employee pensions. NIPA personal income includes pension contributions by employers in the year income is earned, and benefits paid at retirement are not a component of NIPA income.

[c]"Other" income includes SSI, unemployment and workers' compensation, alimony, child support, and other public assistance. Noncash transfers such as food stamps or health care benefits are not reflected.

Source: GAO analysis of data from Social Security Administration, *Income of the Population 55 or Older, 1998* (March 2000).

Currently, many financial planners advise people that they will need to replace about 70 to 80 percent of their pre-retirement income to maintain their pre-retirement living standard.[32] According to the Social Security Administration, Social Security benefits currently replace about 39 percent of pre-retirement income for a worker with average wages ($32,105 in 2000). Given Social Security's progressive benefit formula, however, the replacement rate varies by income. Social Security currently replaces about 53 percent for low earners and about 24 percent for those who earned the taxable maximum ($72,600 in 2000).[33]

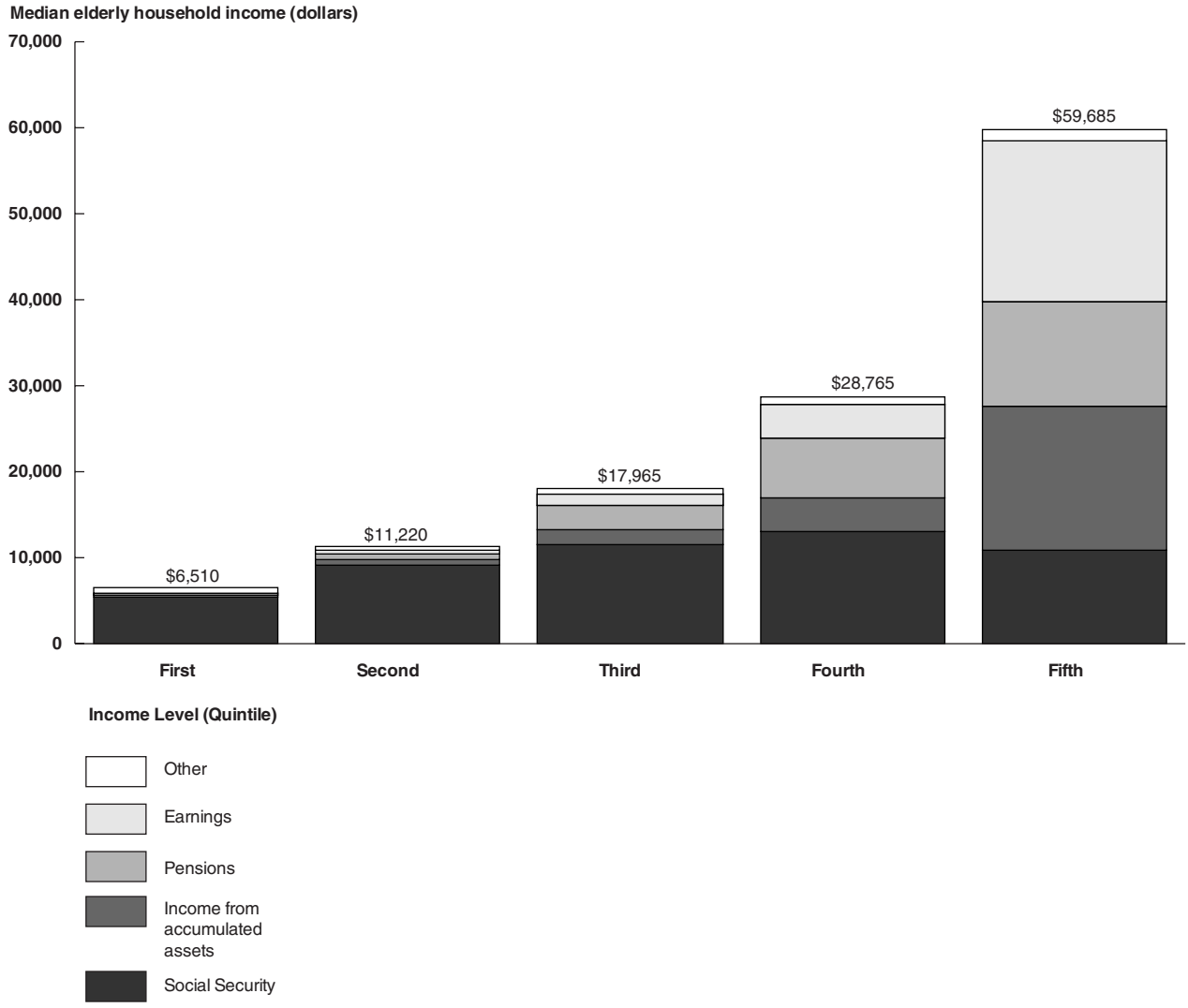
While Social Security provides a foundation for retirement income, pensions, income from accumulated assets, and current earnings largely determine which households will have the highest retirement incomes, as figure 1.5 shows. Social Security makes up over 80 percent of the retirement income for the first (lowest) and second income quintiles. For the third and fourth quintiles, Social Security still serves as the most important source of retirement income. For the highest quintile, pensions are a more significant income source than Social Security, but pensions represent a smaller share for this group than either income from accumulated assets or earnings. It is important to note that these data reflect in part the fact that pensions are not a universal source of retirement income as is Social Security. In 1998, about 48 percent of retirees lacked pension income or annuities, and about 53 percent of those employed lacked a pension plan.[34]

[32]The replacement rate can be calculated as a simple percentage of pretax income. Or, the replacement rate considered to be adequate can be computed in a more sophisticated way, netting out Social Security taxes, other taxes, or working expenses that will not be paid in retirement. Thus, desired or target replacement rates can vary significantly depending on income level and other factors.

[33]These replacement rates are based on applying Social Security benefit rules to hypothetical retired workers age 65 in 2001 who had steady earning levels over their careers. The average earner represents a worker who earned the average of covered workers under Social Security each year. The low earner earned 45 percent of this average. The maximum earner had earnings equal to the maximum taxable amount each year.

[34]*Pension Plans: Characteristics of Persons in the Labor Force Without Pension Coverage* (GAO/HEHS-00-131, August 22, 2000).

Figure 1.5: Pensions, Income from Accumulated Assets, and Earnings Determine Who Had Highest Retirement Incomes, 1998



Note: Median incomes for each quintile are GAO estimates. Social Security income for the highest fifth may be lower than for the previous fifth because, among other possible reasons, some elderly workers or their spouses may not yet be collecting benefits. Elderly households are individuals and married couples with at least one member aged 65 and older. See notes to figure 1.4 for descriptions of income types.

Source: GAO analysis of data from Social Security Administration, *Income of the Population 55 or Older*, *1998* (March 2000).

Personal saving now can contribute substantially to future retirement income, as illustrated in figure 1.5. While most families say they recognize the need to save for retirement, many do not save in any systematic way. The Congressional Research Service recently reported that in 1997 nearly 63 percent of workers between the ages of 25 and 64 replied that they did not own a retirement saving account, such as an employer-sponsored 401(k) or an individual retirement account (IRA).[35] According to the 2001 Retirement Confidence Survey,[36] about 46 percent of American workers have not tried to calculate how much they need to save for retirement. The survey also found that many people—particularly those planning to work the longest—underestimate how long they will live in retirement. Half of men reaching age 65 can expect to be alive at age 82 and half of women reaching age 65 can expect to be alive at age 86; some will live to age 100 and older. Yet, 15 percent of those surveyed expect their retirement will last for 10 years or less, and another 11 percent believe their retirement will last less than 20 years. In addition, many workers are unaware that the retirement age for full Social Security benefits is gradually rising from age 65 to 67. Researchers do not agree on whether baby boomers and other workers are saving enough for their retirement.[37]

Research suggests that individuals who are not financially literate tend to save less. Many people do not appreciate that saving even small amounts over time is the way to accumulate wealth. According to a 1999 opinion survey, low and moderate income Americans mistakenly believe they have a better chance of accumulating $500,000 through winning the lottery than through saving and investing a portion of their income.[38] One reason for this mistaken notion is that most Americans dramatically underestimate

[35]Patrick J. Purcell, *Retirement Savings and Household Wealth in 1997*: *Analysis of Census Bureau Data* (Washington, D.C.: Congressional Research Service, April 2001).

[36]Now in its 11th year, this annual survey gauges the views and attitudes of working and retired Americans regarding their preparations for and confidence about various aspects of retirement. The 2001 survey was cosponsored by the Employee Benefit Research Institute, the American Savings Education Council, and Mathew Greenwald and Associates, Inc.

[37]For a summary of recent studies addressing retirement saving adequacy, see Paul Yakoboski, "Retirement Plans, Personal Saving, and Saving Adequacy," Employee Benefit Research Institute, EBRI Issue Brief No. 219 (March 2000).

[38]The Consumer Federation of America and Primerica, on October 28, 1999, released results of the public opinion survey conducted by Opinion Research Corporation International.

the value of compounding—how money saved can grow over time.[39] People might begin to save more if they were aware how much they need for retirement and that saving regularly over time is the key to preserving their future standard of living.

Q1.9. What Are the Implications of a Growing Elderly Population for Retirement Security?

A1.9. As we have reported, the United States faces a demographic tidal wave in the future that poses significant challenges for Social Security, Medicare, and our economy as a whole.[40] More people are living longer, and they will need more resources to finance more years of retirement. The U.S. elderly population—those aged 65 and over—is growing and accounts for an increasing share of the total population (see figure 1.6). As a share of the total population, the elderly population has grown from 9.1 percent to 12.4 percent over the last 4 decades. Over the next 75 years, the elderly population share will nearly double to 22.5 percent, according to the Social Security Trustees' intermediate actuarial projections.[41] Although the baby-boom generation will contribute heavily to the growth of the elderly population, increasing life expectancy and declining fertility rates are also responsible for the aging of the U.S. population.[42]

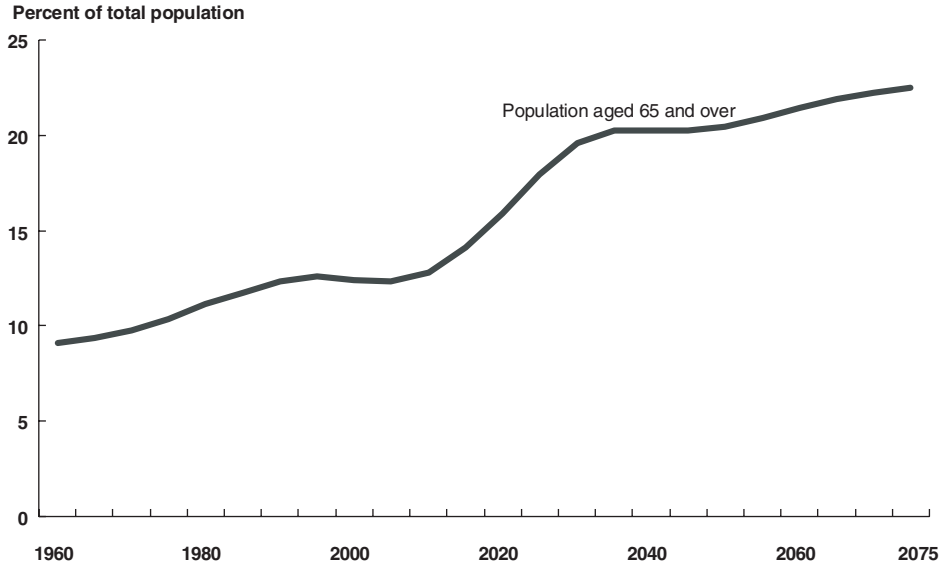
[39]Compounding can be explained in terms of the "rule of 72." To find out how fast an amount saved can double, divide the interest rate into 72. For example, at an interest rate of 5 percent, $100 saved would double to $200 in about 14 years. At a rate of 8 percent, it would take only 9 years to double.

[40]*Medicare and Budget Surpluses: GAO's Perspective on the President's Proposal and the Need for Reform* (GAO/T-AIMD/HEHS-99-113, March 10, 1999).

[41]Throughout this report, we relied on data from *The 2001 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds*, hereafter "the 2001 OASDI Trustees' Report" and *The 2001 Annual Report of the Board of Trustees of the Federal Hospital Insurance Trust Fund*, hereafter "the 2001 HI Trustees' Report." In projecting future revenues and benefits, actuaries at the Social Security Administration and Health Care Financing Administration use alternative assumptions about economic and demographic trends, including average earnings, mortality, fertility, and immigration. We used the intermediate assumptions, which reflect the Trustees' best estimate. Due to the inherent uncertainty surrounding long-term projections, the Trustees' reports also include two other sets of assumptions, a high-cost and a low-cost alternative.

[42]Other nations, both developed and developing, are experiencing similar and often more pronounced aging of their populations.

Figure 1.6: Aged Population Nearly Doubles From Today as a Share of Total U.S. Population (1960–2075)

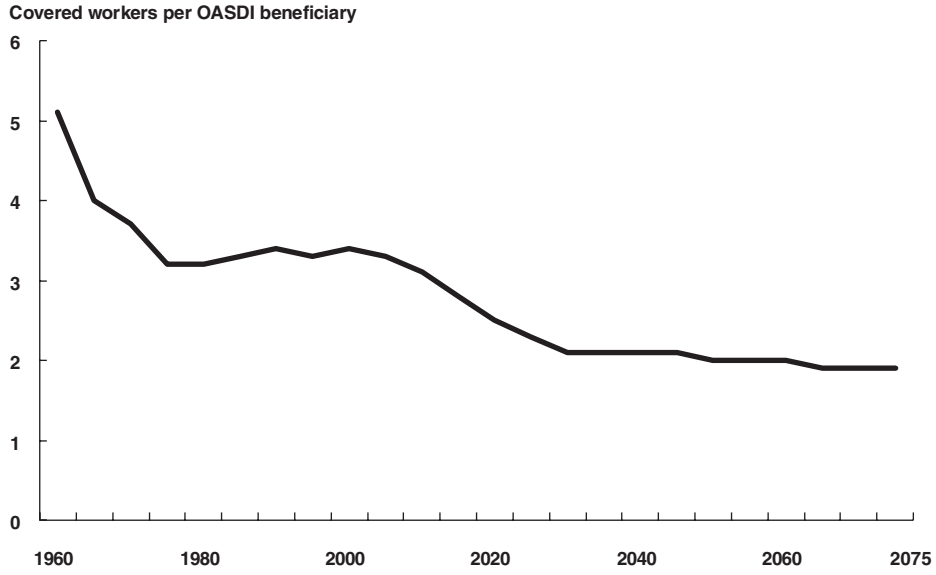


Note: Projections based on intermediate assumptions of the 2001 OASDI Trustees' Report.

Source: GAO analysis of data from the Office of the Actuary, Social Security Administration.

As people live longer and have fewer children, there will be relatively fewer workers supporting each retiree unless retirement patterns change. As figure 1.7 shows, there were about five workers supporting each retiree in 1960. Today, there are approximately 3.4 workers for each Social Security beneficiary and by 2030, this number is projected to fall to 2.1, according to the Trustees' intermediate actuarial assumptions. Those workers will have to produce the goods and services to maintain their own standard of living as well as to finance government programs and other commitments for the baby boomers' retirement. Even as there are relatively fewer workers to pay taxes to finance Social Security and Medicare, these programs will have to provide benefits over longer periods of time as life expectancies rise.

Figure 1.7: Relatively Fewer Workers Will Support More Retirees (1960–2075)



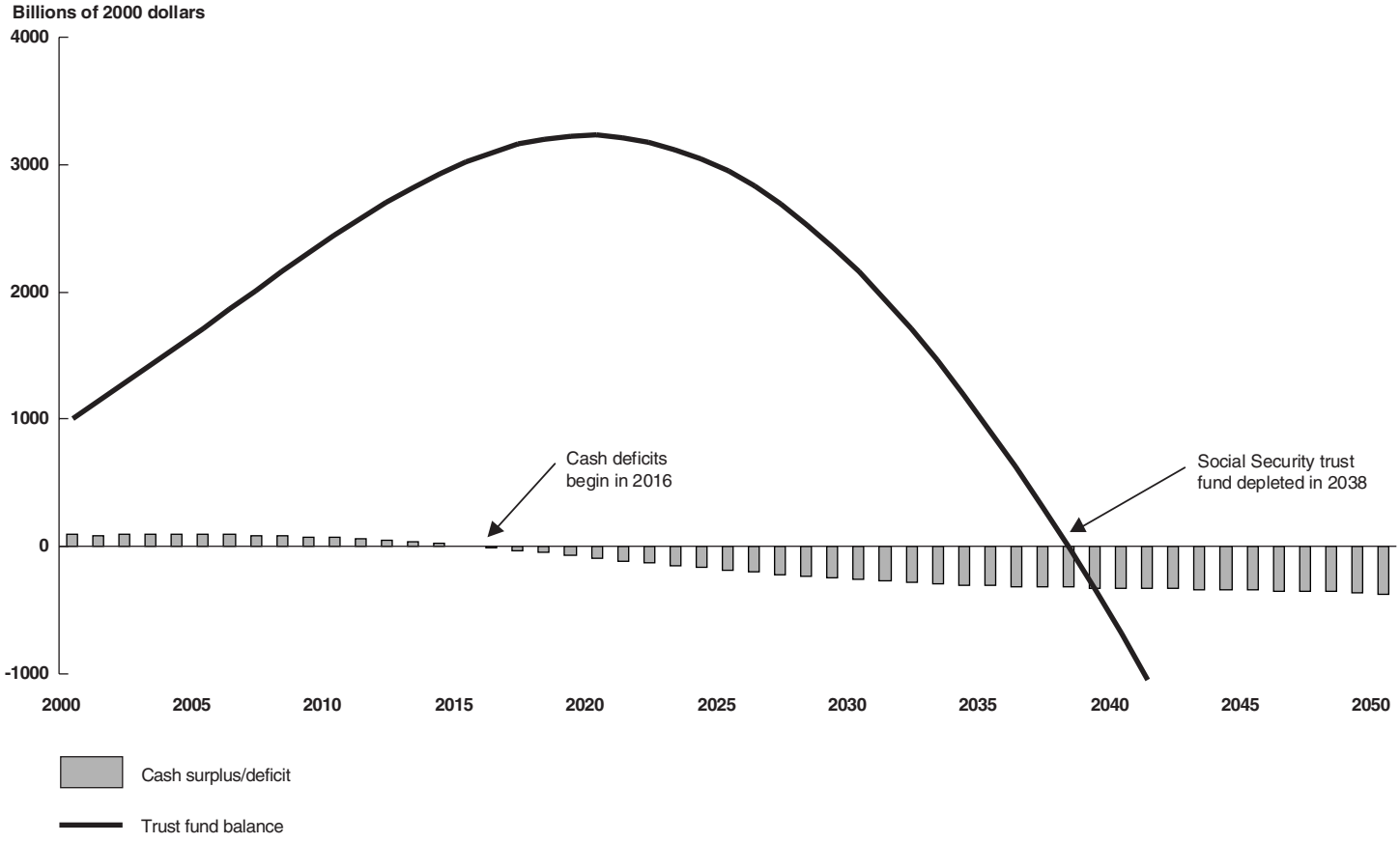
Note: Projections based on intermediate assumptions of the 2001 OASDI Trustees' Report.

Source: Office of the Actuary, Social Security Administration.

Social Security has a long-term financing problem.[43] Social Security is financed mainly on a **pay-as-you-go** basis, which means that payroll taxes of current workers are used to pay retirement, disability, and survivor benefits for current beneficiaries. Social Security now collects more in payroll taxes than it pays in benefits, but just 15 years from now this will be reversed, as shown in figure 1.8. Beginning in 2016, the program faces cash deficits as benefit payments are projected to outpace cash revenue. Absent meaningful reform, the Social Security trust fund will be exhausted in 2038, and projected tax revenue would be adequate to pay for only 73 percent of projected benefits thereafter.

[43]Social Security consists of two separate trust funds: Old-Age and Survivors Insurance, which funds retirement and survivors benefits, and Disability Insurance, which provides benefits to disabled workers and their families. These two accounts are commonly combined in discussing the Social Security program. For purposes of this product, any reference to the Social Security trust fund refers to the combined Old-Age, Survivors, and Disability Insurance (OASDI) trust funds.

Figure 1.8: Social Security Trust Fund Faces Insolvency in 2038 (2000–2050)



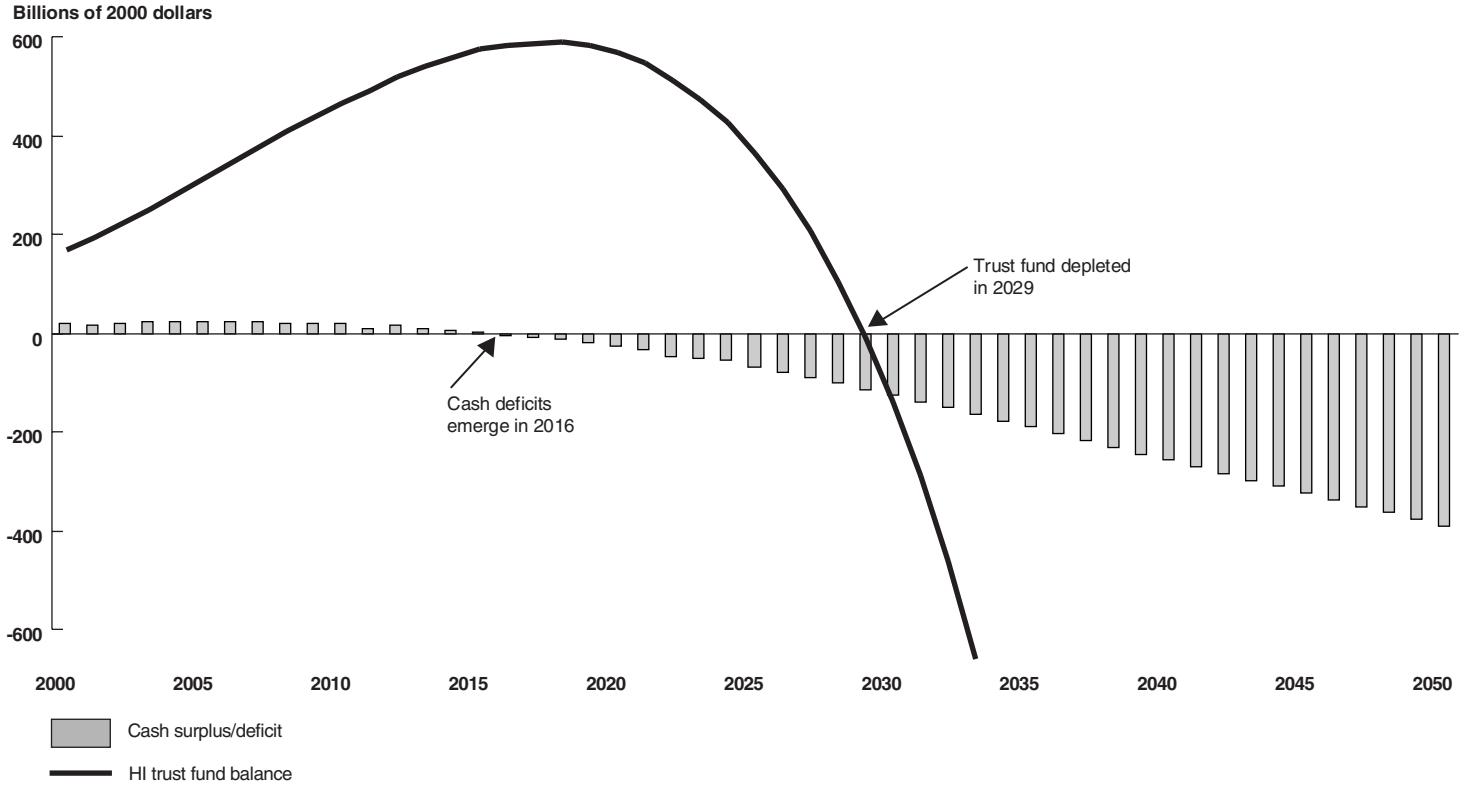
Notes: Projections based on intermediate assumptions of the 2001 OASDI Trustees' Report. The analysis assumes that current-law benefits are paid in full beyond 2038 through borrowing from the Treasury. The cash surplus/deficit excludes interest earnings on trust fund assets and interest expense associated with the assumed borrowing. Both interest earnings and interest expense are included in the trust fund balance. Data converted to 2000 dollars using the consumer price index for all urban consumers.

Source: GAO analysis of data from the Office of the Actuary, Social Security Administration.

The long-term outlook for Medicare is much bleaker. Medicare's financial status has generally been gauged by the financial solvency of the Part A Hospital Insurance (HI) trust fund, which primarily covers inpatient hospital care and is financed by payroll taxes. As shown in figure 1.9, Medicare's HI trust fund faces cash deficits beginning in 2016, and the trust fund will be depleted in 2029. These HI projections do not reflect the

growing cost of the Part B Supplementary Medical Insurance (SMI) component of Medicare, which covers outpatient services and is financed through general revenues and beneficiary premiums. SMI accounts for somewhat more than 40 percent of Medicare spending and is expected to account for a growing share of total program dollars. As with Social Security, Medicare spending will swell as the elderly population increases. Moreover, Medicare costs are expected to increase faster than the rest of the economy. Projected growth in Medicare reflects the escalation of health care costs at rates well exceeding general rates of inflation. Increases in the number and quality of health care services have been fueled by the explosive growth of medical technology.

Figure 1.9: Medicare's Hospital Insurance Trust Fund Faces Insolvency in 2029 (2000–2050)



Notes: Projections based on intermediate assumptions of the 2001 HI Trustees' Report. The analysis assumes that current-law benefits are paid in full after 2029 through borrowing from the Treasury. The cash surplus/deficit excludes interest earnings on trust fund assets and interest expense associated with the assumed borrowing. Both interest earnings and interest expense are included in the trust fund balance. Data converted to 2000 dollars using the consumer price index for all urban consumers.

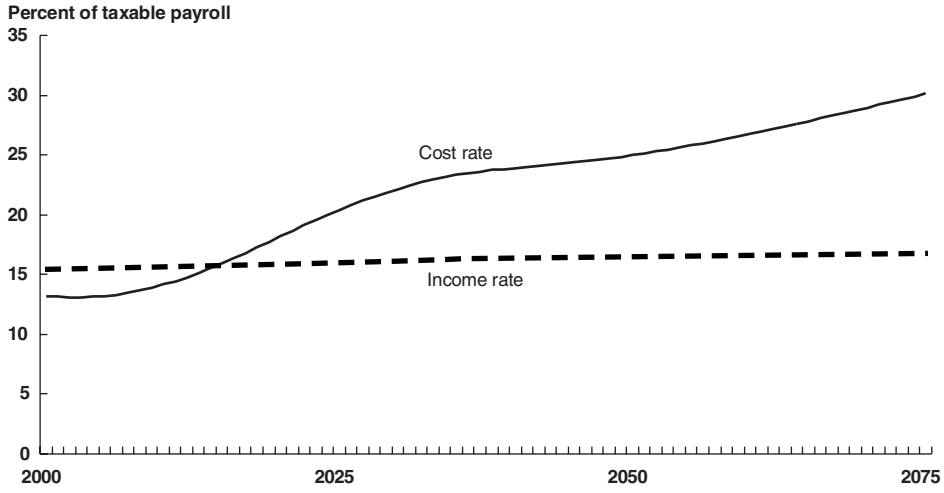
Source: GAO analysis of data from the Office of the Actuary, Health Care Financing Administration.

Although public attention focuses on the trust fund insolvency dates, the effect of financing Social Security and Medicare will be felt sooner as the baby boom generation begins to retire. As shown in figures 1.8 and 1.9, the Social Security and Medicare HI cash deficits are expected to grow substantially in the near future. Regardless of whether the trust funds are relying on interest income or drawing down their balances to pay benefits, the government as a whole must come up with the cash by reducing overall

budget surpluses, borrowing from the public, increasing other taxes, or reducing spending for other programs.[44]

Without reform, the combined financial burden of Social Security and Medicare on future taxpayers becomes unsustainable. As figure 1.10 shows, the cost of these two programs combined would nearly double as a share of the payroll tax base over the long term. Assuming no other changes, these programs would constitute a substantial drain on the earnings of our future workers.

Figure 1.10: Social Security and Medicare HI Cost and Income as a Percentage of Taxable Payroll (2000–2075)



Note: Projections based on the intermediate assumptions of the 2001 OASDI and HI Trustees' reports.

Source: Office of the Actuary, Social Security Administration, and Office of the Actuary, Health Care Financing Administration.

Personal saving plays a dual role in bolstering retirement security for American workers. For individuals, assets accumulated by saving provide a key source of retirement income (see Q1.8). Those who do not save and who do not have pensions will have to depend largely on Social Security in their old age. According to the 2001 Retirement Confidence Survey, many

[44]Q4.10 discusses how the Social Security trust fund, for example, affects federal government saving and national saving.

workers are not confident that Social Security (65 percent) and Medicare (57 percent) will continue to provide benefits equivalent to those received today. Anticipating potential benefit cuts, people could save more now to supplement their future retirement income and to cushion against future health care costs or they could choose to work longer and delay retirement. Alternatively, they might not save more or work longer, and they would experience a lower standard of living in retirement.

For the nation, personal saving provides resources vital to enhancing the nation's productive capacity. Saving more today, in turn, can improve the outlook for Social Security and Medicare. As discussed in section 3, higher saving and investment can boost worker productivity and lead to greater economic growth. A larger economy would mean higher real wages for future workers and in turn more payroll taxes to finance Social Security and Medicare. With an aging population and a slowly growing workforce, increasing the nation's future economic capacity is critical to ensuring retirement security in the 21st century.

National Saving Overview

Q2.1. What Is National Saving and How Is It Measured?

A2.1. Just as for people, saving for the national economy is the act of setting some of current income aside for the future instead of spending it for current consumption. In NIPA, saving is measured as current income less current consumption expenditures. **National saving** is the sum of saving by households, businesses, and all levels of government (federal, state, and local). For the economy as a whole, national saving is the portion of the nation's income not used for private and public consumption. The sum of national saving and saving borrowed from abroad represents the total amount of resources available for **investment**, that is, the purchase of capital goods—plant, equipment, software, houses,[1] and inventories—by businesses and governments.[2] Saving and investing today increase the nation's stock of capital goods to be used in the future—the capital stock—and thus the nation's capacity to produce goods and services in the future.

National saving is measured in two ways—**gross national saving** or **net national saving**. Gross national saving is a nation's total income minus its consumption and represents resources available for domestic or foreign investment. Some portion of gross national saving pays for replacing capital goods that have been worn out or used up in producing goods and services—**consumption of fixed capital** in technical terms, or hereafter simply **depreciation**.[3] The other portion of gross national saving, which is used to add to the nation's stock of capital goods, is net national saving. Net national saving is the measure commonly used to gauge whether the nation's capacity to produce goods and services in the future is increasing or decreasing.

By itself, the dollar amount of national saving is not a particularly meaningful indicator of the portion of the nation's income that is not consumed. National saving is usually expressed as a share of the nation's

[1]Investment in owner-occupied residential property is defined as business investment.

[2]This represents the current NIPA definition of investment used throughout this primer unless otherwise stated. Other ways of thinking about national saving and investment are discussed in Q2.4 and in sections 3 and 4.

[3]For more information on how depreciation is measured in NIPA, see Arnold Katz and Shelby Herman, "Improved Estimates of Fixed Reproducible Tangible Wealth, 1929–95," *Survey of Current Business*, Bureau of Economic Analysis, Vol. 77, No. 5 (May 1997), pp. 69–92, and Barbara M. Fraumeni, "The Measurement of Depreciation in the U.S. National Income and Product Accounts," *Survey of Current Business*, Bureau of Economic Analysis, Vol. 77, No. 7 (July 1997), pp. 7–23.

current income—or its economic output.[4] Because the primary measure of the nation's economic output is **gross domestic product (GDP)**, saving is often shown as a percent of GDP. Text box 2.1 compares GDP to another measure of economic output—**gross national product (GNP)**. In 2000, gross national saving as a share of GDP was 18.3 percent. After subtracting depreciation, which was 12.6 percent of GDP, net national saving was 5.7 percent of GDP.

Text Box 2.1: Gross Domestic Product and Gross National Product[a]

GDP is the output of goods and services produced by labor and property *located in the United States*, while GNP is the output of goods and services produced by labor and property *supplied by U.S. residents*, regardless of where they are located. The difference between GDP and GNP is income receipts from the goods and services produced abroad using labor and capital of U.S. residents less income payments for the goods and services produced in the United States using labor and capital supplied by foreign residents. Because both GNP and national saving include these income receipts, net of payments, the Bureau of Economic Analysis (BEA) presents national saving as a share of GNP. However, since 1991, BEA has featured GDP as the primary measure of economic activity because GDP is consistent in coverage with indicators such as domestic investment and productivity. GDP is also the measure cited in economic trend analyses and for cross-country comparisons by many, including the President's Council of Economic Advisers, the International Monetary Fund, and the Organization for Economic Cooperation and Development (OECD). Because this report deals not only with national saving but also with other measures such as investment and the federal budget position, we express saving, investment, and federal government spending as a share of GDP. Expressing all of our analysis as a share of GDP provides a consistent frame of reference for comparing economywide shares for the United States and for comparing U.S. saving rates to those of other countries.

In the United States, the difference between GDP and GNP is small. For example, in 2000, GDP was $9,963 billion and GNP was $9,959 billion.[b] Given the relatively small difference between the two measures, the denominator has little effect on calculating saving as a share of the economy. Regardless of which measure is used, saving as a share of the U.S. economy was 18.3 percent in 2000.

[a]"Gross Domestic Product as a Measure of U.S. Production," *Survey of Current Business*, Bureau of Economic Analysis, Vol. 71, No. 8 (August 1991), p. 8.

[b]In 2000, GNP was less than GDP because income receipts from the rest of the world were less than U.S. payments to the rest of the world.

[4]The nation's income is the sum of all the payments made to those who produce output. This income equals the total spending on the economy's output of goods and services; thus, the nation's income and output are the same.

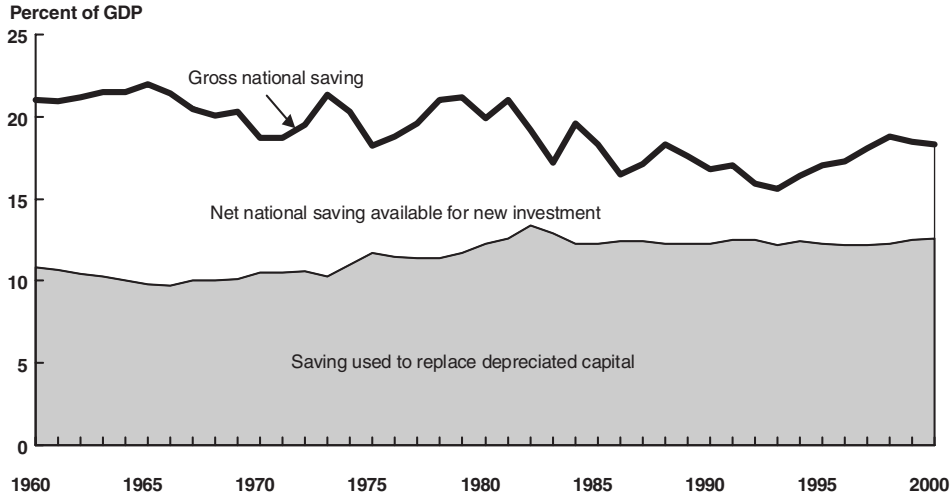
Gross national saving is a good indicator of resources available both to (1) replace old, worn-out capital goods with new, and sometimes more productive, goods and (2) expand the capital stock.[5] The share of gross national saving used to replace depreciated capital has increased over the past 40 years. This increase in depreciation reflects a shift in the capital stock's composition from long-lived assets with relatively low depreciation rates, like steel mills, to shorter-lived assets such as computers and software. Even if gross national saving were only sufficient to replace depreciated capital, the economy could grow to some extent because replacing worn-out and used capital with new equipment tends to bring improved technology into the production process. Nevertheless, national saving beyond the amount necessary to replace depreciated capital goods is important for increasing the overall size of the capital stock and the nation's future productive capacity.

Q2.2. How Has U.S. National Saving Changed Over Time—Both Overall and by Component?

A2.2. As figure 2.1 shows, gross national saving rebounded from a low of 15.6 percent of GDP during the saving slump of the early 1990s to 18.3 percent in 2000. This rebound is due primarily to increased government saving that has more than made up for the decline in personal saving described in section 1. However, despite this rebound, national saving as a share of GDP is still below the level of the 1960s—an era characterized by high saving and rapid growth in productivity and living standards, defined in terms of GDP per capita. Since the 1960s, depreciation as a share of GDP has increased slightly (see Q2.1), and net national saving as a share of GDP has declined more than gross national saving. Net national saving rose from 3.4 percent of GDP in 1993 to 5.7 percent in 2000 but remains well below the 1960s average of 10.9 percent.

[5]As discussed in section 3, a nation can use some of its saving to invest abroad and can also borrow from abroad to finance domestic investment.

Figure 2.1: Gross National Saving as a Share of GDP (1960–2000)

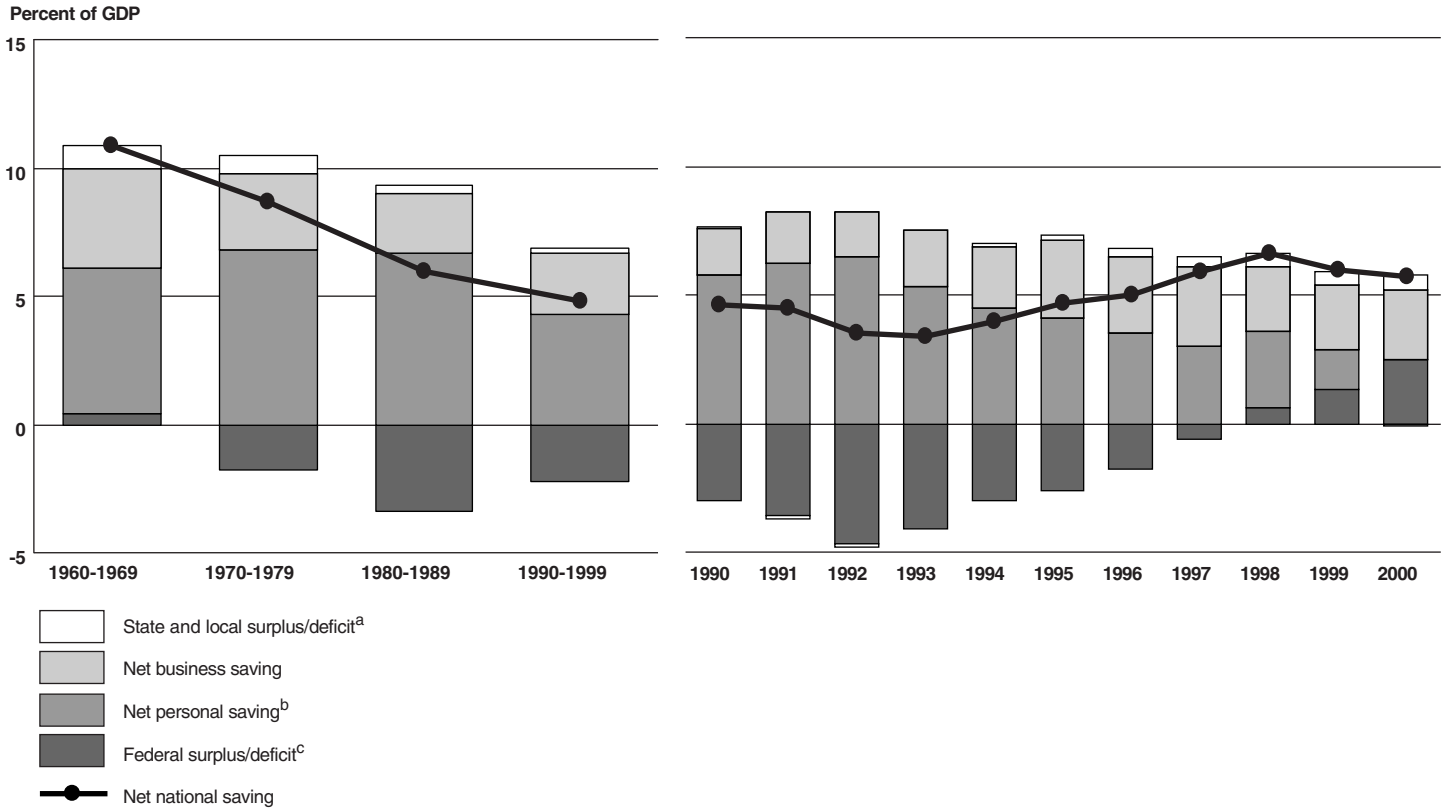


Source: GAO analysis of NIPA data from the Bureau of Economic Analysis, Department of Commerce.

Figure 2.2 breaks net national saving down into components. It shows both the aggregate trend and how saving by households, businesses, and governments affected net national saving. As discussed in section 1, personal saving is the amount of aggregate disposable personal income left over after personal spending on goods and services.[6] Personal saving averaged 5.7 percent of GDP in the 1960s and increased to an average of almost 7 percent over the 1970s and 1980s. Since the early 1990s, however, personal saving has steadily declined to -0.1 percent of GDP in 2000—the lowest point in over 65 years.

[6]NIPA personal saving is measured net of depreciation on fixed assets owned by unincorporated businesses and owner-occupied residential dwellings. Because household purchases of residential dwellings are treated as business investment in NIPA, the depreciation on these assets is included in gross business saving.

Figure 2.2: Composition of Net National Saving (1960–2000)



[a]State and local surpluses in 1990 and 1993 and the deficits in 1992 are less than 0.1 percent of GDP.

[b]Net personal saving was –0.1 percent in 2000.

[c]Although the NIPA federal surplus or deficit is arithmetically similar to the federal unified budget surplus or deficit, there are some conceptual differences. Text box 4.1 describes how the NIPA and unified budget concepts differ.

Source: GAO analysis of NIPA data from the Bureau of Economic Analysis, Department of Commerce.

Personal and business saving together make up the nation's **private saving**. **Business saving** reflects the earnings retained by businesses after paying taxes and dividends. These retained earnings are available to finance investment. For business saving, it is important to distinguish between net and gross saving. On a gross basis, businesses have been the biggest savers in recent years, accounting for over 70 percent of gross national saving in 2000. However, given that a large portion of business saving is used to replace capital goods worn out or used in the production process, business saving net of depreciation is a smaller share—about 47

percent—of net national saving. As shown in figure 2.2, net business saving has averaged about 3 percent of GDP from 1960 to 2000.

Government saving arises when federal, state, and local government revenue exceeds current expenditures. Government saving, also called a **surplus**, adds to the pool of national saving available to finance investment and allows a government to reduce its outstanding debt or purchase nongovernment assets. Conversely, government dissaving, or a **deficit**, absorbs funds saved by households and businesses and reduces overall national saving available to finance private investments. To finance a deficit, a government has to borrow or sell assets it owns. State and local government net saving has been relatively small, ranging from a surplus of 1.1 percent of GDP in 1973 to a deficit of 0.1 percent in 1991.

The federal government's effect on net national saving has varied widely over the past 40 years. During most of the 1960s, the federal government was a net saver. However, the federal government ran large deficits through much of the 1980s and early 1990s, which reduced the overall level of national saving in the economy. Federal deficits averaged 3.4 percent of GDP in the 1980s and reached 4.7 percent in 1992. In 1992 and 1993, federal deficits absorbed more than half of private saving. Since 1990, deficit reduction initiatives and economic growth have reduced federal dissaving. From 1998 through 2000, the federal government achieved surpluses, shifting from being a drain on net national saving to become a contributor to it. These surpluses also allowed the federal government to reduce its outstanding debt held by the public.[7] Section 4 discusses in more detail how federal fiscal policy affects national saving.

Despite this recent shift in the federal position, net national saving as a share of GDP remains well below the average level of the 1960s largely as a result of the decline in personal saving. Traditionally, personal saving had been a key source of net national saving available for new investment. Whereas personal saving represented one-half to three-quarters of average

[7]For more information on debt reduction, see *Federal Debt: Answers to Frequently Asked Questions—An Update* (GAO/OCG-99-27, May 28, 1999), *Federal Debt: Debt Management in a Period of Budget Surplus* (GAO/AIMD-99-270, September 29, 1999), and *Federal Debt: Debt Management Actions and Future Challenges* (GAO-01-317, February 28, 2001).

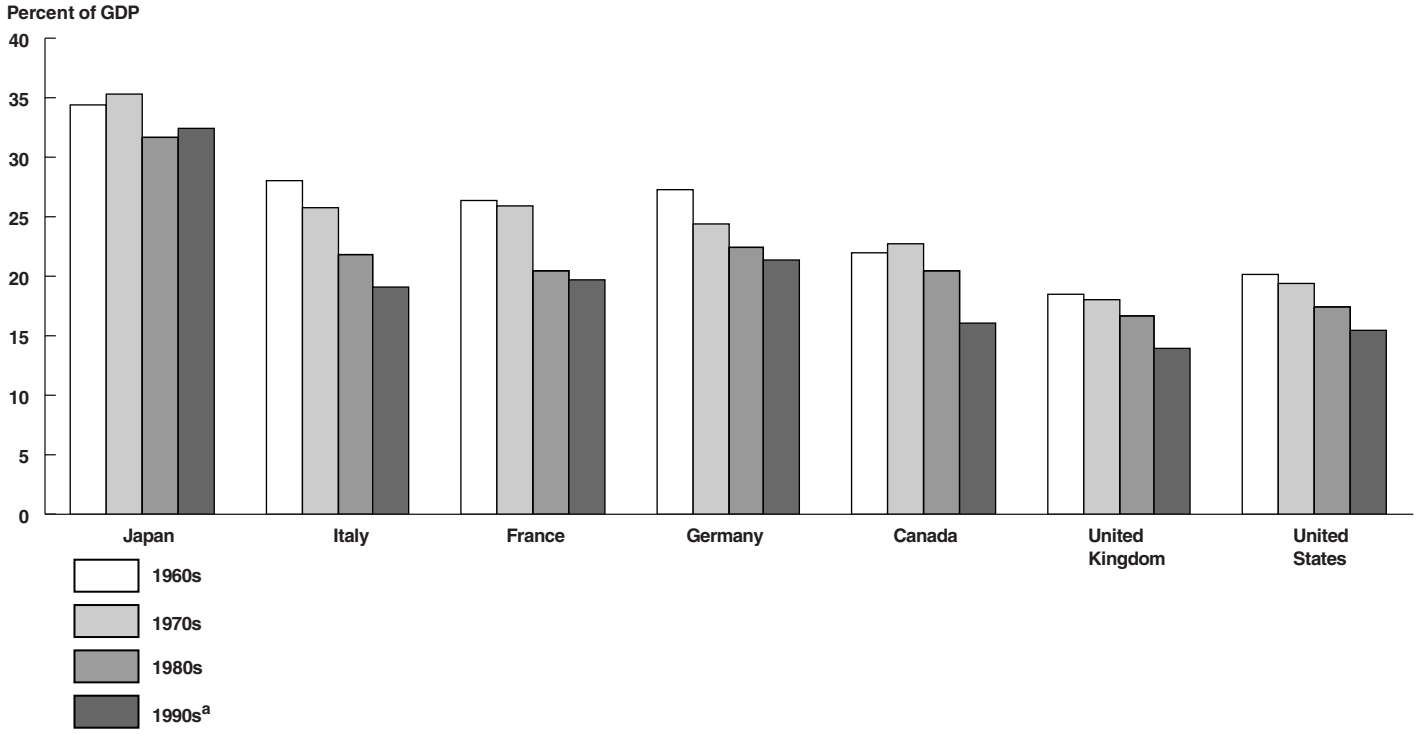
net national saving in the 1960s and 1970s, personal dissaving absorbed resources that otherwise would have been available for private investment in 2000.[8]

Q2.3. How Does U.S. National Saving Compare to Other Major Industrialized Nations?

A2.3. Although gross national saving as a share of GDP in the 1990s was low by U.S. historical standards, U.S. saving as a share of GDP has generally been lower than other major industrialized countries over the past 40 years. Since the 1960s, U.S. gross national saving as a share of GDP has ranked sixth among a group of seven major industrialized countries—the G-7. Interestingly, as figure 2.3 shows, saving as a share of GDP across all of these countries has declined since the 1960s.

[8]When federal dissaving peaked in 1992, personal saving as a share of GDP was nearly double net national saving as a share of GDP. In a sense, government dissaving consumed much of the personal saving, leaving relatively little to finance private investment.

Figure 2.3: International Trends in Gross National Saving (1960–1997)



Note: Because depreciation is measured differently across countries, international saving comparisons are shown on a gross saving basis.

[a]Covers 1990–1997.

Source: GAO analysis of data from Standard & Poor's DRI OECD National Income Accounts database.

It is not surprising that national saving varies across countries. The increased output resulting from a given level of saving and investment depends on the investment choices available and selected in each country. In addition, national saving may vary across countries due to differences in the price of capital goods, income levels, growth rates, economic and social policies, demographics, and even culture. For example, recent research suggests that capital goods are relatively cheaper in the United States than in other countries, which means it takes less saving to buy a given amount

of capital goods in the United States than in other developed countries.[9] As noted in section 1, Americans may choose to save less because they have ready access to credit and have been confident about the future of the U.S. economy.[10]

As figure 2.3 shows, Japan's gross national saving as a share of GDP has consistently ranked the highest among the G-7 countries. Japan's high saving rate has been attributed to several factors including less access to consumer credit and cultural factors. For example, Japanese households face greater borrowing constraints than households in the United States and must save a great deal to purchase a home. In addition, the Japanese are considered to be more risk-averse and forward-looking than American consumers.[11]

Q2.4. What Are Other Ways of Defining Saving and Investment?

A2.4. In the context of long-term economic growth, the NIPA saving definition is traditionally used to describe resources available to sustain and expand the nation's capital stock. Since its creation in the 1930s, NIPA definitions and measurement have evolved to better portray the changing U.S. economy. NIPA historically recognized tangible investments and considered other spending to be consumption.[12] However, software—a form of intangible capital—has played an increasingly important role in the U.S. economy. Recognizing that software, like other investment goods, provides a flow of services that lasts more than one year, NIPA now counts

[9]Milka S. Kirova and Robert E. Lipsey, "Measuring Real Investment: Trends in the United States and International Comparisons," *Federal Reserve Bank of St. Louis Review* (January/February 1998), p. 6.

[10]Norman Loayza, Klaus Schmidt-Hebbel, and Luis Serven, "What Drives Private Saving Across the World?" *Review of Economics and Statistics* (May 2000) and N. Gregory Mankiw, *Macroeconomics*, 4th edition (2000), p. 450.

[11]N. Gregory Mankiw, *Macroeconomics* (2000), p. 450, and Fumio Hayashi, "Why Is Japan's Saving Rate So Apparently High?" *NBER Macroeconomics Annual 1986*, pp. 147–210.

[12]NIPA had already recognized mineral exploration as investment, and in 1996, NIPA reclassified government purchases of plant and equipment as investment.

software as investment.[13] Because saving equals investment in the economy—a national income accounting identity—reclassifying software as investment not only raised the measure of investment but also raised the measure of gross saving and of the nation's total output.

Although NIPA measurement has evolved, the nation's human capital and knowledge—also forms of intangible capital—are not part of the NIPA definitions of investment and saving. This means that, under NIPA, business computer purchases count as saving and investment, but spending to train workers to use the new computers counts as current consumption rather than investment. Many economists agree that spending both on education and on general research and development (R&D) enhances future economic capacity and, conceptually, should be considered investment. Nonetheless, broadening the NIPA investment definition to include education and R&D would be difficult because there is no consensus on which expenditures should be included or how to measure the depreciation and contribution to output of intangible capital. Although counting education and R&D as investment would raise the measured level of investment, this broader measure of investment has also experienced a downward trend. Federal Reserve researchers estimated that, as of the early 1990s, U.S. investment including education and R&D had declined as a share of GDP since the 1970s.[14]

A more controversial measure of personal saving would include changes in the value of existing assets.[15] Since NIPA focuses on the current production of goods and services and on the income arising from that production, NIPA income and saving do not reflect changes in the value of existing tangible and financial assets, such as land, stocks, or bonds. As discussed

[13]This change was among those made in the 11th comprehensive revision of the national accounts in 1999. For more information on the recent NIPA definitional and classificational changes, see Brent R. Moulton, Robert P. Parker, and Eugene P. Seskin, "A Preview of the 1999 Comprehensive Revision of the National Income and Product Accounts," *Survey of Current Business*, Bureau of Economic Analysis, Vol. 79, No. 8 (August 1999), pp. 7–20.

[14]Milka S. Kirova and Robert E. Lipsey, "Does the United States Invest 'Too Little'?" Federal Reserve Bank of St. Louis, Research Division Working Papers 97-020A (November 1997).

[15]Whether changes in the market value of existing assets should be counted as saving is beyond the scope of this report. For a review of the literature, see William G. Gale and John Sabelhaus, "Perspectives on the Household Saving Rate," *Brookings Papers on Economic Activity* (1:1999), pp. 181–224.

in section 1, economists generally agree that wealth-based measures that reflect changes in the value of existing assets are useful for gauging individual households' finances and retirement preparations. However, it is uncertain whether wealth-based measures are reliable for gauging the growth in the nation's capital stock and whether revaluation of existing assets should count as saving for society as a whole. Some portion of the change in the market value of existing assets may reflect increased productive capacity and thus could represent income and saving, but it is difficult to isolate that portion.[16] Most gains and losses from transferring assets within and between sectors "wash out" at the national level and may not represent newly available resources for the economy as a whole.[17] For example, when one household sells an appreciated asset to another household, any gain realized may be used to finance the seller's consumption, but the transaction does not increase the nation's income or output. Moreover, the market value of financial assets is often volatile and may not reflect a real, permanent change in the productive potential of the underlying capital assets. Lastly, some of the increased market value of households' stock holdings may stem from the use of businesses' retained earnings for investment, which is already reflected in NIPA saving and investment.

[16]An asset's market value can change as a result of changes in tax treatment; investors' perceptions of risk; taste; or households' expectations of future economic capacity arising from, for example, the introduction of new technology. Only the last source, however, may relate to the asset's productive capacity.

[17]However, gains and losses arising from sale of assets to foreigners do not "wash out" and could affect national consumption and investment.

National Saving and the Economy

Q3.1. How Does National Saving Contribute to Investment and Ultimately Economic Growth?

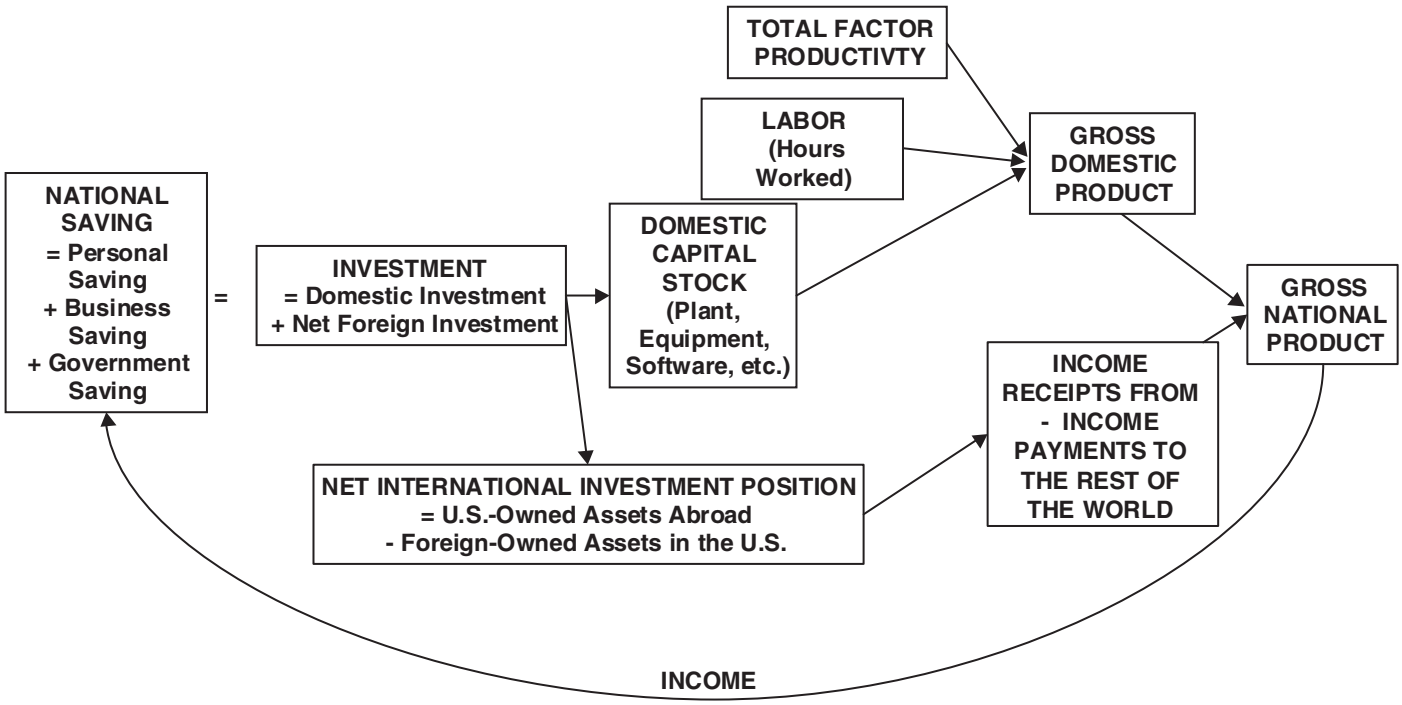
A3.1. National saving provides the resources for a nation to invest domestically and abroad. Domestic investment in new factories and equipment can boost productivity of the nation's workforce. Increased worker productivity, in turn, leads to higher real wages and greater economic growth over the long term. U.S. investment abroad does not add to the domestic capital stock used by U.S. workers to produce goods and services. U.S. investment abroad does increase the nation's wealth and will generate income adding to U.S. GNP. When national saving is lower than domestic investment, a nation can borrow from foreign savers to make up the difference.[1] The resulting increase in domestic capital would enhance worker's productivity and wages, but the payments to foreign lenders flow abroad. In general, saving today increases a nation's capacity to produce more goods and services and generate higher income in the future. Increased economic capacity and rising incomes will be crucial as the population ages because a relatively smaller workforce will bear the burden of financing Social Security and Medicare while also seeking to maintain its own standard of living.

Saving entails a tradeoff because it requires consuming less now in exchange for consuming more later. While those who sacrifice to save now can themselves enjoy higher consumption in the future, some of the resulting increase in the nation's capital stock and the related income will also benefit future generations. Thus, current saving and investment decisions have profound implications for the level of wellbeing in the future, and current generations are in a sense stewards of the economy on behalf of future generations.

Figure 3.1 is a flow chart illustrating saving's central role in providing resources to invest in the capital needed to produce the nation's goods and services. In this simplified depiction of the production process, capital and labor are the basic inputs used to produce goods and services. The resources used for domestic investment come from saving by households, businesses, and all levels of government. In addition, a nation can invest more in domestic capital than it saves by borrowing from other countries.

[1]When foreign investment in a nation exceeds that nation's investment abroad, the nation's net foreign investment will be negative. Q3.3 discusses the extent to which the United States has supplemented its saving and investment by borrowing from abroad.

Figure 3.1: Overview of Saving, Investment, Output, and Income Flows



The amount of goods and services produced depends not only on the amount of capital and labor but also on how efficiently these inputs are used. This is called **total factor productivity**. Total factor productivity is the portion of output not explained by the use of capital and labor and is generally associated with the level of technology and managerial efficiency.[2] Education, training, and R&D also can potentially increase output; in this simplified flow chart, these would influence total factor

[2]The Bureau of Labor Statistics (BLS) publishes an official measure of output per unit of combined labor and capital inputs—multifactor productivity. BLS' measure of labor input not only takes into account changes in the size of the labor force, but also changes in its composition as measured by education and work experience. Capital inputs are measured in terms of efficiency or service flow rather than price or value. For more information on multifactor productivity, see "Productivity Measure: Business Sector and Major Subsectors," *BLS Handbook of Methods*, Bureau of Labor Statistics (April 1997), pp. 89–98; and Edwin R. Dean and Michael J. Harper, "The BLS Productivity Measurement Program," Bureau of Labor Statistics (July 5, 2000), paper presented to the NBER Conference on Research in Income and Wealth on New Directions in Productivity Analysis, March 20–21, 1998.

productivity. A nation's total output of goods and services, or its GDP, is a function of the hours worked, the capital stock, and total factor productivity. Adding the net income payments received from the rest of the world (which can be negative) to GDP yields the gross national income, or GNP. A portion of the nation's income, in turn, is saved, allowing for additional investment in domestic factories, equipment, and other forms of capital that workers use to produce more goods and services or for investment abroad.

Investment in the capital stock is a principal source of growth in **labor productivity**, or output per hour worked.[3] Through its influence on real wages, labor productivity is the fundamental determinant of a nation's standard of living. Minimum levels of investment in a nation's physical and human capital are crucial just to maintain labor productivity and living standards. Equipment that wears out must be replaced; younger workers entering the labor force need to be trained in skills to replace older workers as they retire. Even as the population ages, the U.S. labor force itself will continue growing—although slowly, with annual growth in aggregate hours worked averaging about 0.1 percent after 2020[4]—and the demand for capital goods is likely to increase. Not only must capital goods be replaced as they depreciate, but new generations of workers must be comparably

[3]According to neoclassical growth theory, the rate of growth of labor productivity depends on the growth rate in the capital-labor ratio, weighted by capital's share and the growth rate of total factor productivity. See Robert M. Solow, "Technical Change in the Aggregate Production Function," *Review of Economics and Statistics*, Vol. 39, No. 3 (1957), cited in Dean and Harper (1998), p. 7.

[4]The labor force projection reflects the OASDI Trustees' 2001 intermediate assumptions, including those for fertility, immigration, and labor force participation.

trained and equipped (**capital widening**).[5] Otherwise, output per worker and living standards may fall.

Beyond the minimum level of investment needed to maintain the capital stock, additional investment to expand the capital stock is an important way to increase labor productivity, and thus future living standards. With the retired population projected to swell after 2010, investment in new capital is an important way to raise the productivity of the slowly growing labor force. Investment boosts labor productivity because workers can produce more per hour when they have more and better equipment and better skills (**capital deepening**). The essence of this point can be illustrated with a simple example. Consider the transformation of ditch-digging from a relatively slow and somewhat imprecise process involving several ordinary shovels, much labor effort, and low skill levels to a faster and more precise process often involving a single power digger controlled by a skilled operator. The elements of this example, repeated across millions of individual tasks, encapsulates the difference between an advanced industrial economy with a high standard of living and a less developed country with a low standard of living.

Growth in output per worker also depends on total factor productivity growth. A higher rate of technological change and improved efficiency in using labor and capital can boost GDP and thus future living standards. Even if there were no net investment—that is, if gross investment were only enough to replace depreciated capital—the economy could grow to some extent because the new capital tends to embody improved technology. However, there is no agreement on how to raise total factor productivity. Spending on education and R&D is thought to help because

[5]While the aging of the population is a commonly voiced argument for raising national saving, some analysts maintain that the projected decline in labor force growth will increase the capital-labor ratio and reduce the return to capital while raising the productivity of labor. They conclude that, under some circumstances, saving should actually decline slightly in response to population aging. Other analysts point out, however, that if the economy is operating below the optimal saving rate, saving can rise without overly depressing market rates of return and, therefore, provide significant improvement to future incomes. In addition, saving can be invested abroad without lowering the global rate of return. See Douglas W. Elmendorf and Louise M. Sheiner, "Should America Save for its Old Age? Fiscal Policy, Population Aging, and National Saving," *Journal of Economic Perspectives*, Vol. 14, No. 3, Summer 2000, pp. 57-74; and Barry Bosworth and Gary Burtless, "*Social Security Reform in a Global Context,*" in *Social Security Reform Conference Proceedings: Links to Saving, Investment, and Growth*, Steven A. Sass and Robert K. Triest, eds., Federal Reserve Bank of Boston, Conference Series No. 41, June 1997, pp. 243-274.

education and training enhance the knowledge and skills of a nation's work force—the nation's human capital—and R&D can spur technological improvement. A legal and institutional environment that facilitates the development and enforcement of contracts and discourages crime and corruption may also contribute to economic growth. Thus, economic growth depends not only on the amount of saving and investment but also on an educated work force, an expanding base of knowledge, a continuing infusion of innovations, and a sound legal and institutional environment.

Q3.2. Has the Relatively Low National Saving Rate Affected Investment and Economic Growth? What Factors Have Fostered Economic Growth in Recent Years?

A3.2. Although national saving as a share of GDP remains below the 1960s average, annual GDP growth in recent years reached levels similar to the 1960s average of 4.2 percent. After slowing to 3.2 percent over the 1970s and 1980s and further to only 2.4 percent in the early 1990s, annual GDP growth accelerated to an average of 4.3 percent from 1995 to 2000. This higher growth stemmed, in part, from the rebound in national saving that was largely attributable to federal deficit reduction. The U.S. was also able to borrow from abroad to help finance domestic investment, as discussed further below. In addition, two domestic investment trends helped promote growth in GDP and living standards: (1) the price of investment goods declined relative to other goods and (2) investment in high-yielding information technology has risen rapidly. Thus, even though saving as a share of the economy has been low by historical standards, economic growth has been high because more and better investments were made.

A dollar of saving buys more investment goods now than in the past because the price of investment goods has decreased relative to other goods in recent years. From 1995 to 2000, the price index for nonresidential investment goods declined 0.9 percent per year on average, while overall prices as measured by the **GDP price index** rose, albeit at a modest annual rate of 1.8 percent. The major source of the overall decline in investment-good prices was the over 22 percent average annual decline in the price of computers and peripheral equipment since 1995. In other words, in each succeeding year, a dollar spent on computers purchased 22 percent more computing power on average than it did the previous year.[6]

[6]See J. Steven Landefeld and Bruce T. Grimm, "A Note on the Impact of Hedonics and Computers on Real GDP," *Survey of Current Business*, Bureau of Economic Analysis, Vol. 80, No. 12 (December 2000), pp. 17–22.

Not only has each dollar of saving bought more investment goods in recent years, but a greater share of that dollar was invested in information technology, including computers, software, and communications equipment. From 1990 to 2000, the share of business fixed investment devoted to information equipment and software rose from less than 28 percent to 39 percent.

The increasing share of investment going to information processing equipment and software helped boost overall economic growth over the 1990s because information technology has appeared to be highly productive in recent years. This is true even though rapid depreciation and obsolescence characterize information technology. For example, computers and related equipment have an estimated annual depreciation rate of 31 percent,[7] and new versions of software applications are released every few years. Hence, for investment in information technology to be profitable, its gross rate of return must be quite high. Its high rate of return combined with its increasing share of total investment meant that information technology has been a major contributor to the rapid economic growth since 1995. Indeed, recent economic research suggests that investment in information technology explains most of the acceleration in labor productivity growth—a major component of overall economic growth—since 1995.[8] From 1995 to 2000, labor productivity growth averaged 2.8 percent per year compared to 1.6 percent from 1970 to 1995 and 2.9 percent during the 1960s.[9]

[7]*Fixed Reproducible Tangible Wealth in the United States*, *1925–94*, Bureau of Economic Analysis (August 1999), p. M-29.

[8]Stephen D. Oliner and Daniel E. Sichel, "The Resurgence of Growth in the Late 1990s: Is Information Technology the Story?" *Journal of Economic Perspectives*, Vol. 14, No. 4 (Fall 2000), pp. 3–22; and Robert J. Gordon, "Does the 'New Economy' Measure Up to the Great Inventions of the Past," *Journal of Economic Perspectives*, Vol. 14, No. 4 (Fall 2000), pp. 49–74.

[9]Because of difficulties in measuring productivity of farms and nonmarket activities, the most widely used measure of labor productivity growth is the rate of increase in nonfarm business sector output per hour worked.

Economic research suggests investment in information technology also may have led to faster growth in total factor productivity since 1995.[10] As noted earlier, total factor productivity growth reflects technological change and new and better ways of organizing production. Firms producing computers and semiconductors have achieved substantial operating efficiencies and high rates of return on capital investments in recent years, despite a large expansion in their capital stock. These high rates of return seem to contradict economists' general expectations that increasing the supply of capital reduces its return and thus seems to indicate a rise in total factor productivity. Although total factor productivity growth appears to have risen, the pace of growth may decelerate. Technological advances generally come in waves that crest and eventually subside.

Abundant saving alone does not always generate robust growth because the saving must also be invested well. Japan's economy over the 1990s demonstrated that high saving can coincide with economic stagnation. Among the reasons offered for Japan's lengthy slowdown is poor investment choices due in part to its less developed financial markets in which savers had fewer options and were left with low returns. Also, the government's role both in investing in physical infrastructure and in allocating capital to industrial borrowers at preferential rates also resulted in many low-yielding investments. Finally, with its high postwar investment levels, Japan's production processes became more capital intensive compared to most other advanced nations. With this greater capital intensity, diminishing returns to capital have reduced the return on investment in Japan over the years.[11]

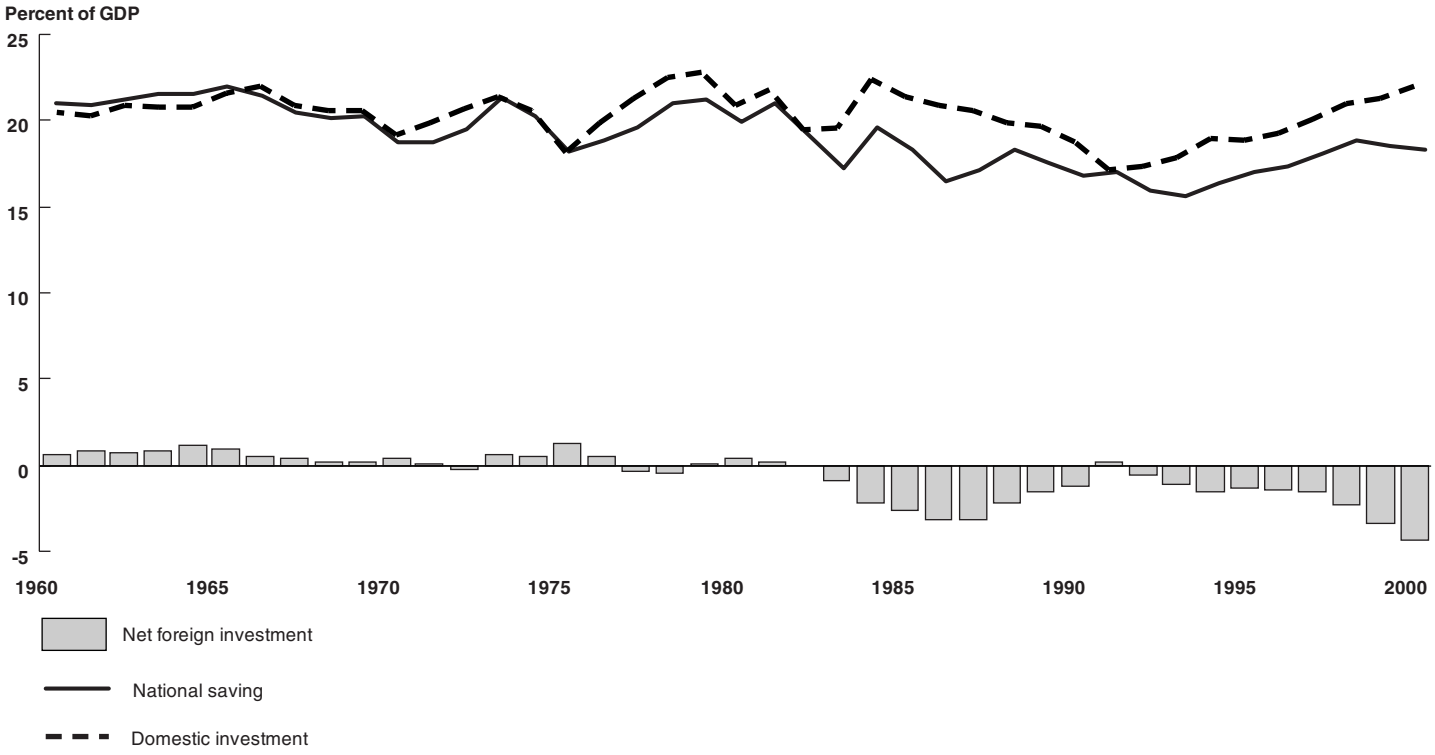
[10]However, some economists are concerned that the acceleration may be concentrated in durable manufacturing rather than widely disseminated throughout the economy. See Robert J. Gordon, "Does the 'New Economy' Measure Up to the Great Inventions of the Past," *Journal of Economic Perspectives*, Vol. 14, No. 4 (Fall 2000), pp. 49-74.

[11]Arthur J. Alexander, "Japan's Economy in the 20th Century," *Japan Economic Institute Report*, No. 3 (January 21, 2000), p. 3.

Q3.3. To What Extent Has the United States Supplemented Its Saving and Investment by Borrowing Saving From Abroad? How Does Such Borrowing Affect the Economy?

A3.3. An economy that is not open to international trade and investment must rely solely on its own saving to provide the resources to invest in plant, equipment, and other forms of capital. In contrast, citizens, companies, and governments in an open economy such as the United States can finance the gap between domestic investment and national saving with foreign investment in the United States. In essence, the U.S. economy can borrow the saving of other countries to finance more investment than U.S. national saving would permit. Figure 3.2 shows the difference between domestic investment and national saving, which is defined in the NIPA as **net foreign investment**. Over most of the 1980s and 1990s, the U.S. was able to invest more than it saved by attracting financing from abroad. This means that the United States has been a net borrower of saving from other nations.

Figure 3.2: National Saving, Domestic Investment, and Net Foreign Investment (1960–2000)



Source: GAO analysis of NIPA data from the Bureau of Economic Analysis, Department of Commerce.

A nation's net foreign investment, in theory, is the same as its **current account balance**, which is the combined balance on trade in goods and services, income, and net unilateral current transfers.[12] That is, the international flow of financial assets and the international flow of goods, services, and income receipts can be described as two sides of the same coin. In effect, borrowing from abroad allows a nation to acquire more foreign goods and services than it sells to foreigners—the **trade deficit**.

[12]In practice, measurement errors create some divergence between these balances. For a more detailed discussion of the current account balance, see Douglas B. Weinberg, "U.S. International Transactions, Third Quarter 2000," *Survey of Current Business*, Bureau of Economic Analysis, Vol. 81, No. 1 (January 2001), pp. 47–55; Craig Elwell, *The U.S. Trade Deficit in 1999: Recent Trends and Policy Options*, Congressional Research Service (May 22, 2000); and *CBO Memorandum: Causes and Consequences of the Trade Deficit*: *An Overview*, Congressional Budget Office (March 2000).

When the United States runs a trade deficit, foreigners buy less than a dollar's worth of U.S. goods and services with every dollar they earn on their exports sold to the United States. They generally invest those excess dollars in U.S. assets. Their willingness to acquire U.S. assets —i.e., to lend to the United States— allows the United States to run trade deficits. In fact, U.S. trade deficits may be as much due to foreigners' willingness to acquire U.S. assets as to the U.S. desire to acquire foreign goods and services.

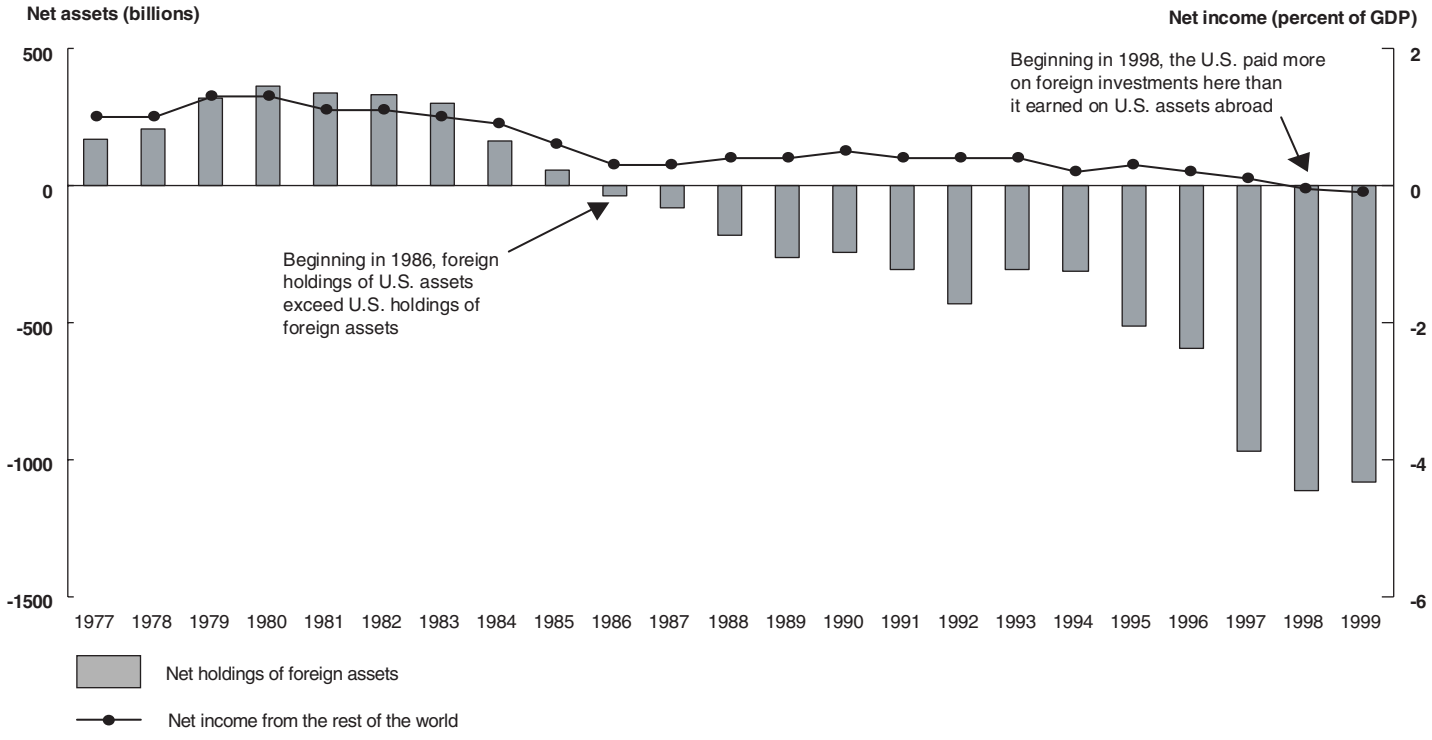
While using foreign investors' saving allows U.S. domestic investment to exceed national saving, these financial inflows have implications for the nation's economic growth and for future living standards. This effect depends in part on how the borrowed funds are used. To the extent that borrowing from abroad finances domestic investment, the foreign borrowing adds to the nation's capital stock and boosts productive capacity. This augments future income, although a portion of the income generated by the investment will be paid to foreign lenders. However, if the borrowing from abroad is used to finance consumption, short-term wellbeing is improved but the ability to repay the borrowing in the future will not be enhanced. In this respect, U.S. experience in the 1990s differs from that of the 1980s. Over the 1980s, mounting federal deficits and the decline in personal saving reduced the supply of national saving available for investment. Although borrowing from abroad helped finance additional investment, consumption rose more than domestic investment during the 1980s. In contrast, since 1992 there has been an upward trend in U.S. national saving while domestic investment has surged. Borrowing from abroad has allowed the United States to overcome its saving shortfall and take advantage of productive investment opportunities. The increased investment has contributed to higher GDP growth in recent years, and the stronger economy should help in servicing the debt owed to foreigners.

Persistent U.S. current account deficits have translated into a rising level of indebtedness to other countries. Figure 3.3 shows the net U.S. ownership of foreign assets—**the net international investment position**[13]—and net income receipts on net U.S. assets abroad. Prior to 1986, the United States had been a net creditor because its holdings of foreign assets exceeded foreign holdings of U.S. assets. The nation first became a net debtor in

[13]The net international investment position is presented here with direct investment positions valued at current cost. BEA also publishes a measure with direct investment positions measured at market value. See Russell B. Scholl, "The International Investment Position of the United States at Yearend 1999," *Survey of Current Business*, Bureau of Economic Analysis, Vol. 80, No. 7 (July 2000), pp. 46–56.

1986. Although foreign asset holdings in the United States have swelled in recent years, not until 1998 did the United States pay more in interest, dividends, and other investment returns to other countries than it received on the assets it held abroad. The lag reflects the fact that the rate of return on U.S. assets abroad consistently exceeded the return on foreign-owned assets in the United States.[14] So far, the net payments from the United States to foreign lenders have been small as a share of GDP, as shown in figure 3.3.

Figure 3.3: Net U.S. Holdings of Foreign Assets and Net Income From Abroad (1977–1999)



Source: GAO analysis of data from the Bureau of Economic Analysis, Department of Commerce.

[14]Raymond J. Mataloni, Jr., "An Examination of the Low Rates of Return of Foreign-Owned U.S. Companies," *Survey of Current Business*, Bureau of Economic Analysis, Vol. 80, No. 3 (March 2000), pp. 55–73.

Economists and policymakers are concerned about whether the United States can continue to increase its reliance on foreign capital inflows. Investors generally try to achieve some balance in the allocation of their portfolios, and U.S. assets already represent a significant share of foreign portfolios. Although the United States accounts for 30 percent of global GDP, it received two-thirds of the saving exported by countries with current account surpluses in 1999.[15] Given this, it may not be realistic to expect ever-increasing foreign investment in the United States, as has been the case in recent years. Net foreign investment in the United States might even decrease from the recent high rates if foreign investors find more attractive opportunities elsewhere. Over the long term, many other nations currently financing investment in the United States will themselves be confronted with aging populations and declining national saving. Thus, continuing to rely on foreign lenders to finance such a large share of U.S. domestic investment is not a viable strategy over the long run.

If the net inflow of foreign investment were to diminish, the United States would no longer be able to invest so much more in the domestic capital stock than it saves. Although a nation can run current account deficits for extended periods of time, a low level of national saving implies a low level of domestic investment over the long run. According to recent empirical research, current account deficits eventually have been followed by periods of declining investment.[16] Rather than forgo domestic investment opportunities that would enhance the nation's future standard of living, the United States could increase national saving. Any increase in national

[15]Donald J. Mathieson and Garry J. Schinasi, eds., *International Capital Markets: Developments, Prospects, and Key Policy Issues* (Washington, D.C.: International Monetary Fund, September 2000), pp. 9–10.

[16]Giovanni P. Olivei, "The Role of Savings and Investment in Balancing the Current Account: Some Empirical Evidence from the United States," *New England Economic Review*, (July/August, 2000), pp. 3–14; and Caroline Freund, "Current Account Adjustments in Industrial Nations," International Finance Discussion Paper No. 2000-692, (Washington, D.C.: Federal Reserve Board of Governors, December 2000).

saving that did not finance domestic investment would increase net foreign investment and improve the current account balance.[17]

Q3.4. What Is the Current Long-Term Economic Outlook for U.S. National Saving and Investment? How Would the Long-Term Economic Outlook Change With Higher Levels of National Saving?

A3.4. The current long-term economic outlook for U.S. national saving and investment is subject to wide ranging uncertainty about economic changes and the responses to those changes. However, one certainty is that the U.S. population is aging and there will be fewer workers supporting each retiree. This demographic shift is expected to cause a decline in economic growth rates when labor force growth slows after 2010. Moreover, the aging of the population may exert negative pressure on national saving. As discussed in section 1, people tend to draw down their assets in their retirement years. As government spending on health and retirement programs for the growing elderly population swells, government saving is also likely to decline. Q4.3 examines the long-term outlook for federal government saving/dissaving.

To get a sense of the long-term implications of alternative national saving paths, we examined the economic outlook over the next 75 years under two different assumptions: (1) gross national saving remains constant at its 2000 share of GDP—18.3 percent—and (2) gross national saving varies depending on how much the federal government saves.[18] One possible fiscal policy, which we used in our simulation, would be for the federal government to save only the Social Security surpluses and to spend the non-Social Security surpluses projected over the first 10 years on some mix of permanent tax cuts and spending increases. For simplicity, the Save the Social Security Surpluses simulation assumes that saving by households, businesses, and state and local governments remains constant as a share of

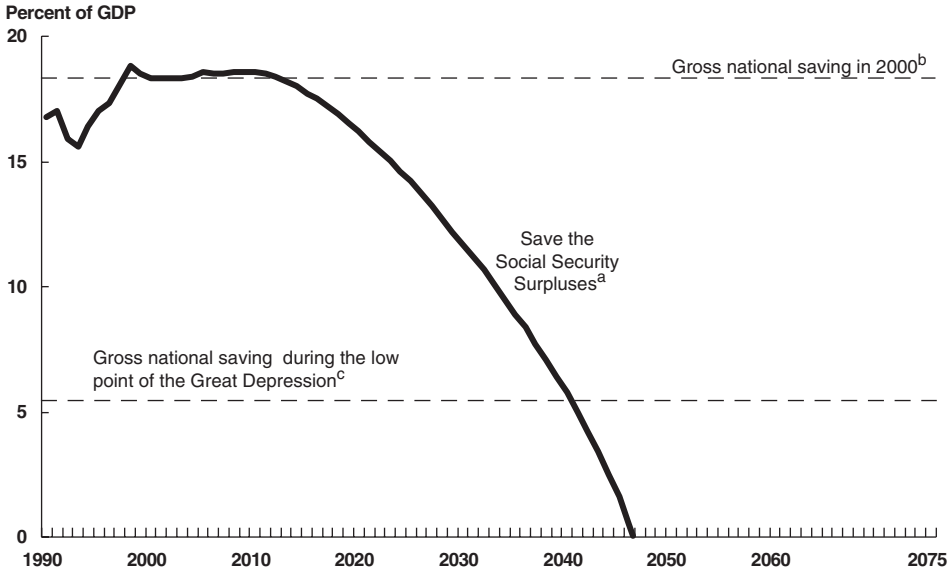
[17]The current account balance would improve to the extent that the increase in saving is used to increase net foreign investment rather than domestic investment. Research suggests that for each additional dollar of saving, perhaps one-third is used to increase net foreign investment and two-thirds is used to increase domestic investment. See Martin Feldstein and Philippe Bacchetta, "National Saving and International Investment," *National Saving and Economic Performance*, D. Bernheim and J. Shoven, eds., (Chicago: University of Chicago Press, 1991) pp. 201–226.

[18]Long-term simulations are useful for comparing the potential outcome of alternative national saving paths within a common economic framework. Such simulations can illustrate the long-term economic consequences of saving choices that are made today. Simulations should not be viewed as forecasts of economic outcomes 50 or 75 years in the future. Rather, they should be seen only as illustrations of the economic outcomes associated with alternative saving paths based on common demographic and economic assumptions. See appendix II for a detailed description of the modeling methodology.

GDP at 16.1 percent—average nonfederal saving as a share of GDP since 1998.[19] As figure 3.4 shows, gross national saving as a share of GDP remains fairly steady over the next decade under the Save the Social Security Surpluses simulation. After 2010, as spending for health and retirement programs mounts, dissaving by the federal government begins crowding out other saving, and national saving begins to decline. By 2024, gross national saving as a share of GDP drops below the mid 15 percent range experienced during the saving slump in the early 1990s. By 2042, gross national saving would plunge below 5 percent—lower than during the Great Depression. Under the Save the Social Security Surpluses simulation, gross national saving eventually disappears, and the nation begins dissaving in 2047.

[19]The 3-year period coincides with federal surpluses and its use avoids extending the unusually low nonfederal saving rate of 2000 throughout the simulation period.

Figure 3.4: Gross National Saving as a Share of GDP Under the Save the Social Security Surpluses Simulation (1990–2075)



Note: Actual historical data shown through 2000; simulated data thereafter.

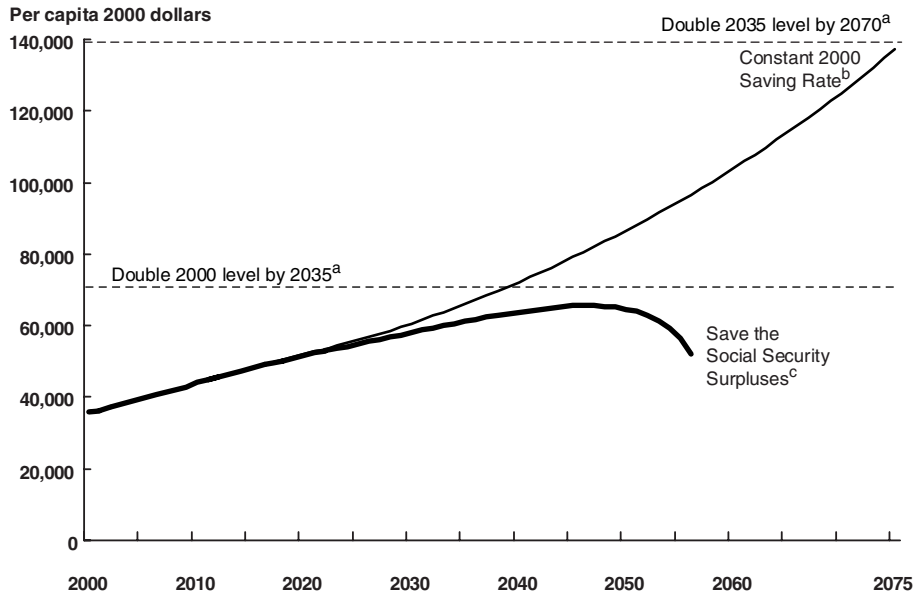
[a]Gross nonfederal saving is held constant as a share of GDP at 16.1 percent (the ratio in 1999), and federal saving varies. Data end when the nation begins to dissave in 2047.
[b]Gross national saving was 18.3 percent of GDP in 2000. (Gross national saving reached a high of 24.6 percent of GDP in 1942.)
[c]Gross national saving reached a low of 5.3 percent of GDP in 1932.

Source: GAO's March 2001 analysis.

The Save the Social Security Surpluses simulation is not sustainable, but it is useful for illustrative purposes. Ultimately, this would be a doomsday scenario for the U.S. economy. National saving would be inadequate to finance even the investment necessary to maintain the nation's capital stock. Figure 3.5 shows that, as the nation's capital stock eroded, future living standards—measured in terms of GDP per capita—inevitably would fall. However, before such catastrophic effects, low national saving would probably result in higher interest rates, rising inflation, and the increasing reluctance of foreign investors to lend to a weakening U.S. economy. These more immediate consequences would force action before national saving plunged to the levels shown in the simulation. The simulation is not a prediction of what will happen in the future. Rather, it serves as a warning that the United States must both save more in the near term and reform

entitlement programs for the elderly to put the budget on a more sustainable footing for the long term.

Figure 3.5: GDP Per Capita Under Alternative Gross National Saving Rates (2000–2075)



[a]Historically in the United States, GDP per capita has doubled on average from one 35-year generation to the next.
[b]Gross national saving is held constant as a share of GDP at 18.3 percent, the ratio in 2000.
[c]Gross nonfederal saving is held constant as a share of GDP at 16.1 percent (the ratio in 1999). Federal non-Social Security surpluses are eliminated through 2010, and unified deficits emerge in 2019. This simulation can be run only through 2056 due to elimination of the capital stock.

Source: GAO's March 2001 analysis.

Figure 3.5 is not solely a warning. It also illustrates how saving more would improve the long-term economic outlook. Just as we enjoy a higher living standard today than our grandparents did, future generations of Americans will reasonably expect to enjoy rising standards of living. Living standards can be compared in terms of real GDP per capita, which historically in the

United States has doubled every 35 years.[20] In considering future living standards, doubling every 35 years represents a way to gauge whether future generations will enjoy an improvement comparable to that enjoyed by previous generations. Suppose the United States could maintain gross national saving at its 2000 GDP share of 18.3 percent through some combination of personal, business, and government saving. This constant saving rate is roughly comparable to saving the Social Security surpluses over the next decade but is considerably higher after 2010 (as shown in figure 3.4). As shown in figure 3.5, GDP per capita under the Constant 2000 National Saving Rate simulation would fall short of doubling every 35 years. GDP per capita in 2035 would be nearly double the 2000 level (falling short by about 8 percent), and by 2070, GDP per capita would fall almost 13 percent short of doubling the 2035 level. Yet, the Constant 2000 National Saving Rate simulation yields a vast improvement in future living standards compared to saving the Social Security surpluses. Although national saving in 2000 was relatively low compared to past U.S. experience, maintaining that level (18.3 percent of GDP) over the long run would not be easy as the population ages. The Constant 2000 National Saving Rate simulation is intended only to show how saving more results in higher economic growth over the long term. It should not be interpreted as a recommendation about how much the United States needs to save because saving is not free and there are other ways in which governments, businesses, and individuals can and will adjust. For example, as people live longer, rather than save more to finance more years of retirement, individuals could choose to work longer and postpone retirement.

Clearly, saving more would improve the nation's long-term economic outlook—but how much more do we need to save? Establishing a tradeoff between the consumption of current and future generations entails value judgments that economic theory alone cannot provide. Initially, increasing saving and investment adds to the capital stock and boosts worker productivity and the economy's rate of growth. In the long run, a larger capital stock also requires more saving just to replace depreciating capital. After reaching this long-run equilibrium, increased saving and investment yields a higher level of GDP per capita but does not boost worker productivity and economic growth. Permanently boosting the rate of GDP growth would require ever-increasing relative shares of saving and

[20]Since World War II, annual growth in GDP per capita has averaged roughly 2 percent. Of course, growth was faster during some periods—the 1950s and 1960s, and the second half of the 1990s—and slower during other periods—the 1970s.

investment. From a macroeconomic perspective, any increase in saving up to the "**golden rule saving rate**" allows a nation to increase consumption in the long run.[21] Below the golden rule rate, saving and investing more today permits increased consumption. Saving beyond the golden rule rate is counterproductive and would reduce consumption not only initially but also in the long-term. However, the nation's saving rate is unlikely to reach the golden rule level, much less exceed it. Given the steady decline in the personal saving rate, it is doubtful that Americans would willingly reduce consumption so much that the nation would be at risk of saving too much. Estimates based on our long-term growth model suggest that the golden rule saving rate for the United States would be more than 30 percent. These estimates also suggest that increasing U.S. national saving would not substantially decrease the return to capital and therefore could provide significant improvement to future incomes and consumption. Although the golden rule saving rate can be a useful analytical concept in evaluating a nation's saving, the golden rule is not the best policy for saving. Maximizing consumption per capita over the long term may not be socially optimal if people value current consumption more than future consumption and discount the future.

Another way to gauge national saving is to estimate how much we need to save to achieve specific national objectives. In simple terms, the nation could act like a "target saver." For example, a key target would be saving enough to afford the nation's costs for supporting the aging population. Boosting saving and GDP is unlikely to prevent a rise in the share of GDP devoted to government spending on the elderly because economic growth also tends to increase health spending and raise retirement benefits—although with a lengthy lag for the latter. A more realistic goal would be to increase saving by an amount that would generate a rise in future GDP equivalent to the increase in spending on the elderly. Recent economic research estimated that increasing saving as a share of GDP by one percentage point above the 1999 rate would boost GDP enough to cover 95 percent of the increase in elderly costs between now and 2050.[22] This is

[21]The golden rule saving rate maximizes consumption per capita over the long run. For a more extensive discussion, see N. Gregory Mankiw, *Macroeconomics*, Fourth Edition (New York, N.Y.: Worth Publishers, 2000), pp. 90–97; or Olivier Blanchard, *Macroeconomics*, Second Edition (Upper Saddle River, N.J.: Prentice Hall, 2000), pp. 214–220.

[22]See Barry Bosworth, "Challenges to Capital Flows," CSIS Policy Summit on Global Aging, Washington, D.C., January 26, 2000.

equivalent to increasing national saving to 19.3 percent of GDP from 18.3 percent used in our Constant 2000 Saving Rate simulation.

While it is unclear just what the right level of saving is, it is clear that America needs to begin saving more if it is to avoid severe problems in the future. Saving now is vital because expanding the nation's productive capacity through national saving and investment is a long-term process. While saving the Social Security surpluses is a laudable fiscal policy goal, Americans need to save more to ensure their own retirement security as well as the nation's future prosperity. Increased saving by current generations would expand the nation's capital stock, allowing future generations to better afford the nation's retirement costs while also enjoying higher standards of living.

National Saving and the Government

Q4.1. How Has Federal Fiscal Policy Affected U.S. National Saving?

A4.1. Federal fiscal policy affects the federal surplus or deficit which, when measured on a NIPA basis, represents the amount of federal government saving or dissaving, which in turn directly affects national saving. Federal deficits subtract from national saving by absorbing funds saved by households, businesses, and other levels of government that would otherwise be available for investment. To finance a budget deficit, the federal government borrows from the public by issuing debt securities, adding to its **debt held by the public**.[1] Conversely, federal surpluses, as measured under NIPA, add to national saving and increase resources available for investment. When a budget surplus occurs, the federal government can use excess funds to reduce the debt held by the public.

Text box 4.1 explains how the NIPA surplus or deficit differs from the federal **unified budget** surplus or deficit. While the NIPA measure reflects how government saving affects national saving available for investment, the unified budget measure is the more common frame of reference for discussing federal fiscal policy issues. Given that the two measures are roughly similar as a share of GDP, in this section we use the unified budget measure unless otherwise specified.

[1]Federal debt held by the public is also called "publicly held debt" but is not the same as "public debt." Debt held by the public plus debt held by government accounts, such as budget trust funds, compose gross federal debt. For more information, see *Federal Debt: Answers to Frequently Asked Questions—An Update* (GAO/OCG-99-27, May 1999).

Text Box 4.1: How do the NIPA and federal unified budget concepts of federal surpluses and deficits differ?

In 2000, the NIPA federal surplus was 2.2 percent of GDP while the unified budget surplus was 2.4 percent. Although the two measures are roughly similar, there are some conceptual differences. The federal unified budget measure is generally a cash or cash-equivalent measure in which receipts are recorded when received and expenditures are recorded when paid regardless of the accounting period in which the receipts are earned or the costs incurred. Thus, the unified surplus reflects the difference between federal receipts and all federal government outlays including those used to purchase capital goods, such as roads, buildings, and weapons systems. The NIPA federal budget surplus, however, reflects the current, or operating, account of the federal government and does not count purchases of capital goods as current spending. Instead, NIPA includes a depreciation charge ("consumption of general government fixed capital") in current spending as a proxy for the contribution of capital to the output of government services.

The NIPA and federal unified budget measures also differ in their treatment of federal employees' pension programs. In the unified budget, federal employee pension benefits are recorded as outlays when paid in cash; these outlays are offset, in whole or in part, by the government's and employees' contributions to the pension programs. NIPA, on the other hand, counts the government's contribution to the pension programs as an outlay to the household sector, where the contribution is added to personal income and saving. The benefits paid by the pension programs are not counted as government outlays under NIPA but rather as a drawdown of accumulated household assets.

Other differences between the unified budget and NIPA measures arise because NIPA focuses on current income and production within the United States. For example, NIPA excludes capital transfers, like estate tax receipts, which are recorded as revenue in the unified budget, and investment grants-in-aid to state and local governments, which the unified budget records as outlays. Lastly, revenue and spending related to Puerto Rico, the Virgin Islands, and other U.S. territories are counted in the federal unified budget but not in NIPA.

The unified budget measure is useful in explaining annual changes in the federal debt held by the public. The NIPA measure is useful in explaining how government saving has affected net national saving available for investment. Again, these measures yield roughly similar estimates of the federal government's budget position as a share of GDP. In order to provide a consistent frame of reference for discussing federal fiscal policy issues, this section refers to the unified budget measure unless otherwise specified.

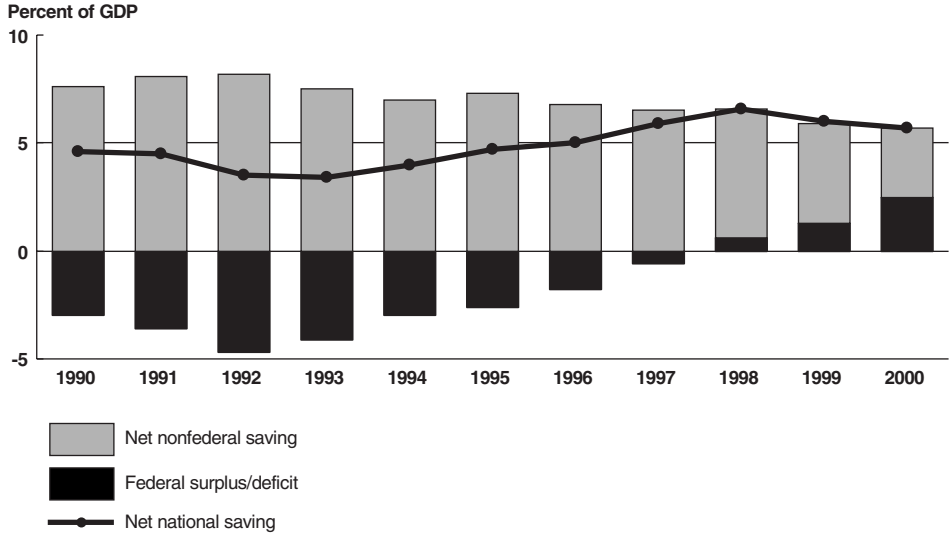
Note: For more details, see Laura M. Beall and Sean P. Keehan, "Federal Budget Estimates, Fiscal Year 2001," *Survey of Current Business*, Bureau of Economic Analysis, Vol. 80, No. 3 (March 2000), pp. 16–25; or *Budget of the U.S. Government: Fiscal Year 2001*, *Analytical Perspectives*, Office of Management and Budget (2000), pp. 361–365.

From the 1970s through the mid 1990s, federal deficits consumed a large share of increasingly scarce private saving and reduced the amount of national saving available for investment.[2] Since 1990, the Congress and the President have taken action to eliminate the annual federal budget deficit through several initiatives including the Budget Enforcement Act of 1990, the Omnibus Budget Reconciliation Act of 1993, and the Balanced Budget Act of 1997. As noted in section 2, the combination of these policy actions and strong economic growth reduced federal government dissaving over the 1990s (see figure 4.1). With the swing to surplus in recent years, federal government saving added to the saving of other sectors to increase the amount of national saving available for investment. Unified budget surpluses since 1998 have been the longest-running surpluses in over 50 years, and federal budget surpluses are projected for the next decade. So far, the federal government has used excess funds to reduce debt held by the public, paying down $223 billion in fiscal year 2000 alone.[3]

[2]See figure 2.2 for the composition of net national saving from 1960 to 2000.

[3]*Federal Debt: Debt Management Actions and Future Challenges* (GAO-01-317, February 28, 2001). As discussed further in text box 4.2, if the projected budget surpluses materialize, the federal government will reach a point at which the projected surpluses will exceed the amount of federal debt available to be redeemed.

Figure 4.1: The Effect of Federal Surpluses and Deficits on Net National Saving (1990–2000)



Note: The saving of households, businesses, and state and local governments makes up **nonfederal saving**. National saving data are on a NIPA basis. The NIPA federal surplus/deficit measure as a share of GDP is roughly similar to the unified budget measure.

Source: GAO analysis of NIPA data from the Department of Commerce, Bureau of Economic Analysis.

Although one might expect an increase in federal saving to lead to an increase in national saving, changes in federal saving do not flow through to changes in national saving and investment in a dollar-for-dollar relationship. Figure 4.1 illustrates that federal and nonfederal saving, which consist mainly of private saving, tend to be inversely related. In other words, when federal government saving increases (smaller deficits or larger surpluses), private saving may decrease somewhat. When federal saving decreases (smaller surpluses or larger deficits), private saving may increase. For example in figure 4.1, although federal government saving increased as a share of GDP by 5.5 percentage points from 1990 to 2000, net national saving increased by only 1.1 percentage points because private saving as a share of GDP decreased by 4.9 percentage points over the same period.[4]

[4]The total change in net national saving from 1990 to 2000 was also affected by an increase in state and local government saving of about 0.6 percentage points.

Q4.2. Why Do Government and Private Saving Tend to Move in Opposite Directions?

A4.2. Government and private saving tend to move in opposite directions for several reasons—three of which are discussed here. First, federal borrowing can be large enough to affect current interest rates, which in turn may influence private saving and investment. Government dissaving absorbs funds available for private investment and puts upward pressure on interest rates. Higher interest rates both raise the return on saving and reduce the market value of existing financial assets issued when rates were lower.[5] The combination of higher returns to saving and reduced wealth might encourage households and businesses to save more. Conversely, an increase in government saving adds to the supply of resources available for investment and may put downward pressure on interest rates. Lower interest rates both reduce the return on saving and increase the market value of existing financial assets issued when rates were higher. Lower returns to saving and increased wealth might dampen private saving.

Second, if federal budget surpluses are achieved, in part, through higher taxes, those higher taxes reduce households' disposable personal income. As discussed in section 1, disposable personal income is the after-tax personal income (including government transfer payments) available for households' consumption and saving. Households may choose to save less of their disposable income and maintain their current level of consumption especially if they consider the higher tax payments to be temporary. Reduced personal saving would tend to offset the increased government saving due to higher taxes.

Third, some economists believe that government saving has some effect on households' expectations about future tax rates even across generations. This **Ricardian equivalence** hypothesis holds that people are forward-looking and recognize that current government surpluses or deficits affect government debt and future tax rates.[6] Thus, when the government runs deficits and accumulates debt, Ricardian consumers would save more to ensure that they or their descendants can pay the expected higher future taxes. Alternatively, when the government runs

[5]For example, market prices of interest-bearing securities, such as Treasury securities, fluctuate inversely with market interest rates. The market price of a Treasury security falls when the current interest rate on Treasury securities of equal maturity rises.

[6]Although this view is named after the 19th century economist David Ricardo who first explored the possible relationship, the seminal work on this theory is Robert Barro, "Are Government Bonds Net Wealth?" *Journal of Political Economy*, Vol. 82, No. 6 (1974), pp. 1095–1117.

surpluses and reduces debt held by the public (as in 1998 through 2000), Ricardian consumers would save less in anticipation of future tax cuts. If all consumers were fully Ricardian, private saving would fully offset any change in government saving, and national saving would be unchanged. Economists continue to debate how well the Ricardian equivalence theory works in practice. People may be too shortsighted in their saving decisions to look ahead to the implications of current government debt on future generations. When federal budget deficits and debt mounted in the 1980s, private saving declined—the opposite of what the Ricardian equivalence hypothesis would suggest. However, in recent years, as figure 4.1 illustrates, private saving—which is the major component of nonfederal saving—declined as federal saving rose—which is consistent with the Ricardian equivalence hypothesis.

In summary, it is unclear how much each additional dollar of government saving will ultimately increase national saving. Evidence shows that changes in saving by households and businesses tend to offset some of the changes in government saving. While economists disagree over the magnitude of the private saving offset, studies generally suggest it is less than one-for-one. This means that for each additional dollar of government saving, aggregate private saving falls by less than a dollar. To what extent the aggregate offset is due to the changes in interest rates, wealth, disposable personal income, expectations of future tax rates, or other reasons is ambiguous. Estimating the private saving offset is complicated by the fact that individuals may respond differently to changes in government saving.[7]

Q4.3. What Is the Long-Term Outlook for Federal Government Saving/Dissaving?

A4.3. While media attention has focused on budget surpluses projected for the next 10 years, the long-term outlook for federal government saving has received considerably less attention. The outlook for government saving over the next 75 years is subject to wide ranging uncertainty due to economic changes and future legislation. However, one certainty is that as life expectancy rises and the baby boom generation retires, the U.S. population will age, and fewer workers will support each retiree. The

[7]For example, some households live paycheck-to-paycheck and might spend all of a tax cut, whereas other households might spend only a portion; a Ricardian household might save all of a tax cut in anticipation of future tax increases. For further discussion about accommodating consumer behavior in modeling fiscal policy, see N. Gregory Mankiw, "The Saver-Spender Theory of Fiscal Policy," NBER Working Paper 7571 (February 2000).

federal budget will increasingly be driven by demographic trends. Absent changes to current law, government saving is likely to decline as government health and retirement programs for the growing elderly population claim a larger share of federal resources.

Any fiscal policy path in which some portion of the anticipated budget surpluses is saved ultimately leads to a stronger fiscal position than annually balancing the budget in each of the next 10 years. But what does it mean to "save the surplus"? If the surplus is not spent on government programs or used for tax cuts, it is "saved." Saving some portion of the projected budget surpluses would allow the federal government to reduce the overhang of federal debt built over decades of deficit spending. Using surpluses to reduce debt held by the public results in lower interest costs today, all other things being equal, and a lower debt burden for future generations.[8] Within this decade, the projected surpluses may likely exceed the amount of debt held by the public available to be redeemed. Text box 4.2 discusses government saving in an environment where reducing federal debt held by the public is not an option.

[8]For more information on using surpluses to redeem debt held by the public, see *Federal Debt: Answers to Frequently Asked Questions—An Update* (GAO/OCG-99-27, May 28, 1999), *Federal Debt: Debt Management in a Period of Budget Surplus* (GAO/AIMD-99-270, September 29, 1999), and *Federal Debt: Debt Management Actions and Future Challenges* (GAO-01-317, February 28, 2001).

Text Box 4.2: Government Saving When Reducing Publicly Held Federal Debt is Not an Option

If the projected budget surpluses materialize, the federal government will reach the point at which the annual surpluses will exceed the amount of debt available to be redeemed or that can be bought back at reasonable prices. Although estimates as to when this point will be reached vary depending on several assumptions, most analysts agree that it could occur within the decade; estimates range from the Congressional Budget Office's (CBO) January 2001 estimate of 2006 to the Office of Management and Budget's March 2001 estimate of 2008. This point will occur before the debt held by the public is eliminated, and the resulting accumulation of cash will require decisions about what to do with these cash balances. This raises the question of how the federal government can save if reducing federal debt held by the public is not an option.

Just as the flow of personal saving affects the stock of financial assets accumulated by households, government saving affects the stock of federal debt. The federal government borrows from the public to finance a deficit. Conversely, when a budget surplus occurs, the federal government can use excess funds to reduce the debt held by the public, accumulate cash balances, or acquire nonfederal financial assets. Holding cash or nonfederal financial assets would not reduce debt held by the public but would reduce the **net debt** of the federal government. Net debt represents the federal government's total financial liabilities, including debt held by the public, less its total financial assets. Positive amounts of net debt reflect how much of the nation's private wealth has been absorbed to finance federal deficits. Negative amounts of net debt reflect how much of the nation's private financial assets have been acquired by the federal government.

Acquiring nonfederal financial assets could be another way to translate budget surpluses into resources available for investment. However, the issue of the federal ownership of nonfederal assets is controversial. Federal Reserve Chairman Greenspan, among others, has expressed concern that there would be tremendous political pressure to steer the federal government's asset selection to achieve economic, social, or political purposes. Although the governance issues may not be insurmountable, another possible concern is that the federal government could become the largest single investor.

There is a growing body of experience by other governments that might help policymakers address the question of whether and how the federal government can or should acquire nonfederal financial instruments. Investing in the financial markets is a standard practice for state and local government pension funds in the United States. Also, other nations have decided that the potential risks of political interference can be managed and are outweighed by what those nations perceive as the risk of failing to save for the future or provide a cushion for contingencies. In the future, we plan to study how other nations invest in nongovernmental assets to learn more about how they deal with governance and other issues

Note: The net debt concept is based on the OECD definition of net financial liabilities that can be calculated by subtracting financial assets from financial liabilities.

In recent years, the fiscal policy debate has focused on the importance of saving the Social Security portion of projected unified budget surpluses. While policymakers appear to have generally agreed to save Social Security surpluses, there is considerable debate over whether and how to use the non-Social Security surpluses. After recent years of fiscal discipline and focus on fiscal responsibility, the anticipated surpluses offer a chance to meet pent-up demand for discretionary domestic spending, increase defense spending, cut taxes, shore up Social Security and Medicare, reduce the debt, or do some combination of these. How the surpluses are used has long-term implications for federal government saving, national saving, and ultimately the nation's future living standards.[9]

To get a sense of the long-term implications of broad fiscal policy choices, we examined the fiscal and economic outlook over the next 75 years under two alternatives: (1) assuming that the federal government saves only the Social Security surpluses and (2) assuming that the federal government saves the entire unified surpluses.[10] For simplicity, these fiscal policy simulations assume that saving by households, businesses, and state and local governments remains constant as a share of GDP and that the surpluses saved are used to reduce debt held by the public.[11] Once debt held by the public is eliminated, these simulations assume excess cash is used to acquire an unspecified mix of nonfederal assets with a rate of return equivalent to the average interest rate on Treasury securities.[12]

[9]*Federal Budget: The President's Midsession Review* (GAO/OCG-99-29, July 21, 1999).

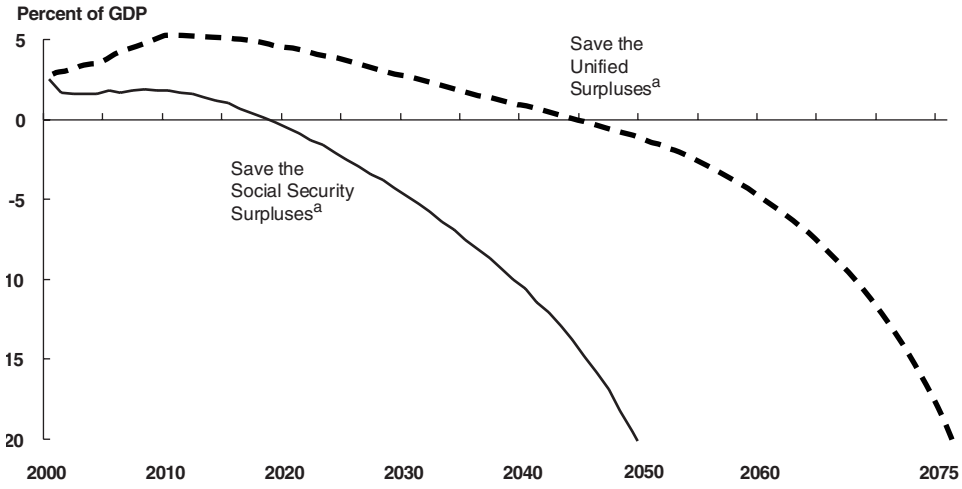
[10]Since 1992, GAO has provided the Congress with a long-term perspective on alternative fiscal policy paths. See *Budget Policy: Prompt Action Necessary to Avert Long-Term Damage to the Economy* (GAO/OCG-92-2, June 5, 1992), *The Deficit and the Economy: An Update of Long-Term Simulations* (GAO/AIMD/OCE-95-119, April 26, 1995), *Budget Issues: Deficit Reduction and the Long Term* (GAO/T-AIMD-96-66, March 13, 1996), *Budget Issues: Analysis of Long-Term Fiscal Outlook* (GAO/AIMD/OCE-98-19, October 22, 1997), *Budget Issues: Long-Term Fiscal Outlook* (GAO/T-AIMD/OCE-98-83, February 25, 1998), *Budget Issues: July 2000 Update of GAO's Long-Term Simulations* (GAO/AIMD-00-272R, July 26, 2000), and *Long-Term Budget Issues: Moving From Balancing the Budget to Balancing Fiscal Risk* (GAO-01-385T, February 6, 2001).

[11]As noted in section 3, simulations are illustrative and do not represent forecasts. See appendix II for a detailed description of the long-term modeling methodology.

[12]Acquiring nonfederal financial assets would reduce the reported unified surplus or increase the unified deficit because, under current budget scoring rules, such acquisitions would be treated as spending.

Saving the Social Security surpluses produces unified budget surpluses for almost 20 years, as shown in figure 4.2, and eliminates the debt held by the public by 2015. Under the Save the Social Security Surpluses simulation, the non-Social Security surpluses are eliminated by an unspecified mix of permanent tax cuts and spending increases. Under this scenario, unified budget deficits emerge again in 2019—just as the Social Security and Medicare programs are being strained by the retiring baby boom generation. As discussed in section 3, the large deficits and debt under this simulation imply a substantial reduction in national saving and investment in the capital stock leading to a decline in living standards—in terms of GDP per capita. Although policymakers would likely act to reduce the budget deficits and to promote higher national saving before facing the economic doomsday implied under the Save the Social Security Surpluses simulation, this scenario serves as a reminder to be cautious in committing surpluses to large permanent tax cuts and spending increases.

Figure 4.2: Unified Surpluses and Deficits as a Share of GDP Under Alternative Fiscal Policy Simulations (2000–2075)



[a]Data end when deficits reach 20 percent of GDP.

Source: GAO's March 2001 analysis.

Figure 4.2 also shows an alternative fiscal policy path assuming the federal government saves all of the projected unified surpluses. Under the Save the Unified Surpluses simulation, federal budget surpluses would be higher over the next 40 years, but deficits would emerge in the 2040s. Although the

government would have to borrow again from the public to finance deficits over the long run, the simulation implies that, absent policy or economic change, debt held by the public could be fully eliminated before the end of the decade.[13] Just as the Save the Social Security Surpluses simulation is an implausible doomsday scenario, the Save the Unified Surpluses simulation can also be viewed as implausible. Under this simulation, annual federal surpluses, which peak at 5 percent of GDP, would last longer than ever before in the nation's history and the government would hold nonfederal financial assets for over 50 years.

Q4.4. How Does Saving Affect Future Budgetary Flexibility?

A4.4. Government saving directly affects future budgetary flexibility through its effect on interest payment spending. In the past, interest payments contributed to deficits and helped fuel a rising debt burden. Rising debt, in turn, raised interest costs to the budget, and the federal government increased debt held by the public to finance these interest payments. A change from a budget deficit to a surplus reduces federal debt and replaces this "vicious cycle" with a "virtuous cycle" in which saving some portion of the budget surpluses results in lower debt levels. Lower debt levels lead to lower interest payments—possibly at lower interest rates. These lower interest payments in turn lead to larger potential surpluses and/or increased budget flexibility.

Figure 4.3 shows the long-term implications for budgetary flexibility of saving the Social Security surpluses. Again, this simulation assumes that nonfederal saving remains constant as a share of GDP at 16.1 percent, the average nonfederal saving rate since 1998. Absent program changes, saving the Social Security surpluses—and even the Medicare surpluses[14]—is not enough by itself to finance the retirement and health programs for the elderly. As figure 4.3 shows, saving only the Social Security surpluses will not be sufficient to accommodate both the projected growth in Social Security and health entitlements and other national priorities in the long term. These programs will eventually squeeze out most or all other spending. By 2030, saving the Social Security surpluses results in a

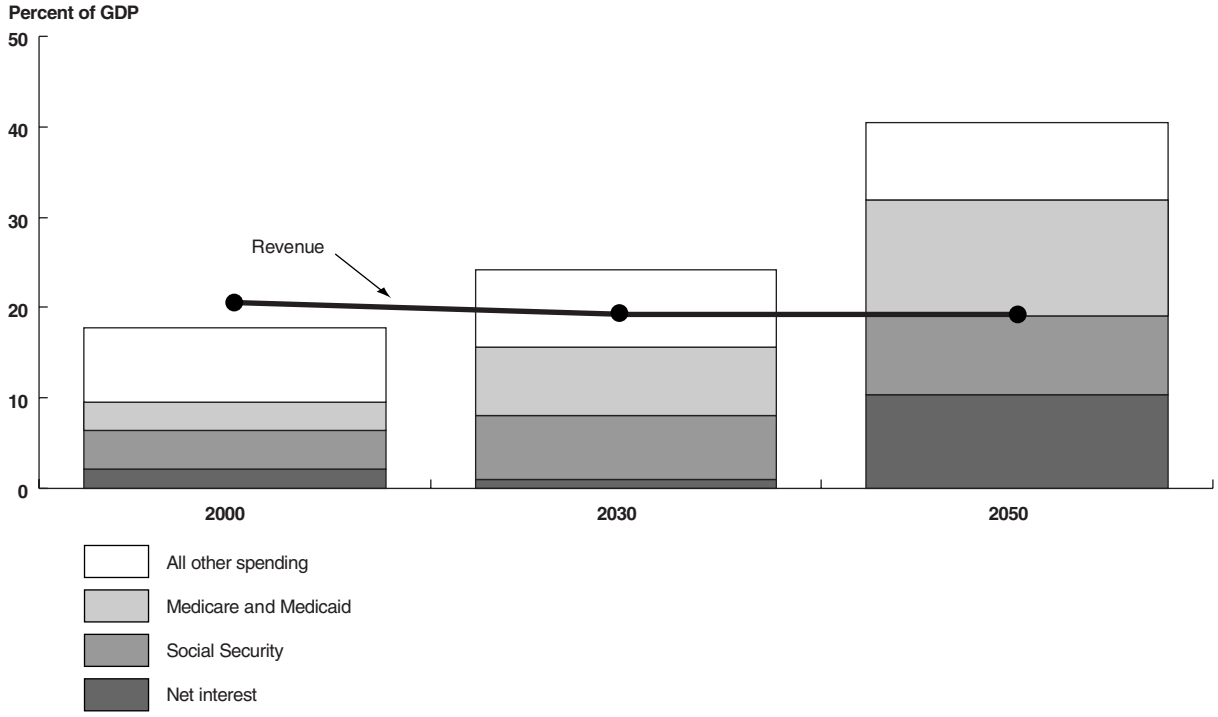
[13]Although estimates as to when this point will be reached vary depending on several assumptions, most analysts agree that it could occur within the decade; see *Federal Debt: Debt Management Actions and Future Challenges* (GAO-01-317, February 28, 2001).

[14]*Budget Issues: July 2000 Update of GAO's Long-Term Fiscal Simulations* (GAO/AIMD-00-272R, July 26, 2000).

"haircut" for spending on programs other than Social Security, Medicare, and Medicaid. In other words, there is increasingly less room for other federal spending priorities such as national defense, law enforcement, and federal investment in infrastructure, education, and R&D.[15] Absent changes in the structure of Social Security and Medicare, some time during the 2040s, government would do little but mail checks to the elderly and their health care providers. Budget flexibility declines drastically so that by 2050, net interest on the debt would absorb roughly half of all federal revenue. Furthermore, Social Security and health spending alone would exceed total federal revenue.

[15]These fiscal policy simulations do not reflect other federal commitments and responsibilities not fully recognized in the federal budget, including the costs of federal insurance programs, clean-up costs from federal operations resulting in hazardous wastes, and the demand for new investment to modernize deteriorating or obsolete physical infrastructure (e.g., transportation systems, and sewage and water treatment plants).

Figure 4.3: Composition of Federal Spending as a Share of GDP Under the Save the Social Security Surpluses Simulation



Note: Revenue as a share of GDP declines from its 2000 level of 20.6 percent as a result of unspecified permanent policy actions. In this display, policy changes are allocated equally between revenue reductions and spending increases. The Save the Social Security Surpluses simulation can only be run through 2056 due to the elimination of the capital stock.

Source: GAO's March 2001 analysis.

Over the long-term, meaningful Social Security and Medicare reform will be necessary to avert massive government dissaving, reduce the economic burden of government spending for an aging population, and restore budgetary flexibility to address other national priorities. Q4.10 and Q4.12 discuss the need for Social Security and Medicare reform more fully.

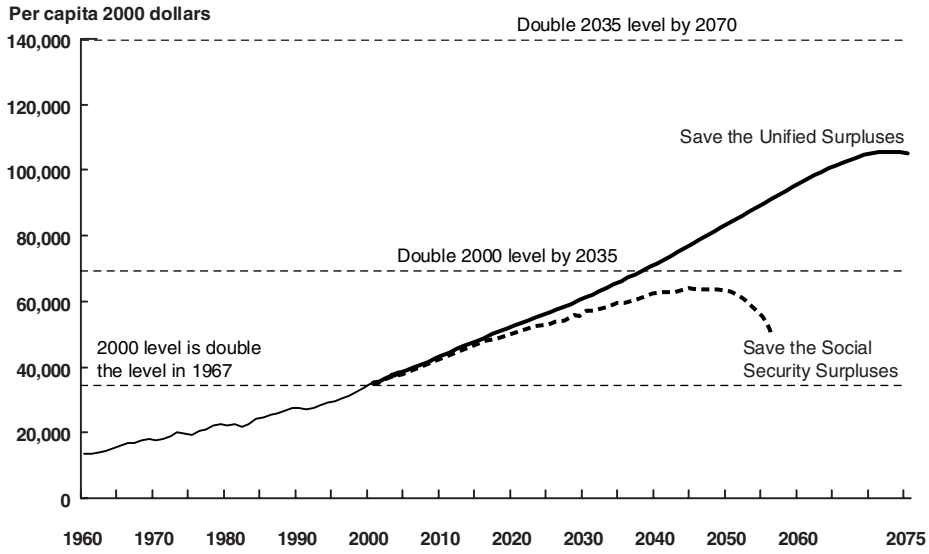
Just as saving more of the anticipated budget surpluses would enhance future budgetary flexibility, increasing private saving would also improve the federal government's budget outlook. As discussed in section 3, increasing national saving boosts investment and economic growth. Because the U.S. economy is essentially the tax base for the federal government, economic growth in turn increases government revenue. Increased economic growth, thus, could provide the resources to help

finance the retirement and health programs for the elderly as well as increase budget flexibility to pay for other federal programs and activities.

Q4.5. What are the Implications of Current Fiscal Policy Choices for Future Living Standards?

A4.5. Fiscal policy choices about how much of the surpluses to save affect not only the level of government saving but ultimately the nation's long-term economic outlook. Saving the Social Security surpluses would allow Americans to enjoy higher standards of living in the future, as figure 4.4 shows. However, under the Save the Social Security Surpluses simulation, GDP per capita growth slows and eventually turns negative. Even if the entire unified surplus were saved, GDP per capita would fall somewhat short of the U.S. historical average of doubling every 35 years. The implication of such simulations is that even if government saving is sustained at unprecedented levels, future generations of workers might not enjoy a rise in living standards comparable to that enjoyed by previous generations. Thus, saving Social Security surpluses is not enough to ensure retirement security for the aging population without placing a heavy burden on future generations. Q4.10 and Q4.12 discuss how Social Security and Medicare reform might affect national saving.

Figure 4.4: GDP Per Capita Under Alternative Fiscal Policy Simulations (1960–2075)



Note: The Save the Social Security Surpluses simulation can only be run through 2056 due to the elimination of the capital stock.

Source: GAO's March 2001 analysis.

It is tempting to push aside gloomy simulation results and to discount the significance of fiscal constraints several decades in the future, but recent good news about the budget does not mean that difficult budget choices are a thing of the past. The history of budget forecasts should be a reminder not to be complacent about the certainty that large surpluses will materialize over the next 10 years as projected. Not so long ago the forecasts were for "deficits as far as the eye can see." Budget projections are inherently uncertain and even a small change in one assumption can lead to very large changes in the fiscal outlook over a decade.

The Congressional Budget Office (CBO) describes its projections as more tentative than usual because the increase in CBO's productivity growth assumption is based on data only for the past few years.[16] According to CBO, that limited time span is insufficient to determine whether the rate of

[16]For more information about potential sources of uncertainty in CBO's projections, see "The Uncertainties of Budget Projections," Chapter 5, *The Budget and Economic Outlook: Fiscal Years 2002–2011*, Congressional Budget Office (January 2001), pp. 93–103.

productivity growth has indeed accelerated or has just temporarily deviated from underlying historical trends as it has many times in the past.[17] Some observers have declared that the U.S. economy has entered a new era of more rapid economic growth, and it is possible that future growth could be even more robust than CBO's baseline economic projections assume. However, CBO has pointed out that the recent burst in productivity may prove temporary if the "new economy" turns out to be just a flash in the pan.

In addition to the greater-than-usual uncertainty about productivity growth, it is too soon to tell whether recent boosts in federal revenue reflect a structural change in the economy or a more temporary divergence from historical trends. CBO has pointed out that simply assuming a return to historical trends and slightly faster growth in health care spending would dramatically reduce the surpluses projected. Given these uncertainties, lower unified surpluses and even deficits are possible budget outcomes over the next decade.

Caution is warranted before committing the anticipated surpluses to permanent changes on either the revenue or spending side. Although policymakers appear to have generally agreed to save Social Security surpluses, there is considerable debate over whether and how to use the rest of the projected surpluses. Yet, the amounts available for new tax or spending initiatives may be considerably less than policymakers and the public anticipate.[18] CBO's budget projections are intended to provide estimates of federal spending and revenue assuming current law related to taxation and entitlement programs is unchanged. For this reason, CBO's projections do not reflect the full cost of maintaining current policies if maintaining those policies would require enacting new legislation. For example, the budget projections do not reflect the costs of laws that are regularly extended for a few years at a time, such as continuing payments to farmers that have been provided for the last three years or extending tax credits due to expire. The projections also do not reflect the expected

[17]See Congressional Budget Office, *The Budget and Economic Outlook: An Update* (July 2000), pp. 34-35.

[18]"How Much of the New CBO Surplus Is Available for Tax and Program Initiatives," Center on Budget and Policy Priorities (July 18, 2000); and James Horney and Robert Greenstein, "How Much of the Enlarged Surplus Is Available for Tax and Program Initiatives? Available Funds Should Be Devoted to Real National Priorities," Center on Budget and Policy Priorities (July 7, 2000).

enactment of a law to alleviate the Alternative Minimum Tax for middle-income taxpayers. Moreover, CBO's inflated baseline assumes that discretionary spending—which is controlled through annual appropriations—will grow after 2002 at the rate of inflation. However, discretionary spending historically has grown faster than the rate of inflation.

Q4.6. How Does Government Investment Affect National Saving and Economic Growth?

A4.6. Not only does government saving directly affect national saving available for private investment, but the federal government also is a key contributor to the nation's capital stock and productivity through its own investment spending.[19] For example, the federal government invests in building roads, training workers, and conducting scientific research. Although unified budget surpluses increase national saving available for private investment, increasing federal spending on infrastructure, if properly designed and administered, can be another way to increase national saving and investment. Federal spending on education and R&D—while it does not count as NIPA investment—can, if properly designed and administered, also promote the nation's long-term productivity and economic growth. GAO has reported that well-chosen federal spending for infrastructure, education, and R&D that is directly intended to enhance the private sector's long-term productivity can be viewed as federal investment.[20] However, CBO has questioned whether increasing federal investment spending could significantly increase economic growth.[21]

A sound public infrastructure plays a vital role in the nation's capacity to produce goods and services in the future. Public facilities, such as transportation systems and water supplies, are vital to meeting the

[19]Fiscal policy choices affect not only how much the government saves and invests but also affect how businesses and households save and invest. Q4.7 discusses federal policies aimed at encouraging private saving.

[20]For more information about defining federal investment for long-term economic growth, see *Budget Issues: Choosing Public Investment Programs* (GAO/AIMD-93-25, July 23, 1993) and related GAO products listed in appendix V.

[21]CBO concluded that increased federal spending on investment in infrastructure, education and training, and R&D was unlikely to increase economic growth and could possibly reduce growth. According to CBO, many federal investments have little net economic benefit—either because they are selected for political or other noneconomic reasons or because they displace more productive private-sector or state and local investments. See *The Economic Effects of Federal Spending on Infrastructure and Other Investments*, Congressional Budget Office (June 1998).

immediate as well as long-term public demands for safety, health, and improved quality of life. While most infrastructure spending takes place at the state, local, or private-sector level, the federal government also invests in infrastructure such as highways, bridges, and air traffic control.[22] As federal unified deficits declined over the 1990s, federal investment in nondefense physical assets remained relatively constant as a share of GDP. Federal spending on education and nondefense R&D, which is intended to enhance the nation's long-term productivity, also remained relatively constant as a share of GDP over the 1990s.

At some point, reducing federal unified deficits or maintaining unified surpluses at the expense of federal R&D and education spending raises concerns about future workers' skills, technological advancement, and, thus, economic growth. R&D and education have long been seen as areas for government activity given the private sector's inability to capture all of the societal benefits that such investments provide. The federal government has played a central role in supporting R&D and thus enhancing the nation's long-term productivity. One rationale for this has been that the societal gains from R&D, for example, are often not felt until far in the future and so might not provide much profit for an individual firm. The Internet, computers, communications satellites, jet aircraft, and semiconductors are all examples of benefits from federal R&D investments over the past 50 years. Federal R&D investment spending on genetic medicine and biotechnology has helped lead to the mapping of human genes. Although the Human Genome Project has been hailed as "the most important, most wondrous map ever produced by humankind," its full societal benefits will not be seen for years to come.[23]

Fiscal policy choices about the allocation of government spending between consumption and investment are influenced in part by the federal budget process. The federal government's cash-based budget process is largely a short-term plan focusing on the short- to medium-term cash implications of government obligations and fiscal decisions. The budget seeks to serve

[22]For more on the federal government's role in infrastructure investment, see *U.S. Infrastructure: Funding Trends and Opportunities to Improve Investment Decisions* (GAO/RCED/AIMD-00-35, February 7, 2000).

[23]"Remarks by the President, Prime Minister Tony Blair of England (Via Satellite), Dr. Francis Collins, Director of the National Human Genome Research Institute, and Dr. Craig Venter, President and Chief Scientific Officer, Celera Genomics Corporation, on the Completion of the First Survey of the Entire Human Genome Project," The White House, Office of the Press Secretary (June 26, 2000).

many purposes, but one of its primary functions is to control obligations up-front before the government commitment is made. As a result, the budget process tends to view a dollar spent on consumption the same as a dollar spent on investment because both represent commitments by the government and represent resources taken out of the private sector for use by the government. Some have argued that the budget may actually favor short-term consumption because the cost of both must be scored up-front as part of the Budget Enforcement Act process even though most of the benefits from investment programs accrue in the future.[24] In the past, GAO has suggested that the budget could better facilitate policymakers' weighing choices between federal investment and consumption by incorporating an investment component with agreed-upon levels of investment spending. This could promote the consideration of spending intended to benefit the economy over the long term while maintaining overall fiscal discipline.[25] As the Congress moves to modify the federal budget process with the expiration of the Budget Enforcement Act, attention is warranted as to how the process considers the long-term implications of alternative spending choices.

Q4.7. What Policies of the Federal Government Have Been Aimed at Encouraging Nonfederal Saving and Investment?

A4.7. Although increasing government saving is the most direct way for the federal government to increase national saving, the federal government can also encourage saving and investment by state and local governments and the private sector. For example, the federal government provides funding—such as grants, loans, or loan guarantees—to state and local governments to finance the construction and improvement of the nation's highways, mass transit systems, and water systems. The federal government also provides financial aid to encourage postsecondary education. In addition to its direct spending, the federal government offers tax incentives to encourage nonfederal saving and investment. The revenue loss associated with a tax incentive represents the federal government's budgetary cost of promoting saving and investment for particular purposes.

The current income tax system provides preferential treatment—such as special exemptions, special deductions, and/or credits, as well as special

[24] *Budget Trends: Federal Investment Outlays, Fiscal Years 1981-2003* (GAO/AIMD-98-184, June 15, 1998).

[25] *Budget Structure: Providing an Investment Focus in the Federal Budget* (GAO/T-AIMD-95-178, June 29, 1995).

tax rates—for both businesses and individuals. Under current law, some types of saving and investment are exempt from taxes while other types are fully taxed; some forms of consumption—in particular, health care—receive preferential treatment. Although a comprehensive discussion of income versus consumption taxes is beyond the scope of this primer, it is helpful to highlight various federal tax incentives for saving and investment.[26]

The federal government uses tax incentives to encourage particular forms of investment. Some tax provisions allow accelerated depreciation so that businesses can more quickly recover the costs of investing in certain types of equipment and structures. Other tax incentives encourage investment in the nation's infrastructure. For example, interest income on state and local government bonds, which are used primarily for infrastructure purposes, are exempt from federal taxes. This tax preference allows state and local governments to borrow at lower rates to build highways, schools, mass transit facilities, and water systems. In addition, tax preferences may encourage particular forms of infrastructure investment, such as special tax credits for investments in developing low-income rental housing. Also, special tax credits and deductions are aimed at spurring private R&D.

The federal government also has sought to encourage personal saving both to enhance households' financial security and to boost national saving. Table 4.1 highlights some tax provisions aimed at encouraging saving for retirement, buying homes, and investing in education.[27] The largest tax incentive for saving—in terms of the tax revenue loss—is the preferential tax treatment of employer-sponsored pension plans; additional tax incentives encourage retirement saving outside of employer pensions. The second largest category of tax incentives aimed at encouraging saving promotes home ownership. Other tax incentives encourage college and other postsecondary education. While some tax incentives for education encourage households to accumulate assets such as U.S. Series EE savings

[26]For more information about the differences between income and consumption taxes and the current tax treatment of saving and investment, see *Tax Administration: Potential Impact of Alternative Taxes on Taxpayers and Administrators* (GAO/GGD-98-37, January 14, 1998), pp. 55–77.

[27]While this discussion focuses on tax incentives encouraging personal saving, some federal programs and tax provisions may actually discourage people from saving. As discussed in section 1, Social Security also affects people's incentives to save for retirement. Capital gains taxation and estate transfer taxes may also affect household decisions about saving and asset accumulation.

bonds or education savings accounts to pay for college, other provisions, such as the HOPE credit, are aimed more at making college more affordable.

Table 4.1: Selected Federal Income Tax Provisions That Influence Personal Saving

Tax provision	FY 2000 revenue loss estimate in millions
Encourage retirement saving	
Net exclusion of pension contributions and earnings for: (1) qualified employer pension plans	$89,120
(2) Individual Retirement Accounts (IRAs)	$15,200
(3) Keogh plans	$5,500
Encourage home ownership	
Deductions for mortgage interest on homes	$60,270
Deductions for State and local property taxes on homes	$22,140
Exclusion of capital gains income from home sales	$18,540
Encourage personal investment in postsecondary education	
HOPE scholarship tax credits for tuition payments for the first 2 years of college	$4,210
Deductibility of student-loan interest	$360
Exclusion of interest earned on U.S. Series EE savings bonds when used for qualified education expenses	$10

Note: This table does not represent all federal tax provisions related to personal saving. For a more comprehensive discussion, see Joint Committee on Taxation, *Present Law and Background on Federal Tax Provisions Relating to Retirement Savings Incentives, Health and Long-Term Care, and Estate and Gift Taxes* (JCX-29-99), June 15, 1999.

Source: GAO analysis based on information provided in *Analytical Perspectives*, Budget of the United States Government, Fiscal Year 2002.

For individual taxpayers, tax incentives increase the after-tax return on saving for particular purposes or on specific types of assets accumulated. This would narrow the wedge between the individual's return on saving and society's return on investment that results from the taxation of income from saving. As explained in section 1, higher rates of return may or may not encourage people to save more. For the federal government, tax incentives reduce tax revenue and hence government saving. How tax incentives affect personal saving, and ultimately, national saving is less certain. The net effect on national saving—discussed further in Q4.8—depends on the interaction between any additional personal saving and government dissaving associated with financing the incentive.

Tax incentives affect how people save for retirement but do not necessarily increase the overall level of personal saving. Since the 1970s, preferential tax treatment has been granted to **Individual Retirement Accounts (IRAs)** and employer-sponsored **401(k)** pension plans. Even with these retirement saving incentives, the personal saving rate has steadily declined. Although the tax benefits indeed seem to encourage individuals to contribute to these kinds of accounts, the amounts contributed may not be totally new saving. Some contributions may represent saving that would have occurred even without the tax incentives or amounts merely shifted from taxable assets or even financed by borrowing. Economists disagree about whether tax incentives are effective in increasing the overall level of personal saving. In a 1996 symposium examining universal IRAs available in the early 1980s,[28] researchers reached three widely divergent conclusions: (1) yes, most contributions represented new saving, (2) no, most IRA contributions were not new saving, and (3) maybe, about 26 cents of each dollar contributed may have represented new saving.[29]

Even if tax incentives do not increase personal saving much in the short term, they may encourage individual households to earmark resources specifically for retirement. Once the funds are earmarked in retirement accounts, the prospect of taxes and penalties for early withdrawals might induce some households to save more outside of retirement accounts to achieve nonretirement goals. However, if people can readily withdraw money from tax-preferred accounts for purposes other than retirement, there is no assurance that tax incentives would ultimately enhance individuals' retirement security.

Allowing access to voluntary accounts like IRAs or 401(k) plans before retirement—through borrowing or early withdrawals to buy a home or to pay for education or medical expenses—is a double-edged sword. Access

[28]*The Journal of Economic Perspectives*, Vol. 10, No. 4 (Fall 1996) presented three papers representing these viewpoints: James M. Poterba, Steven F. Venti, and David A. Wise, "How Retirement Saving Programs Increase Saving," pp. 91-112; Eric M. Engen, William G. Gale, and John Karl Scholz, "The Illusory Effects of Saving Incentives on Saving," pp. 113-138; and R. Glenn Hubbard and Jonathan S. Skinner, "Assessing the Effectiveness of Saving Incentives," pp. 73-90.

[29]Researchers have also attempted to estimate the effect of employer-sponsored 401(k) plans on personal saving. For a recent summary of this empirical debate, see William Gale, "The Impact of Pensions and 401(k) Plans on Saving: A Critical Assessment of the State of the Literature," paper presented at ERISA After 25 Years: A Framework for Evaluating Pension Reform, Washington, D.C., September 17, 1999.

provisions may increase saving because more people may choose to participate and to contribute larger amounts.[30] Yet, borrowing and early withdrawals can ultimately reduce individuals' retirement income. There would be little benefit to national saving from allowing early access to mandatory accounts with set contribution levels—which has been proposed for Social Security (see Q4.10 and Q4.11).

Q4.8. Given That Experts Disagree About Whether Retirement Saving Tax Incentives Are Effective In Increasing Personal Saving Overall, How Do These Tax Incentives Affect National Saving?

A4.8. The net effect on national saving depends on whether a tax incentive induces enough additional saving by households to make up for the government's revenue loss. To gain a better understanding of how tax incentives affect national saving, look at one example: how a tax deduction for a traditional tax-deferred IRA may affect government and ultimately national saving. For simplicity, consider a married couple in which neither spouse is covered by an employer-sponsored pension plan and each contributes $2,000—the maximum per person per year allowed under current law—to a traditional IRA. As shown in table 4.2, how much the couple's $4,000 annual contribution adds to national saving that year depends on (1) how much their IRA tax deduction costs the government and (2) whether their contributions represent new saving or were shifted from existing assets. Further assume, for simplicity, that our hypothetical couple's marginal tax rate is 28 percent, so their deduction costs the federal government $1,120 (28 percent of $4,000). In other words, government saving decreases by $1,120 (or government dissaving increases by that amount, depending on the government's surplus/deficit position for the year). If the couple would have otherwise spent the $4,000 (i.e., their contributions represent new saving), national saving would increase by $2,880—the $4,000 increase in personal saving less the $1,120 decrease in government saving. At the other extreme, if the couple merely shifted the funds from another account or asset to the IRAs (i.e., no increase in personal saving), national saving would fall by the amount of the government's tax loss. The actual change in national saving probably falls somewhere between these two examples. Table 4.2 also provides a third scenario—the impact on national saving if about 26 percent of the couple's contributions represent new saving. In this case, national saving would drop slightly, but the couple would have saved more and expressly earmarked more of their assets for retirement.

[30] *401(k) Pension Plans: Loan Provisions Enhance Participation But May Affect Income Security for Some* (GAO/HEHS-98-5, October 1, 1997).

Table 4.2: Change in Government and National Saving Resulting From a $4,000 Tax-Deductible IRA Contribution Under Alternative Personal Saving Assumptions

Alternative personal saving assumptions[a]	Change in personal saving	Change in government saving[b]	Change in national saving[c]
15-percent marginal tax bracket (annual income under $43,050)			
No new saving	$0	-$600	-$600
26-percent new saving	+1,040	-600	+440
All new saving	+4,000	-600	+3,400
28-percent marginal tax bracket (annual income over $43,050, but not over $104,050)			
No new saving	$0	-$1,120	-$1,120
26-percent new saving	+1,040	-1,120	-80
All new saving	+4,000	-1,120	+2,880
39.6-percent marginal tax bracket (annual income over $183,150)			
No new saving	$0	-$1,584	-$1,584
26-percent new saving	+1,040	-1,584	-544
All new saving	+4,000	-1,584	+2,416

Note: This table illustrates a hypothetical couple in which neither spouse is covered by an employer-sponsored retirement plan and each contributes $2,000 to a traditional IRA. Their $4,000 IRA contributions are fully deductible. If either spouse is covered by an employer-sponsored plan, their contributions may not be fully deductible depending on their income.

[a]Change in personal saving depends on how much of the $4,000 IRA contribution represents new saving. These assumptions were drawn from three papers presented in the Fall 1996 *Journal of Economic Perspectives;* see footnote 28.

[b]Change in government saving represents tax revenue loss in first year due solely to tax deduction for IRA contribution. Amount does not include revenue forgone as a result of tax-deferral on investment income. Taxes on contribution and investment income are deferred until amounts are withdrawn.

[c]Change in national saving represents the sum of the change in personal and government saving for a simplified example focused on one household and one type of IRA. The ultimate effect of any tax incentive on national saving would depend on how households in aggregate respond.

Source: GAO analysis based on 1999 individual income tax rates and IRS publication 590 *Individual Retirement Arrangements*.

Table 4.2 also shows the effect on national saving of tax-deductible IRA contributions under different tax brackets. If our hypothetical couple were in the highest income tax bracket and their contributions represented all new saving, their $4,000 deduction would cost the government $1,584 and add $2,416 to national saving. If they were in the lowest tax bracket, their deduction would cost the government $600 and add as much as $3,400 to national saving. Of course, this simplified example focuses on one household and one type of IRA.[31] The ultimate effect of any tax incentive on national saving would depend on how households in aggregate respond. A tax incentive for retirement saving may encourage some households to save more while encouraging others to shift their existing balances into tax-preferred accounts.

Again, the net effect of a tax incentive on national saving depends on whether the tax incentive induces enough additional personal saving to make up for the government's revenue loss. As illustrated in table 4.2, deductions for taxpayers in higher tax brackets are more costly for the government. Although deductions for lower-income taxpayers appear to yield a greater net increase in national saving because they are less costly for the government, they also offer relatively less incentive for lower-income families to save. Low- and moderate-income households have fewer resources and may have less capacity to contribute to an IRA or to earmark more assets for retirement. Most people saving through tax-preferred retirement accounts are middle- to upper-income. Although higher-income households might be encouraged to save more by increasing the annual contribution limits to IRAs and employer-sponsored 401(k) plans—currently $2,000 and $10,500, respectively—increasing contribution limits alone is not likely to induce more saving from low-income households. Nonrefundable tax incentives may not be particularly effective in encouraging saving by lower-income taxpayers, who already owe relatively little or no federal income taxes.

In recent years, policymakers have explored providing refundable tax incentives and government matching to encourage Americans to save more. Text box 4.3 describes two federal initiatives allowing government-subsidized saving accounts for low-income families. First, the 1996 welfare

[31]Besides the tax-deductible traditional IRA, other retirement saving vehicles also receive preferential tax treatment. Depending on their circumstances, people may also be able to choose from nondeductible traditional IRAs, new Roth IRAs, SEP IRAs for the self-employed, SIMPLE IRAs sponsored by small employers, and the popular 401(k) employer-sponsored saving plans. The oddly named education IRA is not a retirement arrangement.

reform law allowed states to use Temporary Assistance for Needy Families (TANF) funds to establish subsidized saving accounts for TANF recipients. Second, the Assets for Independence Act of 1998 authorized federal funding for a 5-year demonstration project to evaluate the effectiveness of matching incentives for certain low-income savers.

Text Box 4.3: Individual Development Accounts for Low-Income Savers

Individual development accounts (IDAs) are special saving accounts for low-income families. In theory, IDAs help low-income families save, accumulate assets, and achieve economic self-sufficiency. IDAs are like the better known IRAs in the sense that the assets accumulated are to be used only for limited purposes. Whereas IRAs are for retirement, IDAs can be used to buy a first home, to pay for college or other job training, or to start a small business. IDAs are special in that low-income savers receive matching funds from federal and state governments as well as private sector organizations as an incentive to save. Usually, IDA account holders must undergo economic literacy training as a condition of participation.

The 1996 welfare reform law allowed states to use Temporary Assistance for Needy Family (TANF) funds to establish subsidized saving accounts for TANF recipients. TANF recipients are to make contributions from earnings, and state matching funds used for IDAs count towards a state's maintenance-of-effort spending requirement. IDA balances generally are not to be considered in determining eligibility and benefits for means-tested federal programs. According to the Center for Social Development, as of January 2001, 29 states had passed legislation establishing IDA programs, and 32 states had incorporated IDAs into their TANF plans. Matching rates and dollar limits vary by state. Matching rates range from two-to-one in Virginia to three-to-one in Indiana and Missouri. Limits on IDA balances range from $4,000 in Virginia to $10,000 in South Carolina and $50,000 in Missouri. Some states restrict IDA use to paying for education or training.

The Assets for Independence Act of 1998 authorized federal funding for a 5-year demonstration project to evaluate the effectiveness of matching incentives for low-income savers. The IDA demonstration project provides direct federal funding to state and local governments as well as nonprofit community organizations to match saving contributions by low-income families eligible for TANF or the Earned Income Tax Credit. In fiscal years 1999 and 2000, $10 million was appropriated each year for the demonstration project. In those 2 years, awards totaling $17.7 million were made to 65 grantees sponsoring IDA programs. For fiscal year 2001, $25 million was appropriated for the IDA demonstration. Because the first grants were awarded in September 1999, it is too soon in the demonstration project to fully evaluate the effectiveness of IDAs as a saving incentive.

Sources: The Center for Social Development, Washington University in St. Louis, and Vee Burke, *Temporary Assistance for Needy Families and Individual Development Accounts*, Congressional Research Service, January 17, 2001.

Recent proposals have aimed at creating a broader system of subsidized accounts to encourage more Americans to save for retirement. For example, President Clinton's 2000 Retirement Savings Accounts (RSAs) proposal would have provided government matching on voluntary

retirement contributions for low- and moderate-income families.[32] Under the RSA proposal, a worker between the ages of 25 and 60 with family earnings of at least $5,000 could contribute up to $1,000 annually through either an employer-sponsored saving plan or a tax-deferred individual account.[33] A worker earning up to $12,500 was to receive a two-to-one (200 percent) match on the first $100 contributed each year and a one-to-one match (100 percent) on additional contributions. The progressive matching formula was to phase down as income increased. A worker earning between $25,000 and $40,000 was to receive a 20 percent match on the first $100 contributed and additional contributions. For individuals who did not owe federal income taxes, the government match was to be in the form of a tax credit to the employer or financial institution holding the taxpayer's account. Although the RSAs were aimed at accumulating assets for retirement, the proposal would have allowed limited withdrawals after 5 years for such purposes as buying a home or paying educational or medical expenses.

At this time, it is unclear how new tax-subsidized saving accounts might affect personal saving and ultimately national saving. Like any tax incentive, matching tax credits would clearly reduce federal revenue and government saving. The tax credits by themselves would have no net effect on national saving: absent any change in household consumption, personal saving would increase by the amount of the government match, but government saving would decrease by the same amount. Of course, the purpose of matching is to change household behavior. Government matching of voluntary contributions could increase national saving if these incentives indeed induce people to save more.[34] A progressive match—providing a higher match for low-income workers and eliminating the match for high-income workers—would serve to target low-income

[32]President Clinton's 1999 Universal Savings Accounts (USA) proposal would have created a more costly centralized system of accounts with a flat annual general tax credit of up to $300 for low- and moderate-income workers plus a 50 to 100 percent government match on voluntary contributions. Low-income workers were to receive a one-to-one match on their contributions, and the match progressively declined based on income so that higher-income workers would receive a lower match or none at all.

[33]Contribution limits and eligibility thresholds for RSAs for a couple were twice the amount for an individual. For example, a couple could contribute up to $2,000 annually.

[34]Depending on the design and implementation, government matching could potentially reduce national saving. For example, a household could transfer amounts from existing assets to get the government match and then increase consumption in response to its increased wealth.

workers who now receive little tax benefit from existing retirement saving incentives. Even with generous matching, low-income workers may not voluntarily save more for retirement. In light of the conflicting expert views on how existing tax incentives affect personal saving, it is unclear how new matching incentives might affect individuals' saving choices and retirement security.

Q4.9. What Is the Federal Government Doing to Educate the Public About Why Saving Matters?

A4.9. While a great deal of attention focuses on how much retirement saving tax incentives cost the government and how much, if any, new personal saving they generate, what is sometimes overlooked is that tax incentives remind people to save for retirement. The existence of IRAs and 401(k)s serves to raise public awareness about retirement saving opportunities. Advertising by financial institutions offering IRAs and information about employer-sponsored 401(k) options serve as reminders about ways to save for retirement. Yet, even as the tax code provides more opportunities than ever to save for retirement, Americans may not understand why saving matters.

In the "Savings Are Vital for Everyone's Retirement Act of 1997" (SAVER Act), the Congress found that a leading obstacle to expanding retirement saving is that many Americans do not know how to save for retirement, let alone how much. According to the 1998 National Summit on Retirement Savings, the nation must do a better job of educating the public—employers and individuals alike—about the importance of saving more today to secure the nation's retirement security.[35] Increasing personal saving is vital to enhancing individual households' retirement security, to increasing national saving available to invest in the nation's capital stock, and ultimately to reducing the burden on future generations of financing government programs for the elderly.

As mandated by the SAVER Act, the Department of Labor maintains an outreach program to raise public awareness about the advantages of saving and to help educate workers about how much they need to save for retirement. The Department of Labor's original Retirement Savings Education Campaign was launched in 1995 in partnership with the

[35] *Final Report on The National Summit on Retirement Savings*, Department of Labor (September 1998). This bipartisan summit, held June 4–5, 1998, was mandated by the SAVER Act. Additional national summits are to be held in 2001 and 2005.

Department of the Treasury and other public and private organizations.[36] The SAVER Act also requires the Department of Labor to coordinate with similar efforts undertaken by other public and private organizations. In addition to the Department of Labor's outreach program, other federal agencies also play a role in saving education. The Securities and Exchange Commission's Office of Investor Education and Assistance promotes financial literacy and seeks to encourage Americans to save wisely and plan for the future. The Administration on Aging and FirstGov for Seniors also provide information to educate the public about how they can better prepare for a more financially secure retirement. In 2000, the Department of the Treasury launched the National Partners for Financial Empowerment. This new coalition planned to raise public awareness about the importance of financial literacy and saving and to help Americans develop the skills they need to take charge of their financial future.

Education campaigns to promote financial literacy and retirement saving represent a potentially valuable tool for encouraging people to save more. Building on policymakers' efforts to enhance tax incentives for retirement saving, education campaigns are a means to convey easy-to-understand information about the variety of saving vehicles available.[37] Efforts such as the Department of Labor's saving outreach program can serve as a catalyst to educate employers about pension plan options they can offer to their employees as well as to encourage individuals to save more on their own behalf. Public education campaigns are one way to get people started with retirement planning. The key steps are to calculate how much income they need to retire, estimate how much retirement income they can expect from Social Security and employer-sponsored pensions, and decide how much more they need to save.

Individualized Social Security statements now sent annually by the Social Security Administration to most workers aged 25 and older provide important information for personal retirement planning. The statement provides estimates of potential retirement, disability, and survivor benefits. It also asks statement recipients to check their listed earnings to help correct errors and ensure benefits are correct when workers retire, become disabled, or die. The newly revised statement more successfully

[36]These public-private partnerships were a catalyst in 1995 for forming the American Savings Education Council. This coalition of public and private entities undertakes initiatives aimed at raising public awareness about personal finance and retirement planning.

[37]Appendix IV includes a list of educational websites on saving.

meets its purpose of providing basic information to individual workers, but further improvement is always possible.[38] For example, readers may not understand that the "current dollar" estimates provided reflect today's price level, not the price level that will exist when they actually start to receive benefits. The Social Security Administration will need to continue to review and streamline the statement to make it clearer and easier to understand.

Individualized Social Security statements also explain that Social Security benefits were not intended to be the only source of retirement income, and the statements encourage workers to supplement their benefits with pensions and personal saving. Once they know their Social Security benefits promised under current law, workers can calculate how much they can expect from employer-sponsored pension plans and how much they need to save on their own for retirement.[39] Knowing more about Social Security's financial status would help workers to understand how to view their personal benefit estimates. As discussed in section 1, Social Security benefits are projected to exceed the program's cash revenue in 2016, and the trust fund will be depleted in 2038. At that time, Social Security revenue would only be sufficient to pay for roughly 73 percent of promised benefits. The individualized statements disclose that, absent a change in the law, only a portion of the benefits estimated may be payable. Knowing this can help workers understand that some combination of revenue increases and benefit reductions will be necessary to restore the program's long-term solvency.

Q4.10. How Would Social Security Reform Affect National Saving?

A4.10. Restoring Social Security to sustainable solvency and increasing saving are intertwined national goals. Saving more today would alleviate the burden of financing Social Security commitments. Increased saving and investing can lead to greater economic growth, and a larger economy in turn would mean higher real wages, resulting in more government revenue to pay benefits. Social Security reform—depending on the elements of the reform package and the timing of implementation—could foster saving and

[38] *Social Security: Providing Useful Information to the Public* (GAO/T-HEHS-00-101, April 11, 2000).

[39] The Social Security Administration also offers an online retirement planner with calculators to help workers understand how much they can expect from Social Security under different retirement scenarios.

provide resources for capital formation and economic growth. Prompt action is vital because economic growth is a long-term process. A bigger economic pie would make it easier for future workers to meet the dual challenges of paying for the baby boomers' retirement while achieving a rising standard of living for themselves.

For individuals and the nation as a whole, saving more means forgoing consumption today in order to consume more in the future. However, this trade-off between today's consumption and tomorrow's consumption is somewhat different for an individual than for the nation. When an individual delays retirement saving, that individual enjoys the additional consumption in the early years and then personally bears the burden of saving larger amounts later, working longer, or accepting a lower standard of living in retirement. From the nation's perspective, if current generations forgo saving for their retirement costs, they also forgo investment opportunities and the economic growth that would result. Therefore, their saving choices affect not only their own retirement income but also potentially affect the standard of living for future workers. Greater economic growth from saving more now could alleviate the burden that a slow-growing workforce will bear in producing the goods and services to be consumed by a society with a large retired population that consumes but does not work.

In other respects, saving for the nation's retirement costs is analogous to an individual's retirement preparations. The sooner we begin, the less we have to save per year and the greater our benefit from compounding growth. The conventional measure of Social Security solvency is gauged in terms of the actuarial balance of the program's trust fund over a 75-year period. According to the Social Security Trustees' 2001 intermediate projections, restoring the program's actuarial balance over the next 75 years would require a combination of reform options equal to 1.86 percent of taxable payroll. In simple terms, increasing payroll taxes by 1.86 percent (a 15-percent increase over the 2001 rate paid by employers and workers) now could head off a Social Security shortfall for 75 years. Delaying reform until Social Security's insolvency is imminent would necessitate drastic changes over a shorter period. Absent reform, by 2038, Social Security's annual deficit would require cutting benefits by about a quarter (26 percent) or raising payroll taxes by about a third (35 percent) just to restore balance for that year.

Restoring Social Security's long-term solvency will require some combination of increased revenues and reduced expenditures. Various

options are available within the current structure of the program including raising the retirement age, reducing the cost-of-living adjustment, altering the benefit formula, increasing payroll taxes, and investing trust fund surpluses in higher-yielding assets. In addition, some proposals would fundamentally alter the program structure by setting up individual retirement accounts.

Before trying to explore how various reform options might affect national saving, it is useful to highlight how the current Social Security program affects personal saving, the Social Security trust fund, and government saving.

- **Personal saving**. As discussed in Q1.5, some evidence suggests that the existence of Social Security may have reduced personal saving. The retirement benefits promised under current law reduce the amount people believe they need to save on their own for retirement. Although some may view their payroll tax contributions as a form of retirement saving, workers need to understand that their contributions are not deposited into interest-bearing accounts for each individual but are largely used to finance current benefits.

- **Social Security trust fund**. In the federal budget, a "trust fund" is simply an accounting mechanism to record earmarked receipts and expenditures.[40] From Social Security's perspective, its annual cash surpluses are saved in the trust fund, and the trust fund balance represents resources accumulated to help pay future benefits. However, the accumulation and exhaustion of the trust fund's balance does not reflect how Social Security finances affect federal government and national saving. The extent to which cash surpluses "saved" in the Social Security trust fund translate into increased national saving depends on federal saving as a whole. Although the trust fund appears solvent until 2038, Social Security will begin dissaving at the point that program cash deficits emerge in 2016 (shown in figure 1.8).

- **Government saving**. For the years since the 1983 reforms until 1998, Social Security surpluses partially offset a deficit in all other

[40]For more information about trust funds in the federal budget, see *Federal Trust and Other Earmarked Funds: Answers to Frequently Asked Questions* (GAO-01-199SP, January 2001).

government accounts within the unified budget.[41] In effect, Social Security surpluses reduced the magnitude of government dissaving and the government's need to borrow from the public. Since 1998, when the federal government began running unified surpluses, policymakers appear to have agreed to using the Social Security surpluses to reduce federal debt held by the public, and these amounts would translate dollar-for-dollar into government saving. When the trust fund begins running cash deficits in 2016, the government as a whole must come up with the cash to finance Social Security's cash deficit by reducing any projected non-Social Security surpluses, borrowing from the public, raising other taxes, or reducing other government spending. The Save the Social Security Surpluses simulation illustrates the magnitude of fiscal challenges associated with our aging society. Absent reform, Social Security deficits would contribute to government dissaving (shown in figure 4.2) and greatly constrain budgetary flexibility over the long run (shown in figure 4.3).

In evaluating reform proposals, it is important to consider whether a reform package will truly increase national saving and "grow the economic pie." From a macroeconomic perspective, increasing the trust fund's balance, without underlying reform, does nothing to enhance the government's fiscal capacity to finance future benefits. For example, crediting additional securities to the trust fund or increasing the interest rate paid on the trust fund's securities would commit additional future general revenue to the Social Security program but does not increase the government's overall revenue or reduce its costs.

Reforms that reallocate the composition of the nation's saving and asset portfolio may serve only to redistribute the existing pie. For example, individual accounts—discussed more fully in Q4.11—affect the contributions of government and personal saving relative to national saving. Investing Social Security surpluses in the stock market affects the government's asset holdings but does not directly increase national saving. As we reported in 1998, potentially higher returns—albeit with greater risk—on the government's stock holdings could boost Social Security's financing and reduce the size of other revenue increases or benefit

[41]During the late 1970s and early 1980s, Social Security's expenditures regularly exceeded revenues, causing a rapid decline in the trust fund's balance and raising concerns about the program's solvency. In response, the Congress passed reforms in 1977 and 1983 that together were intended to assure Social Security's solvency for a 75-year period.

reductions needed to restore solvency.[42] Acquiring stocks or other nonfederal financial assets would have approximately the same effect on national saving as using the same amount of money to reduce debt held by the public. If reducing federal debt held by the public is not an option, as discussed in text box 4.2, investing in nonfederal financial assets on behalf of the Social Security trust fund could be another way for government saving to provide resources for private investment.

Most traditional reform options involve workers paying more for promised benefits or getting lower benefits. From the government's perspective, increasing payroll taxes or reducing benefits would improve Social Security's finances and increase government saving—assuming no other changes in government spending or taxes. The ultimate effect of Social Security reform on national saving depends on complex interactions between government saving and personal saving—both through pension funds and by individuals on their own behalf. The way in which Social Security is reformed will influence both the magnitude and timing of any increase in national saving. To illustrate the complexities in evaluating how traditional program reforms might affect national saving, let's examine two basic options that would directly improve Social Security's financial imbalance—increasing payroll taxes and reducing benefits.

- **Payroll tax increases**. At first glance, increasing payroll taxes appears to be a straightforward way to increase saving now to take advantage of compounding growth. Payroll tax increases are easy to implement and directly improve the trust fund's finances. However, the extent to which payroll tax increases would translate into increased government saving depends on whether the cash generated by the payroll tax increase is used to finance new spending or a general tax cut. Thus, increased Social Security surpluses will not necessarily increase government saving. Even if the federal government saves all of the increased Social Security surpluses, national saving would not increase dollar-for-dollar. Changes in personal saving may counterbalance any increase in government saving resulting from higher taxes. Higher payroll taxes may depress personal saving to the extent that households have less disposable income to save. How people adjust their saving in response to payroll tax increases may also depend on the form of the increase.

[42]*Social Security Financing: Implications of Government Stock Investing for the Trust Fund, the Federal Budget, and the Economy* (GAO/AIMD/HEHS-98-74, April 22, 1998).

Raising the payroll tax rate would affect all workers whereas increasing the maximum taxable earning level would affect high-income earners.

- **Benefit reductions**. Options reducing initial benefits or raising the retirement age take time to implement or phase in, allowing time for people to adjust their retirement plans. Reducing future benefits obviously reduces future spending for Social Security retirement benefits and stems government dissaving. At first glance, reducing future benefits promised to current workers would not seem to increase resources available to invest now. However, changes in personal saving may complement any increase in government saving resulting from benefit reductions. If Social Security reform reduces anticipated retirement income, many analysts expect that workers might, to some degree, want to offset this effect by increasing their saving outside the Social Security system. If people adjust their retirement plan to reflect benefit reductions, increased personal saving today could provide new resources to invest. For example, raising the retirement age reduces benefits and could induce some individuals to save more now in order to retire before they are eligible for Social Security.

In evaluating a Social Security reform proposal, it is important to consider that increasing national saving is one criterion in assessing the extent to which the proposal achieves sustainable solvency. Beyond weighing how a proposal would affect the federal budget and the economy, policymakers need to consider the balance struck between the twin goals of income adequacy (level and certainty of benefits) and individual equity (rates of return on individual contributions).[43] Reform elements that could increase national saving may not satisfy these adequacy and equity goals. For example, benefit cuts, depending on how they are structured, could leave those most reliant on Social Security with inadequate retirement income. Also, increasing payroll taxes reduces the implicit rate of return for future beneficiaries. It is crucial to evaluate the effects of an entire reform package considering interactions between individual reform elements as well as how the package as a whole achieves policymakers' most important goals for Social Security.

[43]For more information about the analytical framework for assessing Social Security reform proposals offered by GAO, see *Social Security: Criteria for Evaluating Social Security Reform Proposals* (GAO/T-HEHS-99-94, March 25, 1999) and *Social Security: Evaluating Reform Proposals* (GAO/AIMD/HEHS-00-29, November 4, 1999).

Q4.11. How Would Establishing Individual Accounts Affect National Saving?

A4.11. Evaluating the potential effect of proposals to establish individual accounts can be confusing. Various proposals have been advanced that would create a new system of individual accounts as part of comprehensive Social Security reform, while other proposals would create new accounts outside of Social Security. Individual account proposals also differ as to whether individuals' participation would be mandatory or voluntary. As we have previously reported, the extent to which individual accounts would affect national saving depends on how they are financed, how the program is structured, and how people adjust their own saving behavior in response to individual accounts.[44]

To understand how individual accounts might affect national saving, it is necessary to examine the first-order effects accounting for how the government might fund the accounts and then to consider how people might adjust their saving in response to a new account program.

One important determinant of the effect on national saving is the funding source for the individual accounts. Shifting funds from the federal government would affect the relative contributions of the federal government and households to national saving. For instance, diverting funding from the Social Security trust fund—such as a carve-out from current payroll taxes—would likely reduce government saving by the same amount that the accounts increase personal saving. Although national saving would be unchanged, financing of the Social Security program—absent other changes—would be worsened. If accounts are funded outside of the Social Security system using general revenues, the effect on national saving is unclear and would depend on what would have been done instead with the general funds.

- If the general funds would have been used to redeem federal debt held by the public or acquire nonfederal financial assets, national saving initially would be unchanged because personal saving would increase by the amount that government saving decreases. In a sense, individual accounts could serve as a way to channel saving through the government into resources for private investment while avoiding issues associated with government ownership of nonfederal assets.

[44]See *Social Security: Capital Markets and Educational Issues Associated With Individual Accounts* (GAO/GGD-99-115, June 28, 1999).

- If the general funds would have been spent on additional government consumption, then any increase in personal saving due to the individual accounts would represent an increase in national saving. If the general funds would have been used for infrastructure investment, national saving would be unchanged but more funds would be available for private investment.

- If the general funds would have been used for a general tax cut, then national saving would initially increase because personal saving would increase by the amount of individual accounts whereas some portion of a tax cut would be consumed.

National saving also would be affected by how households and businesses respond to individual accounts. Regardless of the financing source, the effect of individual accounts would be to raise, at least to some extent, the level of personal saving unless households fully offset the new accounts by reducing their other saving. Households for whom individual accounts closely resemble 401(k)s and IRAs and who are currently saving as much as they choose for retirement would probably reduce their own saving in the presence of individual accounts. The extent of the behavioral effects would depend in part on the structure of the individual account program and any limits on accessing the funds. For instance, mandatory account proposals are more likely to increase private saving because such a program would require households that do not currently save—such as many low-income individuals or families—to place some amount in an individual account. Prohibitions or restrictions on borrowing or other forms of pre-retirement distributions could limit the ability of some households to reduce their other saving in response to individual accounts. In addition to the effects on household saving choices, individual accounts may also affect the relationship and interactions between Social Security and private pensions.[45]

[45]*Social Security Reform: Implications for Private Pensions* (GAO/HEHS-00-187, September 14, 2000).

Q4.12. How Would Medicare Reform Affect National Saving?

A4.12. As we have reported, the current Medicare program, without improvements, is ill-suited to serve future generations of Americans.[46] The program is fiscally unsustainable in its current form, and growing Medicare spending is expected to drive federal government dissaving over the long run. Despite this looming financial problem, pressure is mounting to update Medicare's outdated benefit design. Given the aging of the U.S. population and the increasing cost of modern medical technology, it is inevitable that demands on the Medicare program will grow.

In addition to the aging population and the increasing cost of modern medical technology, the current Medicare program lacks incentives to control health care consumption. The actual costs of health care are not transparent, and third-party payers generally insulate consumers from the cost of health care decisions. In traditional Medicare, for example, the effect of cost-sharing provisions designed to curb the use of services is muted because many Medicare beneficiaries have some form of supplemental health care coverage—such as Medigap insurance—that pays these costs. For these reasons, among others, Medicare presents a great fiscal challenge over the long term.

In the past, Medicare's fiscal health has generally been gauged by the solvency of the HI trust fund projected over a 75-year period. Although the HI trust fund is viewed as solvent through 2029, HI outlays are predicted to exceed HI revenues beginning in 2016. According to the Medicare Trustees' 2001 intermediate assumption, restoring the HI program's actuarial balance over the next 75 years would require a combination of reform options equal to 1.97 percent of taxable payroll. In other words, averting a HI shortfall for 75 years now would require an increase in payroll taxes by 1.97 percent (a 68-percent increase over the 2001 rate paid by employers and workers[47]), a cut in HI spending by 37 percent, or some combination of the two. According to the Office of the Actuary at the Health Care Financing Administration, the estimated net present value of future additional resources needed to fund HI benefits alone over the 75 years is $4.6 trillion.

[46]*Medicare: Higher Expected Spending and Call for New Benefit Underscore Need for Meaningful Reform* (GAO-01-539T, March 22, 2001). See appendix V for other GAO products related to Medicare financing and reform.

[47]Medicare payroll taxes are paid on all earnings whereas Social Security payroll taxes apply to earnings up to an annual maximum—$76,200 in 2000.

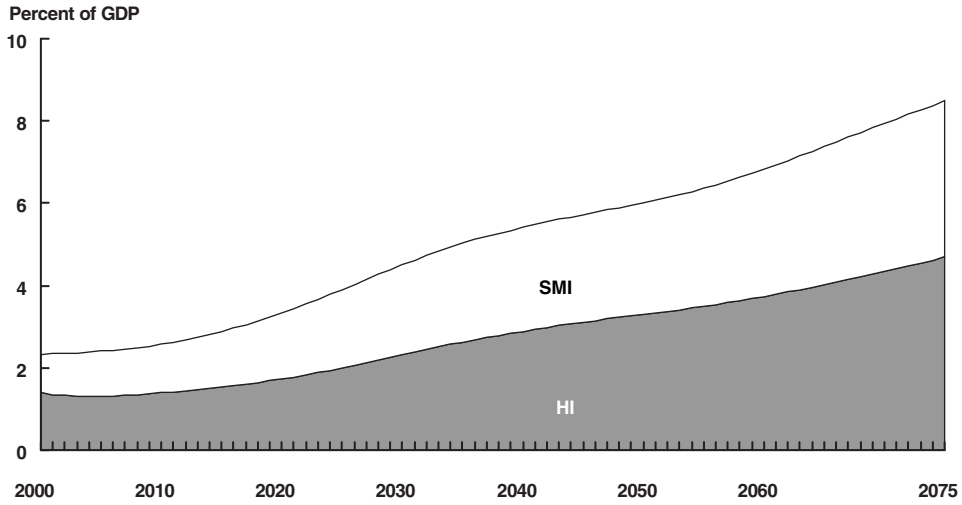
But, these estimates do not reflect the growing cost of the SMI component, which accounts for somewhat more than 40 percent of Medicare spending.

When viewed from the perspective of federal saving and the economy, the growth in total Medicare spending will be become increasingly burdensome over the long run. According to the Medicare Trustees' 2001 intermediate estimates, Medicare costs will grow at 1 percentage point above the growth in GDP per capita each year.[48] As shown in figure 4.5, total Medicare spending (Part A HI and Part B SMI combined) is expected to consume 5 percent of GDP by 2035—more than double today's share of 2 percent. By 2075, Medicare would consume over 8 percent of GDP, according to the Medicare Trustees' 2001 intermediate estimates.[49] Under the Save the Social Security Surpluses simulation, federal health care spending will greatly constrain budgetary flexibility (shown in figure 4.3). Absent cost containment reforms, Medicare spending would contribute to federal dissaving over the long term even if the unified surpluses projected over the next decade are saved.

[48]These latest actuarial projections incorporate more realistic assumptions about long-term health care spending, and as result, Medicare spending is expected to grow faster than previously estimated. For further discussion of the Medicare Trustees' 2001 estimates, see *Medicare: Higher Expected Spending and Call for New Benefit Underscore Need for Meaningful Reform* (GAO-01-539T, March 22, 2001).

[49]Including federal Medicaid spending, federal health care spending would grow to 14.5 percent of GDP compared to today's 3.5 percent.

Figure 4.5: Medicare HI and SMI Spending as a Share of GDP (2000–2075)



Notes: Medicare gross outlay projections based on intermediate assumptions of the 2001 HI and SMI Trustees' reports.

Source: GAO analysis of data from the Office of the Actuary, Health Care Financing Administration.

Although future Medicare costs are expected to consume a growing share of the federal budget and the economy, pressure is mounting to expand Medicare's benefit package to cover prescription drugs, which will add billions to Medicare program costs. It is a given that prescription drugs play a far greater role in health care now than when Medicare was created. Today, Medicare beneficiaries tend to need and use more drugs than other Americans. Overall, the nation's spending on prescription drugs has been increasing about twice as fast as spending on other health care services, and it is expected to keep growing. Adding a prescription drug benefit to Medicare will be costly, but the cost consequences ultimately depend on choices about the benefit's scope and financing. Any option to expand Medicare's benefit package—absent other reforms—runs the risk of exacerbating the program's fiscal imbalance and increasing government dissaving. Any substantial benefit reform should be coupled with adequate and effective cost containment measures to avoid worsening Medicare's long-range financial condition.

Ultimately, we will need to look at broader health care reforms to balance health care spending with other societal priorities. It is important to note the fundamental differences between health care wants, which are virtually unlimited; needs, which should be defined and addressed; and overall

affordability, which has a limit. Realistically, reforms to address Medicare's huge long-range financial imbalance will need to proceed incrementally. To avoid more painful and disruptive changes once the baby boomers begin retiring, the time to begin these difficult but necessary steps is now.

Reform options that reduce Medicare's growth rates or strengthen the program's underlying sustainability would raise future levels of government saving (assuming no other changes in government spending and taxes). However, the effect of reduced federal Medicare spending on national saving depends on how the private sector responds to the reductions. For example, greater private spending for elderly health care—by beneficiaries themselves or by employers and insurers on beneficiaries' behalf—could offset some or all of the improvement in government saving in the short run. Over time, personal saving could increase if individuals choose to save more to pay for health care in their old age.

National Saving and Current Policy Issues

Q5.1. What Are Key Issues in Evaluating National Saving?

A5.1. Each generation is a steward for the economy it bequeaths to future generations, and the nation's long-term economic future depends in part on today's decisions about consumption and saving. The federal government has gone from the budget deficits of recent decades to surplus as a result of a growing economy and difficult decisions to reduce deficits . We appear—at least for the near future—to have slain the deficit dragon. However, today's fiscal good fortune will not survive over the long run. If the prospect of surpluses over the next decade lulls us into complacency, the nation could face daunting demographic challenges without having changed the path of programs for the elderly or having built the economic capacity to bear the costs of the programs as currently structured.

Economic growth will help society bear the burden of financing Social Security and Medicare, but it alone will not solve the long-term fiscal challenge. Increasing the nation's economic capacity is a long-term process. Thus, saving now and making meaningful Social Security and Medicare reform sooner rather than later are important. Because every generation is in part responsible for the economy it passes on to the next, today's fiscal policy choices must be informed by the long-term. Common sense tells us that the nation needs to save more when it has a healthy economy, sufficient resources to meet some current needs while still building our capacity for the future, and a relatively large workforce. National saving pays future dividends—but we need to begin soon to permit compounding to work for us.

From a macroeconomic perspective, it does not matter who does the saving—any mix of increased saving by households, businesses, and government would help to grow the economic pie. Yet, in light of the virtual disappearance of personal saving, concerns about U.S. reliance on borrowing from abroad to finance domestic investment, and the looming fiscal pressures of an aging population, now is an opportune time for the federal government to save some portion of its anticipated budget surpluses. Higher federal saving—to the extent that the increased government saving is not offset by reduced private saving—would increase national saving and tend to improve the nation's current account balance, although typically not on a dollar-for-dollar basis.

In considering how much of the anticipated budget surpluses to save, policy choices must balance today's unmet needs and tomorrow's fiscal challenges. Saving the surpluses would allow the federal government to reduce the debt overhang from past deficit spending and enhance future

budgetary flexibility. Choices about federal spending for infrastructure, education, and R&D as well as tax incentives for private saving and investment also have implications for future economic growth.

Increased government saving and entitlement reform go hand-in-hand. Over the long term, the federal government cannot avoid massive dissaving without reforming retirement and health programs for the elderly. Increasing national saving and thus long-term economic growth is crucial to the long-term sustainable solvency of Social Security and Medicare. Since the economy provides the tax base for the government, economic growth increases government revenue, which helps finance these programs as well as other federal programs and activities, and increases budget flexibility. But saving and economic growth alone cannot solve the looming demographic challenges. Saving the Social Security surpluses—and even the Medicare surpluses—is not enough by itself to finance the government's commitments to the elderly. Program reform is needed as well, or Social Security and Medicare will constitute a heavy drain on the earnings of future workers. In a sense, saving more yields a bigger pie, but policymakers will still face the difficult choice of how to divide the pie between retirees and workers.

The federal government can also undertake steps to encourage personal saving. Saving education campaigns are one tool to encourage people to save more for their own retirement. To participate in the debate over how to reform Social Security and Medicare, the public needs to understand the difficult choices the nation faces. Announcing any benefits changes sooner rather than later would make it easier for individuals to plan for retirement and to adjust their saving behavior accordingly. The federal government can explore how to design tax incentives that induce households to save enough to make up for the government's revenue loss and the lower government saving that would result.

Objectives, Scope, and Methodology

This report is designed to present information about national saving and its implications for economic growth and retirement security. Specifically, this report addresses the following questions: (1) What is personal saving, how is it related to national saving, and what are the implications of low personal saving for Americans' retirement security? (2) What is national saving and how does current saving in the United States compare to historical trends and saving in other countries? (3) How does national saving affect the economy and how would higher saving affect the long-term outlook? (4) How does federal fiscal policy affect national saving, what federal policies have been aimed at increasing private saving, and how would Social Security and Medicare reform affect national saving? And, (5) what are key issues in evaluating national saving?

Personal Saving, Household Wealth, and Retirement Security

Because this report focuses on the macroeconomic implications of saving and investment, we used saving data from the National Income and Product Accounts (NIPA) compiled by the Bureau of Economic Analysis (BEA).[1] This report presents the trend in the personal saving rate as measured on a NIPA basis. As a comparison point, we also examined an alternative personal saving rate available from the Federal Reserve's Flow of Funds Accounts (FFA).[2] Because FFA counts household purchases of consumer durables as saving, the FFA personal saving rate is somewhat higher than the NIPA personal saving rate but also shows a downward trend. Both the NIPA and FFA measures focus on saving as a flow from the economy's current production and do not include changes in the market value of households' existing portfolios. For information about the stock of wealth accumulated by households, we obtained net worth data from the FFAs' balance sheet aggregated for the household sector. In addition to

[1]The NIPA data presented throughout this report reflect changes made in the 11th comprehensive revision of the national accounts in 1999, including the reclassification of software purchases as investment, which is discussed in Q2.5. Historical NIPA data were downloaded from BEA's website (www.bea.doc.gov/bea.dnl.htm) and reflect recent data presented in *Survey of Current Business*, Bureau of Economic Analysis, Vol. 81, No. 4 (April 2001).

[2]Historical FFA data were downloaded from the Federal Reserve Board website: www.federalreserve.gov/releases/Z1/Current/data.htm and reflect data presented in *Flow of Funds Accounts of the United States: Flows and Outstandings*, *Fourth Quarter 2000* (Board of Governors of the Federal Reserve System, March 9, 2001).

these macroeconomic data, we used results from the Federal Reserve's 1998 Survey of Consumer Finance to present a snapshot of individual households' net worth by income level.[3]

Fully exploring the dynamics of personal saving behavior and gauging the adequacy of retirement saving are beyond the scope of this national saving report. The literature attempting to explain why and how people save—or do not save as the case may be—is extensive, and the empirical research is conflicting. For this report, we provide an overview of the major theories about why people save and describe various factors associated with the decline in personal saving. Appendix IV lists the major references used in preparing this report.

For demographic trends and the financial outlook for the Social Security and Medicare Hospital Insurance programs, we used the intermediate actuarial projections, which reflect the best estimate of the Social Security and Medicare Boards of Trustees. We also examined income sources and amounts for those aged 65 and older using the Social Security Administration's *Income of the Population, 55 or Older, 1998*.[4]

National Saving and Investment

We also used NIPA data to describe historical trends in (1) U.S. national saving by component, (2) domestic and foreign investment in the United States, and (3) the U.S. net international investment position. To provide a long-term perspective we focused on saving trends over the last 4 decades—from 1960 to 2000. We also compared U.S. national saving to the saving of other major industrialized nations. Specifically, we relied on national saving data for the G-7 nations—Canada, France, Germany, Italy,

[3]The Survey of Consumer Finances is a triennial survey of U.S. families sponsored by the Board of Governors of the Federal Reserve with the cooperation of the Department of the Treasury. For results from the latest Survey of Consumer Finance, see Arthur B. Kennickell, Martha Starr-McCluer, and Brian J. Surette, "Recent Changes in U.S. Family Finances: Results from the 1998 Survey of Consumer Finances," *Federal Reserve Bulletin* (January 2000).

[4]Social Security Administration, *Income of the Population, 55 or Older, 1998*, (Washington, D.C.: U.S. Government Printing Office, March 2000). This biennial report presents information combined for the population aged 55 and older as well as separately for those aged 65 and older. The report reflects U.S. Census Bureau data from the Current Population Survey.

Japan, the United Kingdom, and the United States—compiled by the Organization for Economic Cooperation and Development.[5]

Our national saving trend analysis is based on current NIPA definitions of saving and investment. We also examined literature that presents other ways of thinking about national saving. For example, a broader saving and investment measure might encompass spending on education as well as research and development. These are not included in the conventional NIPA measures but are related to long-term productive capacity.

Long-Term Simulations

We used our long-term economic growth model to simulate alternative fiscal policies and national saving rates. Long-term simulations are useful for comparing the potential outcomes of alternative saving rates within a common economic framework. Such simulations can help policymakers assess the long-term consequences of fiscal policy and saving choices made today.

While long-term simulations provide a useful perspective, they should be interpreted carefully. Given the range of uncertainty about future economic changes and the responses to those changes, the simulation results should not be viewed as forecasts of budgetary or economic outcomes 50 or 75 years in the future. Rather, they should be seen only as illustrations of the different budget and economic outcomes associated with alternative fiscal policy and saving paths based on common demographic and economic assumptions.

In our simulations, we used a model originally developed by economists at the Federal Reserve Bank of New York that relates long-term economic growth—measured in terms of gross domestic product (GDP)—to economic and budget factors. The key interaction between the budget and the economy is the effect of the federal deficit/surplus on the amount of national saving available for investment.[6] Conversely, the rate of economic growth helps determine the overall federal surplus or deficit through its effect on federal revenue and spending. In our model, the level of national saving affects investment and, in turn, GDP growth.

[5]OECD National Income Account data were downloaded from Standard and Poor's DRI database.

[6]Text box 4.1 explains how the NIPA surplus or deficit differs from the federal unified budget surplus or deficit. Both measures are roughly similar as a share of GDP.

In general, federal deficits measured on a NIPA basis represent dissaving—they subtract from national saving by absorbing nonfederal funds that otherwise would be used for investment. Conversely, federal surpluses add to national saving. While the NIPA measure of government saving directly affects national saving, the unified budget measure is the more common frame of reference for discussing federal fiscal policy issues. Our simulation results reflect unified budget deficits/surpluses.

Our simulations are based on the Congressional Budget Office's (CBO) January 2001, 10-year budgetary and economic projections[7] through calendar year 2010.[8] Beyond that, we used long-term actuarial projections for Social Security and Medicare.[9] We assume that current-law benefits are paid in full (i.e., we assume that all promised Social Security benefits are paid even after the projected exhaustion of the OASDI Trust Funds in 2038). For Medicaid in the out-years, we used the growth rates from CBO's October 2000 long-term analysis.[10] Interest spending is determined by interest rates—which are held constant over the long-term—and the level of federal debt held by the public, which depends on the path of budget deficits/surpluses within each simulation. All other spending as well as federal revenue are assumed to grow at essentially the same rate as the economy. In other words, other spending and revenue both remain constant as shares of GDP. Appendix II presents a more detailed description of the model and the assumptions we used.

We present two fiscal policy simulations: (1) Save the Unified Surpluses and (2) Save the Social Security Surpluses. The Save the Unified Surpluses simulation assumes the entire unified surpluses are saved and used to reduce federal debt held by the public. The Save the Social Security

[7]*The Budget and Economic Outlook: Fiscal Years 2002–2011*, Congressional Budget Office (January 2001).

[8]In our modeling, all CBO budget projections were converted from a fiscal year to a calendar year basis. The last year of CBO's projection period was 2011, permitting the calculation of calendar year values through 2010.

[9]*The 2001 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (March 2001), *The 2001 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund* (March 2001), and *The 2001 Annual Report of the Board of Trustees of the Federal Hospital Insurance Trust* (March 2001).

[10]*The Long-Term Budget Outlook*, Congressional Budget Office (October 2000). See appendix II for more details about the Medicaid assumption.

Surpluses simulation assumes that only the Social Security surpluses are saved and used to reduce federal debt held by the public. Unspecified policy actions—spending increases and/or tax cuts—are taken that eliminate the non-Social Security surpluses through 2010. These unspecified policy actions are left in place through the end of the simulation period. For simplicity, we assumed nonfederal saving—saving by households, businesses, and state and local governments—would remain constant as a share of GDP in both fiscal policy simulations.

As a reference point, we also simulated a path assuming that national saving remains constant at the 2000 level of 18.3 percent of GDP. The Constant 2000 National Saving Rate simulation reflects an unspecified mix of saving by households, businesses, and all levels of government. To provide a useful perspective on how alternative levels of national saving affect future living standards, we also compared our simulation results to a historical benchmark. In the United States, GDP per capita has doubled about every 35 years. Since World War II, annual growth in GDP per capita has averaged roughly 2 percent. Of course, growth was faster during some periods—the 1950s and 1960s, and the second half of the 1990s—and slower during other periods—the 1970s. Doubling GDP per capita every 35 years represents a way to gauge whether future generations will enjoy a rise in living standards comparable to that enjoyed by previous generations.

While this report discusses the potential consequences of alternative saving paths, it does not suggest any particular course of action. The choice of the most appropriate fiscal policy path is a policy decision to be made by the Congress and the President. While fiscal policy is the most direct way to increase national saving, how much the nation saves also depends on the saving choices of households and businesses.

We did our work in accordance with generally accepted government auditing standards from December 1999 through May 2001 in Washington, D.C. We requested comments from BEA, OMB, and several subject matter experts. Staff from BEA and OMB and the experts we consulted provided technical and clarifying comments, which we incorporated in this report where appropriate.

The Economic Model and Key Assumptions

In this report, we simulated the effect of different saving rates on the nation's standard of living using a standard model of economic growth originally developed by economists at the Federal Reserve Bank of New York. The major determinants of economic growth in the model are changes in the labor force, capital formation, and the growth in total factor productivity. To analyze the effect of fiscal policy on saving and growth, we modified the original model to include a set of relationships that describe the federal budget and its links to the economy, using the framework of the National Income and Product Accounts (NIPA). To isolate the effect of changes in saving on growth, we varied the saving rate while using the same assumptions for the growth in the labor force and total factor productivity.

The model is helpful for exploring the long-term implications of national saving and fiscal policy and for comparing alternative paths within a common economic framework. Since 1992, GAO has provided the Congress with a long-term perspective on alternative fiscal policy paths.[1] The results provide illustrations rather than precise forecasts of the economic outcomes associated with alternative policy or saving rate assumptions. The model depicts the links between saving and the economy over the long term and does not reflect their interrelationships during short-term business cycles. We have made several simplifying assumptions such as holding interest rates and total factor productivity growth constant, but sensitivity analyses suggest that variations in these assumptions generally would not affect the relative outcomes of alternative policies. These simulations are not predictions of what will happen in the future as policymakers would likely take action to prevent damaging out-year fiscal and economic consequences.

Overview of the Model

In the model, GDP is determined by the labor force, capital stock, and total factor productivity. GDP in turn influences nonfederal saving, which

[1]See *Budget Policy: Prompt Action Necessary to Avert Long-Term Damage to the Economy* (GAO/OCG-92-2, June 5, 1992), *The Deficit and the Economy: An Update of Long-Term Simulations* (GAO/AIMD/OCE-95-119, April 26, 1995), *Budget Issues: Deficit Reduction and the Long-Term* (GAO/T-AIMD-96-66, March 13, 1996), *Budget Issues: Analysis of Long-Term Fiscal Outlook* (GAO/AIMD/OCE-98-19, October 22, 1997), *Budget Issues: Long-Term Fiscal Outlook* (GAO/T-AIMD/OCE-98-83, February 25, 1998), *Budget Issues: July 2000 Update of GAO's Long-Term Simulations* (GAO/AIMD-00-272R, July 26, 2000), and *Long-Term Budget Issues: Moving From Balancing the Budget to Balancing Fiscal Risk* (GAO-01-385T, February 6, 2001).

consists of the saving of the private sector and state and local government surpluses or deficits. Through its effects on federal revenues and spending, GDP also helps determine the NIPA federal budget surplus or deficit. Nonfederal and federal saving together compose national saving, which influences investment and the next period's capital stock. Capital combines with labor and total factor productivity to determine GDP in the next period, and the process continues.

The model allows us to focus on the contribution of national saving to output and living standards through the linkage between saving and the capital stock. In particular, the model provides a useful framework for assessing the long-term implications of alternative budget policies through their effect on national saving. Our model does not differentiate between tax policy changes and spending changes. The aggregate effect on the amount of federal government saving is what affects the level of national saving and economic growth. Federal surpluses increase national saving while deficits reduce national saving, and higher saving translates into higher GDP. Higher GDP in turn lessens the share of the nation's output dedicated to government transfer programs in our modeling because we use a simplifying assumption that such programs do not simply keep pace with overall economic growth.[2]

In our simulations, we make the simplifying assumption that the combined saving rate of the household, business, and state and local government sectors will remain constant throughout the simulation period at 16.1 percent of GDP—average nonfederal saving as a share of GDP since 1998.[3] Future saving rates of these sectors will of course vary in response to a variety of influences, such as demographics, expectations, and changes in preferences. Nonetheless, this simplifying assumption allows us to assess the effect of budget policy on saving, investment, and output in the future.

Labor Input

Economic growth is partly dependent on how much labor is employed. In our simulations, we used the labor input assumptions of the Social Security Administration actuaries underlying the intermediate projections in

[2]A more sophisticated approach would be to model the feedbacks between the economy and government transfer programs because economic growth tends to increase health spending and raise retirement benefits—although with a lengthy lag for the latter.

[3]The 3-year period coincides with federal surpluses and its use avoids extending the unusually low nonfederal saving rate of 2000 throughout the simulation period.

The 2001 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Trust Funds. The intermediate projections, which reflect the Trustees' best estimate, reflect changes in the working age population, particularly the increasing rate of retirement by the baby boom generation after 2010. They also reflect projections of labor force participation rates, unemployment rates, and weekly hours worked. The demographic and economic assumptions imply a sharp drop in the average annual growth of aggregate hours worked from 0.7 percent through 2010 to 0.2 percent from 2020 through 2075.

Total Factor Productivity

The three sources of economic growth in the model are increased labor input, capital accumulation, and the advance of total factor productivity.[4] The latter is a catch-all category reflecting sources of growth not captured in straightforward measures of aggregate labor input and aggregate physical capital employed. These include not only the improvements in products and processes yielded by advancing technology but also the improved quality of labor and capital inputs, reallocation of inputs to uses where they are more productive, and improvements in physical and social infrastructure.

Our simulations assume that total factor productivity growth in the nonfarm business sector will average 1.5 percent annually over the 75-year period. Basically, we used the productivity assumption underlying CBO's January 2001, 10-year budget projections. In its most recent long-term modeling report, CBO assumed total factor productivity growth of 1.7 percent beyond 2010.[5] The intermediate projections in the 2001 OASDI Trustees' report assume that labor productivity for the entire economy will increase 1.5 percent annually over the next 75 years. The Trustees' long-term assumption reflects the average labor productivity growth over the

[4]The Bureau of Labor Statistics (BLS) publishes an official measure of output per unit of combined labor and capital inputs—multifactor productivity. BLS' measure of labor input not only takes into account changes in the size of the labor force, but also changes in its composition as measured by education and work experience. Capital inputs are measured in terms of efficiency or service flow rather than price or value. For more information on multifactor productivity, see "Productivity Measure: Business Sector and Major Subsectors," *BLS Handbook of Methods*, Bureau of Labor Statistics (April 1997), pp. 89–98; and Edwin R. Dean and Michael J. Harper, "The BLS Productivity Measurement Program," Bureau of Labor Statistics (July 5, 2000), paper presented to the NBER Conference on Research in Income and Wealth on New Directions in Productivity Analysis, March 20–21, 1998.

[5]*The Long-Term Budget Outlook*, Congressional Budget Office (October 2000).

last 30 years and would correspond to a lower assumption for total factor productivity growth than CBO's most recent assumption. Our use of CBO's January 2001, 10-year assumption for total factor productivity growth throughout the 75-year simulation period places our long-term assumption between the Trustees' and CBO's current long-term assumptions.

International Financial Flows

There are also important links between national saving and investment and the international sector. In an open economy such as the United States, an increase in saving due to, for example, an increase in the federal budget surplus may not result in an equivalent increase in domestic investment. Instead, part of the increased saving may flow abroad in the form of an increase in U.S. net foreign investment. The income earned on U.S.-owned foreign assets adds to the nation's income (GNP). The portion of an increase in national saving used for domestic investment adds to the capital stock available for workers to produce goods and services in the United States (GDP).

The model incorporates a simple representation of net financial flows between the U.S. economy and the rest of the world. Essentially the rest of the world is treated as analogous to a bank where the United States can make deposits or withdrawals or draw on a credit line. Every year there are income flows to or from this bank corresponding to interest received on deposits or paid on advances. The amount corresponding to the bank balance (positive or negative) is called the net international investment position (NIIP) of the United States, which generates a net flow of income receipts.

A key model assumption affecting international flows is the allocation of gross saving between its foreign and domestic investment uses. Over the long run, we assume that market forces such as adjustments in exchange rates, interest rates, and prices will tend to move net foreign investment and the current account balance towards zero. To reflect this tendency to move towards equilibrium, we hold net foreign investment constant at the nominal dollar level in 2000. This reduces the ratio of net foreign investment to GDP over time as GDP grows. Changes in national saving cause the ratio of net foreign investment to GDP to move around its long-term trend. We assume that net foreign investment rises by one-third of any increase in the national saving rate. Basically, for each additional dollar saved, about 66.6 cents are used for domestic investment and 33.3 cents are invested abroad. Conversely, each dollar decrease in national saving is offset by 33.3 cents in foreign investment in the United States. Our

assumption is consistent with the strong correlation between national saving and domestic investment that persists even in the context of a global economy.[6]

This is a highly stylized representation of the foreign sector of one country in isolation. A more sophisticated approach would be to model a changing international environment in detail. A more detailed approach would confront major uncertainties concerning the actual course of world economic development, exchange rates, and rates of return.

Budget and Other Assumptions

Table II.1 lists the key assumptions incorporated in the model. Several of the assumptions used tend to provide conservative estimates of the benefit of running surpluses or lower deficits and of the harm of increasing deficits. The interest rate on the national debt is held constant, for example, even when deficits climb and the national saving rate plummets. Under such conditions, the more likely result would be a rise in the rate of interest and a more rapid increase in federal interest payments than our simulations display. Another conservative assumption is that the rate of total factor productivity growth is unaffected by the amount of investment. Productivity is assumed to advance 1.5 percent each year through the end of the simulation period even if investment collapses. Finally, one-third of any saving decline is assumed to be offset by net inflows of foreign capital, even in the event of a dramatic saving decline that might set off a flight of capital from the United States. Such assumptions tend to moderate the effect of changes in national saving in our simulations. Sensitivity analyses reveal that variations in these assumptions generally would not affect the relative outcomes of alternative policies.

[6]See Martin Feldstein and Philippe Bacchetta, "National Saving and International Investment," *National Saving and Economic Performance*, D. Bernheim and J. Shoven, eds. (Chicago: University of Chicago Press, 1991) pp. 201–226; and Maurice Obstfeld and Kenneth Rogoff, "The Six Major Puzzles in International Macroeconomics: Is There a Common Cause?" NBER Working Paper No. 7777 (July 2000).

Table II.1: Key Assumptions of the Economic Model

Model Inputs	Assumptions
Surplus/deficit (federal saving)	CBO's January 2001 baseline through 2010; GAO simulations thereafter
Social Security spending (OASDI)	2001 Social Security Trustees' intermediate projections
Medicare spending (HI and SMI)	2001 Medicare Trustees' intermediate projections
Medicaid spending	CBO's October 2000 long-term projections
Other mandatory spending	CBO's January 2001 baseline through 2010; thereafter increases at the rate of economic growth (i.e., remains constant as a share of GDP)
Discretionary spending	CBO January 2001 baseline through 2010; thereafter increases at the rate of economic growth
Receipts	CBO's January 2001 baseline through 2010; in subsequent years receipts held constant at 20.2% of GDP on NIPA basis, 20.4% on unified budget basis (ratios in 2010)
Nonfederal saving: gross saving of the private sector and state and local government sector	16.1% of GDP
Share of gross national saving change that flows abroad	33.3% of annual change in gross national saving
Labor: growth in hours worked	2001 Social Security Trustees' intermediate projections
Total factor productivity growth	1.5% (CBO's January 2001 assumption for 2000–2011)
Inflation (GDP price index)	CBO's through 2011; 1.9% thereafter (CBO's projection in 2011)
Interest rate (average on net debt of the federal government)	Average rate implied by CBO's January 2001 baseline interest payment projections through 2005; 5.4% thereafter (based on CBO's assumption for the average rate on Treasury securities)

Note 1: These assumptions apply to our base simulation, Save the Unified Surpluses. For alternative fiscal policy simulations, certain assumptions are varied, as discussed in the alternative paths.

Note 2: In our work, all CBO budget projections were converted from a fiscal year to a calendar year basis. The last year of CBO's projection period is fiscal year 2011, permitting the calculations of calendar year values through 2010.

Our Save the Unified Surpluses base simulation reflects CBO's January 2001[7] assumption that discretionary spending increases at the rate of inflation over the 10-year budget projection period.[8] After 2010, we assumed discretionary spending would grow at the same rate as GDP. As a

[7]*The Budget and Economic Outlook: Fiscal Years 2002–2011*, Congressional Budget Office (January 2001).

[8]In our modeling, all CBO budget projections were converted from a fiscal year to a calendar year basis. The last year of CBO's projection period was 2011, permitting the calculation of calendar year values through 2010.

result, discretionary spending stays the same as share of GDP from 2011 through the end of the projection period.[9]

Mandatory spending includes Old-Age, Survivors, and Disability Insurance (OASDI, or Social Security), Health (Medicare and Medicaid), and a residual category covering other mandatory spending. The long-term OASDI spending path reflects the intermediate projections of the 2001 OASDI Trustees' Report.[10] Long-term Medicare spending reflects the intermediate projections of the 2001 HI and SMI Trustees Reports;[11] the long-term Medicaid spending path reflects CBO's October 2000 long-term projections.[12] We assume that current-law benefits are paid in full even after the projected exhaustion of the OASDI and HI Trust Funds.

Other mandatory spending is a residual category consisting of all non-Social Security, nonhealth mandatory spending. It is equivalent to CBO's NIPA projection for Transfers, Grants, and Subsidies less Health, OASDI, and other discretionary spending. Through 2010, CBO assumptions are the main determinant of other mandatory spending, after which it grows at the same rate as GDP.

In our Save the Unified Surpluses base simulation, receipts follow CBO's dollar projections through 2010. Thereafter, receipts remain at 20.2 percent of GAO's simulated GDP on a NIPA basis, which is the rate that CBO projects for 2010. On a unified budget basis, revenues remain at 20.4 percent of GDP after 2010.

[9]If spending were to keep pace with population growth and inflation over the long term, discretionary spending would generally grow slower than the economy and the long-term budget surplus/deficit would be improved. For example, see *Analytical Perspectives, Budget of the United States Government: Fiscal Year 2001*, Executive Office of the President, Office of Management and Budget (February 2000), pp. 30–31.

[10]*The 2001 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (March 2001).

[11]*The 2001 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Fund* (March 2001) and *The 2001 Annual Report of the Board of Trustees of the Federal Hospital Insurance Trust Fund* (March 2001).

[12]CBO's long-term health care cost growth assumptions are generally consistent with those in the 2001 Medicare Trustees' Reports. Both CBO and the Medicare Trustees generally assume per-beneficiary costs to grow at GDP per capita plus 1 percentage point over the long-term. See *The Long-Term Budget Outlook*, Congressional Budget Office (October 2000) and the 2001 HI and SMI Trustees Reports.

Our interest rate assumption for 2000 through 2005 is consistent with the average rate on the debt held by the public implied by CBO's interest payment projections in its baseline. To avoid the substantial volatility in the implied interest rate after 2005 as a result of declining debt, interest rates are held constant at 5.4 percent—the average interest rate assumed by CBO on short- and long-term Treasury securities—from 2005 through the end of the simulation period. This interest rate is both paid on outstanding debt held by the public and earned on nonfederal financial assets acquired by the government once debt held by the public is eliminated.[13]

Our simulation period—from 2000 through 2075—coincides with the 75-year period used for the Social Security Trustees' Report where actuaries calculate trust fund solvency over a long-term horizon that is at least as long as an individual's working life.

Because our model assumptions are based on current budget projections and recent long-term actuarial projections for Social Security and Medicare, our current model assumptions differ somewhat from those used in our earlier reports. Also, these simulations reflect discretionary spending growing with inflation after 2001; in our earlier reports, discretionary spending was assumed to comply with statutory caps in effect through 2002. As a result, these simulation results should not be compared directly to those in our earlier reports.

[13]Under this interest rate assumption, the level of net interest payments and net debt would be the same if the government began acquiring nonfederal financial assets before debt held by the public was eliminated.

Glossary

These definitions are intended to provide assistance to the general reader. Readers interested in authoritative definitions should consult documentation on concepts, data sources, and methods published by the Bureau of Economic Analysis, the Bureau of Labor Statistics, and the Federal Reserve.

Bequest saving motive Saving in order to build up assets to bequeath wealth to future generations.

Big-ticket saving motive Relatively short-term saving to accommodate a mismatch between current income and expenses during the life-cycle. People may save to pay for big-ticket items such as cars, other consumer durables, or vacations. Some individuals must save in advance because they cannot borrow, while others may prefer to save and avoid borrowing.

Business saving Net business saving is undistributed corporate profits (retained earnings). Gross business saving consists of undistributed corporate profits plus consumption of fixed capital (depreciation).

Capital deepening The process of accumulating capital at a faster rate than the growth of the labor force, thus increasing the capital/labor ratio.

Capital widening The process of accumulating capital at a rate sufficient to provide new workers with the same amount of capital as current workers.

Capital stock Stock of capital goods to be used in further production. In the national income and product accounts, fixed capital consists of business and government purchases of equipment, software, and structures, as well as household purchases of residential dwellings.

Consumer durables Goods that can be stored or inventoried and that have an average life of at least 3 years, such as cars and major household appliances.

Consumption of fixed capital A charge for capital goods that have been worn out or used up in producing goods and services, also called depreciation.

Current account balance The combined balances on trade in goods and services, income, and net unilateral current transfers.

Debt held by the public Debt issued by the federal government held by nonfederal investors, including the Federal Reserve System.

Deficit The amount by which outlays exceed revenue in a given period. See also *government saving* and *unified budget*.

Depreciation See *consumption of fixed capital*.

Disposable personal income The income available for personal spending and saving after federal, state, and local taxes as well as Social Security and Medicare payroll taxes are paid.

Flow of Funds Accounts (FFA) FFA measures the acquisition of financial and nonfinancial assets throughout the U.S. economy and the sources of funds used to acquire the assets.

401(k) plan Employer-sponsored plan whereby an employee may elect, as an alternative to receiving taxable cash, to contribute pretax dollars to a qualified tax-deferred retirement plan.

GDP price index A measure of the price level for the whole economy covering the prices of goods and services produced in a country.

Golden rule saving rate The saving rate that leads to the steady state in which consumption per worker is maximized.

Government saving Net government saving equals government receipts minus current expenditures. Gross government saving equals net government saving and consumption of fixed capital (depreciation). Government saving can be separated into federal saving and state and local government saving. Although historically generally similar in magnitude, net government saving, or the NIPA surplus/deficit, and unified budget surplus/deficit measures differ in several ways, including the treatment of investment and depreciation, lending and financial transactions, geographic coverage, and timing adjustments. (For the differences between NIPA and unified budget surplus/deficits, see text box 4.1.)

Gross domestic product (GDP) The output of all goods and services produced by labor and property located in a nation during a given period. GDP serves as the principal measure of the size of a nation's economy.

Gross national product (GNP) The output of all goods and services produced in a given period by labor and capital supplied by residents of a nation, regardless of the location of the labor and capital. The principal difference from GDP is that GNP includes the income that residents earn from investments abroad and excludes the capital income that nonresidents earn from domestic investments.

Gross national saving See *national saving*.

Income effect The tendency for a higher interest rate to reduce saving because in order to obtain a given level of future consumption, it is no longer necessary to save as much. With a higher interest rate, it is possible to save less now and consume more both in the present and in the future. However, higher interest rates also generate a *substitution effect* that encourages saving. The net effect of the substitution and income effects is theoretically ambiguous and can only be resolved through empirical analysis.

Individual Retirement Account (IRA) An IRA is a personal, tax-deferred retirement account that an employed person can set up with a tax-deductible deposit limited to $2,000 per year ($4,000 for a couple when both work, or $2,250 for a couple when one works and the other's income is $250 or less). Besides the tax-deductible traditional IRA, other retirement saving vehicles also receive preferential tax treatment. Depending on individual circumstances, people can also choose from nondeductible traditional IRAs, new Roth IRAs, SEP IRAs for the self-employed, SIMPLE IRAs sponsored by small employers, and 401(k) employer-sponsored saving plans.

Investment The purchase of capital goods—plant, equipment, software, housing, and inventories—by businesses and governments.

Labor productivity Average real output per unit of input. The growth of labor productivity is the growth of real output that is not explained by the growth of labor input (e.g., hours worked) alone. Increases in capital per worker raise labor productivity but not total factor productivity.

Life-cycle saving hypothesis The theory that emphasizes the role of saving and borrowing in order to smooth consumption over one's life. A principal implication of the hypothesis is that a household saves during the pre-retirement period to maintain consumption during retirement.

National Income and Product Accounts (NIPA) The NIPA are the comprehensive set of accounts that measure the total value of goods and services (gross domestic product, or GDP) produced by the U.S. economy and the total of incomes earned in producing that output.

National saving National saving is the portion of the nation's income not used for consumption during a given period. *Gross national saving* includes the saving of all sectors—households, businesses, and government; net national saving is gross national saving less consumption of fixed capital (depreciation). See also *business saving*, *government saving*, *nonfederal saving*, *personal saving*, and *private saving*.

Net debt Net debt represents the government's total financial liabilities, including debt held by the public, less its total financial assets. The net debt concept is based on the OECD definition, which consolidates the assets and liabilities of all levels of government. In this report, the concept is applied to the federal government.

Net foreign investment U.S. exports of goods and services, receipts of factor income, and net capital grants received by the United States, less imports of goods and services by the United States, payments of factor income, and transfer payments to the rest of the world. It may also be viewed as the acquisition of foreign assets by U.S. residents less the acquisition of U.S. assets by foreign residents. It includes the statistical discrepancy of the balance of payments accounts.

Net international investment position U.S.-owned assets abroad less foreign-owned assets in the United States. The direct investment components may be valued either at current cost or market value.

Net national saving See *national saving.*

Net worth Net worth is the amount by which assets exceed liabilities. For an individual, net worth is the total value of all possessions, such as a house, stocks, bonds, and other securities, minus all outstanding debts, such as mortgage and revolving-credit loans.

Nonfederal saving A saving measure used in GAO's long-term economic model equal to the sum of personal, business, and state and local government saving. The separation of national saving into federal and nonfederal components permits using the model to analyze the federal budget's effect on saving and economic growth.

Pay-as-you-go basis A financing structure in which tax revenues are scheduled to produce enough income to pay for current spending. For example, the Social Security program is financed largely on a pay-as-you-go basis. Payroll tax revenues collected from today's workers are used to pay the benefits of today's beneficiaries. Any excess of revenues over expenditures is credited to the Social Security trust fund.

Personal saving Personal saving is the saving by households, proprietors, pension funds, private trust funds, and nonprofit institutions serving individuals. It equals disposable personal income minus consumption and interest payments. (See also *personal saving rate.*)

Personal saving rate The personal saving rate—expressed as a percentage—is calculated as the ratio of personal saving to disposable personal income. See *personal saving* and *disposable personal income.*

Precautionary saving motive Saving as a way of protecting against uncertainty, such as unexpected expenses or emergencies.

Private saving Private saving is the sum of personal saving and business saving.

Retirement effect Additional personal saving meant to supplement Social Security retirement benefits, especially when the goal is early retirement.

Ricardian equivalence The theory that debt- and tax-financed government spending are equivalent in their economic effect because forward-looking consumers fully anticipate the future taxes implied by government debt. A debt-financed tax cut leaves consumption unaffected because households save the extra disposable income to pay the future tax liability that the tax cut implies. The increase in private saving offsets the decrease in public saving.

Standard of living The material well-being of the population, often measured as GDP per capita.

Substitution effect The tendency for a higher interest rate to promote more saving. A higher interest rate decreases the present cost of purchasing a dollar of future consumption and encourages the substitution of future consumption for current consumption. However, higher interest rates also generate an *income effect* that discourages saving. The net effect of the substitution and income effects is theoretically ambiguous and can only be resolved through empirical analysis.

Surplus The amount by which revenues exceed outlays in a given period. See also *government saving* and *unified budget*.

Total factor productivity Average real output per unit of input of combined labor and capital inputs. The growth of total factor productivity is the growth of real output that is not explained by the growth of labor and capital and is generally associated with the level of technology and managerial efficiency.

Trade surplus/deficit Exports less imports of goods and services.

Unified budget A comprehensive budget in which receipts and outlays from federal and trust funds are consolidated; generally a cash or cash equivalent measure in which receipts are recorded when received and expenditures are recorded when paid, regardless of the accounting period in which the receipts are earned or the costs incurred.

Wealth Wealth in a broad sense is anything that has a market value and can be exchanged for money or goods. It can include both fixed assets such as structures and equipment and financial assets such as stocks and bonds. One way to measure a household's wealth is *net worth*.

Wealth effect The change in consumption and saving associated with a change in wealth. For example, households may consume more (or save less) in response to their greater wealth due to rising stock or housing values.

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