NBER WORKING PAPER SERIES

THE AMERICAN FISCAL DEFICIT: FACTS AND EFFECTS

Herschel Grossman

Working Paper No. 934

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge MA 02138

July 1982

Prepared for presentation at a symposium on Current Problems of Public Finance in the United States and Japan, sponsored by the Japanese Ministry of Finance and the National Bureau of Economic Research, Tokyo, July 19 and 20, 1982. Marc Hayford provided valuable research assistance. Herschel Grossman is Merton P. Stoltz Professor in the Social Sciences and Professor of Economics at Brown University, and a Research Associate of the National Bureau of Economic Research. The research reported here is part of the NBER's research program in Economic Fluctuations. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

NBER Working Paper #934
July 1982

Summary

THE AMERICAN FISCAL DEFICIT: FACTS AND EFFECTS

The main objective of this paper is to understand and to evaluate recently expressed popular anxiety about large American fiscal deficits. The paper begins with a discussion of problems involved in measuring the fiscal deficit. A general conclusion is that all interesting measures of the federal fiscal deficit have increased substantially over the past eight presidential terms and are likely to increase further in the near future. The paper goes on to analyze possible connections between fiscal deficits and inflation, economic growth, and fluctuations in the level and composition of economic activity. Important conclusions are that monetary policy, inflation, and aggregate economic activity are all largely independent of the fiscal deficit, but that the fiscal deficit can have major effects on the division of output between consumption and investment. Key elements in the analysis are the effects of taxation on consumption and investment demands and the relations between real and financial developments.

Herschel Grossman
Department of Economics
Brown University
Providence, RI 02912
401-863-2606

The alleged evils of fiscal deficits are a popular theme in American political rhetoric. In Congressional debates, the size of the federal budget deficit always generates considerable heat and political posturing. In presidential elections, the party out of power regularly uses budget numbers to indict the party in power for fiscal irresponsibility. In 1976, candidate Carter attacked President Ford for allowing large fiscal deficits and asserted that a Carter Administration would balance the Federal budget. In 1980, candidate Reagan attacked President Carter for allowing large fiscal deficits and asserted that a Reagan Administration would balance the Federal budget. Even back in 1932, candidate Roosevelt attacked President Hoover for allowing large fiscal deficits and asserted that a Roosevelt Administration would balance the Federal budget.

Belying the admonitions of candidate Reagan, both the Office of Management and Budget and the Congressional Budget Office early in 1982 projected deficits in the Federal budget over the next few years exceeding $100 billion annually. In light of American political tradition, it is not surprising to see Washington political circles quickly focus on these numbers as the most worrisome aspect of current economic policy. This latest outcry, however, involves a substantial shift away from the usual claim that budget deficits bear primary responsibility for inflation. With inflation declining rapidly, this indictment looses its prima facie appeal.

Recent expressions of concern instead emphasize other alleged bad consequences of fiscal deficits. Many commentators, mainly former public officials and former government economists, warn that large fiscal deficits depress capital formation and thereby retard prospective improvements in productivity and future economic growth. This hypothesis that fiscal deficits "crowd out" private investment has received considerable attention in the theoretical literature on fiscal policy, and the discussion below reviews the essential issues. Although

empirical research has not as yet produced any firm conclusions about the practical importance of "crowding out", recognition of this possibility surely represents a positive contribution to the level of the public discussion.

Most of the political debate, however, does not take this long-run perspective on the effects of fiscal deficits. Politicians tend to be concerned mainly about the immediate economic situation. In this spirit, many public officials of both parties, as well as some government and business economists, express serious concern that current fiscal prospects are inhibiting "economic recovery" and, in wilder moments, suggest that reduction of anticipated fiscal deficits is both necessary and sufficient for this "economic recovery".

These claims have caused academic economists to bemoan yet again the confused and fickle nature of popular impressions about economic policy. Are these politicians claiming that budget deficits can worsen and prolong a recession? If so, they apparently have not learned the basic lessons that conventional macroeconomic analysis teaches about fiscal policy. They seem as misguided as the presidential candidates were in the election of 1932, mindlessly blaming fiscal deficits for anything that goes wrong in the economy.

A main objective of this paper is to sort out this confusion and to determine which aspects of recently expressed popular anxiety about fiscal deficits reflect realistic and meaningful economic concerns. To this end, the paper analyzed possible connections between fiscal deficits and inflation, economic growth, and fluctuations in the level and composition of economic activity. Even though recent experience mutes simplistic claims about the inflationary impact of fiscal deficits, the analysis reveals that the interactions between fiscal and monetary policies and between the real and financial aspects of fiscal policy are central to understanding the effects of fiscal deficits and to appreciating the emphasis on fiscal deficits expressed in current popular discussions.

Although time and space do not permit a careful evaluation of relevant empirical evidence, the discussion that follows suggests some tentative conclusions about the actual importance of various likely effects of fiscal deficits. In this regard, it is worth pointing out that effects of fiscal deficits are difficult to isolate and to measure econometrically, and that econometric analysis of the phenomena discussed below has been notably inconclusive.

1. Facts About the American Fiscal Deficit

This first section discusses problems of measuring the fiscal deficit and draws conclusions about the historical record of the American fiscal deficit. A general lack of appreciation of the subtle issues involved in measuring the fiscal deficit has been a continual source of confusion in the popular discussion. One simple problem is that the popular way of expressing the fiscal deficit in current dollars is much less informative than measurements of the fiscal deficit and other aspects of fiscal policy relative to the size of the economy.

Other problems involve interesting conceptual issues. Should we focus on total government borrowing or on government borrowing net of government lending? Should we subtract from current government borrowing the decrease in the real value of the government's net nominal liabilities resulting from inflation? Should we consolidate the fiscal deficit of the Federal government with the fiscal surplus of the state and local governments? The discussion that follows considers each of these questions and assesses their quantification significance.

Some potentially important issues present less tractable problems of quantification. For example, should we add to the fiscal deficit the increase in the government's unfunded implicit liabilities, such as future retirement benefits to government employees and future social security benefits? The logic behind this question really suggests that we should look at the present value of expected future fiscal deficits, an amorphous quantity at best, rather than just at the current fiscal deficit. As another example, should we subtract from the fiscal deficit the increase in the value of the government's tangible assets? If so, how does one assess the value of the government's tangible assets? Because of limited time and space, the present discussion cannot do more than recognize these questions.

Before turning to the fiscal deficit itself, a review of the main features of the modern development of the American public sector will be useful. Table 1 presents various social accounting measures as shares of Gross National Product for the first year of the Reagan Adminstration and for the preceding seven presidential terms. A striking feature of rows 1 through 5 in Table 1 is the constancy of the relative sizes of the major components of GNP--consumption, gross investment, net exports, and total federal and state and local government purchases. Specifically, the share of total government purchases, given by the sum of rows 4 and 5, was 20.1% during the first Eisenhower term, grew to 21.8% during Nixon's full term, but declined back to 20.2% during Carter's term and was the same in 1981.

One change revealed in row 4 of Table 1 is the steady and substantial decrease in the share in GNP of federal government purchases, which recently have amounted to less than 40% of total government purchases. The steady decline in the share in GNP of defense expenditures, shown in row 4a, which even after increasing last year was still less than half of what it was during the first Eisenhower term, more than accounts for this trend.

Rows 4 through 9 in Table 1 also show that, even though total government purchases have grown no faster than GNP, total government expenditures, net of intergovernmental transactions, have increased steadily relative to GNP. Specifically, the sum of total government purchases, total transfer payments, and total net interest payments increased from 25.8% of GNP during the first Eisenhower term to 32.1% during the Carter term and reached 33.3% for 1981. This trend largely reflects an increase in federal government transfer payments, shown in row 6, from 3.5% to 9.7% of GNP.

Table 2 presents various measures of the federal government fiscal deficit relative to GNP for the first year of the Reagan Administration and for the seven preceding presidential terms. Row 1 in Table 2 shows a steady increase relative to GNP in the

TABLE 1

SOCIAL ACCOUNTING MEASURES AS PERCENTAGES OF GNP

	1953-1956 Eisenhower	1957-1960 Eisenhower	1961-1964 Kennedy-Johnson	1965-1968 Johnson	1969-1972 Nixon	1973-1976 Nixon-Ford	1977-1980 Carter	1981- Reagan
1. consumption	63.3	63.8	63.0	61.6	62.2	62.4	63.0	63.6
2. gross investment	15.8	15.1	15.0	15.9	15.6	15.3	16.6	15.4
2a. net investment	7.0	5.8	6.4	7.7	6.8	5.6	6.0	4.4
3. net exports	0.8	0.9	1.3	0.8	0.4	1.1	0.4	0.8
4. federal purchases	12.6	11.2	10.8	10.7	9.3	7.7	7.3	7.8
4a. defense	10.8	9.5	8.5	8.3	7.0	5.3	4.8	5.2
5. state and local purchases	7.5	8.9	9.8	10.9	12.5	13.5	12.9	12.4
6. federal transfer payments	3.5	4.5	4.9	5.1	6.5	8.7	9.0	9.7
7. state and local transfer payments	1.0	1.0	1.1	1.1	1.5	1.6	1.5	1.4
8. federal net interest payments	1.2	1.3	1.2	1.2	1.3	1.5	1.8	2.5
9. state and local net interest payments	0.0	0.0	0.0	-0.1	-0.2	-0.3	-0.4	-0.5

TABLE 2

MEASURES OF THE FEDERAL GOVERNMENT FISCAL DEFICIT AS PERCENTAGES OF GNP

	1953-1956 Eisenhower	1957-1960 Eisenhower	1961-1964 Kennedy-Johnson	1965-1968 Johnson	1969-1972 Nixon	1973-1976 Nixon-Ford	1977-1980 Carter	1981- Reagan
1. budget deficit, national income and product accounts	0.2	0.3	0.5	0.7	1.0	2.3	1.7	2.1
2. monetization of the fiscal deficit	0.0	0.1	0.4	0.5	0.4	0.4	0.3	0.3
3. net borrowing, flow of funds accounts	0.1	0.3	0.0	0.2	0.5	1.8	1.4	2.0
4. gross borrowing, flow of funds accounts	0.3	0.8	0.8	1.0	0.9	3.4	3.3	4.0
5. change in the real value of net debt, flow of funds accounts	-1.2	-0.8	-0.5	-0.6	-0.4	0.5	0.1	0.3

measured federal budget deficit. This trend becomes even clearer if we leave out the years 1975 and 1976 when an unusually severe recession boosted the federal budget deficit. These data show that the impression of increasing federal budget deficits is not merely an artifact resulting from expressing the budget deficit in nominal dollars. The federal budget deficit has grown faster than the economy.

Despite this steady growth, the federal budget deficit in 1981 still amounted to only 2.1% of GNP. Although this number seems small by international comparisons, it looks much larger when compared to net investment, shown in line 2a of Table 1. Had the amount of the federal budget deficit been available in 1981 to finance net investment, net investment would have been almost 50% larger

The trend of increasing federal budget deficits seem certain to continue in the near future. The Congressional Budget Office early in 1982 projected federal budget deficits of 3.2% of GNP in 1982 and 2.9% of GNP in 1983. These projections imply that the budget deficit for the first three years of the Reagan term will be 2.7% of GNP. The latest budgetary developments, moreover, suggest that the budget deficit for 1983 will be even larger than this projection.

The budget deficit measures the difference between gross federal expenditures--mainly, purchases, transfer payments, interest payments, and grants to state and local governments--and total explicit federal tax receipts. Financing of the federal budget deficit can take the form either of borrowing or of an increase in the monetary liabilities of the Federal Reserve System. Row 2 of Table 2 shows that monetization of the federal budget deficit, measured as the change in the amount of federal debt held by Federal Reserve Banks, has not increased relative to GNP since the Kennedy-Johnson term. Increased borrowing has financed all of the increase in the federal budget deficit since the Kennedy-Johnson term. These data indicate that the American political and institutional framework does not

create any necessary link between the federal fiscal deficit and base money creation.

Row 3 of Table 2 confirms this pattern of change in net federal borrowing relative to GNP, with a trough in the Kennedy term and steady increases thereafter. The definition of net borrowing in row 3 is the change in the total liabilities of the federal government minus the sum of changes in federal insurance and retirement reserves, federal debt held by Federal Reserve Banks, and total financial assets of the federal government. In principle, row 2 and row 3 should sum to row 1 in Table 2. The inexactness of this summation results from unexplained discrepancies between national income and product accounts and flow of funds accounts, which suggest that, although the trends are clear, some of these data lack precision.

In addition to borrowing as measured in row 3 to cover the difference between expenditures and tax receipts plus base money creation, the federal government also borrows to finance its extensive lending activities. Row 4 in Table 2 shows an even more pronounced upward trend in gross federal borrowing relative to GNP, reflecting mainly large increases in federal government borrowing to finance lending beginning in the Nixon-Ford term. Closely related to federal government lending are federal government guarantees of private loans against default. Given problems of quantification, the present discussion does not attempt to evaluate these guarantees. The measure of gross federal borrowing used in row 4 is the change in the total liabilities of the federal government, including liabilities of federally sponsored credit agencies, net of life insurance and retirement reserves and federal debt held by Federal Reserve Banks.

To the extent that they merely replace direct private borrowing and lending and private financial intervention, borrowing and lending activities of the federal government have no net effect on the economy. Lending by the federal government, however, usually involves a subsidized interest rate for the activity being financed. A correct accounting of current federal

government expenditures and the federal fiscal deficit would include the present value of the subsidies involved in current lending. Although constructing an estimate of the amount of these subsidies is beyond the scope of the present paper, it seems reasonable to suppose that the implied addition to current federal government expenditures and the federal fiscal deficit has increased with the volume of current lending by the federal government. Thus, appropriately corrected measures of the federal fiscal deficit probably would show even more pronounced increases beginning in the Nixon-Ford term than indicated by the measured federal budget deficit.

Because the federal government has nominal assets and liabilities, the change in the real values of its net liabilities depends both on its current net borrowing and on changes in the price level, which alter the real value of its existing assets and liabilities. Row 5 of Table 2 shows measurements of the change relative to real GNP in the real value of net federal debt, defined as the real value of the difference between net federal borrowing and the product of the rate of change of the implicit GNP deflator and the net debt of the federal government.

These data show that, because the net federal debt is positive, inflation has caused the increase in the real value of net federal debt throughout this period to be substantially smaller than net federal borrowing. In fact, from the first Eisenhower term through the Nixon term, the real value of the net federal debt actually declined steadily. Although the inflation rate was not high by current standards, this decline relative to GNP was greatest during the Eisenhower terms because net federal borrowing was small and the net federal debt was large relative to GNP. In 1981, despite larger net federal borrowing and a smaller net federal debt relative to GNP, the high inflation rate meant that the increase in the real value of the net federal debt relative to real GNP was still only 0.3%.

Looking over the entire period covered by Table 2, the data in row 5 indicate that the change in the real value of net

federal debt relative to GNP, although smaller than net federal borrowing, has increased in a way quite similar to the increases in the federal budget deficit and in net federal borrowing. Moreover, the budget deficit projections of the Congressional Budget Office imply a continuation of this trend, with increases in the real value of net federal debt relative to real GNP of 1.8% in 1982, assuming an inflation rate of 7.4%, and 1.6% in 1983, assuming an inflation rate of 6.8%.

In sum, all of the measures of the federal fiscal deficit presented in Table 2--the federal budget deficit, net federal borrowing, gross federal borrowing, and the change in the real value of net federal debt--show a substantial increase since the first Eisenhower term. In addition, further increases in all of these measures are likely in the near future.

What about prospects for the more distant future? One view is that the political process is currently unable to produce a prudent fiscal policy and that the trend of increasing federal fiscal deficits is likely to continue. An alternative view is that the current fiscal situation is a transitory aspect of an adjustment process that is leading to a reduction in size of the federal government relative to the economy. This interpretation is based on the observation that the large current and prospective federal fiscal deficits result proximately from tax reductions, the belief that these tax reductions reflect a basic change in popular preferences, and the hope that the consequences of the resulting federal fiscal deficits--for example, higher real interest rates--will produce effective political pressure to reduce the federal fiscal deficit by curtailing federal government expenditures.

As noted above, the fiscal activities of state and local governments are an important part of the American economy. Table 3 presents various measures of the combined state and local government fiscal deficit relative to GNP for the first year of the Reagan Administration and for the seven preceding presidential terms. The definition of net borrowing used in

TABLE 3

MEASURES OF THE COMBINED STATE AND LOCAL GOVERNMENT FISCAL DEFICIT AS PERCENTAGE OF GNP

	1953-1956 Eisenhower	1957-1960 Eisenhower	1961-1964 Kennedy-Johnson	1965-1968 Johnson	1969-1972 Nixon	1973-1976 Nixon-Ford	1977-1980 Carter	1981- Reagan
1. budget deficit, national income and product accounts	0.2	0.2	-0.1	0.0	-0.5	-0.7	-1.2	-1.3
2. net borrowing, flow of funds accounts	0.5	0.4	0.1	-0.0	-0.1	-0.3	-0.8	-0.9
3. change in the real value of net debt, flow of funds accounts	0.7	0.5	0.0	-0.2	-0.2	-0.3	-0.4	-0.3

row 2 is the negative of the sum of net state and local government financial investment and state and local government retirement credits to households. The differences between row 1 and row 2 reflect unexplained discrepancies between national income and product accounts and flow of funds accounts. Both of these rows show the same trend.

The main message from Table 3 is that qualitatively the trend in the combined state and local fiscal deficit, however measured, has been the opposite of the trend in the federal fiscal deficit. Moreover, the combined state and local fiscal deficit not only has declined steadily, but in recent years has become substantially negative--that is, a surplus. In addition, because the net nominal state and local debt is negative, inflation has caused the increase in the real value of net state and local debt, given by row 3, to be substantially larger than net state and local borrowing throughout this period. The definition of the change in the real value of net debt in row 3 is the real value of the difference between net state and local borrowing and the product of the rate of change of the implicit GNP deflator and the net nominal debt of state and local governments. The net nominal debt is defined as total liabilities minus the sum of total financial assets and accumulated state and local government retirement credits to households.

Table 4 combines the relevant data from Table 2 and Table 3 to obtain measures of the total government fiscal deficit relative to GNP. Because the trends in the federal and state and local fiscal deficits are offsetting, the data in Table 4 show no noticeable overall trend in any measure of the total government fiscal deficit. Nevertheless, all of the measures indicate a relatively large total fiscal deficit for 1981. Moreover, with regard to prospects for the near future, if forecasts of increased federal fiscal deficits are correct, the total fiscal deficit will increase further unless the combined state and local fiscal surplus grows substantially.

TABLE 4

MEASURES OF THE TOTAL GOVERNMENT FISCAL DEFICIT AS PERCENTAGES OF GNP

	1953-1956 Eisenhower	1957-1960 Eisenhower	1961-1964 Kennedy-Johnson	1965-1968 Johnson	1969-1972 Nixon	1973-1976 Nixon-Ford	1977-1980 Carter	1981- Reagan
1. budget deficit, national income and product accounts	0.4	0.5	0.4	0.7	0.5	1.6	0.5	0.8
2. net borrowing, flow of funds accounts	0.6	0.7	0.1	0.2	0.4	1.5	0.6	1.1
3. change in the real value of net debt, flow of funds accounts	-0.5	-0.3	-0.5	-0.8	-0.6	-0.2	-0.3	0.0

This last observation suggests two questions, neither of which has a readily available answer. First, is there a connection between the federal fiscal deficit and the combined state and local fiscal surplus such that increases in the former causes increases in the latter, or vice versa? Second, is the combined fiscal deficit the most relevant economic concept or does the federal fiscal deficit separately have important economic effects? The analysis that follows touches on both of these questions.

2. The Irrelevance Hypothesis

To help focus the subsequent discussion, this section considers the intriguing hypothesis, which some economists think warrants serious empirical study, that fiscal deficits have no relevance for major macroeconomic phenomena. The irrelevance hypothesis claims that if taxes are decreased and government borrowing increased by an equal amount, private saving increases by approximately this same amount and both consumption demand and investment demand are approximately unchanged. If saving responds in this way, the only effect of an increase in the fiscal deficit is approximately equal increases in both the demand and supply of financial assets. These offsetting effects on financial markets leave interest rates and asset prices, like consumption demand and investment demand, approximately unchanged. Accordingly, the choice between taxation and debt finance of given government expenditures has no important consequences for either inflation, aggregate economic activity, or the division of national product between consumption and investment.

The issue raised by the irrelevance hypothesis is strictly relevant only if the choice of the level of government expenditures, other than interest payments to service the public debt, is independent of the choice between taxation and debt finance. To simplify the analysis, the discussion that follows presumes that this independence holds. As a matter of logic, this independence would seem to follow if the irrelevance hypothesis were true. As a matter of fact, however, this independence certainly does not characterize state and local fiscal policy and probably also does not characterize federal fiscal policy.

At the state and local level, borrowing is usually associated with specific expenditure projects, typically investments in social capital, and decisions not to borrow usually mean deferment of these investments. Thus, in ignoring this dependence, the analysis that follows is not directly relevant to state and local fiscal deficits. At the federal level, borrowing

and expenditures are not directly connected. Nevertheless, as mentioned above, the probable effects of fiscal deficits, such as higher interest rates, may create political pressures for a reduction in federal government expenditures. Analysis of the political process underlying fiscal policy and consideration of this connection is beyond the scope of the present paper.

The analysis underlying the irrelevance hypothesis relies on two assumptions relating to private perceptions of the present value of current and expected future disposable income--perceived wealth, for short. The first assumption is that perceived wealth is independent of current and past choices between taxation and debt finance. The second assumption is that, given the invariance of perceived wealth, current and past choices between taxation and debt finance do not affect aggregate consumption demand. We consider each of these assumptions in turn.

The first assumption implies that taxpayers both correctly anticipate the implications of current and past fiscal decisions for future taxation and also take anticipated future taxation fully into account when evaluating the present value of their future disposable income. In considering anticipations of future taxation, it is important to distinguish the immediate effects of the current choice between taxation and debt finance from the cumulative effects of past choices between taxation and debt finance. A current tax cut directly raises current disposable income, which by itself adds to perceived wealth. The matching increase in current government borrowing, however, implies an obligation to increase future taxes to service the resulting public debt. The present value of the decreases in future disposable income implied by these additional future taxes is exactly equal to the increase in current disposable income.

The first assumption implies that taxpayers make this same calculation and, thus, implies that taxpayers anticipate fully the effect of current borrowing in adding to future taxation. This assumption about good taxpayer foresight means that taxpayers are alert to changes in the current fiscal deficit and

also understand its implications for future fiscal policy. Such behavior does not seem obviously realistic.

In the postwar period, even when the fiscal deficit has been relatively large, the quarterly rate of addition to the stock of public debt has not exceeded a few percent. Nevertheless, with a persistent fiscal deficit, the stock of public debt, and with it the interest payments to service this debt, grow steadily. These interest payments, reflecting past fiscal deficits, add to current and future aggregate disposable income. But, of course, the taxes levied contemporaneously to finance these interest payments have an exactly offsetting effect on current and future aggregate disposable income.

The first assumption also implies that taxpayers appreciate this offsetting effect. In this regard, good taxpayer foresight might be plausible. For taxpayers to anticipate fully the future taxes to be levied to service the currently existing stock of public debt resulting from past deficits, they have only to anticipate a continuation of the current level of taxation.

Even if taxpayers fully anticipate relevant future taxes, for perceived wealth to be independent of current and past fiscal deficits requires also that wealth calculations take these future taxes fully into account. In this regard, it is important to distinguish between taxes that reduce the net income from labor services and taxes that reduce the net income from marketable assets.

Because there is no market for claims to income from labor services, the incorporation into perceived wealth of anticipated future taxes on labor income is subjective and depends on individual taxpayer planning horizons. If a taxpayer is concerned about changes in the welfare of his descendants, an attitude that makes his planning horizon effectively infinite, then his wealth calculation involves all anticipated future taxes on labor income. Alternatively, if a taxpayer is indifferent to changes in the welfare of his descendants, an attitude that means that his planning horizon does not extend beyond his lifetime,

then his perceived wealth largely ignores anticipated future taxes on the labor income of his descendants.

For taxes on income from marketable assets, in contrast, the individual planning horizon of taxpayers are unimportant. The incorporation into perceived wealth of anticipated future taxes on asset income results from the market valuation of assets. If current market prices of assets adjust fully for the present value of all anticipated future taxes on asset income, the perceived wealth of an asset owner fully reflects such taxes, even if they are paid beyond his individual planning horizon.

In sum, to the extent that taxes reduce income from marketable assets, it seems reasonable to suppose that perceived wealth does not depend on the stock of public debt resulting from past fiscal deficits. But, to the extent that taxes reduce income from labor services, this supposition seems less likely to be exactly true. Moreover, it also seems reasonable to suppose that current tax reductions and associated increases in borrowing produce at least some immediate increase in perceived wealth. Nevertheless, any effect on perceived wealth requires that taxpayers either fail to anticipate future taxes or fail to take full account of anticipated taxes. This implication of the theoretical analysis suggests that the first assumption that perceived wealth is independent of current and past choices between taxation and debt finance may not be a bad first-order approximation.

The second essential assumption underlying the irrelevance hypothesis says that aggregate consumption demand depends on current disposable income only indirectly through the relation, if any, between current disposable income and perceived wealth. This assumption implies that if a tax cut causes an increase in current disposable income but no change in perceived wealth, aggregate consumption demand does not change, and saving increases by the amount of the increase in disposable income.

The main problem with this second assumption is that it neglects "liquidity" effects on consumption demand. Recent

research, using various strategies to analyze American data, strongly suggests that liquidity effects are empirically important. This research indicates that increases in disposable income have a direct positive effect on aggregate consumption demand separately from any indirect effect working through changes in perceived wealth.

This direct effect apparently results mainly from the limited ability of households to borrow against the security of prospective future income from labor services. Because there is no market for claims to income from labor services, households who have good prospects for future increases in labor income, but who do not have financial assets that they can readily liquidate, typically cannot consume at the level in excess of current income that their income expectations warrant. The data suggest that there are always a substantial number of American households in this situation. These households consume less than they would either if they were able to dissave through borrowing or if their current disposable income were larger relative to their future disposable income. Consequently, reductions in current taxes, even if accompanied by higher anticipated future taxation that leaves perceived wealth unchanged, allow these households to consume more now and, thus, stimulates current aggregate consumption demand.

Even though the hypothesis that fiscal deficits are irrelevant seems not to be true, analysis of this hypothesis is valuable in explicating the channels through which fiscal deficits can affect major macroeconomic phenomena. As we have seen, there is good reason to expect the choice of debt financing rather than taxation to pay for given public expenditures to produce an immediately higher level of aggregate consumption demand. This effect occurs either because perceived wealth increases or, even more likely, because aggregate consumption demand depends directly on current disposable income. The analysis also indicates that cumulative increases in the stock of public debt resulting from past fiscal deficits possibly cause

further steady increases in perceived wealth and in aggregate consumption demand.

3. Inflation

The American popular debate has traditionally been preoccupied with alleged inflationary effects of fiscal deficits. As noted above, the recent experience of a substantial decrease in inflation without any decrease in the fiscal deficit has brought a sudden suspension of this tradition.

Notwithstanding its apparent impact on popular opinion, this recent experience is completely consistent with two lessons that macroeconomic analysis and historical experience teach. First, the main and unavoidable effect of fiscal deficits is not on inflation, but on the division of national product between consumption and investment. Second, although fiscal deficits and other factors can affect inflation, monetary policy is the dominant influence. This section clarifies the relation between fiscal deficits and inflation. The next section discusses the relation between fiscal deficits, investment, and economic growth.

Although monetary policy has been the most obviously and consistently important determinant of inflation, fiscal policy, changes in inflationary expectations, and so-called "supply shocks" like exogenous changes in the production of petroleum probably have also influenced the price level in the recent past. There are two common ways, which are isomorphic if done correctly, of analyzing the effect of these different factors on the price level. The approach used below treats monetary policy, fiscal policy, and inflationary expectations as affecting the total demand for goods and services, treats supply shocks as affecting the total supply of goods and services, and views the price level as changing through time to bring total demand into equality with total supply. The alternative approach treats fiscal policy, inflationary expectations, and supply shocks as affecting the demand for real money balances, views monetary policy as determining the nominal money supply, and views the price level as changing through time to make the real value of the nominal money supply equal the demand for real money

balances.

Separating the monetary and fiscal influences on inflation is especially difficult because fiscal deficits can be an important influence on monetary policy. Even more confusing is the fact that the direction of this effect seems recently to have reversed. To sort out these complexities, it is useful to distinguish between (a) direct inflationary effects of fiscal deficits with unchanged monetary policy, (b) additional inflationary effects that result from induced monetization of fiscal deficits, and (c) the possibility of an induced tightening of monetary policy to offset the inflationary effects of fiscal deficits.

For simplicity, the following analysis treats the economy as closed. In fact, the extent, if any, to which increased American fiscal deficits generate increased capital inflows is not known. The following analysis, in any event, is qualitatively correct as long as the elasticity of capital inflows with respect to the fiscal deficit is not infinite. If, however, this elasticity is large, the appropriate unit of analysis may be the world economy.

The discussion continues to focus on federal fiscal policy and, specifically, on the choice between taxation and debt finance of given federal government expenditures. On the basis of the analysis developed above, it seems likely that an increase in disposable income resulting from a tax reduction, even if matched by increased government borrowing, is divided between an increase in consumption demand and an increase in saving. Because not all of the increased disposable income is saved, the demand for financial assets increases by less than the supply of financial assets. If monetary policy, as measured by the growth of monetary aggregates, does not change, these shifts in demand and supply in financial markets put upward pressure on real interest rates and other measures of the cost of capital. In addition, the prospect of larger future fiscal deficits creates expectations of high future real interest rates. Such

expectations put additional upward on current long-term real interest rates.

Higher real interest rates discourage investment demand. In this context, both the response of private investment demand as well as decisions by state and local governments to borrow to finance investment in social capital are relevant. However, as long as higher interest rates also make asset holders want to shift part of their money balances into financial assets, this primary increase in real interest rates is not sufficient to reduce investment demand by as much as consumption demand has increased. Consequently, the total demand for current output of goods and services--for private consumption, for private investment, and for government purchases--increases relative to the total supply of goods and services. This increased total demand causes prices to rise or to rise faster. The inflation, or extra inflation, continues until the price level has risen high enough to choke off total demand and to restore the initial relation between total demand and total supply of current output.

The process through which this inflation extinguishes itself works mainly through the market for financial assets. If monetary policy remains unchanged, rising prices erode the real value of existing money balances, forcing savers to reduce their demands for other financial assets in an attempt to replenish their money holdings. This continual shifting in asset demands causes secondary increases in real interest rates, which further depress investment demand. The adjustment process involving rising prices and rising real interest rates continues until the total decline in investment demand, resulting from both primary and secondary increases in real interest rates, exactly offsets the initial increase in consumption demand.

The important point is that, with monetary policy unchanged, the tax reduction and increased borrowing alone causes only a temporary increase in inflation, although the price level and real interest rates are permanently increased and investment is permanently reduced. It is also possible, however, that the

cumulative growth in the stock of public debt resulting from the higher level of government borrowing causes further steady increases in aggregate consumption demand. In this case, after the intial inflationary surge, inflation remains permanently above its initial rate producing steady tertiary increases in real interest rates and decreases in investment demand relative to what their levels would be otherwise.

The preceding analysis assumed the growth of monetary aggregates to be unchanged. Monetary policy, however, can attempt to counter the upward pressure on real interest rates resulting from fiscal deficits. By increasing the growth of monetary aggregates, monetary policy can boost the demand for financial assets. In particular, as inflation proceeds, an expansionary monetary policy can offset the effect of rising prices on the real value of the stock of money balances.

The main effect of this use of monetary policy to resist the requisite increase in real interest rates would be to prolong and to accelerate the initial inflationary surge. The escalation of inflation and inflationary expectations eventually would force the imposition of monetary restraint to bring inflation under control. In this transition, nominal interest rates ironically would rise higher, because of the build up of inflationary expectations, than they would have if monetary policy had not attempted initially to resist higher real interest rates. Investment, in any event, ends up reduced by just enough to match the increase in consumption demand.

Analysis of American financial institutions and historical experience both reveal that a scenario involving increased monetary expansion in response to federal fiscal deficits is neither necessary nor inevitable. Recently, in fact, the Federal Reserve in an effort to disinflate the economy has decreased monetary expansion in the face of persistent fiscal deficits. The reduction in the growth of monetary aggregates actually has depressed the demand for financial assets more than enough to bring about the higher real interest rates required to reduce

investment demand by as much as the increase in consumption demand resulting from the tax reduction. Recent monetary policy thus has more than offset the inflationary pressures coming from the federal fiscal deficit. Inflation has not had to increase to bring about the higher real interest rates required by the federal fiscal deficit. These events demonstrate that, although tax reductions probably give a potentially inflationary stimulus to consumption demand, monetary policy can and does have an independent and dominant effect on inflation.

4. Investment and Economic Growth

The preceding discussion makes clear that, regardless of monetary responses and impacts on inflation, federal fiscal deficits depress investment to the extent that they stimulate consumption demand. The adjustment in investment results proximately from increases in the supply of financial assets relative to the demand for financial assets and the consequent increases in real interest rates. One way of describing this process is to say that fiscal deficits cause financial markets to tighten, thereby crowding out the financing of investment demands.

Investment in this context includes both private investment and debt financed investment in social capital by state and local governments. Indeed, the effect of the federal fiscal deficit on interest rates is a possible channel through which an increase in the federal fiscal deficit could produce in increase in the combined state and local fiscal surplus. The combined state and local fiscal surplus, however, does not increase enough through this channel alone to offset completely the increase in the federal fiscal deficit unless all other investment demands are insensitive to the higher real interest rates.

The reduction in investment, although responding to financial developments, is not essentially a financial phenomenon. Rather, it results basically from the constraint that the existing productive resources of the economy imposes on the total of private consumption, private investment, and government purchases. Given that both other government purchases and total supply of goods and services are unchanged, a stimulus to private consumption demand implies that the amount of existing productive resources available for investment declines. The financial markets serve only as the channel through which this underlying reality is communicated to households, business firms, and state and local governments.

Reduced investment means less accumulation and modernization of the capital stock. For this reason, fiscal deficits seem to

be bad for economic growth. The actual situation, however, is not so simple, because investment by business firms, households, and state and local governments takes a variety of forms. We can distinguish usefully between investment in plant and equipment, in housing, in automobiles and other consumer durables, and in social capital.

Each of these types of investment adds in a different way to the economy's future potential for producing goods and services. Specifically, investment in plant and equipment raises measured productivity by giving labor more and better capital with which to work, whereas investment in consumer durables and social capital adds mainly to the economy's ability to produce services of a form that national product accounts largely ignore. This observation reflects the pervasive fact that problems of measuring national product befuddle all discussions of long-run economic growth.

These complexities are relevant in the present context because current federal fiscal deficits are not impacting evenly on all types of investment. Recent reductions in federal taxation have involved drastic liberalization of investment tax credits and depreciation rules. These changes, while contributing to the federal fiscal deficit, also have given a stimulus to investment in plant and equipment and, thereby, have helped to make real interest rates unusually high and to put a disproportionate share of the burden of adjustment onto other forms of investment. This shift in the pattern of investment will mitigate the effect of current federal fiscal deficits on future productivity and economic growth, at least as these concepts are usually measured.

Another important observation is that, to the extent that the combined state and local government borrowing decreases in response to a reduction in federal taxation that causes an increased federal fiscal deficit, investment in social capital declines. The size of the net contributions, if any, that these foregone investments in social capital would make to economic

welfare is not clear. The main point, however, is that increases in the federal fiscal deficit can have important effects even if the increase in the combined federal and state and local fiscal deficit is much smaller.

5. Incentives and Economic Growth

Some of the recent discussion of fiscal policy has emphasized so-called "supply-side effects", which involve mainly the claim that high marginal tax rates reduce incentives to work and to save. It is not clear, however, that the choice between taxation and debt finance of given government expenditures is the aspect of fiscal policy that is relevant for supply-side arguments. There is in this context an important distinction between lasting changes in incentives to work and to save more and inducements merely to alter the timing of work and saving decisions.

With government expenditures unchanged, a reduction in current tax rates, putting aside the fanciful idea that such a change would produce more rather than less tax revenue, causes an increase in current government borrowing and as stressed above, an implied obligation to increase future tax rates to service the added public debt. A reduction in current marginal tax rates on income from labor services, even if it generates expectations of higher future tax rates, could induce people to work more now and to plan to work less in the future. Similarly, a reduction, expected to be temporary, in marginal tax rates on income from capital, could induce people to save more now and to plan to save less in the future. These examples of changes in timing are presumably <u>not</u> the major incentive effects that advocates of supply-side fiscal policies have in mind.

In order for reductions in marginal tax rates to produce a lasting stimulus to work and to save, either taxpayers have to overlook the long-run implications of current fiscal deficits or tax reductions actually have to be permanent. The first possibility may be realistic, but it depends on taxpayer ignorance and, thus, would seem to be an unreliable basis for predicting the effects of fiscal policy. The second possibility requires that the tax reductions not generate a larger fiscal deficit and more government borrowing. This outcome, in turn, requires that matching reductions in government expenditures accompany the tax

reductions.

This analysis indicates that an adequate discussion of supply-side effects has to consider not only marginal tax rates, but also government expenditures and the fiscal deficit. If adverse tax effects on incentives to work and to save are a problem, a reliable solution is not to reduce current marginal tax rates and to add to the fiscal deficit. Such a policy would likely have much of its effect only on the timing of work and saving decisions. In addition, it would stimulate current consumption, leaving less of the current supply of goods and services available for investment. A lasting improvement in incentives requires instead a permanent decrease in marginal tax rates, a change that is credible only if the government matches tax reductions with lower expenditures. A reduction in government expenditures would also prevent an increase in the fiscal deficit and would enable aggregate consumption to expand without impinging on investment.

6. The Current Recession

Academic economists have difficulty comprehending the widespread expressions of concern that fiscal deficits are damaging to prospects for "economic recovery". Two misunderstandings seem to underlie both the popular discussion and the attendant confusion about the relation between fiscal policy and the current economic situation.

One understanding involves the basic causes and the effects of the current recession. The popular discussion does not fully appreciate that the current recession is largely an unavoidable side effect of a deliberate tightening of monetary policy aimed at reducing the entrenched inflation that had built up during the 1970's.

Both economic analysis and historical experience imply that to reduce the actual inflation rate below the inflation rate that people have already come to expect, monetary and fiscal policy together must become sufficiently restrictive to depress aggregate demand for goods and services below aggregate supply. In the current situation, although fiscal policy has been stimulating aggregate demand, monetary policy has been tight enough to have a dominant disinflationary effect. Unfortunately, a net contraction of aggregate demand also produces a recession in aggregate economic activity. Both the rapidity with which the inflation rate declines and the amount by which aggregate economic activity falls below its normal trend depend directly on the net tightness of monetary and fiscal policy.

This analysis implies that the recent sharp reduction in the inflation rate is directly related to the severity of the current recession. The recession, of course, need only be a transitory aspect of the disinflation process. If monetary and fiscal policy together remain consistent with a reduced long-run inflation rate, as the actual inflation rate declines and inflationary expectations adjust to this new reality, the economy's natural processes of recovery work to restore aggregate demand and to bring aggregate economic activity back to its

normal growth path. The length of time that this full sequence of recession, disinflation, and recovery takes depends on the structural characteristics of the economy that determine the responsiveness of inflation to aggregate demand and on the rapidity with which inflationary expectations decline. These dynamic factors are neither well understood nor easy to predict. It is clear, however, that an attempt to speed up the recovery by shifting back to a more expansionary combination of monetary and fiscal policy risks generating a resurgence of inflation.

The early official projections of the Reagan Administration envisaged only a gradual and modest reduction in inflation and only a brief and mild accompanying recession. Both the recent large decline in inflation and the severity of the current recession reflect inability to make reliable macroeconomic forecasts and to manage aggregate demand with any degree of precision. As the recession has worsened, however, the Reagan Administration has welcomed the rapid reduction in inflation and, in a departure from the behavior of its predecessors, has not pressured the Federal Reserve to loosen monetary policy in order to stimulate aggregate demand. The Administration has supported continued restriction of the growth of monetary aggregates as necessary to avoid a possible reversal of the gains against inflation already achieved.

This discussion suggests three main points. First, even if the severity of the current recessions was unexpected, its main cause, tight monetary policy, is no mystery. Second, if the Reagan Administration and the Federal Reserve were willing to relax or to abandon the objective of a long-run reduction in inflation, they could reverse monetary policy and stimulate aggregate demand enough to produce rapid improvement in aggregate economic activity. Third, the controlling factor in the current economic situation is that the Administration and the Federal Reserve apparently have made a deliberate decision not to follow this course. Instead, they seem prepared to wait out the painful

natural adjustment process necessary to achieve sustained non-inflationary economic growth.

This commitment to keep monetary policy as tight as necessary to rule out a resurgence of inflation means that other factors, such as current and prospective fiscal policy, cannot have more than a minor effect on aggregate demand and economic activity. The current recession is an essential part of the process of disinflation and the objective of sustained disinflation is the true obstacle to rapid economic recovery.

A second misunderstanding about the relation between fiscal policy and the current economic situation results from a difference between popular and academic perceptions of the current recession. The official arbiters of the NBER define a recession in terms of measures of aggregate economic activity. The impact of the current recession across industries, however, appears to be unusually uneven. The markets for housing and consumer durables, especially automobiles, are especially depressed, whereas activity in other sectors, especially, services, has held up much better.

Popular concerns about the current recession concentrate on the weakness of demand in the depressed sectors. Politicians are understandably more sensitive to distress expressed by constituents whose livelihood come from these sectors than to abstract measures of aggregate economic activity. Given this narrowly defined perception of the maladies that the current recession represents, the claim that fiscal deficits are inhibiting recovery makes some sense.

Fiscal deficits put upward pressure on real interest rates and other measures of the cost of capital and, accordingly, tend to depress investment demand. The immediate effect of the current fiscal situation on real interest rates has been especially pronounced both because monetary policy has tightened to offset the inflationary effects of the federal fiscal deficit and because the recent liberalization of investment tax credit and depreciation rules has given an offsetting stimulus to demand

for investment in plant and equipment. In addition to making interest rates higher than monetary policy and the size of the fiscal deficit alone would seem to require, these changes in tax rules have shifted the bulk of the depressing effect of fiscal deficit to other forms of investment, like housing and consumer durables. Thus, it seems correct to say that fiscal policy is responsible for the unusually uneven inter-industry impact of the current recession and, specifically, for the especially depressed state of the housing and consumer durables sectors.

The popular discussion recognizes correctly that reductions in current and prospective fiscal deficits, brought about by a combination of decreases in government expenditures and increases in taxation, would help these depressed sectors. A reversal of the tax stimuli to investment in plant and equipment would be especially useful in this regard. What the popular discussion overlooks is that such changes in fiscal policy themselves would produce a combination of decreases in government purchases and decreases in private demands for goods and services and, thus, only would shift the burden of the recession to other sectors. Even worse, with no change in monetary policy, these decreases in aggregate demand, associated with higher taxes and reduced government expenditures, probably would outweigh the immediate increase in total investment demand resulting from reduced fiscal deficit. The net effect on aggregate economic activity would be negative. The key factor in this outcome is that lower interest rates would cause asset holders to try to increase their money balances and, thus, to reduce the velocity of circulation of the given monetary aggregates.

To sum up, although a decrease in real interest rates will be one aspect of the economy's natural processes of recovery from the recession, and although a reduction in the fiscal deficit would cause real interest rates to decline, it does not follow that expenditure decreases or tax increases would cause aggregate economic activity to revive. An analogy may be instructive. As a painful wound heals, the pain eases. Sufficient intake of

alcoholic beverages also produces a feeling of no pain. It does not follow, however, that getting drunk promotes healing.

It is, of course, possible that the Federal Reserve would loosen monetary policy somewhat to offset the probably depressing effect of a tax increase or expenditure reduction on aggregate economic activity. But, as stressed above, as long as monetary policy remains committed to tight control of aggregate demand in the interest of disinflation, aggregate economic activity cannot increase except through the economy's natural process of recovery. Although fiscal policy can influence the location of the pain associated with the current recession, the recession itself is a result not of fiscal deficits, but of the apparent commitment to achieve a long-run reduction in inflation.