2. STEWARDSHIP: TOWARD A FEDERAL BALANCE SHEET

Introduction

A full evaluation of the Government's financial condition must consider a broad range of data—more than would usually be shown on a business balance sheet. A balanced assessment of the Government's financial condition requires several alternative perspectives. This chapter presents a framework for such analysis. No single table in this chapter is "the balance sheet" of the Federal Government. Rather, the chapter taken as a whole provides an overview of the Government's financial resources, the current and expected future claims on them, and what the taxpayer gets in exchange for these resources. This is the kind of assessment for which a financial analyst would turn to a business balance sheet, but expanded to take into account the Government's unique roles and circumstances.

Because of the differences between Government and business, and because there are serious limitations in the available data, this chapter's findings should be interpreted with caution. The conclusions are tentative and subject to future revision.

The presentation consists of three parts:

- The first part reports on what the Federal Government owns and what it owes. Table 2–1 summarizes this information. The assets and liabilities in this table are a useful starting point for analysis, but they are only a partial reflection of the full range of Government resources and responsibilities. Only those items actually owned by the Government are included in the table; but Government's resources extend beyond the assets defined in this narrow way. Government can rely on taxes and other measures to meet future obligations. Similarly, while the table's liabilities include all of the binding commitments resulting from prior Government action, Government's full responsibilities are much broader than this.
- The second part presents possible paths for extending the Federal budget, beginning with an extension of the 2001 Budget. Table 2–2 summarizes this information. This part offers the clearest indication of the long-run financial burdens that the Government faces and the resources that will be available to meet them. Some future claims on the Government deserve special emphasis because of their importance to individuals' retirement plans. Table 2–3 summarizes the condition of the Social Security and Medicare trust funds and how that condition has changed since 1998.
- The third part of the presentation features information on economic and social conditions which the Government affects by its actions. Table 2–4 presents summary data for national wealth while highlighting the Federal investments that have contributed to that wealth. Table 2–5 presents a small sample of economic and social indicators.

Relationship with FASAB Objectives

The framework presented here meets the stewardship objective [1] for Federal financial reporting recommended by the Federal Accounting Standards Advisory Board and adopted for use by the Federal Government in September 1993.

> Federal financial reporting should assist report users in assessing the impact on the country of the Government's operations and investments for the period and how, as a result, the Government's and the Nation's financial conditions have changed and may change in the future. Federal financial reporting should provide information that helps the reader to determine:
>
> 3a. Whether the Government's financial position improved or deteriorated over the period.
>
> 3b. Whether future budgetary resources will likely be sufficient to sustain public services and to meet obligations as they come due.
>
> 3c. Whether Government operations have contributed to the Nation's current and future well-being.

The presentation here explores an experimental approach for meeting this objective at the Government-wide level.

What Can Be Learned from a Balance Sheet Approach

The budget is an essential tool for allocating resources within the Federal Government and between the public and private sectors; but the standard budget presentation, with its focus on annual outlays, receipts, and the surplus/deficit, does not provide all the information needed for a full analysis of the Government's financial and investment decisions. A business may ultimately be judged by the bottom line in its balance sheet, but for the National Government, the ultimate test is how its actions affect the country.

[1] *Objectives of Federal Financial Reporting,* Statement of Federal Financial Accounting Concepts Number 1, September 2, 1993. The other objectives relate to budgetary integrity, operating performance, and systems and controls.

QUESTIONS AND ANSWERS ABOUT THE GOVERNMENT'S "BALANCE SHEET"

1. According to Table 2–1, the Government's liabilities exceed its assets. No business could operate in such a fashion. Why does the Government not manage its finances more like a business?

Because the Federal Government is not a business. It has fundamentally different objectives, and so must operate in different ways. The primary goal of every business is to earn a profit. But in our free market system, the Federal Government leaves almost all activities at which a profit could be earned to the private sector. In fact, the vast bulk of the Federal Government's operations are such that it would be difficult or impossible to charge prices for them—let alone prices that would cover expenses. The Government undertakes these activities not to improve its own balance sheet, but to benefit the Nation—to foster not only monetary but also nonmonetary values. No business would—or should—sacrifice its own balance sheet to bolster that of the rest of the country.

For example, the Federal Government invests in education and research. The Government earns no direct return from these investments; but the Nation and its people are made richer. A business's motives for investment are quite different; business invests to earn a profit for itself, not others. Because the Federal Government's objectives are different, its balance sheet behaves differently, and should be interpreted differently.

2. But Table 2–1 seems to imply that the Government is insolvent. Is it?

No. Just as the Federal Government's responsibilities are of a different nature than those of a private business, so are its resources. Government solvency must be evaluated in different terms.

What the table shows is that those Federal obligations that are most comparable to the liabilities of a business corporation exceed the estimated value of the assets the Federal Government actually owns. However, the Government has access to other resources through its sovereign powers, which include taxation. These powers give the Government the ability to meet present obligations and those that are anticipated from future operations.

The financial markets clearly recognize this reality. The Federal Government's implicit credit rating is the best in the United States; lenders are willing to lend it money at interest rates substantially below those charged to private borrowers. This would not be true if the Government were really insolvent or likely to become so. Where governments totter on the brink of insolvency, lenders are either unwilling to lend them money, or do so only in return for a substantial interest premium.

However, the Federal Government's balance sheet was clearly worsened by the budget policies of the 1980s. Under President Clinton, the deterioration in the balance sheet has been halted, and as the budget has moved from deficit to surplus, the excess of Government liabilities over assets has leveled off and begun to shrink both in real terms and relative to the size of the economy.

3. The Government does not comply with the accounting requirements imposed on private businesses. Why does the Government not keep a proper set of books?

Because the Government is not a business, and its primary goal is not to earn profits or to enhance its own wealth, accounting standards designed to illuminate how much a business earns and how much equity it has would not provide useful information if applied to the Government, and might even be misleading. In recent years, the Federal Accounting Standards Advisory Board has developed, and the Federal Government has adopted, a conceptual accounting framework that reflects the Government's functions and answers the questions for which Government should be accountable. This framework addresses budgetary integrity, operating performance, stewardship, and systems and controls. The Board has also developed, and the Government has adopted, a full set of accounting standards. Federal agencies are issuing audited financial reports that follow these standards; an audited Government-wide consolidated financial report has been issued.

QUESTIONS AND ANSWERS ABOUT THE GOVERNMENT'S "BALANCE SHEET"—Continued

This chapter addresses the "stewardship objective"—assessing the interrelated condition of the Federal Government and of the Nation. The data in this chapter are intended to illuminate the trade-offs and connections between making the Federal Government "better off" and making the Nation "better off." There is no "bottom line" for the Government comparable to the net worth of a business corporation. Some analysts may find the absence of a bottom line to be frustrating. But pretending that there is such a number—when there clearly is not—does not advance the understanding of Government finances.

4. Why is Social Security not shown as a liability in Table 2–1?

Providing promised Social Security benefits is a political and moral responsibility of the Federal Government, but these benefits are not a liability in the usual sense. In the past, the Government has unilaterally decreased as well as increased Social Security benefits, and the Social Security Advisory Council has suggested further reforms that would alter future benefits if enacted by Congress. When the amount in question can be changed unilaterally, it is not ordinarily considered a liability.

Furthermore, there are other Federal programs that are very similar to Social Security in the promises they make—Medicare, Medicaid, Veterans pensions, and Food Stamps, to name a few. Should the future benefits expected from these programs also be treated as liabilities? It would be difficult to justify a different accounting treatment for them if Social Security were classified as a liability of the Government. There is no bright dividing line separating Social Security from other income-maintenance programs.

Finally, if future Social Security benefits were to be treated as liabilities, logic would suggest that future Social Security payroll tax receipts that are earmarked to finance those benefits ought to be considered assets. However, other tax receipts are not counted as assets; and drawing a line between Social Security taxes and other taxes would be questionable.

5. It is all very well to run a budget surplus now, but can it be sustained? When the baby-boom generation retires, will the deficit not return larger and meaner than ever before?

The aging of the U.S. population, which will become dramatically evident when the baby-boomers retire, poses serious long-term problems for the Federal budget and its major entitlement programs. However, the current budget surplus means the country will be better prepared to address these problems. If the surplus is maintained, there will be a significant decline in Federal debt which will substantially reduce Federal net interest payments. This is a key step towards keeping the budget in balance when the baby-boomers retire.

The second part of this chapter and the charts that accompany it show how the budget is likely to fare under various possible alternative scenarios.

QUESTIONS AND ANSWERS ABOUT THE GOVERNMENT'S "BALANCE SHEET"—Continued

6. Would it be sensible for the Government to borrow to finance needed capital—permitting a deficit in the budget—so long as it was no larger than the amount spent on Federal investments?

Probably not, first of all, the Government consumes capital each year in the process of providing goods and services to the public. The rationale for using Federal borrowing to finance investment really only applies to net investment, after depreciation is subtracted, because only net investment augments the Government's assets and offsets the increase in liabilities that result from borrowing. If the Government financed all new capital by borrowing, it should pay off the debt as the capital acquired in this way loses value. As discussed in Chapter 6 of Analytical Perspectives, net investment in physical capital owned by the Federal Government is estimated to have been negative recently, so no deficit spending would actually be justified by this borrowing-for-investment criterion.

The Federal Government also funds substantial amounts of physical capital that it does not own, such as highways and research facilities, and it funds investment in intangible "capital" such as education and training and the conduct of research and development. A private business would never borrow to spend on assets that would be owned by someone else. However, such spending is a principal function of Government. Chapter 6 shows that when these investments are also included, net investment is estimated to be slightly positive. It is not clear whether this type of capital investment would fall under the borrowing-for-investment criterion. Certainly, these investments do not create Federally owned assets, even though they are part of national wealth.

There is another hitch in the logic of borrowing to invest. Businesses expect investments to earn a profit from which to repay the financing costs. In contrast, the Federal Government does not generally expect to receive a direct payoff (in the form of higher tax receipts) from its investments, whether or not it owns them. In this sense, Government investments are no different from other Government expenditures, and the fact that they provide services over a longer period is no justification for excluding them when calculating the surplus/deficit.

Finally, the Federal Government must pursue policies that support the overall financial and economic well-being of the Nation. In this broader context, the Government may need to manage its fiscal policy to run a surplus, so as to augment private saving and investment even if this means paying for its own investments from current revenues, instead of borrowing in the credit market and crowding out private investment. Other considerations than the size of Federal investment need to be weighed in choosing the appropriate level of the surplus or deficit.

7. Is it misleading to include the Social Security surplus when measuring the Government's budget surplus?

Experts say that the Federal budget has three purposes: to plan the Government's fiscal program; to impose financial discipline on the Government's activities; and to measure the Government's effects on the economy. It should not be surprising that, with more than one purpose, the budget is routinely presented in more than one way. For years, there have been several alternative measures of the budget, each with its appropriate use. None of these measures is always right, or always wrong; it depends upon the purpose to which the budget is put.

QUESTIONS AND ANSWERS ABOUT THE GOVERNMENT'S "BALANCE SHEET"—Continued

For the purpose of measuring the Government's effects on the economy, it would be misleading to omit any part of the budget; doing so would simply miss part of what we were trying to measure. For example, we would need to know all of the Government's receipts and outlays to know whether it will have the wherewithal to meet its future obligations—such as Social Security. And for purposes of fiscal discipline, leaving out particular Government activities could be dangerous. In fact, the principle of a "unified," all-inclusive budget was established by President Johnson's Commission on Budget Concepts largely to forestall a trend toward moving favored programs off-budget—which had been done explicitly to shield those programs from scrutiny and funding discipline.

To plan the government's fiscal program, however, alternative perspectives can sometimes be useful. In particular, by law, Social Security has been moved off-budget. The purpose was to stress the need to provide independent, sustainable funding for Social Security in the long term; and to show the extent to which the rest of the budget had relied on annual Social Security surpluses to make up for its own shortfall. Policy under this Administration has been consistent with these goals. The non-Social Security deficit has been eliminated, and the President has made long-term Social Security soundness a key priority.

In sum, the budget is like a toolbox that contains different tools to perform different functions. There is a right tool for each task, but no one tool is right for every task. If we choose the right tool for the job at hand, we can achieve our objectives.

8. What good does it do for the Federal Government to run a budget surplus, if the surplus is only used to retire Government debt? Is this just another way of pouring the money down the drain?

When the Government retires its debt, it is not pouring money down the drain. The Government contributes to the accumulation of national wealth by using a budget surplus to repay Government debt. Because of the large budget deficits of the 1980s and early 1990s, Federal debt, measured relative to the size of the economy, has reached levels not seen since the early 1960s, although it is now on a downward trend. Further reducing the accumulated debt will have several desirable economic effects. It will help to hold down real interest rates, which is good for business investment and home ownership. Lowering the debt will give the Government more flexibility should it face an unexpected need to borrow in the future. When the Government uses a budget surplus to reduce its debt, it adds to national saving. Even though the Government is simply repaying its debt, the resources represented by the surplus are available for private investment in new plant and equipment, new homes, and other durable assets.

The data needed to judge Government's performance go beyond a simple measure of net assets. Consider, for example, Federal investments in education or infrastructure whose returns flow mainly to the private sector and which are often owned by households, private businesses or other levels of Government. From the standpoint of the Federal Government's "bottom line," these investments might appear to be unnecessary or even wasteful; but they make a real contribution to the economy and to people's lives. A framework for evaluating Federal finances needs to take Federal investments into account, even when the return they earn does not accrue to the Federal Government.

A good starting point for the evaluation of Government finances is to measure its assets and liabilities. An illustrative tabulation of net liabilities is presented below in Table 2–1, based on data from a variety of public and private sources. It has sometimes been suggested that the Federal Government's assets, if fully accounted for, would exceed its debts. Table 2–1 clearly shows that this is not correct. The Federal Government's assets are less than its debts; the deficits in the 1980s and early 1990s caused Government debts to increase far more than Government assets.

But that is not the end of the story. The Federal Government has resources that go beyond the assets that appear on a conventional balance sheet. These include the Government's sovereign powers to tax, regulate commerce, and set monetary policy. However, these powers call for special treatment in financial analysis. The best way to incorporate them is to make a long-run projection of the Federal budget (as is done in the second part of this chapter). The budget provides a comprehensive measure of the Government's annual cash flows. Projecting it forward shows how the Government is expected to use its powers to generate cash flows in the future.

On the other side of the ledger are the Government's binding obligations—such as Treasury debt and the present discounted value of Federal pension obligations to Government employees. These obligations have counterparts in the business world, and would appear on a business balance sheet. Accrued obligations for Government insurance policies and the estimated present value of failed loan guarantees and deposit insurance claims are also analogous to private liabilities, and are included in Table 2–1 with other Government liabilities. These formal obligations, however, are only a subset of the Government's financial responsibilities.

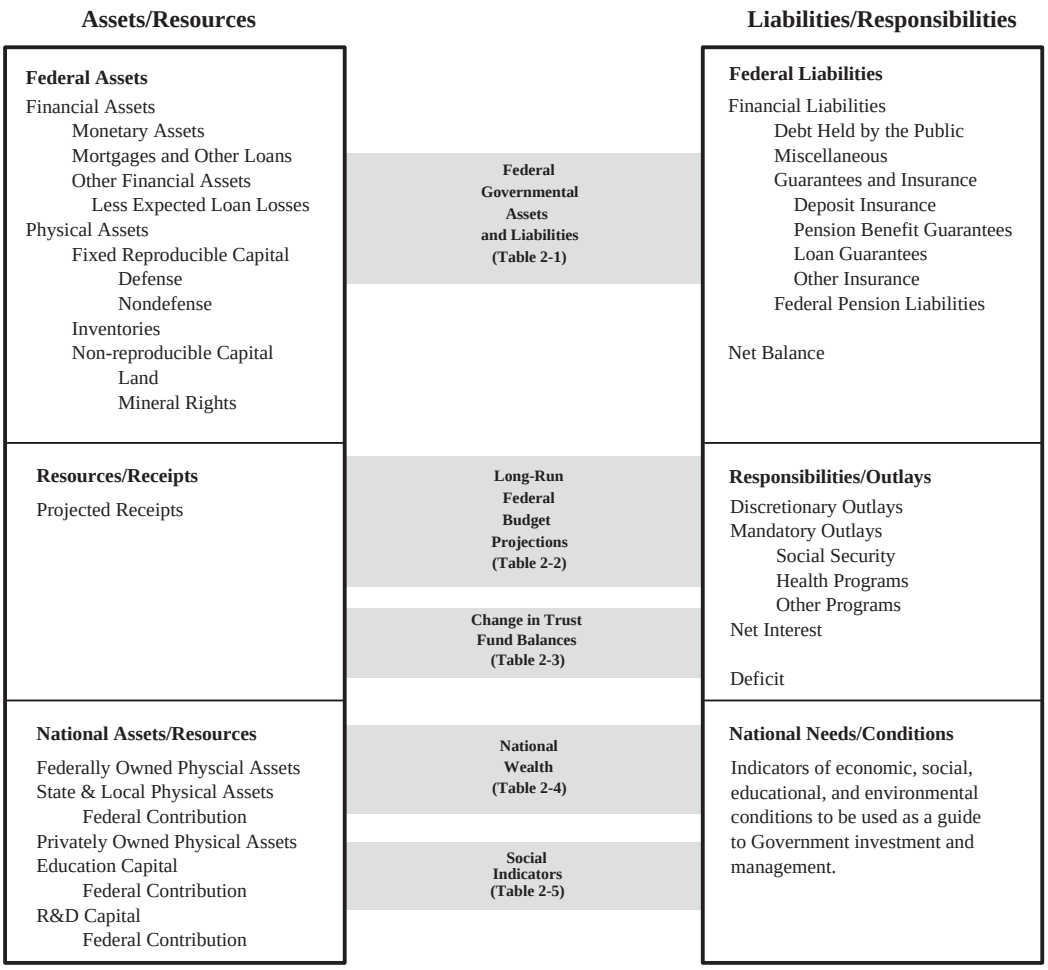
The Government has established a broad range of programs that dispense cash and other benefits to individual recipients. The Government is not constitutionally obligated to continue payments under these programs; the benefits can be modified or even ended at any time, subject to the decisions of the Nation's elected representatives in Congress. Such changes are a regular part of the legislative cycle. Allowing for the possibility of such changes, however, it is likely that many of these programs will remain Federal obligations in some form for the foreseeable future. Again, the best way to see how future responsibilities line up with future resources is to project the Federal budget forward far enough in time to capture the long-run effects of current and past decisions. Projections of this sort are presented in part two below.

The budget, even when projected far into the future, does not show whether the public is receiving value for its tax dollars. Information on that point requires performance measures for Government programs supplemented by appropriate information about conditions in the economy and society. Some such data are currently available, but more need to be developed to obtain a full picture. Examples of what might be done are also shown below.

The presentation that follows consists of a series of tables and charts. All of them taken together function as a balance sheet. The schematic diagram, Chart 2–1, shows how they fit together. The tables and charts should be viewed as an ensemble, the main elements of which can be grouped together in two broad categories—assets/resources and liabilities/responsibilities.

- Reading down the left-hand side of Chart 2–1 shows the range of Federal resources, including assets the Government owns, tax receipts it can expect to collect, and national wealth that provides the base for Government revenues.
- Reading down the right-hand side reveals the full range of Federal obligations and responsibilities, beginning with Government's acknowledged liabilities based on past actions, such as the debt held by the public, and going on to include future budget outlays. This column ends with a set of indicators highlighting areas where Government activity affects society or the economy.

Chart 2-1. A Balance Sheet Presentation For The Federal Government



PART I—THE FEDERAL GOVERNMENT'S ASSETS AND LIABILITIES

Table 2–1 summarizes what the Government owes as a result of its past operations netted against the value of what it owns, for selected years beginning in 1960. Assets and liabilities are measured in terms of constant FY 1999 dollars. Ever since 1960, Government liabilities have exceeded the value of assets, but until the early 1980s the disparity was relatively small, and it was growing slowly (see chart 2–2).

In the late 1970s, a speculative run-up in the prices of oil, gold, and other real assets temporarily boosted the value of Federal holdings, but since then those prices have declined.[2] Currently, the total real value of Federal assets is estimated to be only about 18 percent greater than it was in 1960. Meanwhile, Federal liabilities have increased by 185 percent in real terms. The sharp decline in the Federal net asset position was principally due to large Federal budget deficits along with a drop in certain asset values. Currently, the net excess of liabilities over assets is about $3.2 trillion, or $11,600 per capita.

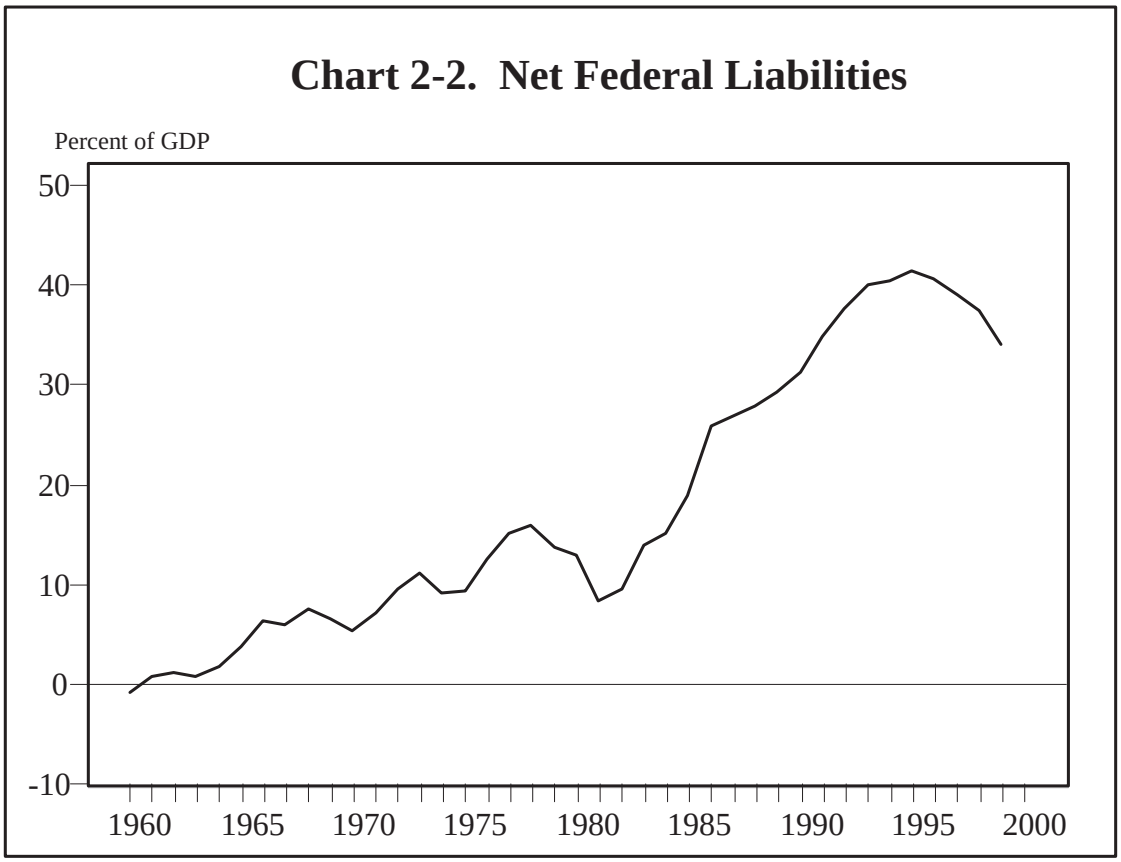
Table 2–1. GOVERNMENT ASSETS AND LIABILITIES*

(As of the end of the fiscal year, in billions of 1999 dollars)

	1960	1965	1970	1975	1980	1985	1990	1995	1997	1998	1999
ASSETS											
Financial Assets:											
Foreign Exchange, SDRs, and Gold	9	7	15	12	17	31	41	58	40	47	46
Cash and Checking Deposits	40	58	36	29	45	30	40	41	51	48	63
Other Monetary Assets	1	1	1	1	2	2	2	1	3	4	5
Mortgages	26	25	37	39	72	74	94	65	47	45	45
Other Loans	96	133	166	165	211	276	194	150	156	168	179
less Expected Loan Losses	–1	–3	–4	–9	–16	–16	–19	–23	–42	–46	–50
Other Treasury Financial Assets	49	66	48	45	63	89	150	172	158	153	164
Total	222	287	300	283	393	485	503	463	412	419	452
Fixed Reproducible Capital:	1,042	1,101	1,123	1,015	945	1,111	1,159	1,145	1,075	1,037	1,030
Defense	908	895	873	736	643	778	808	779	709	677	663
Nondefense	134	206	250	280	302	333	351	367	366	360	367
Inventories	254	220	204	182	224	259	229	162	139	136	135
Nonreproducible Capital	412	422	400	581	925	1,027	802	605	688	633	658
Land	89	124	154	239	303	327	328	251	265	279	294
Mineral Rights	323	299	246	342	621	701	474	354	423	354	364
Subtotal	1,708	1,743	1,727	1,778	2,093	2,397	2,190	1,913	1,902	1,806	1,823
Total Assets	**1,930**	**2,030**	**2,027**	**2,061**	**2,487**	**2,882**	**2,692**	**2,376**	**2,315**	**2,225**	**2,275**
LIABILITIES											
Financial Liabilities:											
Currency and SDRs	12	13	21	21	25	25	29	30	29	28	26
Debt held by the Public	1,085	1,118	1,011	1,024	1,263	2,105	2,875	3,821	3,867	3,771	3,633
Trade Payables	14	20	20	30	53	79	114	88	86	84	82
Miscellaneous	6	3	1	4	0	0	9	7	4	7	7
Total	1,117	1,154	1,053	1,079	1,342	2,209	3,027	3,946	3,986	3,890	3,748
Insurance Liabilities:											
Deposit Insurance	0	0	0	0	2	9	69	5	1	1	1
Pension Benefit Guarantee[1]	0	0	0	41	30	42	42	20	30	48	41
Loan Guarantees	0	0	2	6	12	10	15	29	31	29	29
Other Insurance	30	27	21	20	26	16	19	17	16	16	16
Subtotal	30	27	24	67	70	78	146	70	79	94	86
Federal Pension Liabilities	766	971	1,155	1,312	1,734	1,736	1,693	1,642	1,612	1,624	1,627
Total Liabilities	**1,913**	**2,152**	**2,232**	**2,457**	**3,147**	**4,023**	**4,866**	**5,658**	**5,676**	**5,609**	**5,461**
Balance	**17**	**–122**	**–205**	**–396**	**–660**	**–1,141**	**–2,173**	**–3,282**	**–3,362**	**–3,384**	**–3,186**
Addenda:.											
Balance Per Capita (in 1999 dollars)	**95**	**–626**	**–997**	**–1,836**	**–2,889**	**–4,771**	**–8,669**	**–12,444**	**–12,509**	**–12,474**	**–11,634**
Ratio to GDP (in percent)	**0.7**	**–3.9**	**–5.5**	**–9.4**	**–13.0**	**–19.0**	**–31.2**	**–41.4**	**–39.0**	**–37.6**	**–34.1**

*This table shows assets and liabilites for the Government as a whole excluding the Federal Reserve System.
[1]The model and data used to calculate this liability were revised for 1996–1999.

[2]This temporary improvement highlights the importance of the other tables in this presentation. What is good for the Federal Government as an asset holder is not necessarily favorable to the economy. The decline in inflation in the early 1980s reversed the speculative runup in gold and other commodity prices. This reduced the balance of Federal net assets, but it was good for the economy and the Nation as a whole.



Assets

Table 2–1 shows a comprehensive list of assets—the financial and physical resources—owned by the Federal Government. The list corresponds to items that would appear on a typical balance sheet.

Financial Assets: According to the Federal Reserve Board's Flow-of-Funds accounts, the Federal Government's holdings of financial assets amounted to almost $0.5 trillion at the end of FY 1999. Government-held mortgages and other loans (measured in constant dollars) reached a peak in the mid-1980s. Since then, the value of Federal loans has declined. The holdings of mortgages, in particular, have declined sharply as holdings acquired from failed Savings and Loan institutions have been liquidated.

The face value of mortgages and other loans overstates their economic worth. OMB estimates that the discounted present value of future losses and interest subsidies on these loans is about $50 billion as of 1999. These estimated losses are subtracted from the face value of outstanding loans to obtain a better estimate of their economic worth.

Reproducible Capital: The Federal Government is a major investor in physical capital and computer software. Government-owned stocks of such capital amounted to about $1.0 trillion in 1999 (OMB estimate). About two-thirds of this capital took the form of defense equipment or structures.

Non-reproducible Capital: The Government owns significant amounts of land and mineral deposits. There are no official estimates of the market value of these holdings (and of course, in a realistic sense, much of this land could or would never be sold). Researchers in the private sector have estimated what they are worth, and these estimates are extrapolated in Table 2–1. Private land values fell sharply in the early 1990s, although they have risen somewhat since 1993. It is assumed here that Federal land shared in the decline and the subsequent recovery. Oil prices declined sharply in 1997–1998 but rebounded sharply in 1999, causing the value of Federal mineral deposits to fluctuate. (The estimates omit other types of valuable assets owned by the Government, such as works of art or historical artefacts, simply because the valuation of such assets would have little realistic basis in fact, and because, as part of the Nation's historical heritage, most of these objects would never be sold.)

Total Assets: The total real value of Government assets is lower now than at the end of the 1980s, because of declines in defense capital and the real value of nonreproducible assets. Even so, the Government's holdings are vast. At the end of 1999, the value of

Government assets is estimated to have been about $2.3 trillion.

Liabilities

Table 2–1 includes those liabilities that would appear on a business balance sheet, and only those liabilities. These include various forms of Federal debt, Federal pension obligations to civilian and military employees, and the estimated liability arising from Federal insurance and loan guarantee programs.

Financial Liabilities: Financial liabilities amounted to about $3.7 trillion at the end of 1999. The single largest component was Federal debt held by the public, amounting to around $3.6 trillion. In addition to debt held by the public, the Government's financial liabilities include approximately $0.1 trillion in miscellaneous liabilities.

Guarantees and Insurance Liabilities: The Federal Government has contingent liabilities arising from loan guarantees and insurance programs. When the Government guarantees a loan or offers insurance, cash disbursements may initially be small or, if a fee is charged, the Government may even collect money; but the risk of future cash payments associated with such commitments can be very large. The figures reported in Table 2–1 are prospective estimates showing the current discounted value of expected future losses. The present value of all such losses taken together is less than $0.1 trillion. The resolution of the many failures in the Savings and Loan and banking industries has helped to reduce the liabilities in this category by more than half since 1990.

Federal Pension Liabilities: The Federal Government owes pension benefits to its retired workers and to current employees who will eventually retire. The amount of these liabilities is large. The discounted present value of the benefits is estimated to have been around $1.6 trillion at the end of FY 1999.[3]

The Balance of Net Liabilities

Because of its sovereign powers, the Government need not maintain a positive balance of net assets, and the rapid buildup in liabilities since 1980 has not damaged Federal creditworthiness. However, from 1980 to 1992, the balance between Federal liabilities and Federal assets did deteriorate at a very rapid rate. In 1980, the negative balance was only about 13 percent of GDP; by 1995, it was 41 percent of GDP. Since then, the net balance as a percentage of GDP has fallen for four straight years. The real value—adjusted for inflation—of net liabilities has also fallen by about $180 billion since 1997, reflecting the back-to-back budget surpluses in these years. If a budget surplus is maintained, the net balance will continue to improve.

PART II—THE BALANCE OF RESOURCES AND RESPONSIBILITIES

As noted in the preceding section, a business-type accounting of Government assets and liabilities does not reflect the Government's unique sovereign powers, such as taxation. The best way to examine the balance between future Government obligations and resources is by projecting the budget over a long enough period to reveal any long-run stresses. The budget provides a comprehensive measure of the Government's annual financial burdens and resources. By projecting annual receipts and outlays, it is possible to consider whether there will be sufficient resources to support all of the Government's ongoing obligations.

This part of the presentation describes long-run projections of the Federal budget that extend beyond the normal 5- to 10-year budget horizon. Forecasting the economy and the budget over such a long period is highly uncertain. Future budget outcomes depend on a host of unknowns—constantly changing economic conditions, unforeseen international developments, unexpected demographic shifts, the unpredictable forces of technological advance, and evolving political preferences. Those uncertainties increase the further into the future the projections are pushed. Even so, long-run budget projections are needed to assess the full implications of current policies and to sound warnings about future problems that could be avoided by timely action. Federal responsibilities extend well beyond the next decade. There is no time limit on the Government's constitutional responsibilities, and programs like Social Security are intended to continue indefinitely.

It is evident even now that there will be mounting challenges to the budget early in this century. By 2008, the first of the huge baby-boom generation born after World War II will become eligible for early retirement under Social Security. In the years that follow there will be serious strains on the budget because of increased expenditures for Social Security and for the Government's health programs—Medicare and Medicaid—which serve the elderly. Long-range projections can help indicate how serious these strains might become and what would be needed to withstand them.

The retirement of the baby-boomers will dictate the timing of the future budgetary problem, but the underlying cause is deeper. U.S. population growth has been slowing down, and because of that and because people are living longer, a change is inevitably coming in the ratio of retirees to workers given current retirement patterns. That change has been held temporarily in abeyance as the baby-boom cohort has moved into its prime earning years, while the retirement of the much smaller cohorts born during the Great Depression and World War II has been holding down the rate of growth in the retired population. The suppressed budgetary pressures are likely to burst forth when the baby-

[3] These pension liabilities are expressed as the actuarial present value of benefits accrued-to-date based on past and projected salaries. The cost of retiree health benefits is not included. The 1999 liability is extrapolated from recent trends.

boomers begin to retire. However, even after the baby-boomers have passed from the scene, later in the century, a higher ratio of retirees to workers will persist, given the underlying pattern of low fertility and improving longevity, with concomitant problems for Federal retirement programs. These same problems are gripping other developed nations, even those that never experienced a baby-boom; in fact, some of the nations that did not have baby-booms are facing demographic pressures already.

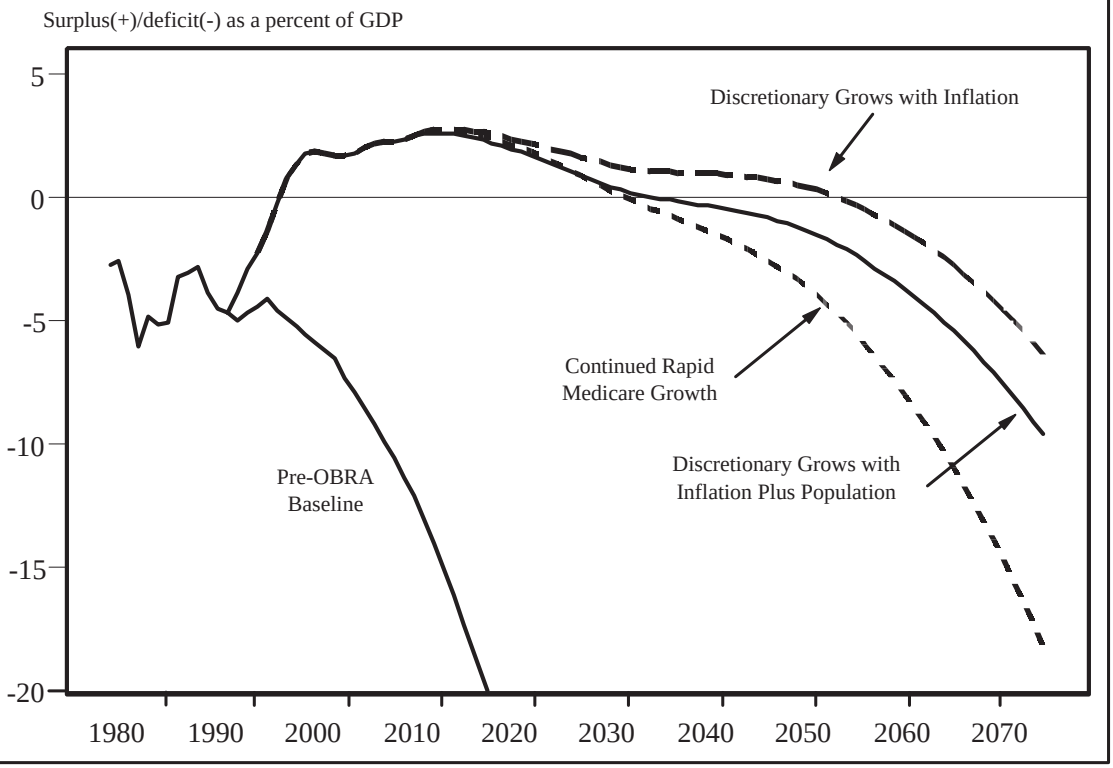
The Improvement in the Long-Range Outlook.—Since this Administration first took office, there has been a major change in the long-run budget outlook. In January 1993, the deficit was on an unstable trajectory. Had the policies then in place continued unchanged, the deficit was projected to mount steadily not only in dollar terms, but relative to the size of the economy.[4] The unified deficit was projected to rise to over 10 percent of GDP by 2010—an unprecedented level in peacetime—and to continue sharply upward thereafter. This pattern of rising deficits also would have driven Federal debt held by the public to unprecedented levels.

[4] Over long periods when the rate of inflation is positive, comparisons of dollar values are meaningless. Even the low rate of inflation assumed in this budget will reduce the value of a 1999 dollar by over 50 percent by 2030, and by 70 percent by the year 2050. For long-run comparisons, it is much more useful to examine the ratio of the surplus/deficit and other budget categories to the expected size of the economy as measured by GDP.

The Omnibus Budget Reconciliation Act of 1993 (OBRA) changed that. Not only did it reduce the near-term deficit, but, aided by the strong economy that it helped bring about, it also reduced the long-term deficit. Prior to enactment of the Balanced Budget Act in 1997, however, the deficit was still expected to persist into the long run, although at a more moderate level. Under the policies in place at the beginning of 1997, the deficit was projected to remain at around 1.5 percent of GDP through 2010, and only afterwards to begin a steady rise that would push it above 20 percent of GDP shortly after 2050.

The 1997 Balanced Budget Agreement (BBA) took the next major step by eliminating the deficit in the unified budget. When the BBA was passed, that was expected to happen in 2002; but the unexpected strength of the economy and the boom in the financial markets over the last four years have enabled the unified budget to reach balance much sooner than was expected. The unified budget is now projected to remain in surplus throughout the coming decade under policies in this budget. Extending those policies beyond the usual budget window, a unified budget surplus could be sustained for many years, although in the very long run a deficit is projected to reemerge absent further policy changes. How long the surplus will actually be preserved depends on certain key factors, some of the most important of which are illustrated in Chart 2–3.

Chart 2-3. Long Run Budget Projections



Budget discipline is crucial for long-run budget stability. Another key factor is the expected growth of Federal health care costs. Chart 2–3 illustrates how the surplus varies depending on assumptions about future growth in discretionary spending and health care costs. The conventions adopted in past budgets were to assume future growth in discretionary spending sufficient to preserve a constant real level of spending, and to base long-range projections for Medicare on the latest projections of the Medicare actuaries as reflected in the annual Medicare Trustees' Report. Those projections include an expected slowdown in the rate of growth in real per capita Medicare spending. More rapid growth of Medicare, closer to the historical trend for the program, would result in a faster return to deficits, as shown in Chart 2–3.

Under most reasonable alternative assumptions, the long-run budget outlook contrasts favorably with the generally prevailing opinion among budget experts just a few years back. Then, it was held that the long-run outlook for the deficit was necessarily bleak. For some time, there has been a general consensus among demographers and economists that population trends in the 21st century would put strains on the budget, and it was thought until recently that those strains must inevitably lead to large deficits. For example, the 1994 report of the Bipartisan Commission on Entitlement and Tax Reform found a "long-term imbalance between the Government's entitlement promises and the funds it will have available to pay for them." The Congressional Budget Office (CBO) observed as recently as 1997: "If the budgetary pressure from both demography and health care spending is not relieved by reducing the growth of expenditures or increasing taxes, deficits will mount and seriously erode future economic growth."[5] On a narrower front, the annual trustees' reports for both Social Security and Medicare have projected for some time long-run actuarial deficiencies that would deplete those programs' Trust funds over the next several decades.

The consensus has shifted somewhat as a result of recent policy actions and because of the unexpected strength of the economy in the second half of the 1990s, which put the budget on a much sounder footing and thereby provided a better jumping-off point for long-range budget projections. The General Accounting Office (GAO) in its 1997 report on the long-run budget outlook observed that, "Major progress has been made on deficit reduction ... While our 1995 simulations showed deficits exceeding 20 percent of GDP by 2024 ..., our updated model results show that this point would not be reached until nearly 2050."[6] GAO continues to find that unsustainable deficits will emerge in the long run absent major entitlement reforms, but the date at which the deficit starts to rise has been postponed significantly as a result of recent actions.

Another sign of the shifting consensus is provided in CBO's latest long-run budget projections released in December 1999. Under current policies, CBO foresees a unified budget surplus through 2010, reaching 3 percent of GDP in that year.[7] As CBO correctly points out, how long the surplus can be extended depends on uncertain future policy and economic developments, but: "Saving all of the surpluses projected in CBO's 10-year baseline could delay the onset of serious fiscal problems until the second half of the next century." The summary measure that CBO uses to indicate the magnitude of the long-run fiscal imbalance—the permanent change in taxes needed to stabilize the ratio of publicly held Federal debt to GDP—has declined to 0.5 percent of GDP in its most optimistic projections, compared with a baseline projection of 5.4 percent of GDP in its May 1996 projections. Under other assumptions, CBO shows a larger imbalance, but even under its most pessimistic alternative, the imbalance is only about half as large as projected in 1996.

The main reason for this improvement in the outlook can be traced to the increase in the near-term budget surplus. If the surpluses are allowed to continue reducing Federal debt, as was done in 1998 and 1999, they will bring about dramatic reduction in Federal debt held by the public and in the Government's net interest payments over the next several years. In FY 1999, net interest amounted to 2½ percent of GDP. Under current estimates that could be cut to around ½ percent of GDP by 2010, and soon thereafter, if the surpluses were allowed to continue, the Government would begin to acquire financial assets that would generate interest income that would add to the unified budget surplus.

This means that when demographic pressures on Social Security and the Federal health programs begin to mount around that time, there would be more budgetary resources available to meet the problem, postponing the date on which a deficit in the unified budget reappears. While the long-range outlook for Social Security has improved only modestly, it now appears that there could be more resources available in the rest of the budget when the Social Security shortfall begins to emerge.

Economic and Demographic Projections.—Long-run budget projections require a long-run demographic and economic forecast—even though any such forecast is highly uncertain. The forecast used here extends the Administration's medium-term economic projections described in the first chapter of this volume, augmented by the long-run demographic projections from the most recent Social Security Trustees' Report.

- Inflation, unemployment and interest rates are assumed to hold stable at their values in the last year of the Administration budget projections, 2010—2.6 percent per year for CPI inflation, 5.2 percent for the unemployment rate, and 6.1 percent for the yield on 10-year Treasury notes.
- Productivity growth as measured by real GDP per hour is assumed to continue at the same constant rate as it averages in the Administration's me-

[5] *Long-Term Budgetary Pressures and Policy Options*, March 1997.
[6] *Analysis of Long-Term Fiscal Outlook*, October 1997.
[7] *The Long-Term Budget Outlook: An Update*, December 1999.

dium-term projections—1.7 percent per year. (In 1999, there were substantial upward revisions to recorded productivity growth, which have resulted in an increase in the budget projections for this series; see the discussion of statistical issues in Chapter 1 of this volume.)

- In line with the current projections of the Social Security Trustees, U.S. population growth is expected to slow over the next several decades. This is consistent with recent trends in the birth rate, and it allows for further reductions in mortality and continuing immigration at around current levels. The slowdown is expected to lower the rate of population growth from over 1 percent per year in the 1990s to about half that rate by 2025.
- Labor force participation is also expected to decline as the population ages and the proportion of retirees in the population increases. The Administration projects a somewhat higher rate of labor force participation over the next ten years than is assumed in the latest annual report of the Social Security Trustees. That difference in the level of labor force participation is preserved in the long-run projections.
- The projected rate of real economic growth in the long run is determined by labor force growth plus productivity growth. Because labor force growth is expected to slow and productivity growth is assumed to be constant, real GDP growth is expected to decline gradually after 2006 from around 3 percent per year to an average rate of just under 2 percent per year by 2020. This is a logical implication of the other assumptions which are based on reasonable forecasting conventions; however, it implies a marked departure from the historical rate of growth in the U.S. economy, which has averaged over 3 percent per year.

The economic projections described above are set by assumption and do not automatically change in response to changes in the budget outlook. This is unrealistic, but it simplifies comparisons of alternative policies. A more responsive (or dynamic) set of assumptions would serve mainly to strengthen conclusions reached by the current approach. Both CBO and GAO in their investigations of the long-run outlook have explored such feedback effects and found that they accelerate the destabilizing effects of sustained budget deficits. Similarly, but in the opposite direction, budget surpluses would be expected to lead to higher national saving, lower real interest rates, and more economic growth, which would increase Federal receipts and reduce outlays, further augmenting projected surpluses.

Alternative Budget Baselines.—Chart 2–3 above shows four alternative budget projections: one based on the policies in place prior to enactment of OBRA 1993 and three others showing current policy projections under alternative assumptions about discretionary spending and future Federal health care costs.[8] The chart illustrates the dramatic improvement in the deficit that has already been achieved. Furthermore, it shows that if the unified budget remains in surplus throughout the coming decade, as is now expected, the task of maintaining fiscal stability will be eased when the demographic bulge begins to hit after 2008. Table 2–2 shows long-range projections for the major categories of spending under the three current policy alternatives shown in Chart 2–3. Under each of these alternatives, the major entitlement programs are expected to absorb an increasing share of budget resources.

- Social Security benefits, driven by the retirement of the baby-boom generation, rise from 4.2 percent of GDP in 2000 to 6.7 percent in 2030. They continue to rise after that but more gradually, eventually reaching 7.4 percent of GDP by 2075.
- Federal Medicaid spending goes up from 1.2 percent of GDP in 2000 to 3.2 percent in 2030 and to 8.6 percent of GDP in 2075.
- Based on the Medicare actuaries' long-range projections of future health-care cost trends, Medicare spending would rise from 2.1 percent of GDP in 2000 to 4.1 percent in 2030 and 4.8 percent by 2075. If the real per capita growth rate in Medicare does not slow as much as the actuaries have assumed, the program could expand even more rapidly. In the alternative with faster spending growth, Medicare outlays reach 4.7 percent of GDP in 2030, and 8.9 percent by 2075.
- Assuming that discretionary spending grows only with inflation it would decline as a share of GDP, from 6.5 percent in 2000 to 3.9 percent in 2030 and 2.3 percent of GDP in 2075. The programs funded by this spending grow with inflation under this assumption, but they do not keep pace with population growth or any growth in real per capita income. Allowing discretionary spending to expand with both inflation and population would moderate the decline in spending as a share of GDP. Under this assumption, discretionary spending is 4.4 percent of GDP in 2030, and 2.9 percent of GDP in 2075.

The long-run budget outlook has been much improved by the actions taken by this Administration in cooperation with the Congress. Eliminating the unified deficit has set the budget on a solid footing for many years to come. Under a conservative extension of the Administration's latest economic assumptions and using various reasonable technical assumptions regarding future spending and taxes, the budget could continue in surplus for several decades.

As currently projected, receipts are higher and net interest outlays are lower than they were before meas-

[8] The President's budget program includes investing no more than 15 percent of the Social Security trust fund in corporate equities. To be conservative, these projections assume that the equities in the trust fund have the same yield as Government securities (so the equity investment does not add to the Government's projected investment income), and net the value of the equities against the amount of outstanding Federal debt. This yields the same numerical outcome as if Social Security did not invest in equities. If, as expected, Social Security equity investment yields a higher rate of return, the financial position of the Federal Government will be better than is presented in these projections.

Table 2–2. LONG–RUN BUDGET PROJECTIONS OF 2001 BUDGET POLICY

(Percent of GDP)

	1995	2000	2005	2010	2015	2020	2030	2040	2050	2060	2075
Discretionary Grows with Inflation											
Receipts	18.5	20.4	19.4	19.1	19.2	19.3	19.5	19.7	19.9	19.9	20.0
Outlays	20.7	18.7	17.6	16.7	16.5	16.9	18.2	18.7	19.3	21.1	26.3
Discretionary	7.4	6.5	5.8	5.1	4.7	4.4	3.9	3.4	3.1	2.7	2.3
Mandatory	10.1	9.9	10.4	11.1	12.0	13.3	15.6	16.7	17.6	19.1	22.1
Social Security	4.6	4.2	4.3	4.5	5.0	5.7	6.7	6.8	6.9	7.2	7.4
Medicare	2.1	2.1	2.3	2.5	2.9	3.3	4.1	4.4	4.4	4.5	4.8
Medicaid	1.2	1.2	1.5	1.8	2.1	2.4	3.2	4.0	5.0	6.2	8.6
Other	2.2	2.4	2.3	2.3	2.1	2.0	1.7	1.5	1.4	1.3	1.2
Net Interest	3.2	2.3	1.4	0.5	–0.3	–0.9	–1.4	–1.4	–1.3	–0.8	1.9
Surplus(+)/Deficit(–)	–2.2	1.7	1.8	2.4	2.7	2.5	1.4	1.0	0.5	–1.1	–6.3
Federal Debt Held by Public	49.2	36.3	21.3	7.1	–6.3	–16.9	–26.9	–26.9	–24.5	–13.8	37.3
Primary Surplus(+)/Deficit(–)	0.9	4.0	3.1	2.9	2.5	1.6	0.0	–0.5	–0.8	–2.0	–4.5
Discretionary Grows with Population and Inflation											
Receipts	18.5	20.4	19.4	19.1	19.2	19.3	19.5	19.7	19.9	19.9	20.0
Outlays	20.7	18.7	17.6	16.7	16.6	17.3	18.9	20.0	21.1	23.3	29.6
Discretionary	7.4	6.5	5.8	5.1	4.9	4.7	4.4	4.0	3.6	3.3	2.9
Mandatory	10.1	9.9	10.4	11.1	12.0	13.3	15.6	16.7	17.6	19.1	22.1
Social Security	4.6	4.2	4.3	4.5	5.0	5.7	6.7	6.8	6.9	7.2	7.4
Medicare	2.1	2.1	2.3	2.5	2.9	3.3	4.1	4.4	4.4	4.5	4.8
Medicaid	1.2	1.2	1.5	1.8	2.1	2.4	3.2	4.0	5.0	6.2	8.6
Other	2.2	2.4	2.3	2.3	2.1	2.0	1.7	1.5	1.4	1.3	1.2
Net Interest	3.2	2.3	1.4	0.5	–0.2	–0.8	–1.1	–0.7	–0.2	0.9	4.6
Surplus(+)/Deficit(–)	–2.2	1.7	1.8	2.4	2.6	2.1	0.6	–0.3	–1.2	–3.4	–9.6
Federal Debt Held by Public	49.2	36.3	21.3	7.1	–5.8	–15.1	–20.3	–13.3	–2.3	18.8	89.0
Primary Surplus(+)/Deficit(–)	0.9	4.0	3.1	2.9	2.3	1.3	–0.5	–1.0	–1.4	–2.5	–5.0
Continued Rapid Medicare Growth.											
Receipts	18.5	20.4	19.4	19.1	19.2	19.3	19.5	19.7	19.9	19.9	20.0
Outlays	20.7	18.7	17.6	16.7	16.5	17.1	19.1	20.9	23.2	27.3	38.1
Discretionary	7.4	6.5	5.8	5.1	4.7	4.4	3.9	3.4	3.1	2.7	2.3
Mandatory	10.1	9.9	10.4	11.1	12.0	13.5	16.3	18.0	19.5	21.7	26.2
Social Security	4.6	4.2	4.3	4.5	5.0	5.7	6.7	6.8	6.9	7.2	7.4
Medicare	2.1	2.1	2.3	2.5	2.9	3.4	4.7	5.7	6.3	7.1	8.9
Medicaid	1.2	1.2	1.5	1.8	2.1	2.4	3.2	4.0	5.0	6.2	8.6
Other	2.2	2.4	2.3	2.3	2.1	2.0	1.7	1.5	1.4	1.3	1.2
Net Interest	3.2	2.3	1.4	0.5	–0.3	–0.8	–1.2	–0.6	0.6	2.9	9.6
Surplus(+)/Deficit(–)	–2.2	1.7	1.8	2.4	2.7	2.3	0.5	–1.2	–3.3	–7.4	–18.2
Federal Debt Held by Public	49.2	36.3	21.3	7.1	–6.3	–16.4	–21.6	–9.6	–13.5	56.5	186.0
Primary Surplus(+)/Deficit(–)	0.9	4.0	3.1	2.9	2.5	1.4	–0.7	–1.8	–2.7	–4.6	–8.6

ures were taken to bring down the deficit, but the long-run demographic challenge has not been changed, and rising per capita health care costs are also likely to continue to put pressure on the budget. Extending the 2001 budget under the assumption that discretionary spending grows with inflation, a primary, or non-interest, deficit reappears in 2030. Although the underlying imbalance remains small, and the unified budget is projected to continue in surplus for many more years, a sustained primary deficit is sufficient to begin a slow but irreversible spiral. The recurrence of a unified deficit is inevitable once this spiral is set in motion unless there are future changes in policy that eliminate the primary deficit.[9] Under the alternative baselines shown in Chart 2–3 and Table 2–2, the primary deficit would reappear even sooner. When discretionary spending grows with both population and inflation, the primary deficit reappears in 2027, and when Medicare grows more rapidly, it also recurs in 2027. In all cases, a unified deficit reappears before the end of the 75-year forecast period.

The Effects of Alternative Economic and Technical Assumptions.—The results discussed above are sensitive to changes in underlying economic and technical assumptions. The three alternatives in Table 2–2 illustrate the impact of some of the key assumptions, but other scenarios are also possible. While the budget could remain under control for several decades before underlying problems reemerge, other assumptions can produce more pessimistic—or more optimistic—outcomes. Some of the most important of these alternative economic and technical assumptions and their effects on the budget outlook are described below. Each highlights one of the key uncertainties in the outlook. Generally, negative possibilities receive more attention than positive ones in these scenarios, because the dangers would seem to be greater in this direction.

1. *Discretionary Spending:* By convention, the current services estimates of discretionary spending are as-

[9] The primary or non-interest surplus is the difference between all outlays, excluding interest, and total receipts. It is positive even when the total budget is in deficit provided that interest outlays exceed the overall deficit. A relatively small primary surplus can stabilize the budget even when the total budget is in deficit, and similarly, even a small primary deficit can destabilize a budget. The mathematics are inexorable.

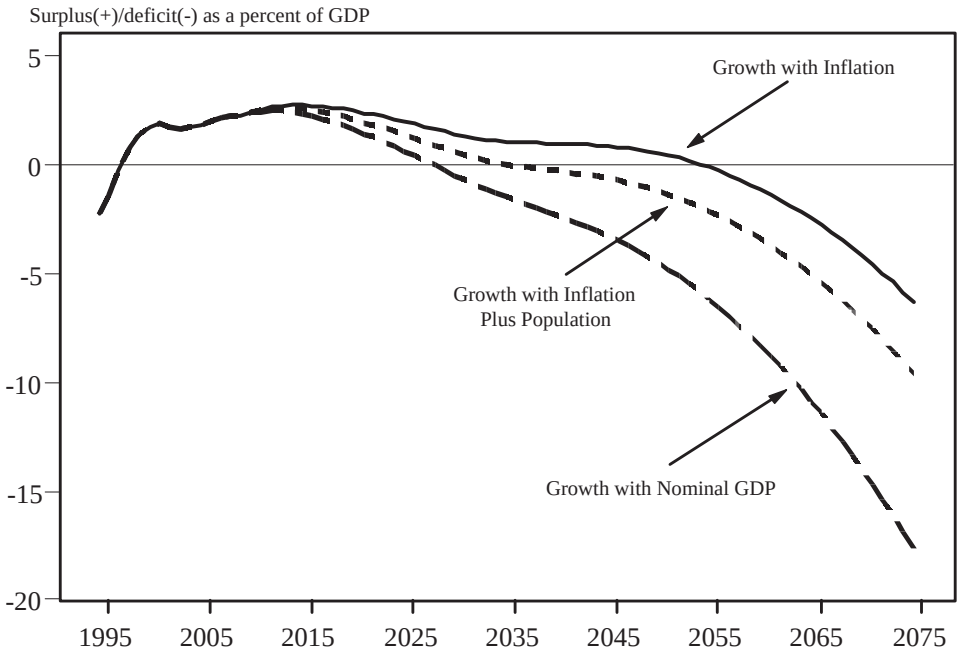
sumed to rise only with the rate of inflation. This assumption, or any other, is essentially arbitrary, because discretionary spending is always determined annually through the legislative process, and no formula can dictate future spending in the absence of legislation. The current services assumption implies that the real value of Federal services is unchanging over time, which has the implication that the size of Federal discretionary spending would shrink relative to the size of the economy. It also implies that the Nation's future defense needs do not vary systematically from currently projected levels.

One alternative to this assumption has already been presented in Chart 2–3 and Table 2–2. The second alternative for current policy considered there allows discretionary spending to increase with both population and inflation. Discretionary spending is frozen in real per capita terms, but not in absolute terms. This might be the appropriate assumption for such domestic activities as those of the FBI or the Social Security Administration (for program administration, not benefit costs), which are sensitive to population trends.

Some budget analysts have assumed alternatively that discretionary spending is proportional to GDP in the long run; this requires it to increase in real terms whenever there is positive real economic growth. That is a more generous assumption for Government spending than the current services assumption or even the assumption of constant real per capita spending. It might be argued that with rising real per capita incomes, the public demand for Government services—more national parks, better roads, and additional Federal support for scientific research—will increase as well. Some of these demands might be met within fixed real spending limits through increased productivity in the Federal sector, such as has accompanied recent reductions of the Federal workforce. The assumption also flies in the face of recent experience; since its peak in 1968, the discretionary spending share of GDP has been cut in half—from 13.6 percent to 6.5 percent in 2000. Thus, there are arguments on both sides. Chart 2–4 compares the baseline alternatives with a scenario in which discretionary spending rises in step with nominal GDP.

2. *Health Spending:* After 2010, which is the last year of the standard budget estimates, real per capita growth rates for Medicare benefits are based on the actuarial projections in the latest report of the Medicare Trustees. These projections slow down markedly in the long run. At some point, spending for Medicare must grow at approximately the same rate as GDP. Eventually, the rising trend in health care costs for both Government and the private sector will have to end, but it is hard to know when and how that will happen. Improved health and increased longevity are highly valued, and society may be willing to spend an even larger share of income on them than it has heretofore. As an alternative, one of the current policy baselines allows real per capita Medicare benefits to rise at an annual rate of 2¼ percent per year. This is about twice as fast as the actuarial assumption, and implies a rapidly rising level of Medicare spending for many years

Chart 2-4. Alternative Discretionary Spending Assumptions



to come. Eventually, Medicare would approach 9 percent of GDP on this assumption (see Table 2–2).

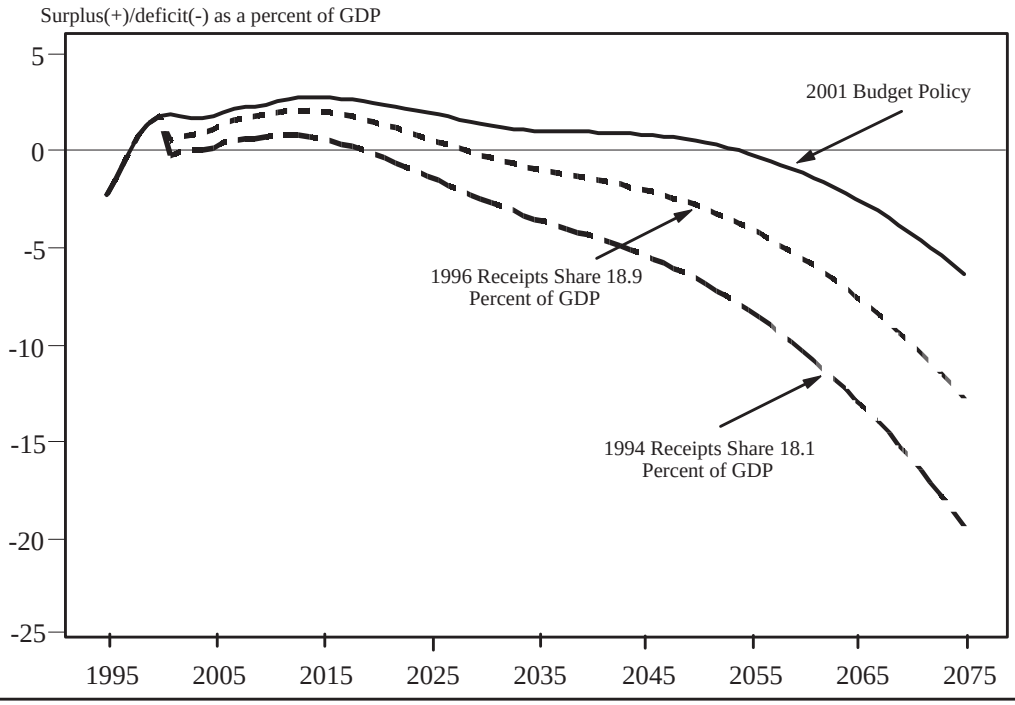
3. *Taxes:* In the absence of policy changes, the ratio of taxes to GDP is not assumed to vary much in these long-range projections. Individual income taxes tend to rise relative to income, because the assumed rate of real income growth implies some "real bracket creep." The tax code is indexed for inflation, but not for increases in real income. Eventually, a larger percentage of taxpayers will be in higher tax brackets and this will raise the ratio of taxes to income. However, other Federal taxes tend to decline in real terms in the absence of policy changes. Many excise taxes are set in nominal terms, so collections tend to decline as a share of GDP. In the very long run, Federal receipts are projected to rise by about 1 percentage point of GDP compared with their level in 2010.

The starting point for these projections is the current ratio of Federal receipts to GDP. That ratio reached 20.0 percent in 1999, and it is expected to be 20.4 percent in 2000—the highest levels since World War II. This was not the result of new Federal taxes. Tax rates have been essentially unchanged since 1994, when the changes enacted in OBRA took effect. Since then, however, tax collections as a share of GDP have risen about two percentage points. The reasons for this increase are not yet fully understood. The rapid rise in the stock market, which has generated large capital gains for investors and made possible lucrative stock options and bonuses for executives, is generally believed to be a major factor. This Budget assumes that there will be some moderation in the ratio of receipts to GDP over the next few years. The share of revenues in the medium term is below the peak levels recently experienced. Even so, receipts are projected to remain above their historical average relative to the economy. Should the share of tax receipts instead return to near its historical average that would have an adverse effect on the long-range budget projections.

In Chart 2–5, the current services baseline is compared with two alternatives for receipts. In one, the share of receipts is assumed to return to the level posted in 1996, 18.9 percent of GDP; in the other, to its level in 1994, before the recent runup in the revenue share—18.1 percent of GDP. The return to these earlier levels is completed by 2001. Afterwards, the current services rules apply, under which the share of receipts rises over time, but at a very gradual rate. The difference in the starting point for taxes can alter the outlook for the surplus/deficit quite dramatically. This is another example of how small differences in the primary surplus can eventually produce large effects on the total surplus/deficit.

4. *Alternative Uses of the Budget Surpluses:* Current projections show the unified budget in surplus for several decades under a wide range of assumptions. These surpluses dramatically reduce debt held by the public and net interest outlays, which in turn augments the surpluses. In a sense, a budget surplus that is used to reduce debt feeds on itself by reducing future interest outlays. Thus, if these surpluses were limited by increased spending or reduced taxes, it would change the

Chart 2-5. Alternative Receipts Assumptions



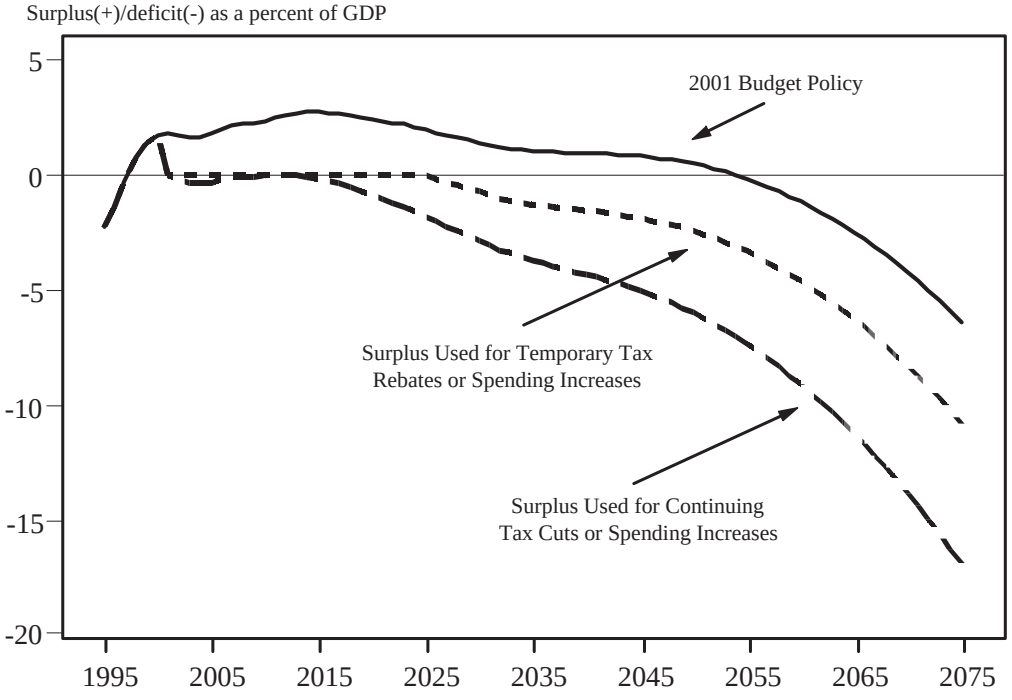
outlook. Chart 2–6 shows the budget's path if it were held exactly in balance rather than being allowed to run surpluses. This would require policy changes to increase spending or reduce taxes. These changes could take two general forms. The spending or tax changes made possible by the surpluses could be purely temporary. This would be the case for tax rebates or one-time grants. If such changes were made, program spending and receipts could eventually return to their original baseline paths after the temporary spending and taxes came to an end, although interest spending would be permanently higher. Alternatively, the spending increases or tax reductions could be permanently built into the budget. This would be the case if the changes took form of tax rate cuts or increases in entitlements. Such changes would alter the baselines for outlays or receipts permanently, and have a larger long-run effect on the projected surplus. In both cases, the deficit returns sooner than it would if the surplus were used to reduce debt.

5. *What Happens When the Federal Debt Is Repaid?* A surplus means the Government takes in more receipts from the public than it pays out in the form of Government outlays. The extra receipts are used to retire debt. This is not unlike a family paying off its mortgage, and like a family with a mortgage, the Government may eventually be free from debt. This has happened only once before in the history of the United States, and then only briefly a century and a half ago; but with the current level of projected surpluses, such an eventuality has become a real possibility. When the budget window closes in 2010, the Administration projects that debt held by the public will be 7 percent of GDP, a lower level than at any time since before the United States entered World War I.

With unified budget surpluses projected to be running between 2 and 3 percent of GDP, it is obvious where the debt is headed. All of the debt held by the public could be repaid. At that point, any further surpluses would no longer be used to retire Federal debt; instead, they would have to be accumulated in the form of Federal assets. Assuming the Government used them to acquire financial reserves, these reserves would earn interest which would add to the surplus further adding to the assets. In the long-run budget projections, Federal financial assets continue to build up until shifts in the underlying budgetary position cause the surplus gradually to unwind. Eventually, a deficit reappears and the assets are drawn down; ultimately, Federal debt is issued again. It is a measure of the severity of the impending demographic pressures that the national asset does not grow into the indefinite future—which it could, just as easily as did the national debt in the adverse projections of just a few years ago.

Such a scenario is somewhat artificial and would have been thought most unlikely just a few years ago, but to assume any other approach would require a policy judgment. The purpose of these long-range projec-

Chart 2.6. Alternative Uses Of The Surplus



tions, is to show what would happen to the budget if current policies were extended. That assumption implies that, with sufficient discipline, the Federal debt would be repaid under an extension of current budget policies and a Federal asset accumulated. Given the ground rules, the base scenario presents that result.

Chart 2–7 compares the current services baseline with a scenario in which spending is permanently increased or taxes permanently cut when Federal debt held by the public reaches zero. Without the national asset, the deficit reappears much sooner. The interest earned by the asset is no longer available to fill the budgetary hole when the drain of future entitlement claims begins to mount.

6. *Productivity:* Productivity growth in the U.S. economy slowed after 1973. This slowdown was responsible for the slower rise in U.S.real incomes after that time. Recently, productivity growth has increased. Since the end of 1995, productivity has grown about as fast as it did during the 25-year period prior to 1973. The revival of productivity growth is one of the most welcome developments of the last several years. Productivity is affected by changes in the budget surplus/deficit which alter the level of national saving and investment, but many other factors also influence productivity as well. The surplus/deficit in turn is affected by changes in productivity growth which determine the size of the economy, and hence future receipts. Two alternative scenarios illustrate what would happen to the budget deficit if productivity growth were either higher or lower than assumed. A higher rate of growth would make the task of preserving a balanced budget much easier; indeed, it would permit expanded spending or reduced taxes without worsening the budget picture. A lower productivity growth rate would have the opposite effect. Chart 2–8 shows how the surplus/deficit varies with changes of one-half percentage point of average productivity growth in either direction.

7. *Population:* In the long run, shifting demographic patterns are the main source of change in these projections. The changing rate of population growth feeds into real economic growth through its effect on labor supply and employment. Changing demographic patterns also affect entitlement spending, contributing to the surge of spending expected for Social Security, Medicare, and Medicaid. The key assumptions underlying these demographic projections concern future fertility, mortality and immigration.

- The main reason for the projected slowdown in population growth in the 21st century is the expected continuation of a low fertility rate. Since 1990, the number of births per woman in the United States has averaged between 2.0 and 2.1, slightly below the replacement rate needed to maintain a constant population. The fertility rate was even lower than this in the 1970s and 1980s. The demographic projections assume that fertility will average around 1.9 births per woman in the future. Fertility is hard to predict. Both the baby boom in the 1940s and 1950s and the baby bust in the 1960s and 1970s surprised demographers. A return to higher fertility rates is possible, but

Chart 2-7. Alternative Assumptions About a Federal "Asset"

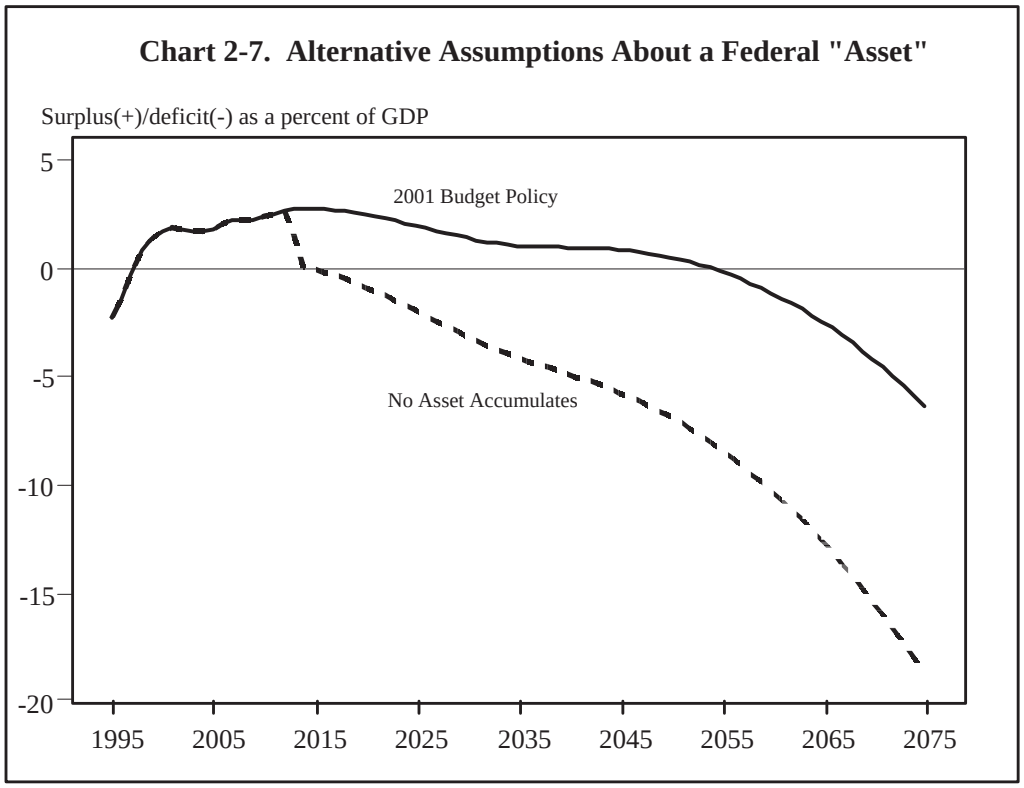
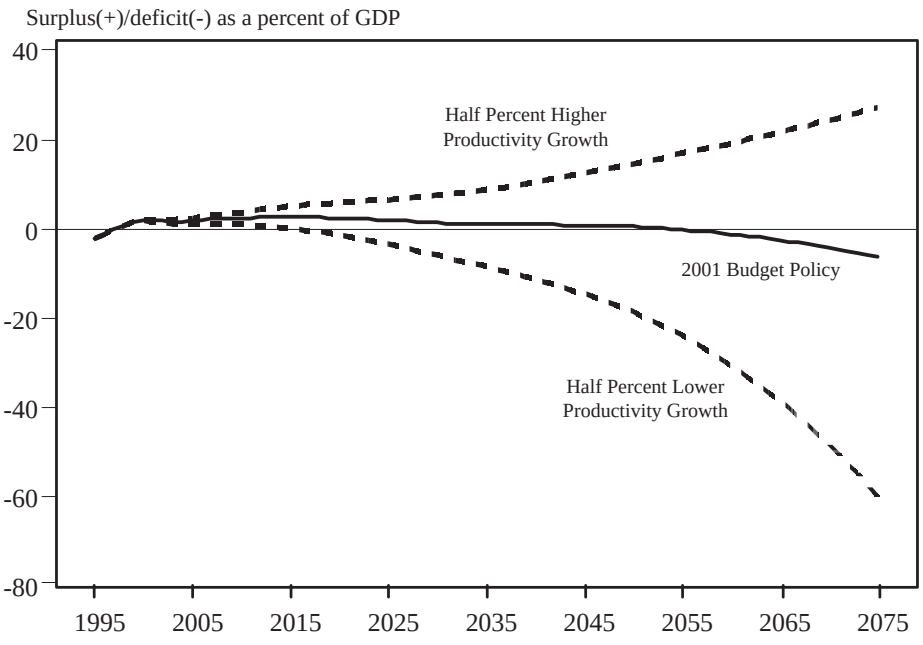


Chart 2-8. Alternative Productivity Assumptions



so is another drop in fertility. The U.S. fertility rate has never fallen below 1.7, but such low rates have been observed recently in some European countries. Chart 2–9 shows the effects of alternative fertility assumptions on the surplus/deficit; higher fertility contributes to a larger labor force, increased aggregate incomes, and revenues; and hence increases the projected surplus. Lower fertility has the opposite effect.

- The increasing proportion of the elderly projected for the U.S. population is due to both low fertility, which reduces the number of children per adult, and longer lifespans. Since 1970, the average lifespan for U.S. women has increased from 74.9 years to 79.5 years, and it is projected to rise to 82.8 years by 2050. Men do not live as long as women on average, but their lifespan has also increased from 67.2 years in 1970 to 73.6 years in 1999, and it is expected to reach 78.1 years by 2050. If the U.S. population were to experience much slower improvements in mortality, than in the recent past, the relatively shorter lifespans would help to improve the surplus/deficit by reducing Social Security benefits. Conversely, if the population were to live significantly longer than is now expected, the outlook for the surplus/deficit would worsen. This is illustrated in Chart 2–10. Last year, the technical panel to the Social Security Advisory Board recommended raising expected lifespans in the annual Trustees' Report. The recommendation essentially is to adopt what had been the high-cost assumption as the intermediate or base case. This would raise expected lifespans in 2050 to 85.6 years for women and to 80.8 years for men.
- A final factor influencing long-run projections is the rate of immigration. The United States is an open society. In the 19th century, a huge wave of immigration helped build the country; the last two decades of the 20th century have witnessed another burst of immigration. The net flow of legal immigrants has been averaging around 850,000 per year since 1992, while illegal immigration adds to these figures. This is the highest absolute rate in U.S. history, but as a percentage of population it is only about a third as high as immigration was in 1901–1910. Chart 2–11 presents alternatives in which future immigration is held to zero and allowed to rise 50 percent above and below the intermediate actuarial assumptions in the Social Security Trustees' Report.

Conclusion.—Under President Clinton, the long-run budget outlook has improved significantly. When this Administration took office, the deficit was projected to continue spiraling out of control until, early in the 21st century, it was projected to reach levels seen before only during major wars. The outlook now is drastically different. Under current policy assumptions, the unified budget surpluses in 1998–1999 mark the beginning of a period of sustained budget surpluses. Eventually, without further reforms to the entitlement programs, a return to budget deficits is still projected, but how soon this will occur is difficult to estimate. A quick

Chart 2-9. Alternative Fertility Assumptions

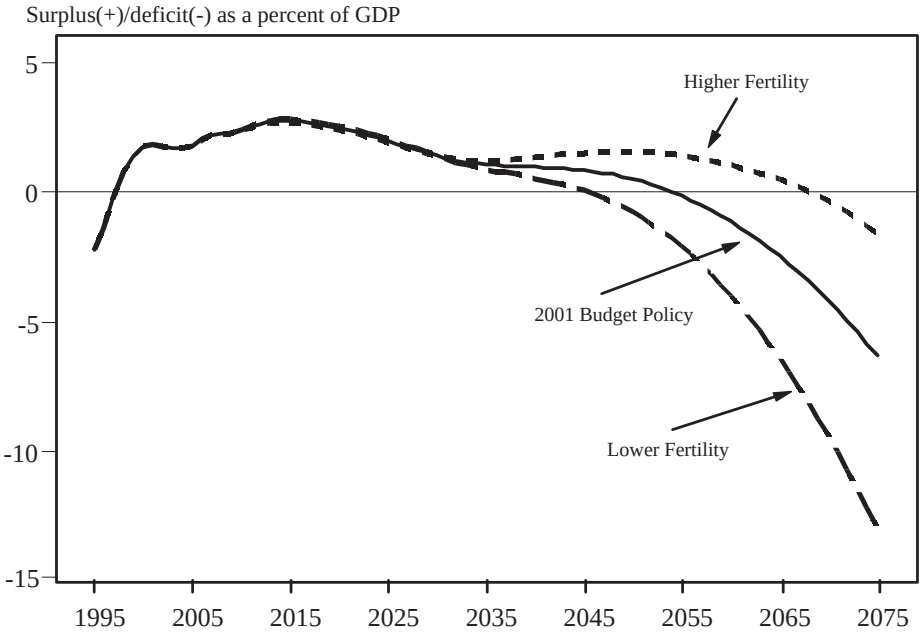
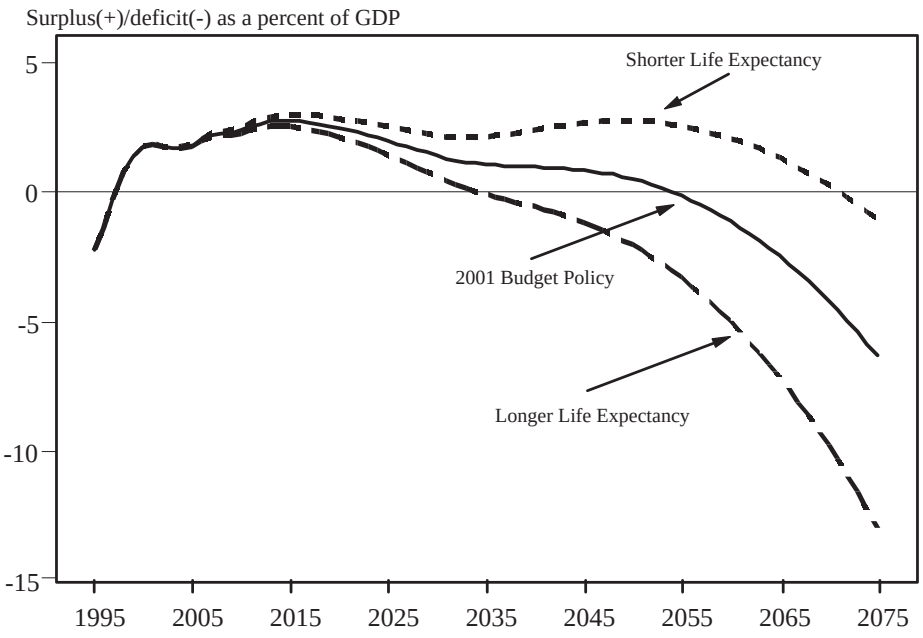


Chart 2-10. Alternative Mortality Assumptions



return to deficits can be avoided with continued budget discipline. Both Social Security and Medicare confront long-run deficits in their respective Trust Funds, which must be addressed regardless of the prospects for the unified surplus. But the favorable outlook for the unified budget should make it easier to solve these otherwise difficult problems.

Actuarial Balance in the Social Security and Medicare Trust Funds

The Trustees for the Social Security and Hospital Insurance Trust Funds issue annual reports that include projections of income and outgo for these funds over a 75-year period. These projections are based on different methods and assumptions than the long-run budget projections presented above, although the budget projections do rely on the Social Security assumptions for population growth and labor force growth after the year 2010. Even with these differences, the message is similar: The retirement of the baby-boom generation coupled with expected high rates of growth in per capita health care costs will exhaust the Trust Funds unless further remedial action is taken.

The Trustees' reports feature the 75-year actuarial balance of the Trust Funds as a summary measure of their financial status. For each Trust Fund, the balance is calculated as the change in receipts or program benefits (expressed as a percentage of taxable payroll) that would be needed to preserve a small positive balance in the Trust Fund at the end of 75 years.

Table 2–3 shows the changes in the 75-year actuarial balances of the Social Security and Medicare Trust Funds from 1998 to 1999. There was a small improvement in the consolidated OASDI Trust fund and a larger gain in the HI Trust Fund. The changes were due to revisions in the actuarial assumptions. In the case of the OASDI funds, a small improvement in the economic assumptions was made; while for the HI program the actuaries revised their view of likely health care cost trends, which helped to prolong the projected surplus in the Trust Fund. The Trustees now project that the HI Trust Fund will not be depleted until 2015, which they describe as "a substantial improvement over prior estimates."

Chart 2-11. Alternative Immigration Assumptions

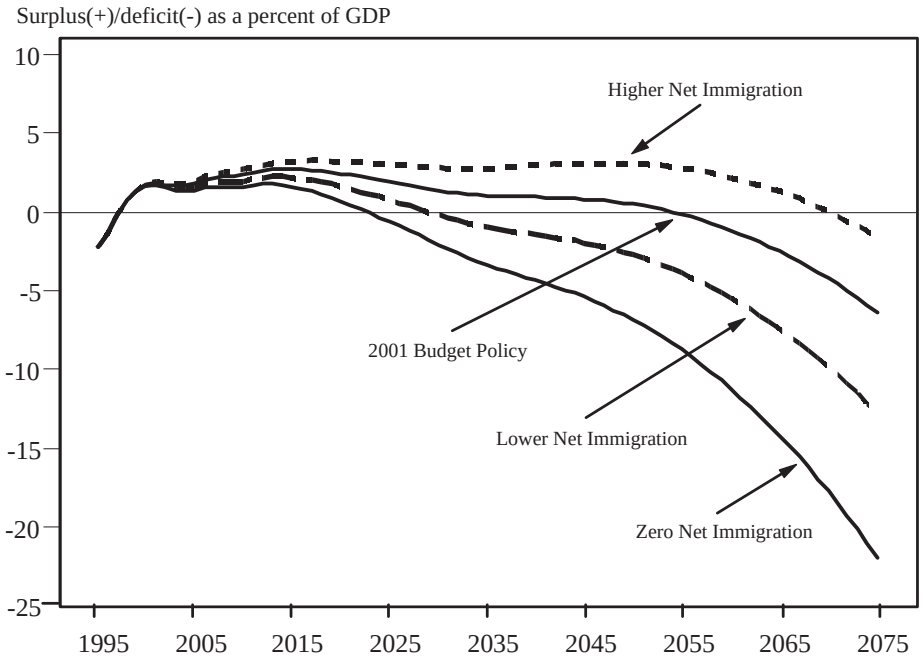


Table 2–3. CHANGE IN 75–YEAR ACTUARIAL BALANCE FOR OASDI AND HI TRUST FUNDS (INTERMEDIATE ASSUMPTIONS)

(As a percent of taxable payroll)

	OASI	DI	OASDI	HI
Actuarial balance in 1998 Trustees' Report	**–1.81**	**–0.38**	**–2.19**	**–2.10**
Changes in balance due to changes in:				
Legislation	0.00	0.00	0.00	0.00
Valuation period	–0.07	–0.01	–0.08	–0.05
Economic and demographic assumptions	0.16	0.02	0.18	0.01
Technical and other assumptions	0.02	0.00	0.02	0.68
Total Changes	0.10	0.02	0.12	0.64
Actuarial balance in 1999 Trustees' Report	**–1.70**	**–0.36**	**–2.07**	**–1.46**

PART III—NATIONAL WEALTH AND WELFARE

Unlike a private corporation, the Federal Government routinely invests in ways that do not add directly to its assets. For example, Federal grants are frequently used to fund capital projects by State or local Governments for highways and other purposes. Such investments are valuable to the public, which pays for them with taxes, but they are not owned by the Federal Government and would not show up on a conventional Federal balance sheet.

The Federal Government also invests in education and research and development (R&D). These outlays contribute to future productivity and are analogous to an investment in physical capital. Indeed, economists have computed stocks of human and knowledge capital to reflect the accumulation of such investments. Nonetheless, such hypothetical capital stocks are obviously not owned by the Federal Government, nor would they appear on a conventional balance sheet.

To show the importance of these kinds of issues, Table 2–4 presents a national balance sheet. It includes estimates of national wealth classified into three categories: physical assets, education capital, and R&D capital. The Federal Government has made contributions to each of these categories of capital, and these contributions are shown separately in the table. Data in this table are especially uncertain, because of the strong assumptions needed to prepare the estimates.

The conclusion of the table is that Federal investments are responsible for about 7 percent of total national wealth. This may seem like a small fraction, but it represents a large volume of capital—$4.8 trillion. The Federal contribution is down from around 9 percent in the mid-1980s, and from around 12 percent in 1960. Much of this reflects the shrinking size of the defense capital stocks, which have gone down from 12 percent of GDP to 7 percent since the end of the Cold War.

Table 2–4. NATIONAL WEALTH

(As of the end of the fiscal year, in trillions of 1999 dollars)

	1960	1965	1970	1975	1980	1985	1990	1995	1997	1998	1999
ASSETS											
Publically Owned Physical Assets:											
Structures and Equipment	2.0	2.4	2.9	3.4	3.6	3.9	4.2	4.7	4.9	4.8	4.8
Federally Owned or Financed	1.2	1.3	1.4	1.5	1.6	1.8	2.0	2.0	2.0	2.0	2.0
Federally Owned	1.0	1.1	1.1	1.0	0.9	1.1	1.2	1.1	1.1	1.0	1.0
Grants to State and Local Governments	0.1	0.2	0.3	0.5	0.6	0.7	0.8	0.9	1.0	1.0	1.0
Funded by State and Local Governments	0.8	1.0	1.4	1.9	2.1	2.1	2.3	2.6	2.8	2.8	2.7
Other Federal Assets	0.7	0.6	0.6	0.8	1.1	1.3	1.0	0.8	0.8	0.8	0.8
Subtotal	2.7	3.0	3.5	4.2	4.8	5.2	5.3	5.4	5.7	5.6	5.6
Privately Owned Physical Assets:											
Reproducible Assets	6.5	7.5	9.2	11.7	15.2	16.2	18.4	20.2	21.4	22.2	23.2
Residential Structures	2.5	2.9	3.5	4.5	6.1	6.3	7.3	8.2	8.7	9.1	9.4
Nonresidential Plant & Equipment	2.6	3.0	3.7	4.9	6.3	6.9	7.7	8.3	8.8	9.2	9.7
Inventories	0.6	0.7	0.8	1.0	1.2	1.2	1.3	1.3	1.3	1.3	1.4
Consumer Durables	0.8	0.9	1.1	1.3	1.6	1.7	2.2	2.4	2.5	2.6	2.7
Land	2.0	2.4	2.7	3.6	5.4	6.1	6.0	4.8	5.1	5.3	5.6
Subtotal	8.5	9.8	11.9	15.4	20.6	22.3	24.4	25.0	26.5	27.6	28.8
Education Capital:											
Federally Financed	0.1	0.1	0.2	0.3	0.4	0.6	0.7	0.8	0.9	1.0	1.0
Financed from Other Sources	5.8	7.4	10.0	12.3	15.9	19.3	24.9	27.5	29.7	31.5	33.3
Subtotal	5.8	7.5	10.2	12.6	16.4	19.8	25.6	28.3	30.6	32.5	34.3
Research and Development Capital:											
Federally Financed R&D	0.2	0.3	0.5	0.5	0.6	0.6	0.8	0.9	0.9	0.9	0.9
R&D Financed from Other Sources	0.1	0.2	0.3	0.4	0.4	0.6	0.8	1.0	1.2	1.2	1.3
Subtotal	0.3	0.5	0.7	0.9	1.0	1.3	1.6	1.9	2.1	2.2	2.2
Total Assets	**17.3**	**20.8**	**26.2**	**33.0**	**42.8**	**48.6**	**56.9**	**60.6**	**64.8**	**67.8**	**70.9**
Net Claims of Foreigners on U.S. (+)	-0.1	-0.2	-0.1	-0.1	-0.3	0.0	0.8	1.5	2.2	2.5	3.5
Balance	**17.4**	**21.0**	**26.4**	**33.1**	**43.1**	**48.5**	**56.1**	**59.1**	**62.6**	**65.2**	**67.4**
ADDENDA:											
Per Capita Balance (thousands of dollars)	96.1	107.8	128.7	153.2	188.7	203.0	223.7	224.3	232.9	240.5	246.1
Ratio of Balance to GDP (in percent)	7.0	6.7	7.1	7.8	8.5	8.1	8.0	7.5	7.3	7.3	7.2
Total Federally Funded Capital (trillions of 1999 dollars)	0.4	0.5	0.8	1.2	2.1	3.1	3.8	4.2	4.5	4.6	4.8
Percent of National Wealth	11.9	11.3	10.3	9.3	8.6	8.9	8.0	7.6	7.4	7.1	7.1

Physical Assets:

The physical assets in the table include stocks of plant and equipment, office buildings, residential structures, land, and the Government's physical assets such as military hardware and highways. Automobiles and consumer appliances are also included in this category. The total amount of such capital is vast, around $34 trillion in 1999; by comparison, GDP was about $9 trillion.

The Federal Government's contribution to this stock of capital includes its own physical assets plus $1 trillion in accumulated grants to State and local Governments for capital projects. The Federal Government has financed about one-fourth of the physical capital held by other levels of Government.

Education Capital:

Economists have developed the concept of human capital to reflect the notion that individuals and society invest in people as well as in physical assets. Investment in education is a good example of how human capital is accumulated.

This table includes an estimate of the stock of capital represented by the Nation's investment in formal education and training. The estimate is based on the cost of replacing the years of schooling embodied in the U.S. population aged 16 and over; in other words, the idea is to measure how much it would cost to reeducate the U.S. workforce at today's prices (rather than at its original cost). This is more meaningful economically than the historical cost, and is comparable to the measures of physical capital presented earlier.

Although this is a relatively crude measure, it does provide a rough order of magnitude for the current value of the investment in education. According to this measure, the stock of education capital amounted to $34 trillion in 1999, of which about 3 percent was financed by the Federal Government. It is equal in total value to the Nation's stock of physical capital. The main investors in education capital have been State and local

governments, parents, and students themselves (who forgo earning opportunities in order to acquire education).

Even broader concepts of human capital have been suggested. Not all useful training occurs in a schoolroom or in formal training programs at work. Much informal learning occurs within families or on the job, but measuring its value is very difficult. However, labor compensation amounts to about two-thirds of national income, and thinking of this income as the product of human capital suggests that the total value of human capital might be two times the estimated value of physical capital. Thus, the estimates offered here are in a sense conservative, because they reflect the costs of acquiring only formal education and training.

Research and Development Capital:

Research and Development can also be thought of as an investment, because R&D represents a current expenditure that is made in the expectation of earning a future return. After adjusting for depreciation, the flow of R&D investment can be added up to provide an estimate of the current R&D stock.[10] That stock is estimated to have been about $2 trillion in 1999. Although this is a large amount of research, it is a relatively small portion of total National wealth. Of this stock, about 40 percent was funded by the Federal Government.

Liabilities:

When considering how much the United States owes as a Nation, the debts that Americans owe to one another cancel out. This means they do not belong in Table 2–4, which is intended to show National totals only, but it does not mean they are unimportant. (An unwise buildup in debt, most of which was owed to other Americans, was partly responsible for the recession of 1990–1991 and the sluggishness of the early stages of the recovery that followed.) The only debt that appears in Table 2–4 is the debt that Americans owe to foreign investors. America's foreign debt has been increasing rapidly in recent years, because of the continuing deficit in the U.S. current account which has been rising; but even so, the size of this debt remains small compared with the total stock of U.S. assets. It amounted to 5 percent of the total assets in Table 2–4 in 1999.

Most Federal debt does not appear in Table 2–4 because it is held by Americans; only that portion of the Federal debt held by foreigners is included. However, comparing the Federal Government's net liabilities with total national wealth gives another indication of the relative magnitude of the imbalance in the Government's accounts. Currently, the Federal net asset imbalance, as estimated in Table 2–1, amounts to about 5 percent of net U.S. wealth as shown in Table 2–4.

[10] R&D depreciates in the sense that the economic value of applied research and development tends to decline with the passage of time, as still newer ideas move the technological frontier.

Trends in National Wealth

The net stock of wealth in the United States at the end of 1999 was about $67 trillion. Since 1980, the stocks of it has increased in real terms at an average annual rate of 2.4 percent per year—only half the 4.7 percent real growth rate it averaged from 1960 to 1980. Public physical capital formation has slowed even more drastically. Since 1980, the stock of public physical capital has increased at an annual rate of only 0.8 percent, compared with 2.9 percent over the previous 20 years.

The net stock of private nonresidential plant and equipment grew 2.3 percent per year from 1980 to 1999, compared with 4.5 percent in the 1960s and 1970s; and the stock of business inventories increased even less, just 0.6 percent per year on average since 1980. However, private nonresidential fixed capital has increased more rapidly since 1992—3.2 percent per year—reflecting the recent investment boom.

The accumulation of education capital, as measured here, has also slowed down since 1980, but not as much. It grew at an average rate of 5.2 percent per year in the 1960s and 1970s, about 0.9 percentage point faster than the average rate of growth in private physical capital during the same period. Since 1980, education capital has grown at a 4.0 percent annual rate. This reflects the extra resources devoted to schooling in this period, and the fact that such resources were increasing in economic value. R&D stocks have grown at about 4.4 percent per year since 1980, the fastest growth rate for any major category of investment over this period, but slower than the growth of R&D in the 1960s and 1970s.

Other Federal Influences on Economic Growth

Federal policies contributed to the slowdown in capital formation that occurred after 1980. Federal investment decisions, as reflected in Table 2–4, obviously were important, but the Federal Government also contributes to wealth in ways that cannot be easily captured in a formal presentation. The Federal Reserve's monetary policy affects the rate and direction of capital formation in the short run, and Federal regulatory and tax policies also affect how capital is invested, as do the Federal Government's policies on credit assistance and insurance.

One important channel of influence is the Federal budget surplus/deficit, which determines the size of Federal saving when it is positive or the Federal borrowing requirement when it is negative. Had deficits been smaller in the 1980s, the gap between Federal liabilities and assets shown in Table 2–1 would be smaller today. It is also likely that, had the more than $3 trillion in added Federal debt since 1980 been avoided, a significant share of these funds would have gone into private investment. National wealth might have been 3 to 5 percent larger in 1999 had fiscal policy avoided the buildup in the debt.

Social Indicators

There are certain broad responsibilities that are unique to the Federal Government. Especially important are fostering healthy economic conditions, promoting health and social welfare, and protecting the environment. Table 2–5 offers a rough cut of information that can be useful in assessing how well the Federal Government has been doing in promoting these general objectives.

The indicators shown here are a limited subset drawn from the vast array of available data on conditions in the United States. In choosing indicators for this table, priority was given to measures that were consistently available over an extended period. Such indicators make it easier to draw valid comparisons and evaluate trends. In some cases, however, this meant choosing indicators with significant limitations.

The individual measures in this table are influenced to varying degrees by many Government policies and programs, as well as by external factors beyond the Government's control. They do not measure the outcomes of Government policies, because they generally do not show the direct results of Government activities, but they do provide a quantitative measure of the progress or lack of progress in reaching some of the ultimate values that Government policy is intended to promote.

Such a table can serve two functions. First, it highlights areas where the Federal Government might need to modify its current practices or consider new approaches. Where there are clear signs of deteriorating conditions, corrective action might be appropriate. Second, the table provides a context for evaluating other data on Government activities. For example, Government actions that weaken its own financial position

Table 2–5. ECONOMIC AND SOCIAL INDICATORS

General categories	Specific measures	1960	1965	1970	1975	1980	1985	1990	1995	1997	1998	1999
Economic:												
Living Standards	Real GDP per person (1996 dollars)	13,038	15,454	17,306	18,751	21,398	23,857	26,734	28,647	30,467	31,472	32,407
	average annual percent change (5-year trend)	NA	3.5	2.3	1.6	2.7	2.2	2.3	1.4	2.5	2.9	2.9
	Median Income (1998 dollars):.											
	All Households	NA	NA	34,471	34,224	35,076	35,778	37,343	36,446	37,581	38,885	NA
	Married Couple Families	29,730	34,626	41,504	43,120	45,832	47,112	49,754	50,335	52,395	54,180	NA
	Female Householder, No Spouse Present	15,024	16,834	20,101	19,850	20,614	20,693	21,116	21,061	21,350	22,163	NA
	Income Share of Lower 60 percent of All Families	34.8	35.2	35.2	35.2	34.5	32.7	32.0	30.3	29.8	29.8	NA
	Poverty Rate (percent) [1]	22.2	17.3	12.6	12.3	13.0	14.0	13.5	13.8	13.3	12.7	NA
Economic Security	Civilian Unemployment (percent)	5.5	4.5	4.9	8.5	7.1	7.2	5.5	5.6	5.0	4.5	4.2
	CPI-U (Percent Change)	1.7	1.6	5.8	9.1	13.5	3.5	5.4	2.8	2.3	1.6	2.2
Employment Prospects	Increase in Total Payroll Employment (millions)	–0.5	2.9	–0.5	0.4	0.2	2.5	0.3	2.2	3.4	2.9	NA
	Managerial or Professional Jobs (percent of total)	NA	NA	NA	NA	NA	24.1	25.8	28.3	29.1	29.6	NA
Wealth Creation	Net National Saving Rate (percent of GDP)	10.2	12.1	8.2	6.5	7.5	6.0	4.6	4.7	6.2	6.6	6.5
Innovation	Patents Issued to U.S. Residents (thousands)	42.1	54.1	50.1	40.5	40.8	43.5	53.0	64.5	70.0	90.7	NA
	Multifactor Productivity (average annual percent change)	1.0	3.1	1.0	1.2	0.7	0.6	0.3	0.2	0.6	NA	NA
Social:												
Families	Children Living with Mother Only (percent of all children)	9.2	10.2	11.6	16.4	18.6	20.2	21.6	24.0	23.2	23.6	NA
Safe Communities	Violent Crime Rate (per 100,000 population) [2]	160	199	364	482	597	557	732	685	611	566	521
	Murder Rate (per 100,000 population) [2]	5	5	8	10	10	8	9	8	7	6	5
	Murders/Nonnegligent Manslaughter per 100,000 Persons Age 14 to 17).	NA	NA	NA	11	13	10	24	24	17	NA	NA
Health and Illness	Infant Mortality (per 1000 Live Births) [3]	26.0	24.7	20.0	16.1	12.6	10.6	9.2	7.6	7.2	7.2	NA
	Low Birthweight [<2,500 gms] Babies (percent)	7.7	8.3	7.9	7.4	6.8	6.8	7.0	7.3	7.5	7.6	NA
	Life Expectancy at birth (years)	69.7	70.2	70.8	72.6	73.7	74.7	75.4	75.8	76.5	76.7	NA
	Cigarette Smokers (percent population 18 and older)	NA	42.3	39.5	36.5	33.2	30.0	25.4	24.7	24.7	NA	NA
	Bed Disability Days (average days per person)	6.0	6.2	6.1	6.6	7.0	6.1	6.2	6.1	NA	NA	NA
Learning	High School Graduates (percent of population 25 and older).	44.6	49.0	55.2	62.5	68.6	73.9	77.6	81.7	82.1	82.8	NA
	College Graduates (percent of population 25 and older)	8.4	9.4	11.0	13.9	17.0	19.4	21.3	23.0	23.9	24.4	NA
	National Assessment of Educational Progress [3].											
	Mathematics High School Seniors	NA	NA	NA	302	300	301	305	307	NA	NA	NA
	Science High School Seniors	NA	NA	305	293	286	288	290	295	NA	NA	NA
Participation	Voting for President (percent eligible population)	62.8	NA	NA	NA	52.8	NA	NA	NA	NA	NA	NA
	Voting for Congress (percent eligible population)	58.5	NA	43.5	NA	47.6	NA	33.1	NA	NA	33.4	NA
	Individual Charitable Giving per Capita (1999 dollars)	218	261	313	332	362	373	413	398	423	NA	NA
Environment:												
Air Quality	Nitrogen Oxide Emissions (thousand short tons)	14,140	17,424	21,369	23,151	24,875	23,488	23,436	23,768	23,576	NA	NA
	Sulfur Dioxide Emissions (thousand short tons)	22,245	26,380	31,161	28,011	25,905	23,230	23,678	19,189	NA	NA	NA
	Lead Emissions (thousand short tons)	NA	NA	221	160	74	23	5	4	4	NA	NA
Water Quality	Population Served by Secondary Treatment or Better (millions).	NA	NA	NA	NA	NA	134	155	166	NA	NA	NA

[1] The poverty rate does not reflect noncash government transfers such as Medicaid or food stamps.

[2] Not all crimes are reported, and the fraction that go unreported may have varied over time, 1999 data are preliminary.

[3] Some data from the national educational assessments have been interpolated.

may be appropriate when they promote a broader social objective.

An example of this occurs during economic recessions, when reductions in tax collections lead to increased Government borrowing that adds to Federal liabilities. This decline in Federal net assets, however, provides an automatic stabilizer for the private sector. State and local Governments and private budgets are strengthened by allowing the Federal budget to go into deficit. More stringent Federal budgetary controls could be used to hold down Federal borrowing during such periods, but only at the risk of aggravating the downturn and weakening the other sectors.

The Government cannot avoid making such trade-offs because of its size and the broad ranging effects of its actions. Monitoring these effects and incorporating them in the Government's policy making is a major challenge.

It is worth noting that, in recent years, many of the indicators in this table have turned around. The improvement in economic conditions has been widely noted, but there have also been some significant social improvements. Perhaps most notable has been the turnaround in the crime rate. Since reaching a peak in the early 1990s, the violent crime rate has fallen by over 25 percent, and preliminary data suggest that the improvement continued in 1999. The turnaround is especially dramatic in the murder rate, which is lower now than at any time since the 1960s. Government policies are only one set of factors in this remarkable reversal, but more effective policing along with broader changes that have helped improve economic prospects for all Americans appear to be having a good effect.

An Interactive Analytical Framework

No single framework can encompass all of the factors that affect the financial condition of the Federal Government. Nor can any framework serve as a substitute for actual analysis. Nevertheless, the framework presented here offers a useful way to examine the financial aspects of Federal policies. Increased Federal support for investment, the promotion of national saving through fiscal policy, and other Administration policies to enhance economic growth are expected to promote national wealth and improve the future financial condition of the Federal Government. As that occurs, the efforts will be revealed in these tables.

TECHNICAL NOTE: SOURCES OF DATA AND METHOD OF ESTIMATING

Federally Owned Assets and Liabilities

Assets:

Financial Assets: The source of data is the Federal Reserve Board's Flow-of-Funds Accounts. The gold stock was revalued using the market value for gold.

Physical Assets:

Fixed Reproducible Capital: Estimates were developed from the OMB historical data base for physical capital outlays and software purchases. The data base extends back to 1940 and was supplemented by data from other selected sources for 1915–1939. The source data are in current dollars. To estimate investment flows in constant dollars, it was necessary to deflate the nominal investment series. This was done using price deflators for Federal investment from the National Income and Product Accounts.

Fixed Nonreproducible Capital: Historical estimates for 1960–1985 were based on estimates in Michael J. Boskin, Marc S. Robinson, and Alan M. Huber, "Government Saving, Capital Formation and Wealth in the United States, 1947–1985," published in *The Measurement of Saving, Investment, and Wealth*, edited by Robert E. Lipsey and Helen Stone Tice (The University of Chicago Press, 1989).

Estimates were updated using changes in the value of private land from the Flow-of-Funds Balance Sheets and for oil deposits from the Producer Price Index for Crude Energy Materials.

Liabilities:

Financial Liabilities: The principal source of data is the Federal Reserve's Flow-of-Funds Accounts.

Insurance Liabilities: Sources of data are the OMB Deposit Insurance Model and the OMB Pension Guarantee Model. Historical data on liabilities for deposit insurance were also drawn from the CBO's study, *The Economic Effects of the Savings and Loan Crisis*, issued January 1992.

Pension Liabilities: For 1979–1998, the estimates are the actuarial accrued liabilities as reported in the annual reports for the Civil Service Retirement System, the Federal Employees Retirement System, and the Military Retirement System (adjusted for inflation). Estimates for the years before 1979 are extrapolations. The estimate for 1999 is a projection.

Long-Run Budget Projections

The long-run budget projections are based on long-run demographic and economic projections. A simplified model of the Federal budget developed at OMB computes the budgetary implications of this forecast.

Demographic and Economic Projections: For the years 2000–2010, the assumptions are identical to those used in the budget. These budget assumptions reflect the President's policy proposals. The long-run projections extend these budget assumptions by holding inflation, interest rates, and unemployment constant at the levels assumed in the final year of the budget. Population growth and labor force growth are extended using the intermediate assumptions from the 1999 Social Security Trustees' report. The projected rate of growth for real GDP is built up from the labor force assumptions and an assumed rate of productivity growth. The assumed rate of productivity growth is held constant at the aver-

age rate of growth implied by the budget's economic assumptions.

Budget Projections: For the budget period through 2010, the projections follow the budget. Beyond the budget horizon, receipts are projected using simple rules of thumb linking income taxes, payroll taxes, excise taxes, and other receipts to projected tax bases derived from the economic forecast. Outlays are computed in different ways. Discretionary spending is projected according to current services assumptions in which it grows at the composite rate of inflation in Federal pay and non-pay spending; it is also projected on alternative assumptions which permit it to grow with both inflation and population, and also to grow with nominal GDP. Social Security is projected by the Social Security actuaries using these long-range assumptions. Medicare and Federal pensions are derived from the most recent actuarial forecasts available at the time the budget was prepared, repriced using Administration inflation assumptions. OMB's Health Division projects Medicaid outlays based on the economic and demographic projections in the model. Other entitlement programs are projected based on rules of thumb linking program spending to elements of the economic and demographic forecast such as the poverty rate.

National Balance Sheet Data

Publicly Owned Physical Assets: Basic sources of data for the federally owned or financed stocks of capital are the Federal investment flows described in Chapter 6. Federal grants for State and local Government capital are added, together with adjustments for inflation and depreciation in the same way as described above for direct Federal investment. Data for total State and local Government capital come from the revised capital stock data prepared by the Bureau of Economic Analysis extrapolated for 1998–1999.

Privately Owned Physical Assets: Data are from the Flow-of-Funds national balance sheets and from the private net capital stock estimates prepared by the Bureau of Economic Analysis extrapolated for 1998–1999 using investment data from the National Income and Product Accounts.

Education Capital: The stock of education capital is computed by valuing the cost of replacing the total years of education embodied in the U.S. population 16 years of age and older at the current cost of providing schooling. The estimated cost includes both direct expenditures in the private and public sectors and an estimate of students' forgone earnings, i.e., it reflects the opportunity cost of education.

Estimates of students' forgone earnings are based on the year-round, full-time earnings of 18–24 year olds with selected educational attainment levels. These year-round earnings are reduced by 25 percent because students are usually out of school three months of the year. For high school students, these adjusted earnings are further reduced by the unemployment rate for 16–17 year olds; for college students, by the unemployment rate for 20–24 year olds. Yearly earnings by age and educational attainment are from *Money Income in the United States,* series P60, published by the Bureau of the Census.

For this presentation, Federal investment in education capital is a portion of the Federal outlays included in the conduct of education and training. This portion includes direct Federal outlays and grants for elementary, secondary, and vocational education and for higher education. The data exclude Federal outlays for physical capital at educational institutions because these outlays are classified elsewhere as investment in physical capital. The data also exclude outlays under the GI Bill; outlays for graduate and post-graduate education spending in HHS, Defense and Agriculture; and most outlays for vocational training.

Data on investment in education financed from other sources come from educational institution reports on the sources of their funds, published in U.S. Department of Education, *Digest of Education Statistics.* Nominal expenditures were deflated by the implicit price deflator for GDP to convert them to constant dollar values. Education capital is assumed not to depreciate, but to be retired when a person dies. An education capital stock computed using this method with different source data can be found in Walter McMahon, "Relative Returns To Human and Physical Capital in the U.S. and Efficient Investment Strategies," *Economics of Education Review,* Vol. 10, No. 4, 1991. The method is described in detail in Walter McMahon, *Investment in Higher Education,* Lexington Books, 1974.

Research and Development Capital: The stock of R&D capital financed by the Federal Government was developed from a data base that measures the conduct of R&D. The data exclude Federal outlays for physical capital used in R&D because such outlays are classified elsewhere as investment in federally financed physical capital. Nominal outlays were deflated using the GDP deflator to convert them to constant dollar values.

Federally funded capital stock estimates were prepared using the perpetual inventory method in which annual investment flows are cumulated to arrive at a capital stock. This stock was adjusted for depreciation by assuming an annual rate of depreciation of 10 percent on the estimated stock of applied research and development. Basic research is assumed not to depreciate. The 1993 Budget contains additional details on the estimates of the total federally financed R&D stock, as well as its national defense and nondefense components (see *Budget for Fiscal Year 1993,* January 1992, Part Three, pages 39–40).

A similar method was used to estimate the stock of R&D capital financed from sources other than the Federal Government. The component financed by universities, colleges, and other nonprofit organizations is estimated based on data from the National Science Foundation, Surveys of Science Resources. The industry-financed R&D stock component is estimated from that source and from the U.S. Department of Labor, *The Impact of Research and Development on Productivity Growth,* Bulletin 2331, September 1989.

Experimental estimates of R&D capital stocks have recently been prepared by BEA. The results are described in "A Satellite Account for Research and Development," *Survey of Current Business,* November 1994. These BEA estimates are lower than those presented here primarily because BEA assumes that the stock of basic research depreciates, while the estimates in Table 2–4 assume that basic research does not depreciate. BEA also assumes a slightly higher rate of depreciation for applied research and development, 11 percent, compared with the 10 percent rate used here.

Social Indicators

The main sources for the data in this table are the Government statistical agencies. Generally, the data are publicly available in such general sources as the annual *Economic Report of the President* and the *Statistical Abstract of the United States,* and from the agencies' Web sites.