CONGRESS OF THE UNITED STATES
CONGRESSIONAL BUDGET OFFICE

MARCH 1990

The Federal Deficit: Does It Measure the Government's Effect on National Saving?

A CBO STUDY

CBO Publication
#513

S U M M A R Y

April 1990

CBO STUDY OF THE FEDERAL DEFICIT AS A MEASURE OF THE GOVERNMENT'S EFFECT ON NATIONAL SAVING

The conventional measure of the deficit, whatever its inadequacies, conveys a good deal of useful information about the effects of fiscal policy on national saving. This is the finding of a study by the Congressional Budget Office, *The Federal Deficit: Does it Measure the Government's Effect on National Saving?*--prepared at the request of the Senate Budget Committee. The study examines alternative ways of measuring the federal deficit, and their implications for national saving.

Efforts to reduce the budget deficit have been motivated in large part by a concern that federal deficits cut national saving and impair growth in the standard of living. Recently, however, controversy has arisen about whether the current measure of the deficit accurately reflects the effect of the budget on national saving.

Several prominent economists have argued that federal deficits are actually smaller than the official statistics suggest. To get a better measure, they would adjust the official deficit to reflect offsetting factors, including: declines in the real value of the federal debt because of inflation; changes in the market value of federal debt as a result of movements in interest rates; the contribution of federal spending to capital investment; and the budget surpluses maintained by state and local governments.

These adjustments, taken together, substantially reduce the size of the measured deficits, but they do not change the conclusion that deficits have been a major factor in the decline in national saving over the last decade. Moreover, while the deficits appear smaller, the adjustments have little effect on the measurement of national saving. For the most part, they simply shift saving between different sectors of the economy.

Some critics also contend that the conventional measure of the budget deficit does not show the true costs of federal credit programs and programs that insure deposits in financial institutions. CBO and others have proposed changing the budgetary treatment of these programs, but these changes would probably not affect measured national saving. Other critics argue that the deficit is understated because it includes the surpluses of the trust funds, such as Social Security. But proposals to exclude trust fund surpluses from the federal deficit would not improve the deficit as a measure of the effect of the budget on national saving.

Other more theoretical and far-reaching proposals have been advanced for adjusting the federal deficit, or even replacing it with a different system of accounting. At this point, however, their practical implications are controversial and unclear.

Questions regarding the report should be directed to George Iden or Frank Russek of the Fiscal Analysis Division (202-226-2750). The Office of Intergovernmental Relations is CBO's Congressional liaison office and can be reached at 226-2600. For additional copies of the report, please call the Publications Office at 226-2809.

CONGRESSIONAL
BUDGET OFFICE
Second and D Streets, S.W.
Washington, D.C. 20515

THE FEDERAL DEFICIT: DOES IT MEASURE THE GOVERNMENT'S EFFECT ON NATIONAL SAVING?

The Congress of the United States
Congressional Budget Office

NOTE

Details may not add to totals because of rounding.

PREFACE

Reducing the federal budget deficit has been a priority of the Congress for several years, in large part because of concern that federal deficits reduce national saving and dim the nation's economic prospects. Recently, however, controversy has arisen about whether current measures of the deficit accurately reflect its effect on saving. This study, prepared at the request of the Senate Budget Committee, examines alternative ways of measuring the federal deficit, and their implications for national saving.

George Iden and Frank Russek of CBO's Fiscal Analysis Division wrote the study under the direction of Frederick Ribe and Robert Dennis. Mark Decker and Nicholas Dugan provided expert research assistance. Many people inside and outside CBO made valuable comments, including Michael Deich, Robert Eisner, Edward Gramlich, Jon Hakken, Robert Hartman, Robert Heilbroner, Angelo Mascaro, Marvin Phaup, Kathy Ruffing, Charles Schultze, Paul Van de Water, and Jenifer Wishart.

Francis Pierce edited the report. Dorothy Kornegay, Verlinda Lewis, and L. Rae Roy typed the drafts. Kathryn Quattrone prepared the report for publication.

Robert D. Reischauer
Director

March 1990

CONTENTS

TABLES

FIGURES

SUMMARY

Federal budget deficits have given rise to much concern in recent years because of their unprecedented size. Policymakers, economists, and the business community alike see large deficits as a drain on national saving, particularly as drawing financial resources away from the investment necessary for economic growth.

Is this concern justified? Are the budget figures as bad as they seem, or should they be modified so as to more accurately reflect the government's impact on the economy?

Several prominent economists argue that the deficits need to be adjusted to reflect offsetting factors such as inflation, changes in the market value of the federal debt, government investment, and the surpluses of state and local governments. Other critics take an opposite tack, arguing that the conventional measure understates the deficit because it includes the surpluses of the trust funds, in particular the Social Security trust funds.

The conventional deficit measure is sometimes criticized on still other grounds. Some analysts believe that it leaves out or mismeasures important costs incurred by the government on its credit programs and on its deposit insurance for the thrift industry. Others find more fundamental flaws in the statistics. According to one strand of argument, the figures need to be adjusted to reflect the effects that different categories of outlays or taxes have on national saving. According to another line of argument, the conventional deficit measure should be replaced by accounting systems designed to reflect the saving behavior of different generations of the population over their life cycle.

HOW FEDERAL DEFICITS AFFECT THE NATIONAL SAVING RATE: THE TRADITIONAL VIEW

The conventional view of government deficits is that they decrease the rate of national saving and therefore the accumulation of wealth because they absorb private saving. The slower accumulation of wealth occurs either in the form of lower domestic investment or lower investment abroad. Lower domestic investment results in slower growth in productivity and real wages. Less investment abroad implies a lower path of domestic income for the future. Either way, the end result is a slower improvement in the standard of living than would be possible if the budget were in balance or surplus.

Recent work by the Congressional Budget Office (CBO) suggests, for example, that a reduction in the deficit equal to 1 percent of gross national product could raise the standard of living by between 1 percent and 7 percent by the middle of the next century.

The damage that has been done to national saving by federal budget deficits during the 1980s can be gauged either by measuring the deficits relative to the size of the economy--net national product--or relative to the amount of private saving. During the 1980s, federal deficits averaged approximately 4½ percent of net national product compared with 2 percent during the 1970s, or a difference of about two and one-half percentage points.

This increase in the ratio of the deficit to national income would not necessarily constitute a serious problem if the private saving rate had been high or rising. But that was not the case during the 1980s. Federal deficits offset more than two-thirds of the amount of private saving during this period, compared with about one-fifth in the 1970s and a trivial amount during the 1950 through 1969 period (see Summary Figure 1).

The increase in federal budget deficits during the 1980s would have been less worrisome if it had resulted from increases in federal investments. But that was not the case. Federal net investment for nonmilitary purposes had very little effect on the growth of the deficit.

FOUR FREQUENTLY PROPOSED ADJUSTMENTS

Several prominent economists have argued that federal deficits are much less of a threat than the official statistics suggest. They would adjust the statistics to take account of the following realities:

- The Effects of Inflation on the Federal Debt. Because inflation tends to be reflected in higher interest rates, it raises outlays for servicing the public debt. To the extent that households save the inflation component of interest rather than spend it, the federal deficit may be overstated in terms of its effects on national saving.

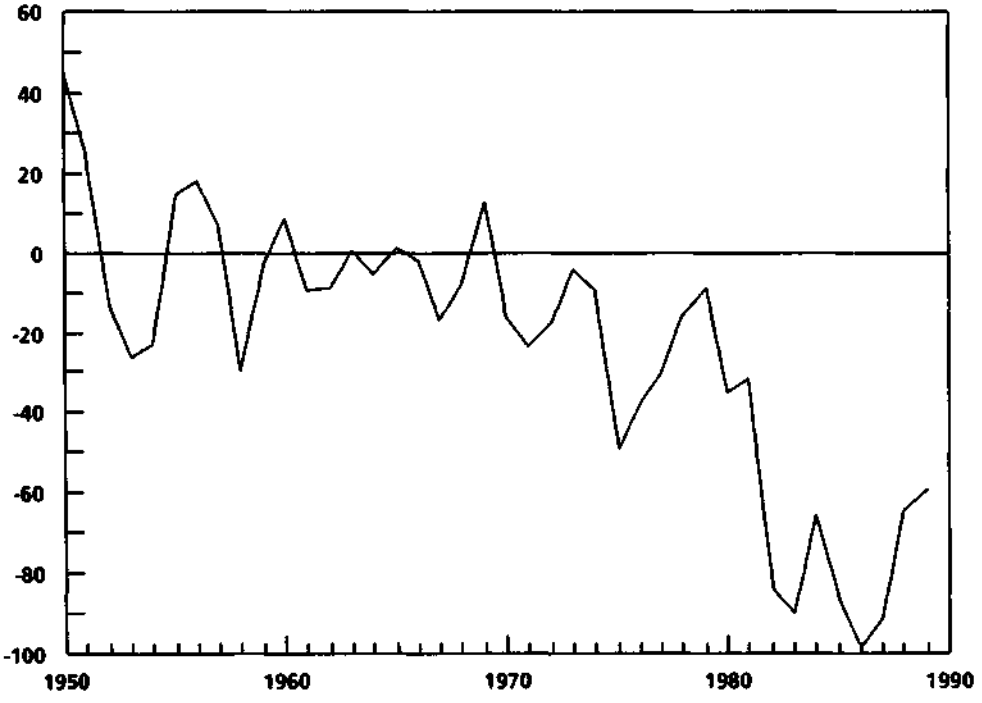
- Changes in the Market Value of the Federal Debt. Some economists argue that the deficit for a given year should be adjusted to reflect the change in the market value of the outstanding federal debt in that year. When the market value of the debt falls, debt holders may increase their saving in response to the decline. Conversely, debt holders may reduce their saving when the market value of the debt rises. Any increase in private saving caused by a decline in the market value of the debt would partially offset the

effects of the deficit on national saving, while any reduction in private saving would exacerbate them.

- Government Investment. Some of the federal government's own expenditures represent saving and investment, provided they exceed the depreciation on government capital. This net saving could be viewed as a partial offset or subtraction from the conventional federal deficit.

- Surpluses of State and Local Governments. Budget surpluses of state and local governments have grown significantly over time, primarily from the accumulation of employees' pension funds. To some analysts, this growth implies that there is less reason to worry about federal deficits, since they are partially offset by surpluses at other levels of government.

Summary Figure 1.
Federal Deficits as Percentages of Net Private Saving, 1950-1989



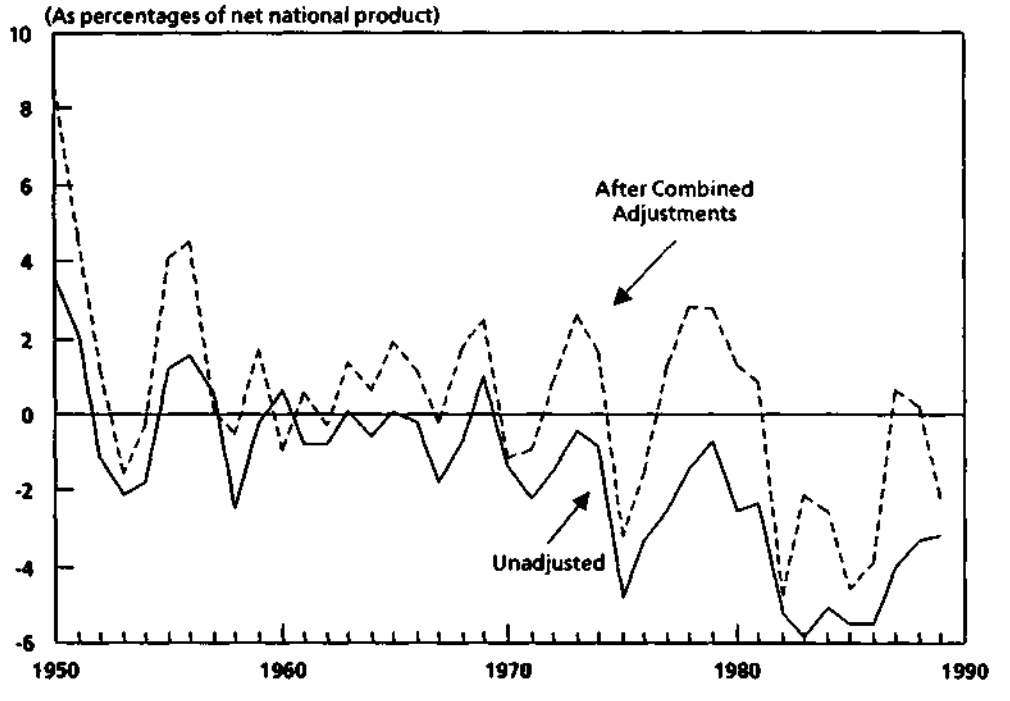
SOURCE: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis.

NOTE: Deficits are measured on a national income and product accounts basis, in terms of calendar years. Deficits are treated as negative, surpluses as positive.

The merits of each of these adjustments are discussed in more detail in the body of the paper. Taken together, they substantially reduce the size of the deficits, but they do not change the conclusion that government deficits contributed in a major way to the decline in national saving between the 1970s and the 1980s (see Summary Figure 2).

Moreover, the adjustments have little effect on the measured amount of saving in the overall economy in any given year because they merely shift saving from one sector to another without changing the total. The adjustment for net investment by government adds a small amount to saving.

Summary Figure 2.
Federal Deficits: Before and After Combined Adjustments, 1950-1989



SOURCE: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis.

NOTES: The combined adjustments are for inflation, changes in the market value of federal debt, federal investment, and state and local surplus.

Deficits are measured on a national income and product accounts basis, in terms of calendar years. Deficits are treated as negative, surpluses as positive.

There is also a small net addition to saving arising from a modest fraction of government securities being held by foreign investors. As a result, the inflation adjustment lowers the estimate of private saving by a bit less than it lowers the estimates of the federal budget deficit. A similar effect is introduced by the market value adjustment.

ADJUSTMENTS FOR COSTS OF FEDERAL LOANS, LOAN GUARANTEES, AND DEPOSIT INSURANCE

The federal government helps certain kinds of borrowers obtain credit that would otherwise be unavailable to them, or available on less favorable terms. It does this by making loans at below-market interest rates, or guaranteeing loans made by commercial lenders. Such loans and loan guarantees involve costs to the government.

At present, these subsidy costs are not clearly shown in the federal government's unified budget, nor in the budget as measured by the national income and product accounts (NIPA). The unified budget instead includes amounts disbursed and collected, while the NIPA budget excludes these financial flows. As a result, these measures give a quite distorted view of the resources committed by current policies.

CBO and others have proposed reforming the budgetary treatment of federal credit programs by including the imputed subsidies from all federal credit programs in budget outlays, since these represent the actual cost of the programs to the government. For the same reason, the unsubsidized credit flows would not be included in budget outlays. Under the CBO proposal, the present value of all future subsidies associated with a given loan would be registered in the period in which the loan was made. Since federal credit programs have grown rapidly over the last 15 years, credit reform would probably increase the NIPA deficit--which does not include direct federal loan activity. Its effect on the unified budget deficit is unclear.

Changing the budgetary treatment of federal credit programs would probably not mean that measured national saving would fall, however. Like the budgetary adjustments considered in the foregoing section, this adjustment would probably leave measured national saving unchanged, merely shifting the sector of the national accounts in which given amounts of saving are recorded. Moreover, a revised budgetary treatment of credit would not be likely to affect the trend already noted toward higher federal deficits and lower national saving during the 1980s.

The federal government's insurance of savings deposits is in some respects similar to federal loan guarantees, and there are also budget accounting problems associated with it. The effects of deposit insurance on pri-

vate saving would be measured more accurately if the government's obligations appeared in the budget when they first accrued. Currently, however, the budget records deposit insurance liabilities only when they are finally paid off--too late to reflect their economic effects. Incorporating the estimated accrual of federal liability for deposit insurance would not affect measured national saving. The increase in the budget deficit to reflect expected liability for deposit insurance would probably give rise to offsetting increases in nonfederal saving.

SHOULD TRUST FUND SURPLUSES BE EXCLUDED FROM THE BUDGET?

The budget includes the surpluses of many trust funds, most notably the Social Security trust funds. Critics argue that these trust funds should be excluded, and without their surpluses the deficits would appear much larger than they do now.

But there are strong arguments for including the trust fund surpluses in the federal deficit. Trust fund surpluses clearly add to national saving just as deficits subtract from it. The best measure of the federal government's impact on national saving is thus the overall deficit, including the trust fund balances. Moreover, because the trust funds receive a substantial amount of their income from elsewhere in the budget, the distinction between the trust funds and the other budget accounts is rather artificial.

Because the trust fund surpluses are invested in federal securities, some critics charge that the government is "looting" or misusing the trust funds in order to finance government spending. But this argument overlooks the fact that the trust fund surpluses are only part of the national pool of saving. If the trust funds were not invested in Treasury securities, that part of the debt would have to be financed from private saving.

HOW OTHER, MORE FAR-REACHING PROPOSALS MIGHT CHANGE THE FEDERAL DEFICIT MEASURE

The foregoing proposals have been prominent in public discussions. In addition, several proposals of a more technical nature have been advanced that would adjust the deficit measure or even replace it with a different system of accounting.

A Comprehensive Deficit Adjustment

Some analysts point out that not all federal outlays have the same effect on the economy. Some kinds of outlays may reduce national saving more than others because of their different effects on private saving. Outlays that cause private saving to decrease will affect national saving more than those that induce an increase in private saving. Taking comprehensive account of the different effects of different kinds of outlays (and different kinds of taxes) might produce results quite different from those of partially adjusting the deficits for, say, inflation or changes in the value of federal debt.

A major problem with the comprehensive approach to adjusting deficits is that there is little agreement on how each major category of the budget affects private saving. Consequently, it would be difficult to defend any one set of estimates.

Measuring the Effects of Federal Spending on Different Generations

Some economists argue that the conventional measure of deficits leaves out the most important ways in which the federal budget affects national saving. Any government program or tax that shifts income among generations can have significant effects on national saving--perhaps more significant than the effects of the annual deficits. According to these economists, the crucial consideration is that saving rates differ among age groups: for example, middle-aged people may have higher saving rates than people with young families, or retired people. These economists argue that most households adopt long, indeed lifetime, perspectives in their spending and saving decisions, so that their patterns of consumption are little affected by what happens to their income in any limited period of time, such as a year.

This approach to federal budgeting, which could have major implications for the way fiscal policy is interpreted, might be more satisfactory to some economists than the present system. Unfortunately, the gap between what is known and what would need to be known to put it into practice is too wide for it to be seriously considered at present.

CHAPTER I

INTRODUCTION

The concern expressed about federal deficits during the 1980s has arisen not only because of their size, unprecedented during peacetime, but also because they reduce the amount of national resources available for saving and investment. National saving was much lower as a percentage of net national product during the 1980s than in preceding decades. The federal deficits reduced national saving because they absorbed private saving. A decline in national saving reduces the accumulation of national wealth, and correspondingly slows the future growth of U.S. living standards.

Reducing the federal deficits or running budget surpluses over a period of time would increase national saving and enable living standards to rise faster in the long run. The Congressional Budget Office (CBO) has estimated that a reduction in the deficit equal to 1 percent of gross national product (GNP) could increase living standards between 2 percent and 7 percent by the middle of the next century.[1]

But the view that federal deficits in the 1980s have been large has recently been challenged by several prominent economists who argue that in order to assess the effects of federal deficits on national saving and economic growth it is necessary to adjust the deficits for such factors as inflation, changes in the value of government debt, the amount of investing done by the government itself, and the deficits or surpluses of state and local governments. When these adjustments are made, they say, the deficits melt away.[2]

---

1. Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Year 1990-1994* (January 1989), p. 94. CBO found that a permanent increase in the federal surplus, starting from budget balance, to 2 percent of GNP raised consumption per person between 2 percent and 14 percent by the year 2040, depending on assumptions about the relationship between capital accumulation and productivity.

2. Robert Eisner, "Budget Deficits: Rhetoric and Reality," *The Journal of Economic Perspectives*, vol. 3, no. 2 (Spring 1989), pp. 73-93; Robert Eisner and Paul J. Pieper, "A New View of the Federal Debt and Budget Deficits," *American Economic Review*, vol. 74 (March 1984), pp. 11-29; Robert Heilbroner and Peter Bernstein, *The Debt and the Deficit: False Alarms/Real Possibilities* (New York: W.W. Norton & Co., 1989); Stephen J. Entin, "Real Deficits and the NEC's Real Duty," *The Wall Street Journal*, December 1, 1988; Michael Ulan and William G. Dewald, "Deflating U.S. Twin Deficits and the Net International Investment Position," U.S. Department of State, Bureau of Economic Affairs, Planning and Economic Analysis Staff, Working Paper Series, January 1989; and Michael R. Darby, "Accounting for the Deficit: An Analysis of Sources of Changes in the Federal and Total Government Deficits," Office of the Assistant Secretary for Economic Policy, Research Paper No. 8704, U.S. Treasury Department, October 2, 1987.

27-994 0 - 90 - 2

Some critics take an opposite tack, arguing that the deficit as measured by the Balanced Budget Act understates the "true" deficit because it includes the surpluses of the government's many trust funds, particularly the Social Security trust funds. Others point out that the deficit does not adequately reflect the subsidies embodied in government loans and loan guarantees, or the federal government's liabilities for deposit insurance. Finally, some analysts believe that the federal deficit is not a good indicator of the effect of fiscal policy on saving, and should be replaced by more complex measures.

MEASURES FOR ANALYZING THE IMPACT OF DEFICITS ON SAVING

The focus of this paper is on how to measure the absorption of national saving by federal deficits. It does not deal with problems of fiscal stabilization policy such as the short-run effects of discretionary federal budget policy on economic activity.[3]

In discussing various possible measures of the federal budget, it is important to keep in mind that no one is proposing to do away with the present unified budget, which is designed to provide financial accountability and control. Different budget measures serve different purposes, and no one measure is best for all. The adjusted measures discussed in this paper have to do with the federal government's effect on national saving--certainly an important aspect of the deficit. Other budget measures, however, are useful for such purposes as accounting for the amounts of budgetary resources that are allocated to different uses through the federal government, accounting for the financial position of the federal government, and measuring the short-run impact of federal tax and spending policies on economic activity.

Still another measure--the "operating budget deficit"--would be in principle more appropriate to the purpose of measuring the government's effects on national saving than the measures discussed here. An operating budget would encompass all the government's consumption-type or "recurrent" expenditures, which do not represent investment in future capacity to generate goods and services. It would include such expenditures as salaries of government employees, interest on the national debt, and transfer payments such as Social Security and veterans benefits. A separate set of accounts--termed the "capital budget"--would be used to record federal investments that increase

3. For a discussion of such measures of fiscal impact, see Alan S. Blinder and Stephen Goldfield, "New Measures of Fiscal and Monetary Policy, 1958-73," *American Economic Review*, vol. 66, no. 5 (December 1976); Frank de Leeuw and Thomas M. Holloway, "The Measurement and Significance of the Cyclically Adjusted Federal Budget and Debt," *Journal of Money, Credit and Banking*, vol. XVII, no. 2 (May 1985), pp. 232-242; and Darrel Cohen, "A Comparison of Fiscal Measures Using Reduced Form Techniques," Board of Governors of the Federal Reserve System, Division of Research and Statistics, 1989.

future output, such as expenditures on infrastructure projects, buildings, equipment, and perhaps even nonphysical assets such as education and research and development.

The surplus or deficit in the operating budget would be a better measure of the government's effect on national saving than is the current overall deficit, since it would exclude government investments. To the extent that they are financed by borrowing from private saving, government investments do not represent a diversion of that saving from investment by the private sector--the primary way in which deficits hurt economic growth--but rather a use of that saving for government investments instead of private ones, investments that may well add to future economic welfare just as much as private investments do.

In practice, however, the use of separate operating and capital budgets would raise a number of practical problems. As Chapter III points out, a capital budget would invite political abuses, would raise difficult conceptual and measurement issues, and would be unlikely to change the quantitative conclusions about federal dissaving that can be drawn from the overall budget deficit. For those reasons, this paper uses the overall measure.

The focus of this paper is on the deficits as measured by the national income and product accounts (NIPA), and to a lesser extent on the more familiar budget deficits, which approximate the increase in federal debt held by the public. The NIPA measure is particularly suited for analyzing the economic effects of the budget, since its definition of the deficit includes only revenues and outlays that have an impact on private incomes or wealth. Also, the NIPA measure uses timing conventions that are more appropriate for economic analysis than those of the conventional budget measure. A major difference between the conventional budget figures and the NIPA accounts is that the former include federal loans and purchases of existing assets as outlays, while the NIPA accounts exclude them because they do not affect private incomes or wealth as measured in the national income accounts.

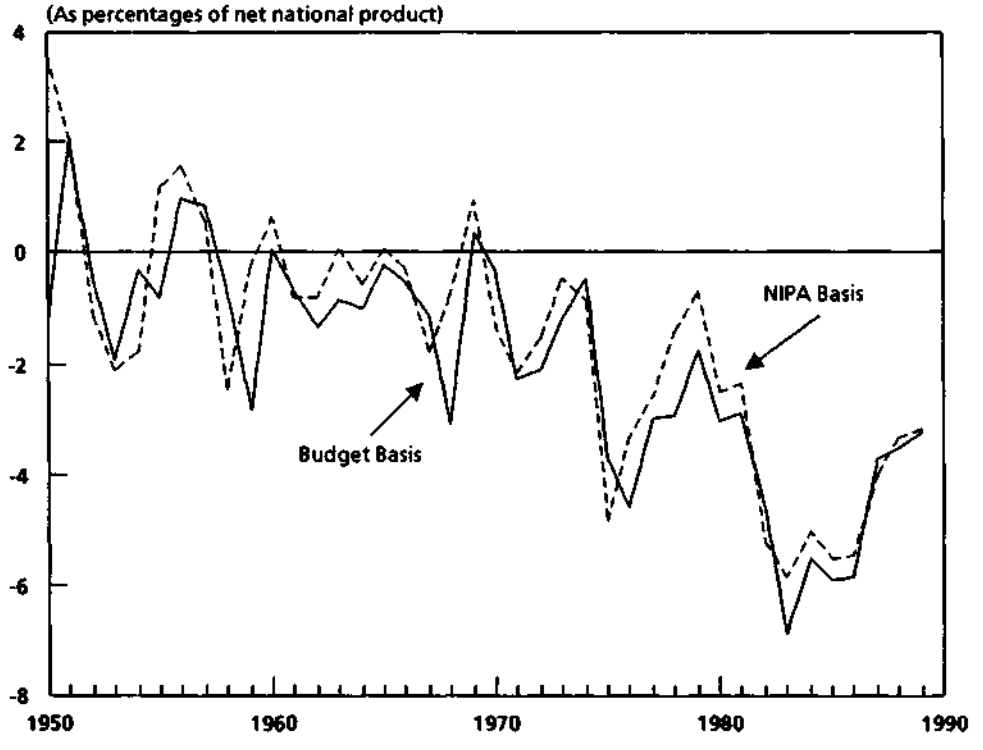
For this paper, two additional points need to be made about the conventional measure of deficits and the NIPA measure. First, as shown in Figure 1, the differences between them are generally small. Second, most of the adjustments discussed in this paper would have approximately the same effect on both measures.

At best, the budget deficit is only a partial, shorthand measure of the effect of fiscal policy on national saving and economic growth. The composition of budget outlays as between investments (yielding future returns) and other expenditures (yielding only current benefits) is important. Moreover, the relative efficiency of different types of government investment is equally im-

portant. Also, as some academic economists have recently emphasized, the tax and transfer system may have an important effect on private saving.

Because all of these factors have significant effects on national saving and economic growth, some analysts argue that the absolute level of the budget deficit has little meaning in itself. Instead, they focus on the change in budget deficits over a substantial period of time, and the reasons behind the change.

Figure 1.
Federal Deficits: Budget Basis and National Income and Product Accounts (NIPA) Basis, 1950-1989



SOURCES: Congressional Budget Office; Department of Commerce, Bureau of Economic Analysis.

NOTE: Deficits measured on a budget basis are in terms of fiscal years; deficits measured on a national income and product accounts basis are in terms of calendar years. Deficits are treated as negative, surpluses as positive.

To a large degree, setting fiscal policy should be viewed as selecting a rate of national saving. Choosing a saving rate, in turn, is a question that measurement and economic analysis can inform but cannot answer. The answer hinges on judgments concerning such issues as the relative well-being of current and future citizens and the relative payoffs from various types of public and private spending.

AN ALTERNATIVE MEASURE: CHANGES IN FEDERAL INDEBTEDNESS

Some analysts who have a different perspective favor a deficit measure that would provide a businesslike reporting of the federal government's financial position. Their view is that what matters is the amount of total federal indebtedness. From this perspective, the preferred measure of the federal deficit is the growth of total federal debt, including the part purchased by federal trust funds such as those of Social Security. These trust fund purchases of federal debt are not reflected in the NIPA measure of the deficit, which more closely reflects purchases by the private sector.

Although the growth in total federal debt is a useful measure for some purposes, this measure does not satisfy a major purpose of federal government accounting--to provide for fiscal policymaking. For this purpose, the effect of the federal budget on the economy is more relevant than the financial position of the government itself. The growth in federal debt held by trust funds does not represent an increase in federal demand for private saving, and thus does not affect national saving or business investment. Consequently, the growth in total federal debt can be a misleading deficit measure for purposes of fiscal policy.

CHAPTER II

THE IMPLICATIONS OF FEDERAL DEFICITS FOR NATIONAL SAVING AND FUTURE LIVING STANDARDS

Much has been written about the effects of federal deficits on future living standards. To the extent that they exceed federal government investments, deficits affect living standards because they absorb private saving and thus decrease the amount of wealth available for investment in economic growth. It is economic growth that makes higher living standards possible. Since the early 1970s, economic growth has slowed. One way to stimulate economic growth would be to increase national saving, and the most direct way to increase saving would be to reduce the federal deficit.

SAVING AND INVESTMENT ACCOUNTING

National saving as a share of national product declined markedly during the 1980s. The focus here is on net saving and net investment, which means that there is a subtraction for depreciation of capital that wears out or becomes obsolete. After averaging 8.2 percent of net national product during the three decades prior to 1980, net national saving fell to only 3.4 percent during the 1980s--a decline of more than half, or almost five percentage points.

There are two domestic sources of net national saving: private saving--mainly by households and corporations--and public saving, which may be broken down into federal, state, and local government sectors. Saving rates declined in both the private and the government sectors. As shown in Table 1, federal deficits averaged 4.3 percent of net national product during the 1980s, compared with an average of less than 1 percent during the previous three decades. This increase in federal dissaving was offset to some extent by a modest increase in saving by state and local governments--primarily associated with the accumulation of pension funds for government employees (see Figure 2).

Some writers have pointed out that U.S. deficits are not unusually large relative to GNP as compared with other countries. But in some countries the negative effects of governmental deficits are offset by private saving rates that are much higher than that in the United States. If the private economy shows a high and rising saving rate, then governmental deficits may perhaps be viewed as a relatively minor problem. This is not the case for the United

TABLE 1. NET NATIONAL SAVING, NET DOMESTIC INVESTMENT, AND NET FOREIGN INVESTMENT AS PERCENTAGES OF NET NATIONAL PRODUCT, 1950-1989

Calendar Years	(1) Personal Saving	(2) Retained Earnings	(3) Net Private Saving (1)+(2)	(4) State and Local Surplus	(5) Federal Surplus	(6) Govern-ment Surplus (4)+(5)	(7) Net National Saving (3)+(6)	(8) Net Domestic Invest-ment	(9)[a] Net Foreign Investment (7)-(8)
1950-1959	5.2	3.0	8.2	-0.2	0.1	-0.1	8.1	8.2	0.1
1960-1969	5.1	3.8	8.9	0.0	-0.3	-0.3	8.6	7.7	0.7
1970-1979	6.2	2.7	8.9	0.9	-1.9	-1.1	7.9	7.6	0.3
1980-1989	4.3	1.9	6.2	1.4	-4.3	-2.9	3.4	5.1	-1.8
1980	5.6	1.6	7.2	1.1	-2.5	-1.4	5.8	5.5	0.5
1981	5.9	1.6	7.5	1.3	-2.3	-1.1	6.4	6.2	0.4
1982	5.5	0.7	6.3	1.3	-5.2	-4.0	2.3	2.3	0.0
1983	4.3	2.1	6.5	1.6	-5.9	-4.3	2.2	3.5	-1.1
1984	4.9	2.8	7.7	1.9	-5.0	-3.1	4.6	7.4	-2.7
1985	3.5	2.9	6.4	1.8	-5.5	-3.7	2.7	5.8	-3.2
1986	3.3	2.2	5.6	1.7	-5.5	-3.8	1.7	5.3	-3.6
1987	2.5	1.9	4.4	1.3	-4.0	-2.7	1.7	5.3	-3.7
1988	3.3	1.8	5.1	1.1	-3.3	-2.2	2.9	5.4	-2.7
1989	4.4	1.0	5.4	1.0	-3.2	-2.2	3.2	4.8	-2.1

SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis; Congressional Budget Office.

a. Figures in column (9) do not exactly equal the difference between columns (7) and (8) because of statistical discrepancies and rounding.

States. While some of the other major industrial countries sometimes ran sizable government deficits during the 1980s, these deficits were not nearly as large relative to private saving as in the United States.[1]

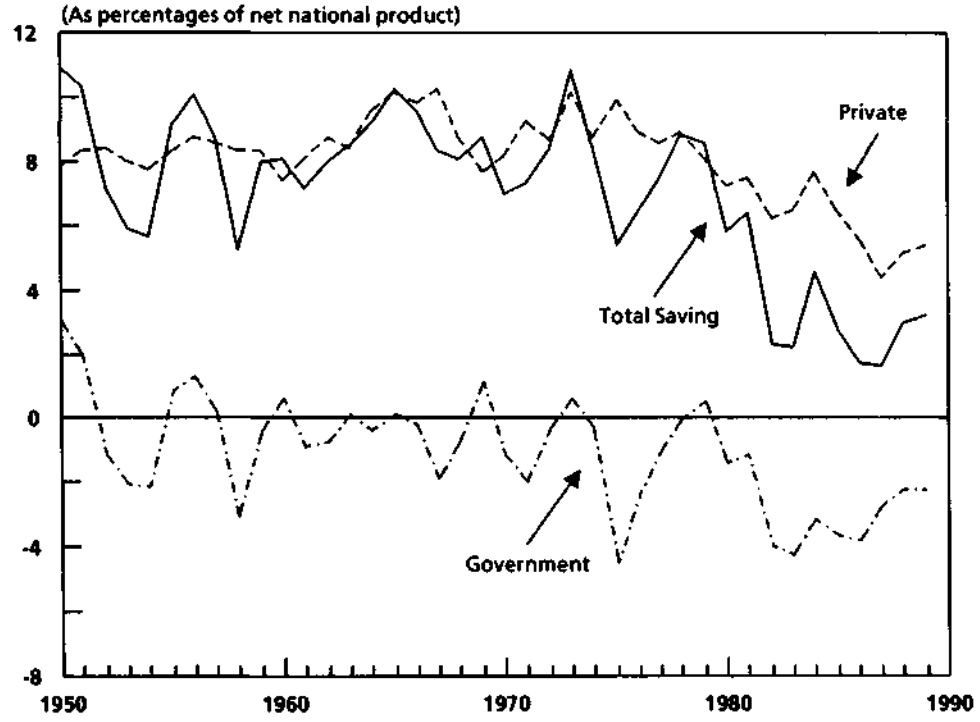
Federal deficits in the 1980s absorbed a much larger share of the nation's net private saving than in the earlier postwar period (see Figure 3). During the 1980s, federal deficits absorbed more than two-thirds of all the net private saving, compared with approximately 20 percent in the 1970s, and 3 percent in the 1960s.

HOW SAVING RAISES THE STANDARD OF LIVING

The primary reason why raising the saving rate should be a goal of economic policy is that saving helps to increase the standard of living in the long run.

1. See, for instance, the comparisons of government deficits in the *1988-1989 OECD Economic Survey* (Paris: Organization for Economic Cooperation and Development, 1989), pp. 51-52.

Figure 2.
Net National Saving and Its Components, 1950-1989



SOURCE: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis.

NOTE: Government saving includes that of federal, state, and local governments.

Saving increases the future size of the economy, and with it future incomes, by expanding investment in physical capital, such as factories and equipment; in "human capital," such as education and training of the work force; and in research and development. Some of this investing is done by the government. But all investment has to be financed in some way--either through domestic saving or through an inflow of foreign capital. Of course, other factors such as technological change and innovation also increase future living standards, but it is harder for federal policies to affect them.

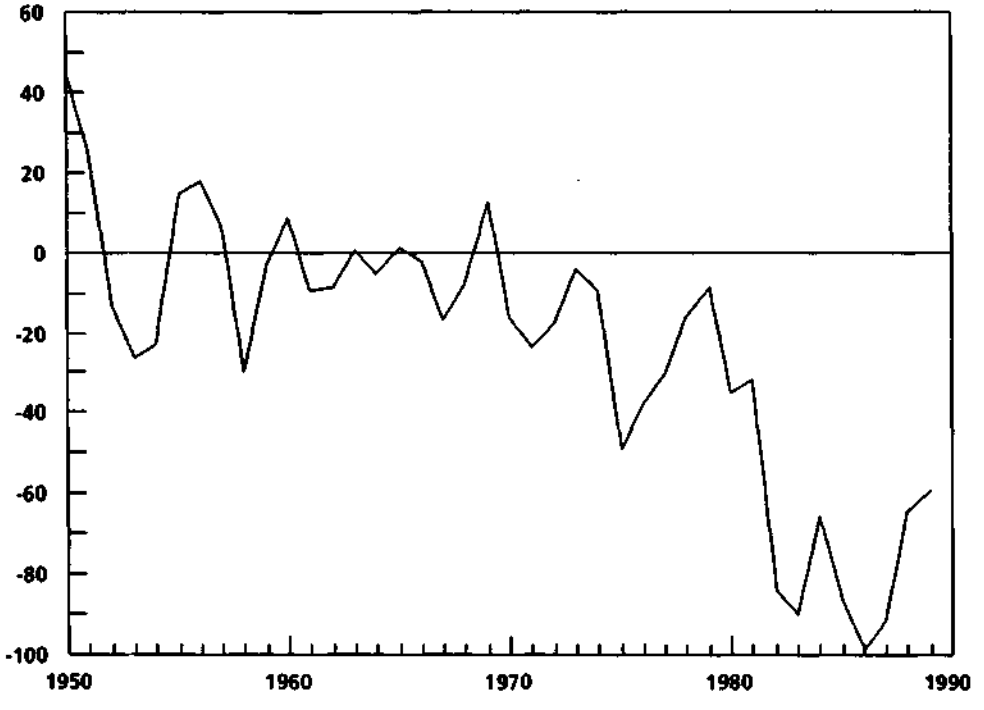
Throughout the discussion of saving and investment in this paper, it is important to keep in mind that saving makes possible investment--both domestic investment and international investment.[2] Investment is the en-

2. This paper employs the concept of saving used in the national income and product accounts: current production that is not consumed, and therefore is made available for investment. There are other concepts of saving, such as an increase in personal wealth that is not consumed.

gine of economic growth, and economic growth makes higher living standards possible.

Lower national saving has two effects: it reduces domestic investment, and it reduces the amount that Americans invest abroad. Lower national saving leads to lower investment abroad through changes in the trade and current-account deficits of the balance of payments. The decline in national saving raises U.S. interest rates and attracts foreign saving. More fundamentally, the reduced saving rate of the 1980s (caused in part by higher budget deficits) reflected an increased level of expenditure in the United States relative to national income. Since national income is necessarily equal to production, the reduced saving rate also reflected an increase in spending relative to national production. In fact, spending began to *exceed* production

Figure 3.
Federal Deficits as Percentages of Net Private Saving, 1950-1989



SOURCE: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis.

NOTE: Deficits are measured on a national income and product accounts basis, in terms of calendar years. Deficits are treated as negative, surpluses as positive.

during the 1980s, requiring this country to import some goods from abroad, causing the trade deficit to emerge. The increased foreign capital inflows of this period followed directly from the trade deficit: when the trade deficit increases under a system of floating exchange rates, capital inflows must increase in order to make the country's international books balance.[3]

During the 1980s, net domestic investment declined as a percentage of net national product, but the decline was not nearly as sharp as the fall in the national saving rate (see Table 1). Instead, U.S. net investment abroad fell to the point that it became negative--foreigners began investing far more heavily in the United States than the United States did in other countries. This strong inflow of funds from abroad helped sustain the level of net investment as a share of net national product.

Both of the effects of lower national saving--reduced domestic investment and reduced investment abroad--tend to slow the prospective growth in standards of living. Lower domestic investment retards the growth of capital per worker and of incomes, and hampers the ability of U.S. industries to compete in international markets. Increased foreign investment in the United States also threatens to reduce U.S. living standards in the long term. Although foreign investment helps sustain the growth of wages and productivity, it represents a future drain on U.S. incomes, since interest and dividends will have to be paid to foreigners on their investments here.

HOW REDUCING FEDERAL DEFICITS CAN RAISE SAVING AND THE STANDARD OF LIVING

It is one thing to point out that federal deficits have historically contributed to a lower rate of net national saving, but something quite different to argue that a reduction in federal deficits should lead to a long-run improvement in the standard of living. The first is a matter of accounting--what happened and how to measure and classify it. The second argument is less obvious because it involves human behavior and the complex reactions of the private sector of the economy to governmental policy changes.

Three important issues need to be addressed before one can conclude that reducing budget deficits will lead to an improvement in saving and higher standards of living in the longer run. How are deficits to be reduced--is it possible that cutting government programs or raising taxes will have negative effects on the rate of investment that exceed the benefits of reducing the deficits? Is the cut in budget deficits likely to put a damper on economic ac-

3. For a more detailed discussion of the role of budget deficits in causing trade deficits and capital inflows, see Congressional Budget Office, *Policies to Reduce the Current-Account Deficit* (August 1989).

tivity so that total saving may fall rather than rise? Finally, to what extent will the improvement in government saving be offset by a reduction in the private saving rate?

Negative Effects on Investment

As a general rule, reducing budget deficits will be more beneficial to long-run economic growth if it does not involve cuts in essential federal investment programs. Some government investments in infrastructure, in education and training, or in research and development have high returns and contribute to future production. Similarly, it would be preferable to avoid tax increases that tend to discourage businesses from making productive investments.

Reducing Economic Activity

Some argue that a reduction in federal deficits might cause an economic slowdown. If the short-run effects on output and incomes were strong enough, they might offset a significant part of the addition to national saving resulting from lower federal deficits.[4]

There are two major reasons to discount this argument in the current context. One is that monetary policy could be used to offset the fiscal effects of lower budget deficits, especially if the deficits were reduced gradually.[5] Most economists believe that the Federal Reserve, within limits, is able to stimulate or dampen economic growth. Cutting deficits gradually, rather than quickly, would assist the Federal Reserve in charting a smooth transition.

A second reason for discounting the negative effects of lower deficits on the economy is that the relationship between a change in either taxes or government spending and the effects on the economy would need to be relatively large compared with that found in most current research.[6] Current esti-

---

4. See, for instance, Robert Eisner, "National Saving and Budget Deficits," unpublished manuscript, Northwestern University, January 16, 1990. In a regression equation explaining conventionally defined national saving, Eisner found that the coefficient on the price-adjusted high-employment budget deficit had a positive sign--suggesting that deficits raise rather than lower saving.

5. See Congressional Budget Office, "Economic Effects of Deficit Reduction in Commercial Econometric Models: A Summary Statement," A Report to the National Economic Commission, December 7, 1988.

6. Based on conventional multiplier analysis, it is highly unlikely that a given reduction in the deficit would cause such a large fall in output that saving would fall rather than rise. If the marginal

(Continued)

mates of the relationship are lower than they would need to be for the decline in private saving to offset the rise in government saving. Reductions in the deficit can now be expected to stimulate increases in both domestic investment and net exports. Financial markets, including international exchange markets, react quickly to news about fiscal policy. Deficit reduction would put downward pressure on interest rates, and also on the differential in interest rates between the United States and other countries. Lower interest rates would stimulate more domestic investment and, by probably reducing dollar exchange rates, would encourage more exports and fewer imports.

Other Effects on Private Saving

What other effects would deficit reduction have on private saving? The conventional view is that reducing deficits raises government saving with relatively small offsetting effects on private saving.[7] An alternative view, known as "Ricardian Equivalence," argues that people save more when deficits rise, especially if the deficits result from lower taxes.[8] They realize that the additional federal debt issued to finance the deficits must be serviced by higher future taxes, and hence they increase their saving to meet this future tax commitment. By the same logic, a reduction in deficits may cause people to save less. Most policy analysts do not accept the Ricardian Equivalence view, in part because they believe that it is based on implausible assumptions and also because there is, at best, limited empirical evidence supporting the theory.[9]

While the Ricardian Equivalence issue is far from settled, two recent empirical studies suggest that reducing the federal budget deficit would significantly raise national saving in the longer run, although not dollar-for-

---

6. Continued

propensity to save is, say, one-fourth, the multiplier would have to be four, which is much higher than recent estimates based on econometric models. See Ralph C. Bryant, Gerald Holtham, and Peter Hooper, "Consensus and Diversity in the Model Simulations," in R.C. Bryant and others, eds., *Empirical Macroeconomics for Interdependent Economies* (Washington, D.C.: Brookings Institution, 1988), pp. 27-62.

7. For a detailed discussion of the economic effects of federal deficits, see Congressional Budget Office, *The Economic and Budget Outlook* (February 1984), pp. 59-77; and *The Economic and Budget Outlook* (February 1985), pp. 79-113.

8. See Robert J. Barro, "Are Government Bonds Net Wealth?" *Journal of Political Economy*, vol. 82 (November 1974), pp. 1095-1117.

9. For a recent survey of this issue, see B. Douglas Bernheim, "Ricardian Equivalence: An Evaluation of Theory and Evidence," in Stanley Fischer, ed., *Macroeconomics Annual 1987* (Cambridge, Mass.: MIT Press, 1987), pp. 263-315.

dollar. These studies focus on longer-run effects, holding income constant and analyzing saving as a share of income.[10]

The Ricardian Equivalence view also raises fundamental questions about the economic effects of government liabilities that are not pursued in this paper. According to that view, government bonds are not net wealth since they are at the same time assets for bondholders and liabilities for taxpayers. Several of the adjustments discussed later in this paper assume that government bonds and other government liabilities do represent net wealth to the private sector, and therefore have an effect on saving.

10. These estimates suggest that a reduction in the budget deficit of a dollar tends to reduce private saving by something like 20 to 40 cents, which would imply a substantial overall increase in national saving. See Lawrence H. Summers, "Issues in National Saving Policy," in Gerald F. Adams and Susan M. Wachter, eds., *Savings and Capital Formation* (Lexington, Mass.: Lexington Books, D.C. Heath & Co., 1986), pp 65-88; and Michael J. Boskin, "Alternative Measures of Government Deficits and Debt and Their Impact on Economic Activity," in K.J. Arrow and M.J. Boskin, eds., *Economics of Public Debt* (New York: Macmillan, 1988), pp. 72-112.

CHAPTER III

FOUR ADJUSTMENTS THAT AFFECT THE LEVEL OF BUDGET DEFICITS BUT NOT THEIR TREND

While the magnitude of recent federal deficits is a cause for concern for most people, several prominent economists argue that their importance has been greatly exaggerated. They hold that the deficits ought to be adjusted downward for the effects of inflation and for declines in the market value of government securities. A third adjustment would take into account investment by the federal government in dams, highways, and other public capital. Finally they believe the deficits should also be measured in conjunction with the surpluses of state and local governments, which would result in a figure for the total government deficit that would be much smaller than the federal deficit.[1]

ADJUSTING DEFICITS FOR INFLATION

It is often argued that inflation partially invalidates the conventional federal deficit measure because of the way the measure treats the effects of inflation on the real value of the federal debt.[2] Although inflation reduces the real value of the debt, making the government's creditors poorer and the government richer, the conventional measure of the deficit takes no direct account of

1. In addition to the references cited in footnote 2 of Chapter I, the following sources also discuss many of the issues in this chapter: Charles L. Schultze, "Of Wolves, Termites, and Pussycats, or, Why We Should Worry About the Budget Deficit," *The Brookings Review* (Summer 1989), pp. 26-33; Edward M. Gramlich, "Budget Deficits and National Saving: Are Politicians Exogenous?" *Journal of Economic Perspectives*, vol. 3, no. 2 (Spring 1989), pp. 23-36; Robert Eisner, *How Real Is the Federal Deficit?* (New York: The Free Press, A Division of Macmillan, 1986); and Eisner's response to Schultze, "More on Pussycats and Termites," *The Brookings Review* (Fall 1989), p. 43.

2. For a more detailed discussion of some of the issues in adjusting fiscal deficits for inflation, see Vito Tanzi, Mario I. Blejer, and Mario O. Teijeiro, "Inflation and the Measurement of Fiscal Deficits," *IMF Staff Papers*, vol. 34 (1987), pp. 711-738; Vito Tanzi, "The Deficit Experience in Industrial Countries," in Phillip Cagan, ed., *Essays in Contemporary Economic Problems: The Economy in Deficit* (Washington, D.C.: American Enterprise Institute, 1985); Phillip Cagan, "The Real Federal Deficit and Financial Markets," *The AEI Economist* (November 1981), pp. 1-8; and Congressional Budget Office, "Measuring the Federal Debt and Deficit: Adjustments and Rationales," Staff Working Paper, April 1985.

3. The issue here is the way inflation affects the amount of dissaving represented by the deficit--not the overall effect of inflation on the federal budget. Inflation obviously affects the economy--and therefore the federal deficit--in a number of respects. For instance, inflation tends to increase nominal incomes, and therefore tax receipts; but that does not cause the deficit to be a more distorted measure of the impact of the federal budget on saving.

this fact.[3] Some people have proposed adjusting the deficits downward by subtracting an estimate of the decline in the real value of federal debt caused by inflation.

Implications for National Saving

The rationale for adjusting the deficit for inflation rests on the fact that conventional measures of federal outlays and deficits incorporate interest payments, part of which simply compensate holders of federal bonds for expected inflation. To protect bondholders from reductions in the real value of their holdings, the government, like other borrowers, normally pays compensation in the form of higher interest rates than would prevail if there were no inflation.[4] This makes outlays for interest, and the federal deficit, higher than they would be without inflation.

The adjustment for inflation involves removing this component of federal interest outlays from the conventional measure of the federal deficit. Households and other creditors are thought to save the part of interest receipts that is associated with expected inflation in order to keep the real value of their debt holdings from declining.[5] Therefore, the reasoning goes, that part of federal outlays for interest representing compensation for expected inflation should not be included in the deficits since it does not detract from overall national saving.

Economists have used two basic approaches to adjusting the budget deficit for inflation, but both have drawbacks. One approach is to estimate the inflation premium in interest rates and multiply that by the stock of interest-bearing federal debt. The product is then subtracted from the deficit. The principal problem with that approach, however, is the difficulty of esti-

---

4. This relationship between inflation and interest rates is sometimes referred to as the "Fisher effect" --see Irving Fisher, *The Theory of Interest* (New York: A.M. Kelley, Publishers, 1965), reprint of 1930 edition. For more recent studies of this relationship, see Vito Tanzi, "Inflationary Expectations, Economic Activity, Taxes, and Interest Rates," *American Economic Review*, vol. 70, no. 1 (March 1980), pp. 12-21; Martin Feldstein, "Inflation, Income Taxes, and the Rate of Interest: A Theoretical Analysis," *American Economic Review*, vol. 66 (December 1976), pp. 809-20; Joe Peek and James A. Wilcox, "The Postwar Stability of the Fisher Effect," *Journal of Finance*, vol. XXXVIII, no. 4 (September 1983), pp. 1111-1124; and Lawrence H. Summers, "The Nonadjustment of Nominal Interest Rates: A Study of the Fisher Effect," in James Tobin, ed., *Macroeconomics, Prices and Quantities* (Washington, D.C.: Brookings Institution, 1983), pp. 201-244.

5. Empirical studies seem to confirm that bondholders normally do save that part of their interest income that represents compensation for expected inflation. See William Poole, "The Role of Interest Rates and Inflation in the Consumption Function," *Brookings Papers on Economic Activity*, vol. 1, 1972, pp. 211- 219; and Giuseppe Nicoletti, "Private Consumption, Inflation and the Debt Neutrality Hypotheses: The Case of Eight OECD Countries," OECD Department of Economics and Statistics, Working Paper No. 50 (Paris: Organization for Economic Cooperation and Development, January 1988).

mating the inflation premium. A second approach is to adjust the value of government debt for changes in the aggregate price level--usually measured by changes in the GNP deflator. However, one problem with this latter approach is that households base their saving decisions on expected inflation, while this adjustment is based on ex-post or actual inflation.

Why National Saving Is Little Affected

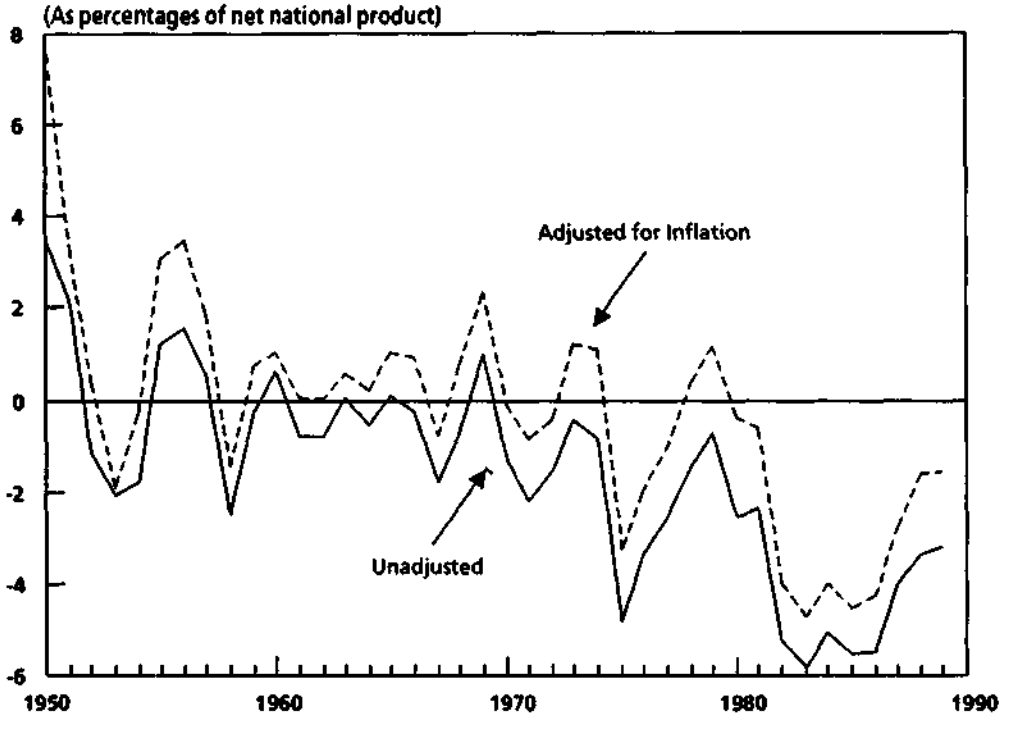
The adjustment for inflation makes little difference in the estimates of total national saving reported in the statistics for national accounts. The reason is that, for consistency, an offsetting adjustment for inflation also must be applied to the national accounts data on nonfederal saving.

The need to make an offsetting adjustment to nonfederal saving reflects the simple fact that it is wrong to count the same saving twice when measuring national saving. In particular, it is wrong to double count the additional saving that is undertaken in response to inflation by the nonfederal sector. Adjusting the federal deficit downward to reflect this additional nonfederal saving means that this additional saving is shifted from the nonfederal sector to the federal sector. This downward adjustment to nonfederal saving offsets the inflation adjustment to the federal deficit, and means that national saving--the sum of federal and nonfederal saving--is little affected.[6]

This argument has to be modified to the extent that foreigners hold some of the federal debt and their saving is not part of U.S. national saving. In that case, the foreign creditors bear some of the loss in the real value of outstanding federal debt, and so it does not lower the wealth of the domestic nonfederal sector. Since the inflation adjustment to federal deficits is the same regardless of who holds the federal debt, the net result is to raise national saving by the amount of wealth transferred from the foreign to the federal sector. However, because the loss of foreign wealth should be treated as an inflation adjustment that improves the U.S. current-account balance, the overall effect of the inflation adjustment does not change the amount of national plus foreign saving available for domestic business investment. Rather, it increases the share of domestic investment financed by national saving.

6. For a more detailed discussion and an alternative explanation of the fact that the inflation adjustment leads to little change in measured national saving, see Charles Schultze, "Of Wolves, Termites, and Pussycats."

Figure 4.
Federal Deficits: Before and After Adjustment for Inflation, 1950-1989



SOURCE: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis.

NOTE: Deficits are measured on a national income and product accounts basis, in terms of calendar years. Deficits are treated as negative, surpluses as positive.

Size of the Adjusted Federal Deficits

Aside from the fact that the adjustment for inflation has little effect on measured rates of national saving, there is a further reason why this adjustment makes little difference to conclusions about national policy. While the adjustment affects the absolute size of the deficits, it does not make a substantial difference in their upward trend during the 1980s. This is shown in CBO's current estimates of deficits adjusted for inflation (see Figure 4).[7] For instance, in fiscal year 1989 the inflation adjustment lowered the deficit by $76 billion, from $150 billion to $74 billion. However, making this kind of

7. CBO's methodology follows that of Eisner, in *How Real Is the Federal Deficit?* pp. 208-218.

adjustment reduced the deficits by a similar amount in relation to the size of the economy during the 1970s.

Thus, the magnitude of the shift toward deficits is essentially the same with or without the adjustment for inflation. Consequently, the adjustment does not affect the main conclusion that increased federal deficits in the 1980s contributed significantly to the decline in national saving during the last decade.

ADJUSTING DEFICITS FOR CHANGES IN THE MARKET VALUE OF THE FEDERAL DEBT

Some analysts also have proposed adjusting conventional federal deficits to reflect changes in the value of the federal debt that occur from year to year because of normal swings in financial markets. This adjustment, which is similar in spirit to the adjustment for inflation, would recognize that changes in the price of federal bonds may affect private economic behavior by making people richer or poorer. The proposed adjustment involves adding an estimate of the rise or fall in the value of the debt to the conventional deficit in each period.

The rationale for adjusting the federal deficit for changes in the market value of the debt is that holders of the debt may raise their saving when the value of their holdings of debt falls (and conversely, they may reduce their saving when their bonds rise in value). A rise in nonfederal saving would offset some of the federal dissaving that is reflected in the conventional federal deficit.

The empirical and conceptual case for the market-value adjustment is much weaker than for the inflation adjustment. While there is considerable evidence that changes in wealth in general affect households' saving decisions, it is not clear to what extent and how quickly they change their saving rate in response to changes in market values of government debt stemming from movements in interest rates. If households largely expect to hold their government bonds until maturity, fluctuations in the market price of the bonds will not affect the value of the bonds at maturity. Short-term losses (or gains) may not be immediately perceived as affecting the long-run income prospects of households--which is thought to be a crucial determinant of saving.

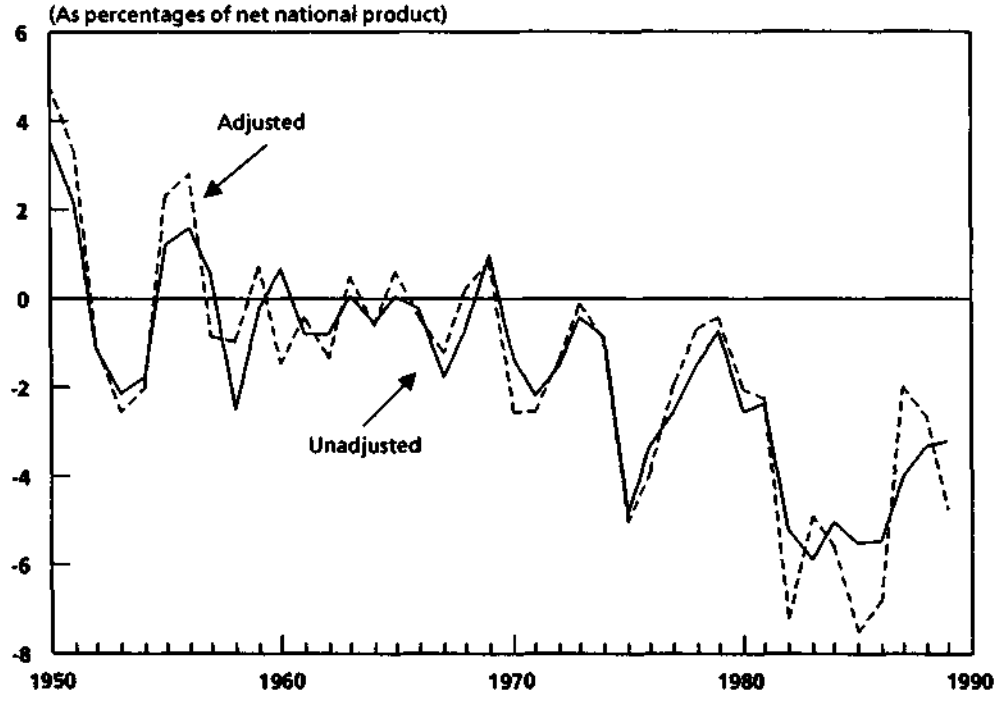
Why National Saving Is Little Affected

In any case, the adjustment for changes in market value has little effect on the estimates of total national saving reported in the national accounts. The

reason, as in the case of the adjustment for inflation, is that private saving--which affects national saving just as federal dissaving does--must be adjusted downward for changes in market valuation whenever the federal deficit is, or else some saving would be counted twice. As a result, the adjustments to private saving and federal dissaving offset each other.

As in the case of the adjustment for inflation, the argument has to be modified to the extent that the federal debt is held by foreigners, whose saving is not included in U.S. national saving.

Figure 5.
Federal Deficits: Before and After Adjustment for Changes in the Market Value of the Federal Debt, 1950-1989



SOURCES: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis; W. Michael Cox and Cara S. Lown, "The Capital Gains and Losses on U.S. Government Debt: 1942-1987," *The Review of Economics and Statistics*, vol. LXXI, no. 1 (February 1989), pp. 1-14.

NOTE: Deficits are measured on a national income and product accounts basis, in terms of calendar years. Deficits are treated as negative, surpluses as positive.

Trends in the Federal Deficit Adjusted for Changes in Market Valuation

Another reason why the adjustment for changes in market valuation does little to change conventional conclusions about the effect of federal deficits on national saving during the 1980s is that the deficits adjusted for market valuation show the same rising trend as the unadjusted deficits (see Figure 5 on page 20).[8] The adjustment itself fluctuates widely during this period, but has no significant trend upward or downward. Consequently, the adjustment does not change the rising trend evident in the unadjusted deficits.

ADJUSTING FOR GOVERNMENT INVESTMENT

Some government spending represents capital investment, which yields returns over extended periods and should be distinguished from current spending on operations. But making this adjustment raises difficult issues of measurement and classification, and it does not have much bearing on saving and investment trends during the 1980s.

Government investment can be variously defined to include physical investment, human capital investment, and research and development. Examples of government investment that are analogous to physical investment in the private sector include government buildings, roads, dams, and computers. It is generally believed that such public investment contributes to overall economic growth.[9]

A number of analysts in the private sector, as well as the General Accounting Office (GAO), have advocated a "capital budget" for the federal government that would recognize the investment characteristics of many

---

8. Estimates of changes in market value for privately held federal debt were provided by W. Michael Cox of the Federal Reserve Bank of Dallas. For a discussion of the methodology, see W. Michael Cox and Cara S. Lown, "The Capital Gains and Losses on U.S. Government Debt: 1942-1987," *The Review of Economics and Statistics*, vol. LXXI, no. 1 (February 1989), pp. 1-14.

   Changes in inflation cause changes in interest rates and, therefore, affect the market value of federal debt. To avoid double-counting in adjusting for inflation, the change in market value of existing debt is calculated before calculating the effect of the change in price level on the real value of the debt. See Robert Eisner, *How Real is the Federal Deficit?* pp. 9-25 and pp. 208-218.

9. The extent to which public investment has contributed to growth is controversial and a subject of continuing research. See David Alan Aschauer, "Is Public Expenditure Productive?" *Journal of Monetary Economics*, vol. 23 (1989), pp. 177-200; and Robert Barro, "Economic Growth in a Cross Section of Countries," NBER Working Paper No. 3120, National Bureau of Economic Research (September 1989).

types of government expenditures.[10] As discussed in Chapter I, this approach would divide the overall budget into two components: an operating budget and a capital budget. The operating budget would include all revenues and expenditures classified as noncapital, including depreciation of federal capital assets as an expense. Capital budget revenues would include depreciation reported as an expense in the operating budget, capital user fees, and loan repayments. Capital budget costs would include the purchase price of long-lived tangible goods and financial assets.

While in principle one should include federal net investments in national saving, a number of practical obstacles arise in formulating such a capital budget. First, which programs should be included as investments and which excluded? Roads and dams are obvious candidates. Should military investments be included--or outlays on education? In many cases, it is extremely difficult to distinguish a government investment that adds to future productivity from an outlay that provides only current benefits.

A second difficulty is in estimating depreciation on government capital investments, since net saving and net investment are arrived at by subtracting depreciation from gross saving and gross investment. Estimates of depreciation on government assets are very imprecise because in many cases there is no relevant market, or a very inactive one, for government assets. Despite these difficulties, both the Commerce Department's Bureau of Economic Analysis and the Office of Management and Budget compile estimates of depreciation on the government's physical capital.[11]

A third difficulty, not unrelated to the other two, is that capital budgeting could distort budgetary decisions. It could cause intense pressure to classify more and more spending as investment--both to shield the spending from budget control and to minimize the up-front costs of the programs.[12]

In any case, the deficit in the operating budget might not be much different from the deficit in the overall budget as now measured, since it would

---

10. See Robert Eisner, "Budget Deficits: Rhetoric and Reality," *The Journal of Economic Perspectives*, vol. 3, no. 2 (Spring 1989), pp. 74-75; and Robert Heilbroner and Peter Bernstein, *The Debt and the Deficit: False Alarms/Real Possibilities* (New York: W.W. Norton & Co., 1989), pp. 76-77 and pp. 81-85. The General Accounting Office proposed a capital budget in a recent report. See *Managing the Cost of Government Proposals for Reforming Federal Budgetary Practices*, GAO/AFMD-90-1 (October 1989).

11. For a more detailed study of these issues, see Congressional Budget Office, *Trends in Public Investment* (December 1987). That study used various concepts of federal net investment, as well as alternative assumptions about depreciation.

12. For a discussion of some of the pitfalls of capital budgeting, see the Congressional Budget Office, Letter of Response to Frederick D. Wolf, Director, Accounting and Financial Division, General Accounting Office, October 26, 1988; and *Report of the President's Commission on Budget Concepts* (1967).

have to include depreciation--the wearing out and obsolescence of government capital during the current period. Most estimates of depreciation on government capital suggest that it is roughly as big as gross federal investment. This indicates that the operating deficit would be about the same as the overall budget deficit, since it would differ from the latter by excluding gross investment but including depreciation--two numbers that are about the same size.

Federal Tangible, Nonmilitary Investment

If one chooses to define federal investment as physical investment, as is done for the private sector in the national income and product accounts, and if one excludes military investment on the grounds that it does not contribute materially to productivity in the private sector, then net investment by the federal government has been relatively small in recent years, averaging slightly more than $2 billion annually from 1980 to 1989. As shown in Figure 6, adjusting the deficits for federal net investment (defined as physical investments excluding military) makes only a small difference.

This adjustment to the budget deficits implies the same adjustment to national saving and investment. In effect, some government spending is reclassified as investment. But the implied increase in national saving and investment during the 1980s was small.

Military Investment

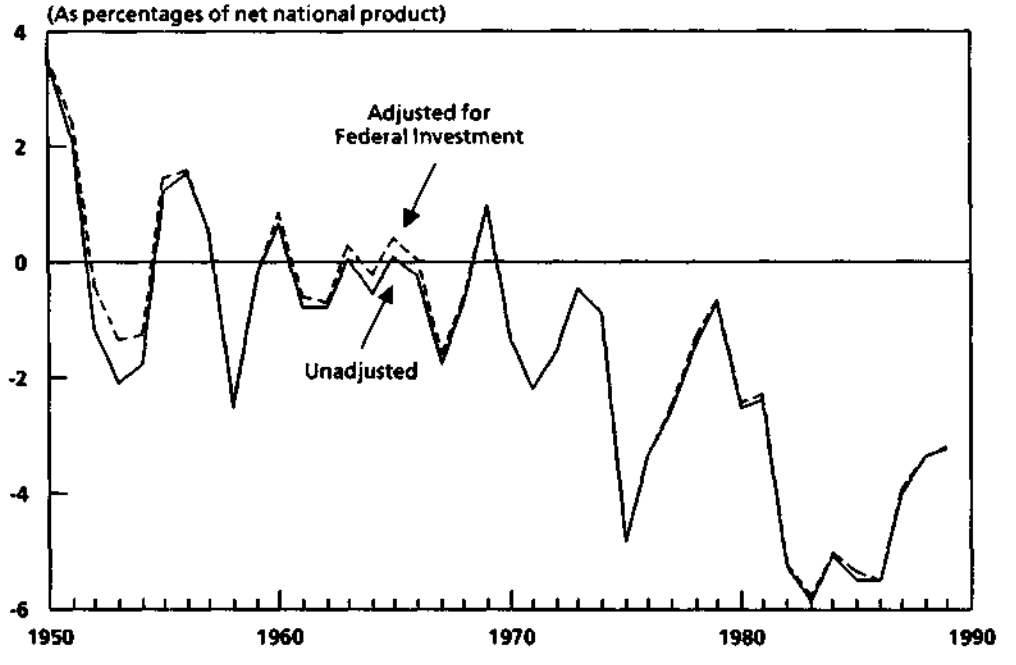
Military assets, such as weapons systems, yield a return over an extended period of time and therefore qualify as investment, although they cannot be said to contribute significantly to economic growth.[13] Including military assets as investment yields a somewhat larger estimate of net federal investment during the 1980s. Net investment in military assets averaged approximately $18 billion per year during the 1980s, compared with $0.5 billion during the 1970s. But this adjustment does not fundamentally change the conclusion that federal saving declined significantly during the 1980s.

13. Acquisition of a ship may add to military security for decades. But the military security resulting from the services of the ship is not counted as part of GNP. If the ship was owned by a defense contractor, however, its services would be counted in GNP.

Capital Grants

Grants to state and local governments for capital projects--for instance, for water treatment facilities and highway improvement--are another type of capital spending that could be included in federal investment, although again this would not alter the conclusion reached earlier about trends in federal government investment. Such capital projects are actually undertaken and maintained by state and local governments, and are considered part of the capital stock of state and local governments in the national income and product accounts. Federal grants of this kind result in less than dollar-

Figure 6.
Federal Deficits: Before and After Adjustment for Federal Investment, 1950-1989



SOURCE: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis.

NOTES: Federal investment is defined as net investment in federal government fixed nonresidential capital, excluding military installations. It does not include investments in human capital or in intangibles, such as research and development.

Deficits are measured on a national income and product accounts basis, in terms of calendar years. Deficits are treated as negative, surpluses as positive.

for-dollar increases in overall government investment to the extent that the state and local governments reduce their own level of support below what it would have been in the absence of the federal grants.[14] In any case, net investment in physical assets financed by federal grants to state and local government was lower during the 1980s than during the 1970s.[15]

Studies that include investments by state and local governments suggest that total net government investment (and associated saving) was lower in relation to the size of the economy during the 1980s than in the 1960s and 1970s.[16] Thus the conclusion remains that the government sector subtracted substantially more from national saving during the 1980s than it did earlier.

Still Broader Definitions of Investment

A still broader definition of federal investment would include research and development, and also spending on various human resource programs. Estimates of net federal investment (and saving) under this definition are substantially higher.[17] But again, the upward trend in federal absorption of saving would be unaffected by this adjustment.[18]

ADJUSTING FOR DEFICITS OR SURPLUSES OF STATE AND LOCAL GOVERNMENTS

Some people argue that it is not the federal deficit that matters but the deficit of the total government, including state and local governments. They point out that the federal government makes substantial transfers of money to state and local governments; their budget surpluses are, in part, made

---

14. See Edward M. Gramlich, "State and Local Budgets the Day After It Rained: Why is the Surplus So High?" *Brookings Papers on Economic Activity*, vol. 1 (Washington, D.C.: Brookings Institution, 1978), pp. 191-214.

15. See Office of Management and Budget, *Special Analysis, Budget of the United States Government Fiscal Year 1990* (1989), page D-11.

16. See Michael Boskin, Marc S. Robinson and Alan M. Huber, "Government Saving, Capital Formation and Wealth in the United States, 1947-1985," NBER Working Paper No. 2352, National Bureau of Economic Research (August 1987); and Congressional Budget Office, *Trends in Public Investment*, pp. 59-71.

17. See Robert Heilbroner and Peter Bernstein, *The Debt and the Deficit*, pp. 81-85.

18. See Congressional Budget Office, *Trends in Public Investment*, pp. 76-79. In addition, the Office of Management and Budget has compiled data on gross federal investment that includes R&D and human capital; these data suggest that federal investment broadly defined was lower in relation to the size of the economy in the 1980s than in 1960 and 1970. See *Budget of the United States Government Fiscal Year 1991*, p. 39.

possible by these grants.[19] Moreover, the split between the functions of federal, state, and local governments is somewhat arbitrary, and in other countries the division of responsibility is different; thus, government should perhaps be considered as a whole.

There are four reasons to discount this adjustment. One is that state and local governments have limited scope for affecting national saving policies. A second reason is that most of the surplus in state and local budgets comes from their employees' pension funds. A third reason is that whether one focuses on the federal deficit or on the combined deficit, the government's absorption of saving was relatively large in the 1980s. A fourth reason is that adding state and local surpluses to the total has no effect on the national saving rate.

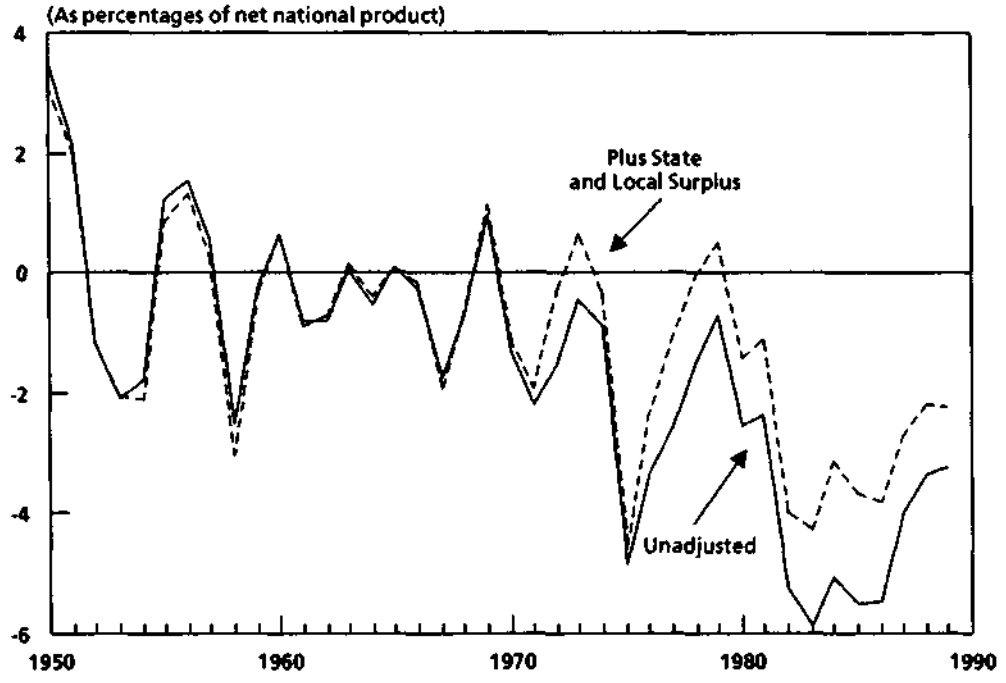
The federal government has a unique responsibility for national economic stabilization, and it should have an analogous role for national saving. This argues for separating the federal sector from the state and local accounts, treating the latter on a par with households and businesses. Decisions made at the federal level about national saving policy should count the saving being done by the state and local government sector along with saving elsewhere in the economy. Including the state and local government accounts with the federal accounts would imply that the "government" was making policy to adjust for "private" behavior.

Including state and local surpluses with the federal deficit would make the rise in federal deficits in the 1980s smaller but not eliminate it. As indicated in Figure 7, the inclusion significantly reduces the magnitude of the deficits, and it also reduces the amount by which deficits rose relative to net national product during the 1980s. Still, the deficits were relatively large during the 1980s compared with the earlier postwar period.

If contributions to state and local pensions are attributed to households rather than to state and local governments, adding in the state and local government sector has essentially no effect on the overall size of deficits, although it can affect the deficits on a year-to-year basis. These contributions are analogous to pension saving by employees in the private sector, which are counted as household saving in the national income and product accounts. Shifting the pension contributions to the private sector would, however, lessen the decline in the private saving rate that was observed during the 1980s.

19. See Robert Eisner, "Budget Deficits: Rhetoric and Reality," *Journal of Economic Perspectives*, vol.3, no. 2 (Spring 1989) p. 75, and Robert Heilbroner and Peter Bernstein, *The Debt and the Deficit*, p. 74.

Figure 7.
Federal Deficits: Before and After Adding State and Local Surplus, 1950-1989



SOURCE: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis.

NOTE: Deficits are measured on a national income and product accounts basis, in terms of calendar years. Deficits are treated as negative, surpluses as positive.

Whether the saving by state and local governments is included with the federal deficit or with private saving, it does not change the total amount of national saving; it merely reclassifies it. Combining government accounts does not reassign blame for the decline in national saving, and should not detract from the role that the federal deficits have played. The concerns about federal deficits are motivated largely by the decline in national saving--not by its composition.

OVERALL ESTIMATES OF THE ADJUSTED FEDERAL DEFICITS

How big is the federal deficit when it is recomputed to take account of all the adjustments discussed above? Do these adjustments taken together affect the

level of national saving? Are these adjustments to the deficit likely to be much larger or smaller in the future?

How Big Is the Adjusted Federal Deficit?

The adjustments discussed in this chapter do not change the main conclusion that emerges from the unadjusted figures: namely, that the federal government contributed significantly to the decline in national saving in the 1980s through the increase in its budget deficits. When all the above adjustments are incorporated, federal deficits averaged $60 billion annually during the 1980s, compared with an average surplus of $11 billion during the 1970s (Table 2). Thus, even on an adjusted basis, the annual federal deficit rose about $70 billion between these two decades. In contrast, the unadjusted deficit increased by $120 billion, or from an average level of $28 billion to an average of $148 billion. Similar findings hold when adjusted deficits are measured relative to net private saving (Table 3) or relative to net national product (Table 4).

Some analysts also adjust deficits for the automatic changes in federal revenues and expenditures that result from the business cycle, as the level of economic activity fluctuates relative to some benchmark level of economic activity such as "potential output." CBO estimates that this "cyclical" adjustment accounts for $38 billion of the increase in federal deficits between the 1970s and the 1980s. In the very long run, however, the effect of the business cycle on the budget should be negligible if the average level of economic activity is chosen as the benchmark level.

Which adjustments matter most? Taken together, the adjustments for inflation, changes in the market value of the federal debt, federal investment, and the surpluses of state and local governments offset almost $50 billion of the $120 billion increase in the average unadjusted deficit that occurred between the 1970s and the 1980s (see Figure 8). Most of this offset ($34 billion) reflects the larger surpluses of states and localities. Another large component ($25 billion) represents the decline in the real value of the debt from inflation. Since the average level of federal investment changed little between the 1970s and the 1980s, this adjustment does not offset much of the increase in federal deficits between the 1970s and the 1980s. Finally, capital losses by the federal government actually raised the adjusted deficits by about $12 billion between the two decades (see Table 5).

TABLE 2. ESTIMATES OF ADJUSTED FEDERAL DEFICITS, 1950-1989 (In billions of dollars)

Calendar Year	Federal Deficit	Adjusted Federal Deficit[a]	Difference
1950	9.2	23.0	-13.8
1951	6.5	14.1	-7.6
1952	-3.8	3.9	-7.7
1953	-7.2	-5.3	-1.9
1954	-6.1	-1.0	-5.1
1955	4.4	15.1	-10.6
1956	6.1	17.6	-11.5
1957	2.2	0.3	2.0
1958	-10.3	-2.2	-8.1
1959	-1.1	7.6	-8.7
1960	3.0	-4.2	7.2
1961	-3.9	2.8	-6.7
1962	-4.2	-1.4	-2.8
1963	0.3	7.3	-7.0
1964	-3.3	3.7	-7.0
1965	0.5	12.2	-11.7
1966	-1.8	7.8	-9.6
1967	-13.2	-1.5	-11.6
1968	-6.1	14.2	-20.2
1969	8.4	21.5	-13.0
1970	-12.4	-10.6	-1.9
1971	-22.0	-9.5	-12.5
1972	-16.8	9.6	-26.4
1973	-5.6	32.6	-38.1
1974	-11.6	21.1	-32.7
1975	-69.4	-45.3	-24.1
1976	-53.5	-25.1	-28.5
1977	-46.0	22.6	-68.6
1978	-29.3	56.8	-86.1
1979	-16.1	60.8	-76.9
1980	-61.3	31.3	-92.7
1981	-63.8	23.5	-87.3
1982	-145.9	-130.7	-15.1
1983	-176.0	-63.1	-113.0
1984	-169.6	-86.3	-83.3
1985	-196.9	-163.6	-33.3
1986	-206.9	-147.0	-59.8
1987	-161.4	25.5	-186.8
1988	-145.9	9.4	-155.2
1989	-149.9	-101.1	-48.8

SOURCES: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis, and W. Michael Cox of the Federal Reserve Bank of Dallas.

NOTE: Deficits are measured on a national income and product accounts basis. Deficits are treated as negative, surpluses as positive.

a. Adjusted for inflation, for changes in the market value of the federal debt, for federal government investment, and for surpluses of state and local governments.

TABLE 3. ESTIMATES OF ADJUSTED FEDERAL DEFICITS, 1950-1989 (As percentages of net private saving)

Calendar Year	Federal Deficit	Adjusted Federal Deficit[a]	Difference
1950	44.5	110.6	-66.1
1951	25.4	55.1	-29.7
1952	-13.9	14.5	-28.5
1953	-26.4	-19.4	-7.0
1954	-23.1	-3.7	-19.4
1955	14.5	49.0	-34.6
1956	17.8	51.6	-33.9
1957	6.4	0.8	5.6
1958	-29.9	-6.5	-23.4
1959	-3.0	20.3	-23.3
1960	8.7	-12.1	20.8
1961	-9.9	7.2	-17.1
1962	-9.3	-3.1	-6.1
1963	0.6	15.7	-15.1
1964	-5.8	6.6	-12.3
1965	0.8	18.7	-17.9
1966	-2.6	11.2	-13.8
1967	-17.2	-2.0	-15.2
1968	-8.4	19.7	-28.1
1969	12.5	31.8	-19.3
1970	-16.4	-14.0	-2.5
1971	-23.6	-10.2	-13.4
1972	-17.6	10.1	-27.7
1973	-4.4	25.9	-30.3
1974	-9.9	18.1	-28.0
1975	-48.9	-31.9	-17.0
1976	-37.6	-17.6	-20.0
1977	-30.1	14.8	-44.9
1978	-16.4	31.7	-48.1
1979	-9.0	33.8	-42.7
1980	-35.1	17.9	-53.1
1981	-31.5	11.6	-43.1
1982	-83.8	-75.1	-8.7
1983	-90.0	-32.2	-57.7
1984	-65.7	-33.4	-32.3
1985	-86.3	-71.7	-14.6
1986	-98.8	-70.2	-28.6
1987	-91.1	14.4	-105.5
1988	-64.8	4.2	-69.0
1989	-59.2	-39.9	-19.3

SOURCES: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis, and W. Michael Cox of the Federal Reserve Bank of Dallas.

NOTE: Deficits are measured on a national income and product accounts basis. Deficits are treated as negative, surpluses as positive.

a. Adjusted for inflation, for changes in the market value of the federal debt, for federal government investment, and for surpluses of state and local governments.

TABLE 4. ESTIMATES OF ADJUSTED FEDERAL DEFICITS, 1950-1989 (As percentages of net national product)

Calendar Year	Federal Deficit	Adjusted Federal Deficit[a]	Difference
1950	3.5	8.7	-5.2
1951	2.1	4.6	-2.5
1952	-1.2	1.2	-2.4
1953	-2.1	-1.5	-0.6
1954	-1.8	-0.3	-1.5
1955	1.2	4.1	-2.9
1956	1.6	4.5	-3.0
1957	0.5	0.1	0.5
1958	-2.5	-0.5	-1.9
1959	-0.2	1.7	-1.9
1960	0.6	-0.9	1.5
1961	-0.8	0.6	-1.4
1962	-0.8	-0.3	-0.5
1963	0.0	1.3	-1.3
1964	-0.5	0.6	-1.2
1965	0.1	1.9	-1.8
1966	-0.3	1.1	-1.3
1967	-1.8	-0.2	-1.6
1968	-0.7	1.7	-2.5
1969	1.0	2.4	-1.5
1970	-1.3	-1.1	-0.2
1971	-2.2	-0.9	-1.2
1972	-1.5	0.9	-2.4
1973	-0.4	2.6	-3.1
1974	-0.9	1.6	-2.4
1975	-4.8	-3.2	-1.7
1976	-3.3	-1.6	-1.8
1977	-2.6	1.3	-3.8
1978	-1.5	2.8	-4.3
1979	-0.7	2.7	-3.4
1980	-2.5	1.3	-3.8
1981	-2.4	0.9	-3.2
1982	-5.2	-4.7	-0.5
1983	-5.8	-2.1	-3.8
1984	-5.1	-2.6	-2.5
1985	-5.5	-4.6	-0.9
1986	-5.5	-3.9	-1.6
1987	-4.0	0.6	-4.6
1988	-3.3	0.2	-3.6
1989	-3.2	-2.2	-1.0

SOURCES: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis, and W. Michael Cox of the Federal Reserve Bank of Dallas.

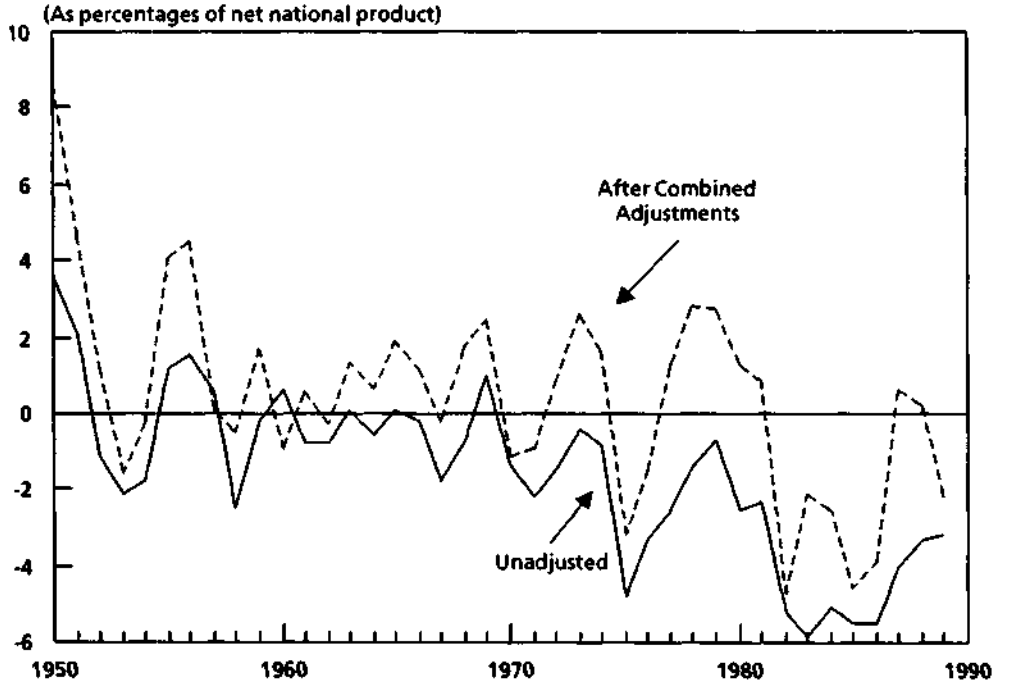
NOTE: Deficits are measured on a national income and product accounts basis. Deficits are treated as negative, surpluses as positive.

a. Adjusted for inflation, for changes in the market value of the federal debt, for federal government investment, and for surpluses of state and local governments.

Adjusted Federal Deficits and National Saving

In rough terms, the four adjustments to the federal deficits discussed in this chapter offset nearly $90 billion of the average federal deficit in the 1980s, and even produced adjusted federal surpluses as recently as 1987 and 1988. Do these large offsets imply that the national saving rate is higher than it appears, and that the federal deficit is thus not really much of a problem?

Figure 8.
Federal Deficits: Before and After Combined Adjustments, 1950-1989



SOURCE: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis.

NOTES: The combined adjustments are for inflation, changes in the market value of federal debt, federal investment, and state and local surplus.

Deficits are measured on a national income and product accounts basis, in terms of calendar years. Deficits are treated as negative, surpluses as positive.

TABLE 5. ADJUSTMENTS TO FEDERAL DEFICITS, 1950-1989 (In billions of dollars)

Calendar Year	Inflation	Changes in Market Value of Federal Debt	Federal Investment	State and Local Surplus
1950	11.4	3.5	0.1	-1.2
1951	3.5	3.5	1.0	-0.4
1952	5.1	0.2	2.5	-0.1
1953	0.7	-1.5	2.5	0.2
1954	5.3	-0.8	1.8	-1.1
1955	7.0	4.1	0.8	-1.3
1956	7.5	4.8	0.1	-0.9
1957	5.3	-5.7	-0.2	-1.4
1958	4.3	6.2	-0.1	-2.4
1959	4.5	4.5	0.2	-0.5
1960	1.7	-9.8	0.8	0.0
1961	4.1	1.9	1.0	-0.3
1962	4.5	-2.7	0.6	0.5
1963	2.9	2.5	1.2	0.5
1964	4.5	-0.3	1.8	1.0
1965	6.2	3.4	2.2	0.0
1966	8.2	-1.3	2.2	0.5
1967	7.2	4.2	1.4	-1.0
1968	12.0	7.4	0.7	0.1
1969	12.2	-0.7	0.0	1.5
1970	11.2	-11.0	-0.2	1.9
1971	13.7	-3.8	0.0	2.5
1972	11.7	1.3	-0.1	13.5
1973	20.7	3.9	0.0	13.5
1974	26.5	-0.8	-0.2	7.2
1975	22.4	-2.6	-0.1	4.4
1976	22.5	-9.4	0.2	15.2
1977	28.0	11.6	2.1	26.9
1978	37.7	16.1	3.4	28.9
1979	41.2	6.1	2.0	27.6
1980	52.4	11.1	2.4	26.8
1981	46.9	3.8	2.5	34.1
1982	34.2	-55.6	1.5	35.1
1983	34.2	28.9	2.4	47.5
1984	34.7	-16.7	0.8	64.6
1985	35.0	-71.9	5.0	65.2
1986	46.6	-50.0	0.4	62.8
1987	50.0	81.0	4.5	51.3
1988	75.2	30.4	-0.1	49.7
1989	76.2	-75.2	2.8	45.0

SOURCES: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis, and W. Michael Cox of the Federal Reserve Bank of Dallas.

NOTES: Federal investment is defined as net investment in federal government fixed nonresidential capital, excluding military installations. It does not include investments in human capital or in intangibles, such as research and development.

Deficits are measured on a national income and product accounts basis. Deficits are treated as negative, surpluses as positive.

These adjustments have little significance for the level of national saving. For the most part, they merely shift saving or wealth from one sector of the economy to another. With the exception of the fraction of the federal debt held by foreigners, the inflation adjustment simply shifts measured saving to the federal sector from the nonfederal sectors (households, businesses, states, and local governments). The adjustment for changes in the market value of the federal debt represents a transfer of wealth between bondholders and the federal government; it does not affect saving as a measure of current income that is not consumed, and therefore available for investment. The adjustment for net federal investment is an exception to this generalization since it reclassifies some spending as "investment," rather than simply "government spending." But net federal investment, other than for military purposes, was quite small in the most recent decade. Finally, adding the federal deficit and the surpluses of state and local governments merely combines two sectors.

Table 6 illustrates with numbers how much the various adjustments have shifted saving among sectors, using 1989 as an example. First, the inflation adjustment shifted an estimated $76 billion of saving from the nonfederal sectors to the federal sector. Since $15 billion of this reduction in the federal deficit came from foreigners, whose saving is not part of U.S. national saving, the inflation adjustment raised U.S. "adjusted" national saving by $15 billion. Second, in contrast to the inflation adjustment, which always shifts saving to the federal sector, the adjustment for capital gains or losses caused by changes in the market value of outstanding federal debt sometimes shifts saving out of the federal sector. This, in fact, was the case in 1989, and by chance the capital loss incurred by the federal government almost exactly offset the effect of adjusting the federal deficit for inflation. Third, the adjustment for federal net physical investment (excluding military investment) reduced the federal deficit somewhat, and raised national saving by the same small amount. Finally, the adjustment for state and local government surpluses produced an overall government deficit that was about $45 billion less than the federal deficit by itself, but this mere consolidation of government accounts had no effect on the level of national saving.

How Are Adjusted Federal Deficits Likely to Behave in the Future?

With or without the adjustments discussed in this chapter, federal deficits have contributed to the decline in national saving in the 1980s, whether measured in dollars or as percentages of net private saving and net national product. Whether this will continue to be true in the future depends on the future size of these adjustments and on the future size of unadjusted federal deficits.

TABLE 6. NET NATIONAL SAVING AND ITS COMPONENTS IN 1989, WITH FOUR TYPES OF ADJUSTMENTS (In billions of dollars)

	Net National Saving	Net Nonfederal Domestic Saving	Net Federal Saving
Adjustment for Inflation			
Unadjusted Saving	149	297	-150
Adjustment	+15	-61[a]	+76
Adjusted Saving	164	236	-74
Adjustment for Changes in the Market Value of the Federal Debt			
Unadjusted Saving	149	297	-150
Adjustment	-15	+60[b]	-75
Adjusted Saving	134	357	-225
Adjustment for Net Federal Investment			
Unadjusted Saving	149	297	-150
Adjustment	+3	-0	+3
Adjusted Saving	152	297	-147
Adjustment for State and Local Surpluses			
Unadjusted Saving	149	297	-150
Adjustment	+0	-45	+45
Adjusted Saving	149	252	-105

SOURCES: Congressional Budget Office, based on data from Department of Commerce, Bureau of Economic Analysis, and W. Michael Cox of the Federal Reserve Bank of Dallas.

NOTE: In each panel, net national saving equals the sum of net nonfederal domestic saving plus net federal saving. Figures in the first column are the sum of those in the second and third columns. The numbers include preliminary estimates for the fourth quarter of 1989.

a. Excludes the inflation-related decline in the real value of federal debt held by foreigners, which amounted to roughly $15 billion in 1989, reflecting the fact that foreigners hold about one-fifth of the debt.

b. Excludes the interest-rate-related decline in the market value of federal debt held by foreigners, which amounted to about $13 billion in 1989. The estimate of the total capital gains or losses on privately held gross federal debt was provided by W. Michael Cox, Vice President and Economic Advisor at the Federal Reserve Bank of Dallas. The methodology and historical data are presented in W. Michael Cox and Cara S. Lown, "The Capital Gains and Losses on U.S. Government Debt: 1942-1987," *Review of Economics and Statistics* (February 1989), pp. 1-14.

The offsets to the federal deficit are unlikely to grow rapidly during the 1990s. The adjustments for changes in the market value of federal debt and for federal net investment are likely to remain small, on average. The adjustment for inflation is likely to grow somewhat, although not in relation to the size of the economy (assuming that there is no substantial increase in inflation rates). Of course, if inflation is substantially higher than is currently expected, the adjustment for inflation will increase accordingly. The adjustment for state and local government surpluses will probably be dominated by a gradual growth in pension fund reserves. Over the longer run, however, pension funds may grow more slowly because of the same demographic trends that will affect federal Social Security trust funds early in the next century.

No matter how large these adjustments may be in the future, most of them will not alter the level of national saving as it is currently measured. Any increase in national saving must come either from the federal government or from the rest of the economy. Most economists agree that one of the most effective ways for the federal government to raise national saving is to reduce federal deficits, as conventionally measured.

CHAPTER IV

ADJUSTMENTS FOR COSTS OF FEDERAL LOANS, LOAN GUARANTEES, AND DEPOSIT INSURANCE

The federal government's accounting system treats federal loan programs and federal deposit insurance in a way that does not adequately reflect the amount and the timing of their effects on national saving. In the case of direct federal loans and loan guarantees, the budget accounts ignore their "subsidy value" to participants, even though this value is the vehicle through which the programs' economic effects are transmitted. In the case of deposit insurance, the accounts focus on cash outlays to liquidate deposit-insurance liabilities, rather than reflecting the federal government's liabilities as they accrue.

This chapter describes the budgetary issues associated with federal direct loans and loan guarantees, and with deposit insurance. The chapter differs from earlier discussions in this paper in offering few estimates of the way the budget would look under alternative treatments. While these adjustments can in principle be estimated, the necessary data are not yet available. In any event, changes in budgetary treatment would probably not alter the estimates of national saving.

LOAN AND LOAN GUARANTEE PROGRAMS

Through loans and loan guarantees, the federal government helps particular groups obtain credit on more favorable terms than they could get in the private sector. The assistance may involve either making credit available to those who could not otherwise obtain it, or lending at below-market interest rates. The subsidy cost to the government consists mainly of the interest rate subsidy, loan defaults, and administrative expenses, net of fees. In principle, the dollar value of this subsidy--the "subsidy value" of a loan or loan guarantee--can be estimated. This subsidy, as distinct from the amount of credit that is extended through the program, is what gives these loan programs their economic impact.

The Current Budgetary Treatment of Federal Credit Activity

Neither the unified budget nor the NIPA budget focuses on the subsidy element in their treatment of federal credit programs. These measures entirely ignore some aspects of these programs, and even when they do not, the

quantitative view that they give of the resources committed by current policies is in general quite distorted.

The unified budget includes cash payments and collections by the government for direct and guaranteed loans, while the NIPA budget excludes these cash flows. Lending by private lending institutions, for loans guaranteed by the federal government, are excluded from both the unified budget and the NIPA budget. Neither the unified nor the NIPA accounts identify the subsidies for federal credit programs. The aspects of federal credit activity that are included in the present unified and NIPA budgets and those that are excluded are shown in the top panel of Table 7.

As discussed below, a better measure of the subsidy element in federal credit programs would be the subsidy in current and future years to which the government is committed by decisions made in the budget year. This amount may differ substantially from the cash flows that appear in the unified budget. For example, in a year when there are substantial new

TABLE 7. HOW PRESENT AND PROPOSED BUDGET MEASURES TREAT FEDERAL CREDIT PROGRAMS

	Unified Budget		NIPA Budget	
	Direct Loans	Loan Guarantees	Direct Loans	Loan Guarantees
Present Measures				
Government Disbursements Net of Collections	Include	Include	Exclude	Exclude
Private Lending Net of Repayment for Government Loan Guarantees	Exclude	Exclude	Exclude	Exclude
Proposed Measures				
Imputed Subsidies[a]	Include	Include	Include	Include
Unsubsidized Credit Flow	Exclude	Exclude	Exclude	Exclude

SOURCE: Congressional Budget Office.

a. Imputed subsidies apply to loans disbursed in the current period.

federal lending and/or loan guarantees, the government is committing significant amounts of new resources to loan subsidies. If by chance, however, strong repayments of loans occur in that year or guarantee fees grow rapidly, the budget's figures on lending net of repayments may be quite small, and substantially understate the subsidy that is in fact committed.

Proposed Changes in the Treatment of Credit

The Congressional Budget Office and others have proposed reforming the budgetary treatment of federal credit programs by including the imputed subsidies from all federal credit programs in budget outlays, and excluding direct lending and repayments.[1] Outlays would include an estimate of the discounted present value of the subsidies in new direct federal loans and new loan guarantees over the lifetimes of the loans. "Unsubsidized credit flows," the difference between the annual cash flows and the subsidy, would be excluded from budget outlays and the deficit. The unsubsidized flows of federal lending would be shown "below the line," that is, in the section of the budget showing how the deficit is financed. This proposal would treat the NIPA and unified budgets essentially the same way (see the bottom panel of Table 7).

One of the major implications of the CBO proposal pertains to the time when the subsidy costs of making a loan would be registered. A loan may have cost implications many years in the future, but under the current treatment none of the future cost is registered in the year in which the loan is made. The CBO proposal would change this so that the full stream of expected subsidies would be reflected in the budget year in which the decision to incur these costs is made. The rationale is that only the subsidy reflects an exhaustive use of resources by the government.

Unsubsidized credit flows, by contrast, would be excluded from expenditures and the deficit because they have little effect on aggregate resource use, and do not cost taxpayers anything; the government is merely acting as a financial intermediary between borrowers and lenders.

The subsidies contained in federal credit programs probably work to reduce national saving. The fact that beneficiaries of these programs are borrowing with the government's help indicates that they may have a high pro-

---

1. See Congressional Budget Office, *Credit Reform: Comparable Budget Costs for Cash and Credit*, (December 1989); and James L. Blum, Assistant Director, Congressional Budget Office, Statement before the Committee on the Budget, United States Senate, March 4, 1987. The General Accounting Office has made a similar proposal, in *Budget Issues: Budgetary Treatment of Federal Credit Programs* (April 1989). The Reagan and Bush Administrations have supported a similar proposal. See *Budget of the United States Government Fiscal Year 1990*, part 6.

pensity to spend rather than save extra income, such as the extra resources that accrue to them in the form of credit subsidies.[2] The levels of consumption and saving registered in the national accounts would reflect this reduced saving.

By contrast, the unsubsidized credit flows associated with federal credit programs probably have little or no aggregate economic effect. They are equivalent to credit that might have been extended by private lenders with no assistance from the federal government. Like private lending, these flows have no independent effect on aggregate resource use; the federal activity merely represents financial intermediation between savers and borrowers.

The proposal to include the subsidy costs of federal loan activities in the budget raises two kinds of issues: how can these subsidy costs be estimated, and what would incorporating them in measures of the federal deficit imply for measured national saving?[3]

Estimating Subsidies

Some analysts have proposed a "market solution" as a way of estimating subsidies. After making a subsidized loan, the government would immediately sell it in the private financial market. The difference between the selling price and the par value of the loan would provide an objective, market-determined estimate of the subsidy. Critics of the market approach point out that markets for some kinds of subsidized loans do not exist, and even if created would not function efficiently. They argue that the very justification for the federal involvement is that private markets are not working well in the particular area in question.

An alternative would be to have a government agency or government-sponsored agency estimate the present value of the loan subsidies, with the

---

2. During any single year, beneficiaries may be able to spend only a fraction of the imputed subsidy that would be recorded in the federal budget for federal credit programs in that year under the approach recommended by CBO. However, in the aggregate, beneficiaries would also benefit during any given year from subsidies that were recorded in the budget in previous years. This is because under CBO's proposal subsidies would have been recorded in the budget for one year even though their benefits would extend over several years. As a result, the aggregate annual increase in consumption stemming from federal credit programs may represent a high proportion of the subsidy recorded in the budget in any given year.

3. For more detailed discussion, see Congressional Budget Office, *Credit Reform: Comparable Budget Costs for Cash and Credit* (December 1989); Barry P. Bosworth, Andrew S. Carron, and Elisabeth H. Rhyne, *The Economics of Federal Credit Programs* (Washington, D.C.: Brookings Institution, 1987); and Marvin Phaup, "Federal Credit Reform: The Next Step," prepared for the Allied Social Science Association Meeting, New York, December 29, 1988.

objective of developing unbiased estimates--meaning estimates that would not be systematically too high or too low.

How a Revised Budgetary Treatment Would Affect Measured National Saving

According to recent estimates by the Office of Management and Budget, the discounted present value of the subsidy on new federal loans and loan guarantees amounts to roughly $11.3 billion in the 1991 budget--about $1.8 billion for direct lending programs and $9.4 billion for loan guarantees.[4] Including these subsidy costs in the budget would increase the NIPA deficit.

The fact that credit reform would increase the NIPA deficit does not mean, however, that measured national saving would fall: as with the budgetary adjustments that were considered in Chapter III, adopting a revised budgetary treatment of federal credit programs would probably leave measured national saving unchanged, merely shifting the sector of the national accounts in which given amounts of saving are recorded. Moreover, like those other adjustments, revised budgetary treatment would probably not affect the recent trend toward higher federal deficits and lower national saving, and consequently it would be unlikely to alter the conventional conclusion that the federal deficit has helped reduce national saving.

The reason why measured national saving would probably be unchanged if the subsidy costs of credit were reflected in the budget is that there would be offsetting changes in saving in other sectors of the economy, leaving overall national saving unchanged. Although the arbiters of national accounting principles have not settled the matter, the subsidies added to the NIPA federal deficit would probably be treated by NIPA as new income to the private-sector beneficiaries of these programs. While measured income in the private sector would increase, measured consumption would not; hence saving, which is the difference between income and consumption, would increase.

Unlike the adjustments to the federal deficit discussed earlier in this paper, revised treatment of federal credit programs would probably raise deficits in the 1980s relative to those of earlier years. While no data are yet available showing how much credit subsidies added to the federal deficit in those years, it seems likely that they added more and more over time. Federal credit guarantee programs have grown rapidly during the past 15 years, and presumably their subsidy value has grown correspondingly.

---

4. See Office of Management and Budget, *Budget of the United States Government Fiscal Year 1991*, pp. 245-246.

DEPOSIT INSURANCE

The federal government's deposit insurance programs pose budgetary problems in some respects similar to those involved in federal credit guarantees. The government insures many deposits at commercial banks and thrift institutions against loss to the depositor. This insurance is, in effect, a guarantee of depositors' loans to these institutions, and it bears obvious similarities to the direct federal loan guarantees that have just been discussed.[5] As with those programs, the government provides a guarantee to depositors in the insured institution, and the cost does not appear in any budgetary account at the time the obligations under the insurance program arise. The obligations occur when insured depository institutions incur losses that force them to default on their deposit liabilities. At present, budgetary recognition of loss by government is delayed until after an institution has been declared insolvent and a cash payment has been made to liquidate the government's deposit insurance obligation.

The large deposit insurance payments of recent years have dramatized the inadequacy of the current budgetary treatment of those programs. Since private saving and other economic behavior are likely to be affected by deposit insurance at the time insurance claims accrue rather than when they are paid, the failure of the budgetary accounts to record deposit insurance liabilities at the time of accrual conceals a potentially significant channel through which a federal program affects the economy, including national saving in recent decades.

Economists argue that the federal cash outlays involved in making good on deposit insurance should not be included in the budget deficit for purposes of analyzing its economic effects--including the effects on private saving. The reasoning is that the effects of these outlays on saving, investment, and interest rates have already occurred.[6] These outlays will not lead to higher personal consumption, because they will most likely be kept on deposit in financial institutions; they simply replace or validate savings deposits at the insolvent institutions. Moreover, the borrowing undertaken by the government to finance these outlays has no significant effect on credit markets, because the proceeds are loaned out by the financial institutions in which they are deposited and therefore are returned to the stream of funds available

5. There are also important differences between federal loan subsidies and federal deposit insurance. In the case of the former, it is feasible to calculate the present value of the subsidies over the course of specific loans. The subsidy is limited. In the case of deposit insurance, the subsidies are open ended and depend on the actual operating results of financial institutions and the operating rules and procedures of the regulators.

6. For a detailed analysis of the economic effects of the federal bailout of the thrift industry, see G. Thomas Woodward, "FSLIC, The Budget, and the Economy," CRS Report for Congress, Congressional Research Service, December 28, 1988.

for borrowing by the private sector. Because these budget outlays are believed not to affect the income or wealth of the private sector, they are excluded from the national income and products accounts, and from the NIPA budget.

Any effect the deposit insurance might have on interest rates or on saving and investment would have occurred earlier, at the time when the saving institutions became insolvent. At that time, the deposit insurance protected some of the wealth of the depositors; without that protection their wealth would have been reduced. As a result, their saving out of current income may have been somewhat lower than would have been the case without the deposit insurance.

The discrepancy between the time the unsolvencies are experienced and the time the implications are felt in the unified budget could be reduced in the future by including probable increases in the government's obligations under deposit insurance as they accrue, rather than as they are paid out. The budget cost during the accounting period would be the estimated change in the value of outstanding deposit insurance net liabilities.[7]

While the methodology for estimating the subsidy costs in federal loan and loan guarantee programs has received considerable attention during the last decade, the same cannot be said for estimating the government's liabilities under the deposit insurance programs. Analysts have only recently begun exploring the latter problem. One estimate, by Professor Edward Kane of Ohio State University, suggests that the annual cost of deposit insurance for the thrift industry in 1987 was on the order of $35 billion. Estimates of this kind are only illustrative. For one thing, they depend on the criteria used by the regulating authority in closing troubled institutions, and how quickly it acts in dealing with them.

Implications for Measured National Saving

As with the estimated subsidies under federal credit programs that were discussed earlier in this chapter, incorporating the estimated accrual of federal liability for deposit insurance in the NIPA federal budget would not affect measured national saving. The reason is that the increase in the NIPA deficit to reflect expected liability for deposit insurance would give rise to offsetting increases in nonfederal saving. Together, the increased deficit and the increased nonfederal saving would offset each other and leave national

7. For a recent proposal on accounting for the costs of federal insurance programs, see Edward J. Kane, "A Conceptual Framework for Measuring the Economic Cost of Deposit-Insurance Guarantees at U.S. Thrift Institutions," preliminary draft, Ohio State University, December 1989.

saving unchanged. The conventional conclusions that are drawn about the decline of national saving in the 1980s would remain the same.

OVERALL ASSESSMENT: EFFECTS ON FEDERAL DEFICITS

This chapter cannot offer a quantitative estimate of the effects of these federal programs on federal deficits, but it can make a qualitative assessment. Current accounting practices substantially understated the subsidies embodied in federal loan guarantees during the 1980s, although the extent of the understatement is uncertain. With respect to deposit insurance, the magnitudes of the accrued liabilities during the 1980s appear to have been substantial and federal deficits during the 1980s would have been significantly higher if the payments had been included as part of federal outlays as the obligations arose. But the observed time series on national saving would probably be unaffected by these modifications in budgetary accounting.

CHAPTER V

TRUST FUND SURPLUSES AND THE FEDERAL BUDGET

The federal budget contains more than 150 trust funds. They vary greatly in size and purpose, the largest and best known being the Social Security trust funds. Some critics of federal budgeting argue that the trust fund surpluses conceal the true size of the federal deficit--and, consequently, defeat the purposes of the Balanced Budget Act (Gramm-Rudman-Hollings), which is intended to reduce the federal drain on national saving. Some also argue that using trust fund surpluses to purchase federal debt amounts to looting the trust funds in order to finance government spending. As with most of the adjustments to the deficit discussed elsewhere in this study, the official estimate of national saving is unaffected by whether the Social Security and other trust funds are included or excluded from the federal deficit. Excluding them from the federal deficit simply shifts saving between federal accounts.

TRUST FUNDS IN THE FEDERAL BUDGET

Of the more than 150 trust funds, the largest include major benefit programs (Social Security, Medicare, and others, including the government's own employee retirement programs) and several infrastructure programs (notably the Highway and the Airport and Airway trust funds). In 1989, the trust funds had a combined surplus of $124 billion, of which $52 billion stemmed from the Social Security trust funds (see Table 8).

Many people believe that federal trust funds are like private trust funds, but this is a misconception. Trust funds in the private sector usually impose restrictions on the powers of the trustees. The Congress has the power to change the terms of federal trust fund programs--for example, by altering benefit formulas, eligibility rules, or financing arrangements. Trustees of private trusts usually do not have such powers.

A federal trust fund serves primarily as a bookkeeping device, set up to record earmarked income and spending. Each trust fund collects earmarked income from specific sources that it spends for specified purposes. But trust fund balances also reflect income from another source, namely intrabudgetary transfers from elsewhere in the budget. Consequently, the accounting

TABLE 8. TRUST FUND SURPLUSES, 1981-1989 (In billions of dollars)

Account	1981	1982	1983	1984	1985	1986	1987	1988	1989
Social Security	-5	-8	c	c	9	17	20	39	52
Medicare	3	5	6	6	4	6	9	15	22
Military Retirement	--	--	--	--	12	12	14	14	14
Civilian Retirement[a]	11	12	14	15	18	19	18	19	20
Unemployment	-1	-4	-1	4	5	4	7	8	7
Highway and Airport	-2	-1	1	4	2	1	2	2	4
Other[b]	1	2	2	5	5	3	3	1	4
Total Trust Fund Surplus	7	6	23	33	54	62	73	98	124
Federal Funds Deficit	-86	-134	-231	-218	-266	-283	-222	-253	-276
Overall Deficit	-79	-128	-208	-185	-212	-221	-150	-155	-152

SOURCE: Congressional Budget Office.

a. Includes Civil Service Retirement, Foreign Service Retirement, and several smaller funds.

b. Includes primarily Railroad Retirement, Employees' Health Insurance and Life Insurance, and Hazardous Substance Superfund.

c. Less than $500 million.

distinction between the trust funds and the so-called federal funds is not as clear as it may appear--a point usually overlooked by those who argue that the actual size of the federal deficit is hidden by the trust fund surpluses.

DO TRUST FUNDS CONCEAL THE TRUE SIZE OF THE FEDERAL DEFICIT?

An important consideration in evaluating the view that trust funds hide the true size of the federal deficit is that a lot of the remaining deficit reflects intrabudgetary transfers of income to the trust funds. In fact, all of the combined trust fund surplus and most of the deficit in federal funds is the result of intrabudgetary transfers. In 1989, these transfers from the federal funds to the trust funds totaled $148 billion consisting mostly of federal government contributions to the retirement programs of federal employees ($60 billion), interest payments on the federal debt held by trust funds ($52 billion), and a large payment ($32 billion) to the Medicare trust fund primarily to fulfill an intended subsidy to the program (Supplementary Medical Insurance, or Medicare Part B) that reimburses physicians' charges. Without these transfers, only the Social Security (OASDI) trust funds would have exhibited significant surpluses in 1989, and the combined trust fund balance

TABLE 9. TRANSFERS FROM THE FEDERAL GOVERNMENT'S GENERAL FUND TO MAJOR TRUST FUNDS, 1980-1989 (In billions of dollars)

Type of Transfer	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Total 1980-1989
Interest Paid to Trust Funds											
Social Security	2	2	2	2	3	4	4	5	7	11	44
Other trust funds	10	12	14	15	17	22	27	30	34	41	221
Subtotal	12	14	16	17	20	26	31	35	42	52	265
Federal Government Contributions to Retirement Funds											
Social Security	1	1	2	2	2	3	3	3	4	5	26
Other trust funds[a]	16	18	20	22	22	50	52	54	55	56	365
Subtotal	17	20	22	23	24	53	55	57	59	60	391
General Fund Payments to Medicare Trust Funds[b]	-8	10	14	19	18	19	18	21	26	32	186
All Other Transfers (Net)											
Social Security	1	1	1	21	8	6	8	5	5	5	61
Other trust funds	8	6	7	16	4	2	3	-1	-1	-1	44
Subtotal	8	7	8	37	13	9	12	4	3	4	106
Total	45	50	60	97	76	107	116	117	131	148	947

SOURCE: Congressional Budget Office, based on data from the Office of Management and Budget.

a. Includes lump-sum amortization payments to the Civil Service and Military Retirement trust funds.

b. Primarily the general fund contribution to Supplementary Medical Insurance (Medicare Part B).

would have been in deficit by $24 billion (see Table 9).[1] But without these transfers the federal funds deficit would have been much smaller--$128 billion instead of $276 billion. Thus, the notion that official budget totals hide a large trust fund surplus and a very large federal funds deficit is misleading.

Moreover, it is difficult to make the case that keeping the Social Security trust funds in the budget defeats the purpose of the Balanced Budget Act passed in 1985. Although the act intentionally counts the trust fund bal-

1. In 1983, mostly as a result of legislation to improve the financial position of Social Security, the federal government made a special lump-sum transfer of $21 billion from the federal funds. During the 1983-1988 period, lump-sum transfers to Social Security totaled nearly $60 billion. These special intrabudgetary transfers further bring into question the accounting distinction between the Social Security trust fund and the rest of the budget.

ances toward the deficit target, it also requires the Social Security surplus to be shown separately, precisely to highlight its importance to the overall deficit. Both the Congressional Budget Office and the Office of Management and Budget began explicitly showing the Social Security surplus separately from the non-Social Security deficit in early 1986, and they have continued to do so. The budget resolutions adopted by the Congress since 1986 have clearly indicated the size of the expected Social Security surpluses and the projected deficits. If policymakers have chosen not to reduce deficits by larger amounts during this period, it is not because the deficits have been hidden from view.

A SIDE ISSUE: TRUST FUNDS AND THE FEDERAL DEBT

Closely related to the question of trust funds' inclusion in the deficit is their inclusion in measures of the federal debt. Most economists who analyze the federal debt define it as debt held by the public, which measures the amount the government has borrowed in credit markets. Each year, the debt held by the public grows by about the amount of the overall deficit.

In contrast, the debt figure that is actually targeted by the Congress--debt subject to statutory limit--includes the holdings of federal government trust funds and similar funds. At present, these holdings constitute roughly one-fourth of the debt subject to limit. Each year, the debt subject to limit grows by approximately the amount of the federal funds deficit--that is, the deficit in the non-trust funds portion of the budget.

Some observers maintain that the growth in publicly held federal debt understates the true growth in federal debt obligations, and thus does not provide a business accounting view of the governments' financial position. For the purpose of making fiscal policy decisions, however, the effect of the federal deficit on national saving is more relevant than an accounting measure of the federal government's financial position.[2] The growth in federal debt held by trust funds does not represent an increase in the demand for private-sector saving, and thus does not adversely affect national saving or business investment. Consequently, for the purpose of formulating fiscal policy, the growth in publicly held debt is more relevant than the growth in federal debt subject to statutory limit.[3]

---

2. This point was stressed in *Report of the President'sCommission on Budget Concepts* (October 1967).

3. "Publicly held" debt includes the part held by the Federal Reserve System. The Federal Reserve naturally determines how much of the total it should retain by its monetary policy decisions.

ARE THE TRUST FUNDS BEING MISUSED?

The practice of investing trust fund surpluses, especially those of the Social Security system, in federal securities is sometimes held to be a misuse of the surpluses on the grounds that federal securities do not finance the productive business investment that is needed to provide future benefit payments. But investing the surpluses in federal securities is as productive as investing them in any other type of asset. Although the federal securities in which the reserves are invested do not directly finance productive business investment, they free other savings flows for that purpose. If trust fund surpluses were not used, other sources of savings would be called upon to finance the federal deficit, and there would be less left over to expand the productive capacity of the economy, though this conclusion rests on an admittedly arguable assumption about what the rest of fiscal policy would have been in the absence of surpluses in the trust funds.

Lending Social Security reserves to the Treasury does not mean taking them away from the purpose for which they were earmarked. Every dollar of Social Security contributions becomes budget authority for the Social Security trust funds. The Treasury draws on the Social Security trust funds because it always uses whatever cash is on hand to make payments before borrowing, whether the cash comes from Social Security contributions, from gasoline taxes, or from oil lease receipts. There is no rational alternative to this procedure: after all, why should the Treasury borrow funds when it already has them? The only way to avoid devoting earmarked receipts to other purposes would be to have no need to spend the excess funds. To do so would require not only balancing the budget, but running an overall surplus. In other words, what some consider to be ill-advised uses of Social Security reserves will end when the government contributes to national saving rather than drawing on it.

TRUST FUNDS AND DEFICIT TARGETS

The Balanced Budget Act currently includes all the trust fund balances in its calculation of the deficit target. This approach makes economic sense, because the overall deficit is the best measure of the federal drain on national saving, and controlling this drain is the main objective of the Balanced Budget Act.[4] Nevertheless, some people believe that the trust funds in general, and those of Social Security in particular, should not be counted toward the Balanced Budget Act targets. Excluding the trust funds from the targets,

4. According to the *Report of the President's Commission on Budget Concepts* (1967) a summary measure of the federal deficit should provide "a meaningful and significant measurement of the economic impact of the budget" (p.13).

they hold, would more clearly reveal the true size of the federal deficit, and would help to ensure that the trust fund surpluses were adding to national saving rather than just being used to offset deficits.

This argument draws some support from the fact that the rapid growth of the trust funds in recent years has reduced the amount of deficit reduction required to meet the targets of the Balanced Budget Act. If these offsetting trust fund surpluses were not counted toward meeting the targets, much more deficit reduction would be needed to satisfy the act, which calls for a balanced overall budget by 1993.

True, larger deficit reductions and thus more national saving might be achieved if the Balanced Budget Act targets were redefined so as to balance the budget excluding the trust funds. But that deficit measure would not serve one of the major purposes of a deficit measure--to provide a summary indication of the budget's impact on the economy. In particular, the deficit measure would not accurately reflect the federal drain on national saving, since that drain is reduced by the amount of the trust fund surpluses. The goal of reducing the federal deficit to achieve more national saving can be pursued without removing the trust funds from the calculation of the deficit.

Moreover, balancing the federal funds portion of the budget would go far beyond the intended goal of the Balanced Budget Act. It would make the federal government a very large contributor to national saving, with the contribution equal to the size of the combined trust fund surpluses. Federal surpluses of this magnitude are unprecedented, and raise the question of what the appropriate saving target for the federal sector should be.[5] Most observers would probably agree that a balance in the overall budget is a reasonable target for the near future. Once that is achieved, the time will have arrived for a discussion of whether the federal government should also contribute to national saving by running a surplus in the overall budget.

5. Some analysts argue that the appropriate saving target should disregard the Social Security trust fund surpluses, since these surpluses represent *additional* saving needed by the nation to pay future Social Security benefits without burdening future generations. For example, see Henry J. Aaron, Barry P. Bosworth, and Gary Burtless, *Can America Afford to Grow Old?* (Washington, D.C.: Brookings Institution, 1989).

CHAPTER VI

OTHER CRITIQUES OF THE CONVENTIONAL DEFICIT MEASURE

Some analysts have gone farther in their criticism of the federal deficit as a measure of the government's effect on national saving, arguing that what is really needed is a measure that adjusts various types of budget outlays and receipts for their particular effects on private-sector saving. Still others stress the need for a radically different way of measuring deficits on the ground that the current measures are meaningless.[1]

ADJUSTING ALL RATHER THAN JUST PART OF THE FEDERAL DEFICIT

Some analysts believe that the effect of the federal deficit on national saving cannot be measured satisfactorily unless the effects on private saving of different types of budget outlays and receipts are taken into account. Some types of federal outlays may not reduce national saving dollar for dollar, because they induce an offsetting change in private saving. Some types of federal receipts may not raise national saving dollar for dollar, for the same reason. Other types of outlays and receipts, however, may have nearly a dollar-for-dollar effect on national saving, because they induce little, if any, offsetting change in private saving.

The most direct way to construct a deficit measure that reflects the particular effects of different types of budget outlays and receipts on national saving is to assign a weight to each type or category reflecting the amount by which each dollar of that budget category reduces national saving. The weights may be somewhere between zero and one.[2] A weight close to zero would mean that this component of the deficit has no effect on national sav-

1. For a more detailed and recent analysis of issues raised in this chapter, see G.A. Mackenzie, "Are All Indicators of the Stance of Fiscal Policy Misleading?" *International Monetary Fund Staff Papers*, vol. 36, no. 4 (December 1989), pp.743-770.

2. The early development of a weighted fiscal measure of this type is associated with the work of E. Cary Brown, "Fiscal Policy in the 'Thirties: A Reappraisal," *American Economic Review*, vol. 46 (December 1956), pp. 857-879; and Edward Gramlich, "Measures of the Aggregate Demand Impact of the Federal Budget," in Wilfred Lewis, Jr., ed., *Budget Concepts for Economic Analysis* (Washington, D.C.: Brookings Institution, 1968), pp. 110-127. But the suggestion has been repeated often since their papers were published. These early measures were weighted according to the effects of the budget on aggregate demand, rather than on saving per se.

ing, and so most of it would be excluded from the adjusted deficit measure; a weight close to one would mean that the component changes national saving nearly dollar for dollar, and so most of this budget item would be included in the adjusted deficit measure. For example, the component of interest outlays associated with anticipated inflation would have a weight of nearly zero, reflecting the suggestion discussed earlier that such anticipation adds almost dollar for dollar to private saving, and therefore does not detract from national saving. In other words, this component of the federal deficit is completely offset by additional private saving, and so can be excluded completely from the adjusted federal deficit.

At the other extreme, a transfer payment that accrues primarily to people who save little would be assigned a weight close to one. This relatively large weight indicates that this component of federal spending detracts from national saving on nearly a dollar-for-dollar basis, and so most of it should appear as part of an adjusted federal deficit measure. But a tax receipt that primarily reduces private saving would get a small weight to show that it does not raise national saving by much.

The major problem in deriving a fully weighted measure of the federal deficit is what numerical values to assign to the weights. There is no agreed-upon set of weights for this purpose. Weights used by researchers in the past have been based on statistical estimates derived from large computer-based models of the economy. But different models are likely to give somewhat different estimates of the extent to which various components of the federal deficit affect national saving.

Another problem involves the time horizon over which the saving impacts are measured. Does one want weights that reflect the instantaneous impact of federal activity on private saving, the impact after one year, or the impact after five years? The measures could differ significantly, and there may be no clear basis for choosing among them.

Despite this problem, a fully weighted measure of the federal deficit may be preferable to one that reflects only a handful of adjustments such as the adjusted deficit that was discussed in Chapter III. This would be particularly true during periods when the composition of budget outlays and receipts is changing significantly. During such periods, adjusting the federal deficit only for inflation and market revaluations of the federal debt or for some other separate factor could miss the effects on national saving of changes in the composition of taxes and spending.

DEFICIT MEASURES THAT REFLECT A LONG-TERM AND BROAD PERSPECTIVE

In recent years, the economic analysis of saving and consumption has placed more stress on the rationality of private decisionmakers, and given them longer time horizons; in this regard, some economists have argued that conventional measures of the deficit are too constraining. According to some, the measures may be meaningless or even misleading.

Budget Effects on Different Generations

Analysts who stress a "life cycle model" of private saving suggest that, in order to capture the government's effects on national saving, the budget accounts should focus on the government's expected net transfer of funds to each different age group, or "generation," in each year over a long period extending into the future.[3] These analysts argue that savers of different ages have significantly different propensities to save; what really matters for the sum total of national saving is how government policies shift money among generations.

Moreover, these analysts maintain that the government's accounts should show expected net transfers of funds to different generations in each year for a period into the future because they assume that people forecast their future personal finances, including those that derive from their being taxpayers. For example, a tax cut that provides a gain in after-tax income for families headed by young adults might imply relatively little additional private saving, since those beneficiaries spend most of their income on their households. If, however, the tax cut is expected to give rise to a new tax increase later on because it requires the government to increase its borrowing over a period of years, and if the later tax cut is expected to affect elderly households that will have little income, it may stimulate an offsetting increase in private saving now. The reasoning is that those who expect to have to pay higher taxes later, when they are elderly, may decide to save now to provide for that eventuality.

Analysts of this "life cycle model" school argue that the conventional budget accounts are meaningless. What matters is the saving behavior of those in the private sector who pay and receive the money that goes into and out of different government programs at different times--not whether a given payment from households to government is labeled as, say, a "tax payment" or "government borrowing."

---

3. See Laurence J. Kotlikoff, "Deficit Delusion," *The Public Interest*, vol. 84 (Summer 1986), pp. 53-65. For a more detailed presentation of this view, see Laurence J. Kotlikoff and Alan J. Auerbach, *Dynamic Fiscal Policy* (Cambridge, Mass.: Cambridge University Press, 1987).

This system of accounting could have important consequences for the interpretation of fiscal policy. For instance, according to Kotlikoff, the legislated changes in the Social Security system in 1983 had major implications for current fiscal policy because they made substantial cuts in the future benefits of recipients. In his view, overall fiscal policy during the early years of the Reagan Administration generated a small surplus.[4]

Critics of the "life cycle" approach argue that it is impractical, and that the economic theory on which the approach is based may not be correct. To set up a system of accounts that would measure the effects of the federal government's fiscal policy on the lifetime incomes of generations of different ages would entail obvious difficulties. One would need information on the lifetime incomes of different generations, and on how each major type of tax or outlay affected these incomes. The approach presumes that quantitative differences in the saving pattern of different generations are known with a substantial degree of confidence, but no consensus currently exists on this question.

Accrual Accounting and Actuarial Projections

While the federal budget records actual flows of receipts and outlays of funds as they occur, the crucial factor from the standpoint of economic analysis is when they affect economic behavior. This has prompted some analysts to argue that the budget should be presented on an accrual basis rather than the present cash basis. In accrual accounting, expenditures are reflected when the government's obligation first arises, rather than when the cash is actually paid out. Similarly, budgetary receipts are recorded when the economic activity occurs that generated the taxpayers' obligations, not when taxes are actually received. In addition, some analysts argue that government programs--especially trust fund programs--should be presented on an actuarial basis that projects their financial flows far into the future.

Accrual Accounting. The President's Commission on Budget Concepts, in its report issued in 1967, recommended that "expenditures and receipts be reported on an accrual basis instead of the present cash basis." With respect to receipts, the Commission argued that taxes should be reflected when the tax obligations are incurred by the private sector, rather than when they are actually paid.[5]

The treatment of some federal government accounts in the national income and product accounts (NIPA) is based on accrual accounting. In the NIPA budget, corporate taxes are recorded not when they are paid, but when

4. Laurence J. Kotlikoff, "Deficit Delusion," pp. 64- 65.

5. See *Report of the President's Commission on Budget Concepts* (October 1967), pp. 7-8 and 36-46.

they accrue.[6] In many other respects, however, the Commission's recommendations for accrual accounting have not been carried out in either the NIPA or the unified budget, in part because of the difficulties of amassing the necessary data. In addition, accrued outlays and receipts are by their nature estimates subject to change.

Actuarial Projections for Trust Funds. Another step would be to calculate the "actuarial deficiency or surplus" of certain trust funds, by subtracting the present value of contingent liabilities from the present value of estimated future receipts plus current assets. Every year, the Department of the Treasury reports on the actuarial status of the federal government's annuity programs, including Social Security, civil service retirement, and military retirement. The basic idea involves projecting outlays and receipts for these funds for many years into the future, and discounting these streams of receipts and outlays to the present--recognizing the principle that a dollar received in the future is worth less than a dollar today.

Because of their size and possible importance to economic behavior, the Social Security trust funds have received the most attention. As of September 30, 1989, the Social Security Administration had actuarial liabilities of $16.5 trillion and actuarial assets of $15.6 trillion, leaving roughly $850 billion in actuarial deficiency.[7]

Some economists have made estimates of the actuarial balance of the Social Security retirement system and used them to help explain private saving. They reason that households view this actuarial liability of the government as part of their own private assets when they make their decisions about saving. If so, Social Security causes people to save less than they otherwise would. Other economists have argued that households realize that the Social Security system cannot create wealth of this kind, and that retirement benefits will ultimately involve higher taxation. The empirical testing of these propositions has been inconclusive.[8]

---

6. There are other differences, too, such as in the treatment of federal direct loan programs that are included in the unified budget but not in the NIPA budget. For a detailed explanation of the differences and a reconciliation of the two budget concepts, see Congressional Budget Office, *The Economic and Budget Outlook: Fiscal Years 1991-1995* (January 1990), Appendix D.

7. Treasury Department, *Treasury Bulletin*, Winter Issue (March 1990), p. 113. For a recent discussion of accounting for unfunded annuities of the federal government, see *Budget of the United States Government Fiscal Year 1991*, pp. 220-228.

8. For a review of this literature, see Sheldon Danziger, Robert Haveman, and Robert Plotnick, "How Income Transfers Affect Work, Savings and the Income Distribution," *Journal of Economic Literature*, vol XIX, no. 3 (September 1981), pp. 975-1028.

Government Balance Sheets and Private Saving

Do households consider the balance sheets of the federal government in deciding how much they should save or spend out of current income? Some economists believe that households are "super rational," in the sense that in making decisions about saving they consider comprehensively the assets and liabilities of the federal government. According to this perspective, changes in the net value of government assets, such as minerals, land, and buildings, would affect future tax liabilities and private wealth; and these future outcomes would be taken into consideration by private decisionmakers. For instance, if the government's mineral deposits increased in value, this theory suggests that households would perceive themselves to be wealthier, in part because they might anticipate lower future taxes. The perception that their wealth had increased would cause households to consume a higher proportion of their income and save a lower proportion than otherwise. Similarly, households would factor in the liabilities of the federal government in figuring their own wealth and in making their saving decisions.[9]

It remains to be shown that changes in the value of some of the federal government's assets would significantly affect saving decisions in the private sector. For one thing, the government has many assets that may never be sold. For another, most households may be unaware of the implications of changes in the value of the government's marketable assets, and therefore do not factor them into saving decisions. Finally, some of those who may be aware of the implications are not sufficiently concerned about the distant future to act on them.

Evaluation

These scholarly explorations raise interesting questions for future analysis, but have not yet produced much in the way of concrete proposals for improving the current system of measuring the federal deficit, or for setting up an alternative system of accounts to measure the long-run economic effects of fiscal policy. It is difficult to see how some of the theoretical ideas could be put into effect. Most analysts still think about the federal budget in terms of its annual effects, and would not agree with the proposition that the current

9. See for example, Willem Buiter, "Measurement of the Public Sector Deficit and its Implications for Policy Evaluation and Design," *IMF Staff Papers*, vol. 30 (June 1983), pp. 306-349; Buiter, "A Guide to Public Sector Debt and Deficits," *Economic Policy* (November 1985), pp. 13-61; and Robert J. Barro, "Are Government Bonds Net Wealth?" *Journal of Political Economy*, vol. 82 (November 1974), pp. 1095-1117. Other economists cast the net widely but for a different reason--to calculate the government portion of national wealth, not to analyze private saving behavior. On this latter perspective, see Michael J. Boskin, "Concepts and Measures of Federal Deficits and Debt and Their Impact on Economic Activity," in M.J. Boskin and K.J. Arrow, eds., *The Economics of Public Debt* (New York: St. Martins Press, 1988).

deficit is so arbitrary as to be meaningless, or with the notion that it makes no difference whether the government is financed with taxes or with borrowing. In addition, not much is known about the extent to which households consider different types of government assets and liabilities in making their own private saving decisions. In sum, the theories underlying these critiques are relatively new, and, so far, little consensus has formed around their use.

CHAPTER VII

CONCLUSIONS

The main conclusion reached in this paper is that the adjusted deficit measures discussed in Chapter III tell the same story about federal government saving that the unadjusted measures tell. In particular, they tell the same story about the federal government's contribution to the national saving decline during the 1980s.

Three of the adjustments--for inflation, for changes in the market value of public debt, and for surpluses of state and local governments--have little effect on national saving measures. They only shift saving between sectors. The inflation adjustment would assign less saving to the private sector and correspondingly more to the government sector. Capital gains (losses) to the government stemming from changes in market value of the public debt are also exactly matched by offsetting losses (gains) to the holders of the debt. The net effect of each of these two adjustments on national saving is not quite a wash because a modest share of the federal debt is held by foreign investors. Including the state and local surpluses, largely the result of pension contributions for government employees, partially offsets the federal deficit, but does not change national saving or the recent downward trend in the government's saving rate.

The fourth adjustment--for government net investment--slightly raises the level of national saving, but does not alter its downward trend, or the conclusion about the role of the federal government in the decline in the national saving rate. To some extent, the implications of this kind of adjustment are clouded because the results are affected by the definition of government investments and by the choice of assumptions about depreciation rates on government capital. In general, however, net government investment as a share of net national product was lower in the 1980s than in the 1970s.

Including the subsidy portion of federal credit and federal deposit insurance programs in the federal budget would provide an improved measure of their impact on national saving, as well as their programmatic implications. While these changes would tend to increase budget deficits during the 1980s, they would not affect measures of overall national saving.

The proposal to exclude trust fund surpluses from the federal deficit would not improve the deficit as a measure of the effect of the budget on national saving. There is widespread agreement among economists that

these surpluses should be included in any analysis of the federal role in national saving. It may be that removing the trust fund surpluses would make the adoption of lower deficit policies more likely, but that deficit measure would not serve one of the major purposes of a deficit measure--to provide a summary indication of the budget's impact on national saving.

The discussion of adjustments to the deficit shows that a great many federal programs affect national saving to varying degrees. Some of the more prominent proposals for adjustments, such as that for inflation, are relatively minor compared with the sum total of other adjustments that might be made.

More sweeping suggestions, such as the adoption of a long time horizon in analyzing the federal deficit, raise interesting and important issues. At this point, however, their practical implications for measuring the deficit are unclear. CBO will continue to study these proposals, which serve a function by emphasizing the need to consider periods longer than a year in the budget horizon. Most analysts believe that, despite a number of weaknesses, the conventional deficit measure conveys a good deal of useful information about the economic effects of fiscal policy.