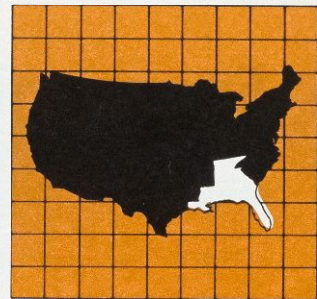


# Economic Review

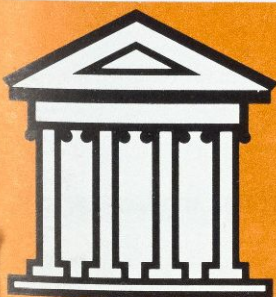
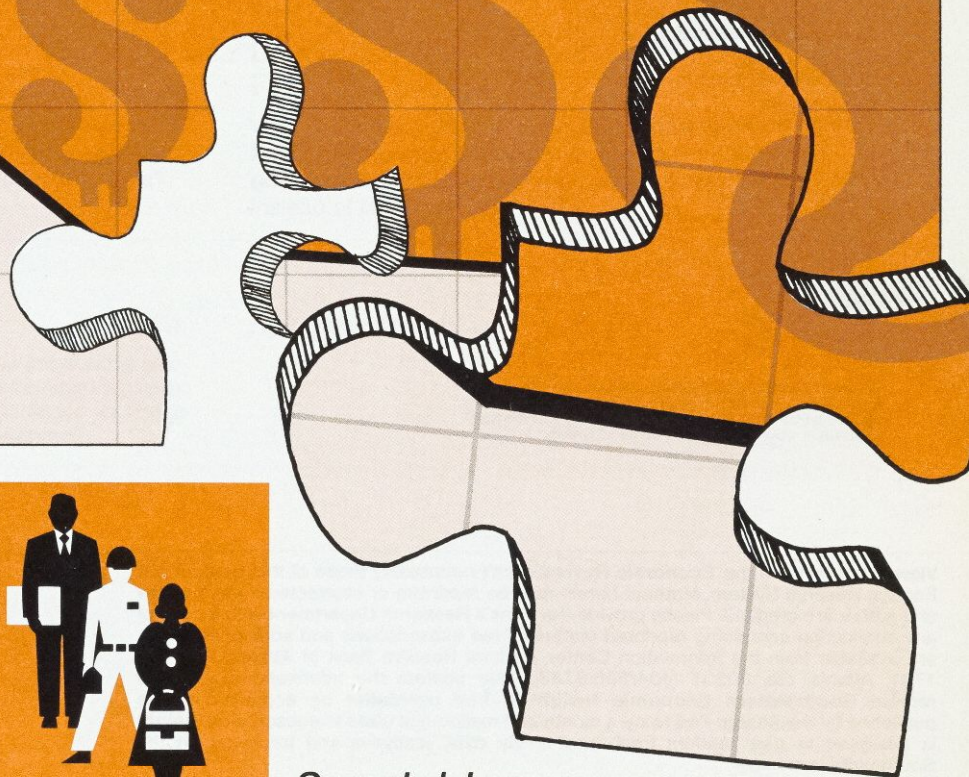


FEDERAL RESERVE BANK OF ATLANTA

AUGUST 1982

## THE DEFICIT PUZZLE

*Fitting the  
Pieces  
Together*



*Special Issue*



# Economic Review



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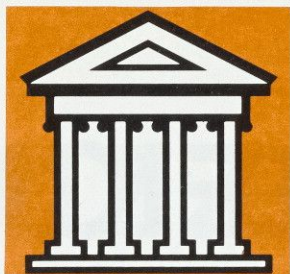
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AUGUST 1982, ECONOMIC REVIEW





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# THE DEFICIT

## Some Reasons to

Today there is widespread concern about the effects of large and persistent federal budget deficits on our economy.

That concern has recently produced dramatic swings in financial markets. News implying reduced borrowing by the Treasury has pushed market interest rates down, while information to the contrary has provoked upward rate movements. Similar sensitivity persists in Washington, where there is a consensus that reduced deficits are a highly important economic objective, even though there is considerable disagreement about how to achieve such reductions. Public opinion polls reflect widespread belief that borrowing to finance federal deficits operates to "crowd out" private borrowing.

So it is, to say the least, an important subject. For this special issue of our **Economic Review** we have compiled a series of research papers on the economic consequences of federal budget deficits. To lead off, **James R. Barth**, visiting scholar at the Federal Reserve Bank of Atlanta and economics professor at George Washington University, and **Stephen Morrell**, financial economist with the Atlanta Fed, present a primer on the subject of federal budget deficits, describing how they are derived and measured. During the first 140 years of the Republic, they show, the U. S. budget was in the red only 32 percent of the time, while the half century from 1931 to 1981 produced deficits 84 percent of the time. The size and persistence of today's deficits, and of those being forecast for the years ahead, are well outside the general historical experience of the United States.

The mere size and growth of deficits, however, may not always provide an accurate assessment of their effects. Deficits are countercyclical, since both tax revenues and federal spending under entitlement programs vary countercyclically. Much of the deficit can be attributed to changes in the business cycle, quite aside from legislative changes. Recognizing this, Morrell uses statistical techniques to separate the growth of the inflation-adjusted deficit into that associated with the deviation of output from its trend growth and that caused by current legislative action. Since deficits arising from a weak economy are usually accompanied by falling private credit demands, while those resulting from noncyclical changes may not be, Morrell finds that weak-economy deficits have not generally produced upward interest rate pressures whereas strong-economy deficits sometimes have produced such pressure.

**Gerald Dwyer**, visiting scholar at the Atlanta Federal Reserve and economics professor at Emory University, next examines the relationship between deficits and inflation. After examining the channels through which deficits can contribute to inflation, Dwyer applies tests of causation to evidence on the deficit-inflation relationship. His analysis suggests that, in the past, knowledge of the deficit would not have helped in predicting the inflation rate, but that knowledge of the inflation rate would have helped in predicting the deficit. Inflation tends to "cause" deficits, Dwyer finds, implying that the persistent inflation characterizing today's economy makes it difficult to reduce deficits.



# PUZZLE: Be Apprehensive

Turning to direct evidence concerning effects of deficits on interest rates, **Victor Canto** and **Donald Rapp**, researchers at the University of Southern California School of Business, find that patterns have varied significantly from year to year. As a consequence, their statistical analysis does not reveal a consistent simple relationship between deficits and interest rates, implying that higher deficits do not bring higher interest rates in every case but will in some cases and not in others. Their analysis implies that, in addition to the size of the deficit, information such as the savings rate is needed to gauge the relationships between deficits and interest rates.

**Randall Holcombe**, economics professor at Auburn University, gets at the crowding out question another way, by focusing on the effects of deficits on private-sector saving and capital formation. He finds that private savings have not increased sufficiently to finance both private investment and higher deficits. As a result, private capital formation has suffered from deficits, and crowding out has been typical.

The final paper, by **Ernest Tanner**, economics professor at Tulane University, examines the disillusion with fiscal policy as a tool for stabilizing economic activity. Tanner reports that the economics profession's views have come full circle.

In summary, we think that the reader who studies the following pages will emerge more concerned than ever about the economic effects of large and persistent federal deficits.

It is apparent, as Canto and Rapp suggest in the fourth article, that there has been no systematic relationship, historically, between

deficits and interest rates, and that we must look for the answer in the circumstances surrounding each situation.

When we apply that prescription to the situation in 1982, the other articles give some reasons to be apprehensive that the public deficits will indeed push up interest rates and crowd out private spending and investment. Barth and Morrell show how current and impending federal deficits exceed our nation's general experience. Morrell goes on to argue that large deficits may produce upward pressure on interest rates when our economy is expanding, as it will be during the recovery from the 1982 recession. Dwyer's work points to persistent deficits as a product of inflation, suggesting that it may be unusually difficult to reduce the deficit in an economy where inflation and inflationary expectations are so strongly embedded.

Holcombe's article casts doubt on another "way out" of the current predicament, arguing that federal deficits historically have not induced an equal amount of saving in the private sector. Tanner's paper concludes by documenting the dwindling evidence and support for traditional demand-side fiscal policy, which we see reflected in today's combination of high deficits and economic weaknesses.

This, at least, is the way we read the evidence presented in this issue of our **Economic Review**. But beyond that, we hope you, our readers, will take the time to examine the evidence compiled by these scholars, and to draw your own conclusions from it. The urgency and persistence of our nation's economic problems demand nothing less.



# A Primer on Budget Deficits

During the past 20 years, the federal government budget has been in deficit 19 times, the only budget surplus occurring in 1969. Most current projections indicate that this trend will continue in the years ahead. In response to this situation, 31 state legislatures have already approved resolutions petitioning for a constitutional convention that would require an annually balanced budget. Similar resolutions are currently being considered by other state legislatures, with only three more needed to force the Congress to organize a constitutional convention to consider a balanced-budget amendment. Recently, President Reagan endorsed the idea of such an amendment. One amendment approved by the Senate early this month would permit a budget deficit only in wartime or when authorized by a three-fifths majority of the House and Senate.

This article is a primer on budget deficits. Section I defines what is meant by a budget deficit, how deficits are measured, and what is not included in conventional measures of the deficit. In Section II, we'll examine the U. S. budgetary record from the beginning of the Republic in 1789 to the present. Section III relates current concerns about budget deficits to parallel concerns expressed during the Great Depression—a period marked by significant changes in thinking about the effects of deficits. Section IV examines the major points of controversy about the economic impact of deficits.

## What Is a Budget Deficit?

In any discussion of budget deficits, one must be sure to understand exactly what this term means. Most of the concern focuses on federal deficits, not the aggregate budgetary positions of local, state and federal governments. For this reason, we will consider only federal budgetary deficits here. At the federal level, the government collects taxes (T) out of which

it spends on goods and services and provides for transfer payments (G) as well as pays interest on its outstanding debt (iB) (where i is the nominal interest rate and B is federal government debt outstanding). In recent years, government expenditures frequently have exceeded receipts, resulting in deficits. A deficit therefore occurs whenever expenditures exceed receipts and the size of the deficit is measured by the amount by which expenditures exceed receipts.

Symbolically, this situation may be expressed as:

$$(1) \text{ Deficit} = G + iB - T.$$

Of course, government spending does not always exceed revenue. When the reverse is the case, the government budget is said to be in surplus. A balanced budget occurs whenever expenditures are exactly matched by receipts.

Naturally, deficits must be financed. There are two principal ways in which this is done, both of which involve an increase in government liabilities.<sup>1</sup> One way to finance deficits is through the sale of federal government securities to the public (both domestic and foreign) while the other way is through the sale of securities to the Federal Reserve. The Federal Reserve purchases securities, not directly from the Treasury Department, but rather through open market operations conducted through security dealers in the New York financial markets. When the Federal Reserve buys securi-

<sup>1</sup>Decreases in government assets through the sale of such assets as gold, foreign exchange, buildings, equipment, and land constitute a third means of financing, but have occurred in sufficiently small amounts in recent years when compared to the size of the deficits that they can be safely omitted for the purposes of this paper. It should be pointed out, however, that in the May 12, 1982, issue of the *Washington Post* it was reported that the Reagan Administration "hopes to raise \$18 billion over five years through the sale of 35 million acres of federal real estate, nearly 5 percent of what it now owns" (p. A22). From an historical viewpoint, it might be noted that "receipts from the sale of public lands were . . . of considerable importance" in completely eliminating the federal debt by January 1935. See Lewis H. Kimmel, *Federal Budget and Fiscal Policy 1789-1958*, The Brookings Institution, Washington, D.C., 1959, p. 315.



**While controversy over budget deficits has raged since the Great Depression, the relationships between deficits and economic activity remain complex and puzzling. With debate intensifying under the pressure of high projected deficits, an understanding of the basic issues is essential.**

ties, it results in an increase in its monetary liabilities, specifically reserves of commercial banks and thrift institutions plus coin and currency, or an increase in the monetary base. Since an increase in the monetary base typically increases the money supply, the sale of securities to the Federal Reserve to finance deficits is commonly referred to as money-financed deficits. Sales of securities to the public, on the other hand, are commonly referred to as bond-financed deficits.

Equation (1) may now be written as:

$$(2) \text{ Deficit} = \Delta B + \Delta M = G + iB - T$$

where  $\Delta B$  represents the positive change in bonds held by the public and  $\Delta M$  represents the positive change in bonds held by the Federal Reserve.<sup>2</sup> This equation states that when government spending exceeds revenues, the resulting deficit must be bond- and/or money-financed. Most discussions of the federal deficit are based upon equation (2), which represents the nominal federal budget deficit. It should be noted that the widely reported figures on deficits in newspapers, magazines, and other news media are based upon the unified budget concept, not the national income accounts concept. The essential difference between the two concepts is that the former is on a cash basis, whereas the latter is on an accrual basis.<sup>3</sup>

### **An Alternative Measure of the Budget Deficit**

The budget deficit as measured by equation (2) is not the only or, for that matter, the most appropriate measure available. An alternative measure that merits special attention is the real or inflation-adjusted deficit.<sup>4</sup> This measure of the deficit is given by:

$$(3) \text{ Real Deficit} = \Delta(B/P) + \Delta(M/P) = G/P + rB/P - \pi M/P - T/P,$$

where  $P$  is the price level,  $r$  is the real rate of interest ( $i - \pi$ ), and  $\pi$  is the inflation rate. This equation states that the amount by which real federal government expenditures exceed real revenues is financed by changes in the real value of government bonds and monetary liabilities.

A few comments about this measure of the deficit are appropriate. First, when there is no inflation ( $\pi = 0$ ), one simply multiplies equation (3) by the price level ( $P$ ) to obtain equation (2). Second, real interest payments on the federal debt are given by  $rB/P$ . This means that if inflation is fully anticipated and thus completely embodied in the nominal interest rate that the Treasury Department pays on federal government debt, then a higher inflation rate need not affect the real deficit. But, for this to happen, the nominal debt must increase along with the price level. Inflation would, therefore, increase the nominal deficit (see equation (2))

<sup>2</sup>The  $B$  on the right-hand side of equation (2) is the same as the  $B$  on the left-hand side. In other words, federal expenditures on interest payments only include those made to the public. The reason is that "almost all interest received by the Federal Reserve holdings of debt have only a small effect on the budget surplus or deficit." See Special Analysis E, Borrowing and Debt, The Budget of the United States Government, 1983, Office of Management and Budget, Executive Office of the President, February 1982, p. 4. It should be pointed out that the revenue returned to the Treasury by the Federal Reserve System is included, in the national income accounts, as a part of corporate taxes. This, of course, overstates corporate taxes, particularly in high interest rate periods.

<sup>3</sup>More specifically, "the (unified) budget records receipts at the time the cash is collected regardless of when the income is earned and outlays (except interest paid to the public) are generally recorded at the time the checks are issued. The NIA (national income accounts) attempts to record most receipts from the business sector in the time period in which the income is earned rather than when taxes are actually paid, while personal income

taxes and social insurance contributions are recorded at the time of payment by the individual taxpayer rather than when the liability is accrued or the cash is received by Treasury." See Special Analysis B, Federal Transactions in the National Income Accounts, The Budget of the United States Government, 1983, Office of Management and Budget Executive Office of the President, February 1982, p. 29.

<sup>4</sup>As one widely known economist states, "the relative long-run stability in the price level that prevailed before World War II has been replaced by a setting of chronic inflation. Accordingly, the examination of nominal debt data may be satisfactory for the pre-World War II period, but would not be useful after the war. Movements in nominal debt along with the price level, which merely maintains the real value of the outstanding debt, are inaccurately labeled as deficits in this analysis." See Robert J. Barro, "Comment from an Unreconstructed Ricardian," *Journal of Monetary Economics*, August 1978, p. 575. Also, see Brian Horrigan and Aris Protopapadakis, "Federal Deficits: A Faulty Gauge of Government's Impact on Financial Markets," *Business Review*, Federal Reserve Bank of Philadelphia, March-April 1982, pp. 3-16.



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## "Inflation essentially acts as a tax on the government's monetary liabilities whether inflation is anticipated or not."

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due to increased interest payments on debt outstanding (iB). Third, the real return on M/P is minus the inflation rate ( $-\pi$ ), since the nominal rate of return on M is zero. Fourth, money-financed deficits that persist over time would continually increase the nominal deficit but could decrease the real deficit so long as M and P move together. Fifth, and most importantly, inflation essentially acts as a tax on the government's monetary liabilities whether it is anticipated or not; it also constitutes a tax on bond liabilities to the extent that the inflation is unanticipated. For this reason we should examine both nominal and real deficits, especially during periods of chronic inflation.

To illustrate the importance of adjusting for inflation, consider that the nominal deficit was nearly \$60 billion in fiscal year 1980. Given that B was equal to \$594 billion and M was equal to \$157 billion in that year and that the inflation rate was 9 percent, one would have to subtract about \$68 billion from the nominal deficit to obtain an inflation-adjusted deficit. Doing this, the result is that the fiscal year 1980 deficit becomes an \$8 billion surplus.

Finally, rather than simply considering the size of federal deficits in isolation, it is frequently more informative to measure deficits relative to gross national product (GNP). In other words, it is useful to consider deficits (or surpluses) as a share of GNP. To illustrate the information this approach yields, consider the years 1968 and 1979. In the earlier year, the deficit was \$25.2 billion, nearly the same as the 1979 deficit of \$27.7 billion. When measured as a share of GNP, however, the situation is quite different. In 1968, the deficit amounted to 3 percent of GNP, whereas in 1979 the corresponding amount was only 1.2 percent. These figures demonstrate that financing the same

size deficits may have far different implications depending upon the level of overall economic activity. Furthermore, as will be shown in the next section, the level of economic activity will significantly affect the size of the deficit. In short, to better understand deficits it is important to put them into perspective by expressing the deficits as a share of GNP.

### What the Budget Deficit Doesn't Measure

It is important when discussing federal deficits to realize what they do not measure. Certainly, federal deficits as commonly known do not measure the change in the net worth of the federal government. In other words, although it may be conceptually sound to be interested ultimately in the federal government's net worth (assets less liabilities), such a measurement is extremely difficult to obtain. Valuing equipment, buildings, land, social security obligations, retirement benefits, and loan guarantees, to mention just a few assets and liabilities, would require a herculean effort.<sup>5</sup> One could even ask whether monetary liabilities actually exist, since there is no presumption that base money (reserves plus currency) will ever be retired. In any event, deficits should not be equated with dis-saving in the sense that the federal government's net worth is necessarily declining by the same amounts. The widely reported measures of the budget deficit are far narrower in scope.<sup>6</sup>

Another factor is that the federal deficit does not include the activities of off-budget federal entities such as the Federal Financing Bank, Synthetic Fuels Corporation, and the Postal Service fund.<sup>7</sup> Off-budget entity activities do not show up in the unified budget spending and thus the deficit figures. This means, of

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<sup>5</sup>Such a herculean effort has been recently undertaken by Robert Eisner and Paul Pieper, "Government Net Worth: Assets, Liabilities, and Revaluations." Some of their estimates are presented in the *Economic Report of the President*, U.S. Government Printing Office (1982).

<sup>6</sup>Clearly, if government deficits are hypothesized to affect economic variables, one must be sure to use an appropriate measure to the deficit when performing empirical tests. For more detailed discussions of some of these issues, see the *Economic Report of the President*, February 1982, pp. 102-108, and Rudolph G. Penner, "How Much is Owed by the Federal Government?", American Enterprise Institute, undated mimeo.

<sup>7</sup>For an extremely readable and informative discussion of off-budget entities at the federal as well as state and local levels of government, see James T. Bennett and Thomas J. DiLorenzo, "How the Government Evades Taxes," *Policy Review*, Winter 1982, pp. 71-89. Also, see David H. Resler and Richard W. Lang, "Federal Agency Debt: Another Side of Federal Borrowing," Federal Reserve Bank of St. Louis *Review*, November 1979, pp. 10-19, and *Federal Credit Activities: An Overview of the President's Credit Budget for Fiscal Year 1983*, Congressional Budget Office, Staff Working Paper, March 1982.



course, that off-budget spending does not go through the normal congressional process.<sup>8</sup> In 1973, when off-budget federal entity outlays began, the federal deficit was \$14.9 billion when these entities were included. Excluding them reduced the deficit only to \$14.8 billion. However, by 1981, the situation was vastly different. The federal deficit was \$57.9 billion excluding these entities. But it jumps to \$78.9 billion when they are included. Clearly, the exclusion of off-budget entities understates the size of the deficit and thus the magnitude of borrowing undertaken by the federal government.<sup>9</sup>

In addition, almost all of the talk about budget deficits refers to the federal deficit, yet not all government borrowing in the credit markets is done by the federal government. State and local governments also borrow in the credit markets. They may also, of course, purchase federal government securities. Thus, when assessing the impact of government borrowing on the competition for loanable funds between the public and private sectors, one should properly consider total borrowing (net of inter-governmental transactions) by all levels of government, not just federal borrowing.

## The Federal Budgetary Record

To put the concern over budget deficits into better perspective, it is useful to review the federal budgetary record. From the establishment of the U. S. Treasury in 1789 through 1981, there have been 191 budgets.<sup>10</sup> During this long period, the record shows that there have been 88 deficits and 103 surpluses (see the Appendix for a partial listing of the actual data).

Such a long period, however, may obscure important changes in budgeting behavior. The period is therefore broken down into two subperiods, 1789 to 1930 and 1931 to

1981. The reason for this particular split is that, as Lewis Kimmel has stated, "... at no time prior to the 1930s were public expenditures used deliberately and consciously as a balancing factor; there was little or no evidence of a conscious fiscal policy in the modern sense of the term."<sup>11</sup> Subsequent to the 1930s, however, fiscal policy became increasingly viewed as a tool for smoothing cyclical fluctuations in economic activity.

During the 140 years from 1789 to 1930, there were 45 deficits. This means, of course, that there were 95 surpluses. In short, during the first 140 years of U. S. history the budget was in the red 32 percent of the time. The budgetary record for the more recent 1931 to 1981 subperiod, however, is quite different. In almost one-third fewer years (51), there were nearly as many deficits (43). Surpluses occurred only eight times. In other words, the past half century saw deficits 84 percent of the time.

The situation for the past 32 years is even more striking. Since 1950, there have been 27 deficits and only five surpluses, the most recent one in 1969. The largest deficit on record occurred during this period—\$66.4 **billion** in 1976. This compares to the first budget deficit of \$1.4 **million** in 1792.

The entire budgetary record is presented graphically in chart 1, which shows that there are clearly periods in which deficits as a share of GNP have tended to skyrocket. What is striking, however, is that the largest deficits always have occurred during war periods. In fact, the record is that of the 88 deficits during the past 191 years, 30 of these occurred during war years. Omitting

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<sup>11</sup>Ibid., p. 8.

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<sup>8</sup>Senator John Heinz recently introduced legislation to move Social Security off-budget largely due to the protracted debate over the fiscal year 1983 budget.

<sup>9</sup>Of course, it should be noted that some federal debt is acquired by federal agencies. Specifically, "total agency holdings of Federal securities will reach an estimated \$237 billion by the end of 1983. This will comprise 19 percent of the gross federal debt." See Special Analysis E, Borrowing and Debt, The Budget of the United States Government, 1983, Office of Management and Budget, Executive Office of the President, February 1982, p. 20.

<sup>10</sup>Interestingly enough, as Lewis Kimmel points out, "the federal government has operated under a budget, properly so-called, only since 1921..." See **Federal Budget and Fiscal Policy, 1789-1958**, The Brookings Institution, Washington, D.C., 1959, p. 2.

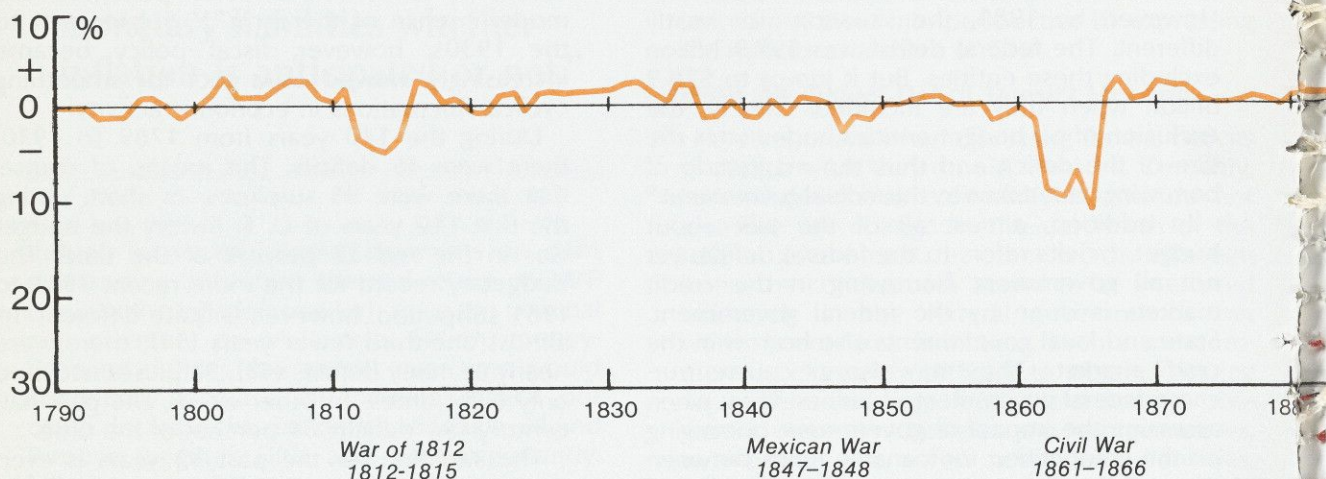
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### Editor's Note:

This article is based on federal budget data from 1789–1981 which, as far as we know, have never been compiled in a single source before. While the complete Appendix table is too bulky to reproduce in this article, it is available upon request from the authors.



# **Chart 1. Unified Federal Budget Surplus or Deficit as a Percentage of GNP from 1789 – 1981**



war years, then, one finds that there were 103 surpluses versus 58 deficits since the first U. S. budget. Of course, depressions and recessions, by reducing revenues and stimulating expenditures, also are associated with deficits. The largest peacetime deficit occurred during the Great Depression of the 1930s.

Given that there were so many surpluses during U. S. history, it is important to understand their purpose.<sup>12</sup> Basically, surpluses are intended to reduce, and ultimately to retire, federal debt outstanding. As chart 2 shows, this goal has been largely accomplished. As may be seen, wars caused federal debt as a share of GNP to rise sharply. However, after the wars, federal debt fell rather steadily. The same pattern emerged for severe recessions, such as the Great Depression of the 1930s. Also, notice that federal debt was essentially eliminated during the 1830s.

As chart 2 dramatically shows, contrary to what people may believe, the federal debt has not grown without limit. On the basis of the historical record, there was every reason to believe that eventually it would be paid off. Only in the last few years has the federal debt leveled off. What will happen in future years, of course, is very uncertain. This uncertainty, in turn, affects financial markets in ways that are not fully understood. More will be said about this in subsequent sections.

## **Budget Deficits and the Great Depression**

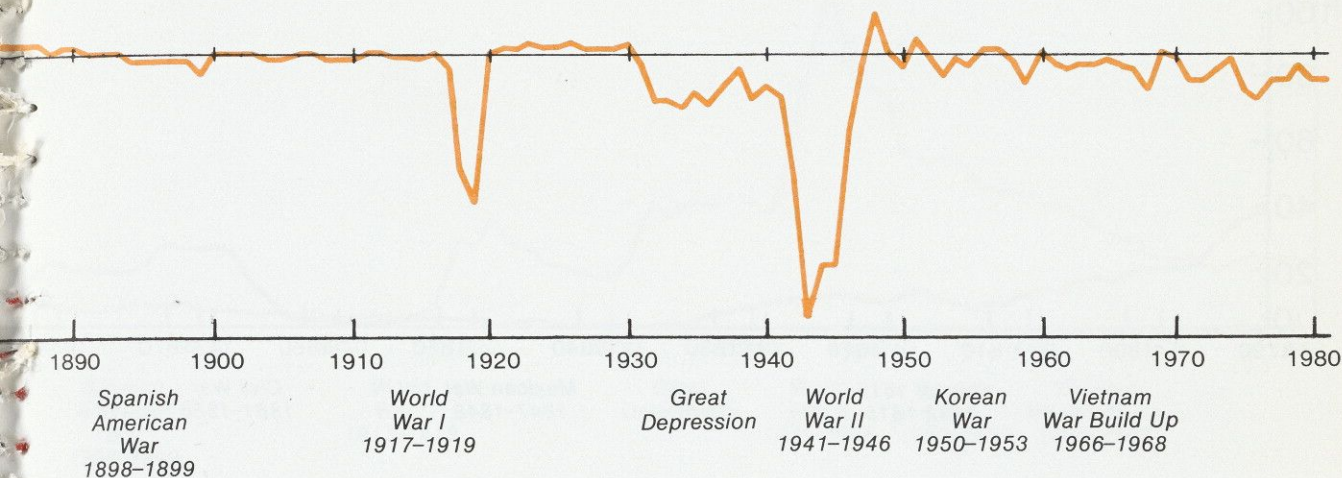
The current concern about federal deficits is reminiscent of the concern expressed during the Great Depression.<sup>13</sup> Prior to the 1930s it was widely believed that a balanced budget was "the principal test of sound fiscal management."<sup>14</sup> As the previous section demonstrated, surpluses

<sup>12</sup>In view of all the controversy over budget deficits, it is interesting to note that budget surpluses during the 1880s also created problems and controversy. See *Ibid.*, pp.70-75.

<sup>13</sup>Interestingly enough, when the unemployment rate rose to 9.4 percent in April of 1982, the headline of the May 8 1982 issue of the *Washington Post* read "Unemployment Worst Since Great Depression."

<sup>14</sup>See Lewis H. Kimmel, *Federal Budget and Fiscal Policy, 1789-1958*, The Brookings Institution, Washington, D.C., 1959, p. 143. The material in this section is based entirely upon Kimmel's fascinating account of U.S. budget policy.





were the rule, not the exception. When deficits did occur, it was mainly due to wars. But following the wars, surpluses were typically accumulated so that outstanding federal debt could be retired. During the 1930s, however, something quite different happened. For the first time in U. S. history, the nation incurred 10 successive peacetime deficits.

On December 2, 1929, approximately six weeks after the collapse of the stock market, President Hoover submitted his budget for 1931 to the Congress. There was no indication in this budget nor any direct admission during the following year that large and continual deficits were looming. Indeed, "even the 1932 budget released in December 1930 indicated surpluses for the fiscal years 1931 and 1932."<sup>15</sup> This situation did not last long, however. "As the depression deepened, it became apparent that the budget estimates had been far too optimistic and that the Treasury would soon be faced with larger deficits than any previously incurred in time of peace."<sup>16</sup>

Despite the depression, a balanced budget was considered to be an essential condition for recovery. "A balanced budget was regarded

as a prerequisite for a revival of business confidence."<sup>17</sup> Moreover, "federal borrowing was viewed as competitive with business and other private borrowing; interest rates were higher because of federal competition for loan funds."<sup>18</sup> Lastly, an "unbalanced federal budget was equated with inflation."<sup>19</sup> Thus, it is no surprise that in the early 1930s "the President (Hoover), officials of the executive branch, and the leadership of both parties in Congress" united in "making a balanced budget the primary policy goal."<sup>20</sup>

Interestingly enough, throughout the early years of the depression, it was frequently asserted that heavy or excessive tax burdens were a major reason for, if not the sole cause of, the "unsatisfactory economic situation."<sup>21</sup> Despite this view, however, tax reductions were not regarded as a viable option. Instead,

<sup>15</sup>*Ibid.*, p. 145.

<sup>16</sup>*Ibid.*, p. 146.

<sup>17</sup>*Ibid.*, p. 152.

<sup>18</sup>*Ibid.*, p. 152.

<sup>19</sup>*Ibid.*, p. 152.

<sup>20</sup>*Ibid.*, p. 153.

<sup>21</sup>*Ibid.*, p. 164.



## Chart 2. Public Debt as a Percentage of GNP from 1789 – 1981



a balanced budget achieved primarily through rigorous expenditure control was the primary goal."<sup>22</sup>

During the 1932 presidential campaign, "the Democratic party became the self-appointed champion of what was accepted as fiscal conservatism."<sup>23</sup> In this role, the Democrats "made the most of the 'recklessness' of those who would tolerate continued unbalance in the federal accounts."<sup>24</sup> With the election of President Roosevelt, however, the campaign rhetoric faded fast. By the time of the budget message of January 5, 1937, in contrast to the first budget message "which promised a balanced budget in the third year of recovery," "... a fully balanced budget was now assured only in the indefinite but apparently not-too-distant future."<sup>25</sup> Instead of balancing the budget, very early on in the Roosevelt administration "restoring the economy, which above all else required a reduction in unemployment to a reasonable

minimum, became a primary objective of public policy."<sup>26</sup> Indeed, "on numerous occasions the President stated that government was responsible for providing for the unemployed and the needy."<sup>27</sup> While doing this, however, "it was held that these and other governmental expenditures would contribute to rising income levels and increases in private employment."<sup>28</sup>

The above quotations from the period of the Great Depression support the view that economic views often repeat themselves. Much of the current controversy and concern over budget deficits is remarkably similar to that which surfaced a half century ago. Apart from this, the Great Depression demonstrated to many individuals that sharp contractions in economic activity can cause huge deficits. Eventually, this realization led to the development of the concept of a full employment budget deficit.<sup>29</sup> Rather than simply relying only on the reported federal deficit figures,

<sup>22</sup>*Ibid.*, p. 165.

<sup>23</sup>*Ibid.*, p. 166.

<sup>24</sup>*Ibid.*, p. 166-167.

<sup>25</sup>*Ibid.*, p. 182.

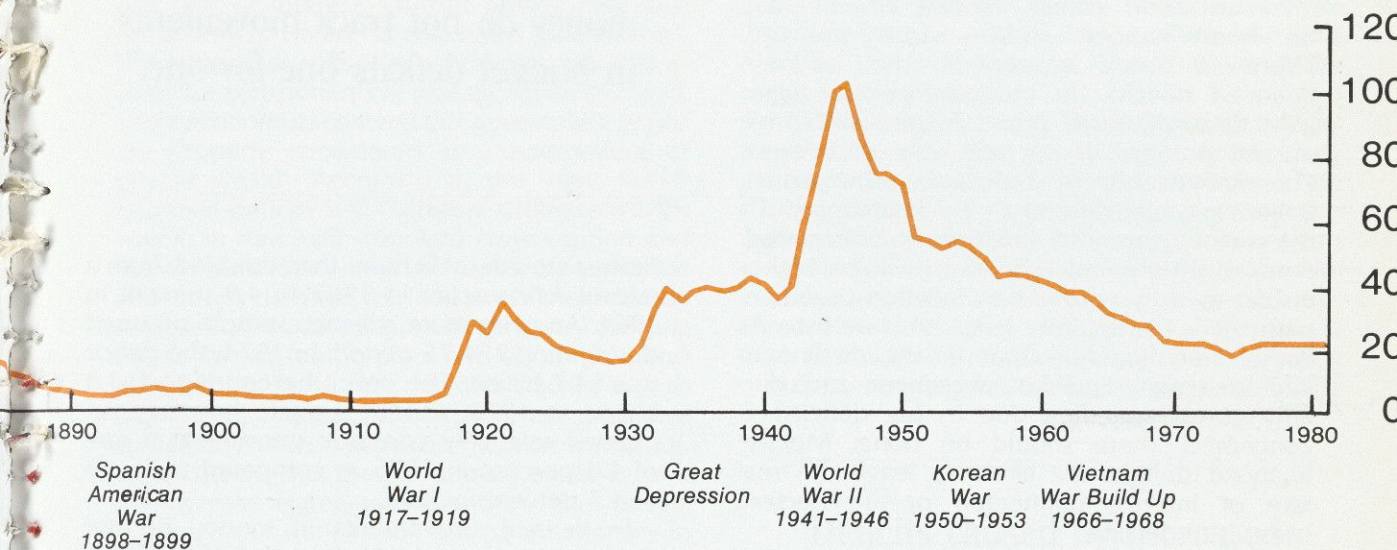
<sup>26</sup>*Ibid.*, p. 182.

<sup>27</sup>*Ibid.*, p. 189.

<sup>28</sup>*Ibid.*, p. 189.

<sup>29</sup>See David H. Resler and Richard W. Lang, "Federal Agency Debt: Another Side of Federal Borrowing," Federal Reserve Bank of St. Louis *Review*,





the notion was that one should calculate what the budget deficit (or surplus) would be if the economy were operating at full or a high level of employment. On a full employment basis, for example, during the spring and summer of 1981, the federal budget was in surplus, not in deficit. Some interpret this as a sign that fiscal policy was, if anything, contractionary during this recessionary period.

### Why All the Concern Over Budget Deficits?

Why is there such widespread concern over federal budgetary deficits?<sup>30</sup> Or, more to the point, do budget deficits really matter?

Unfortunately, determining the economic impact of deficits is very controversial. It is an area where there are widely differing points of view.<sup>31</sup> Some economists, for example, state that "bigger deficits, if allowed to accumulate, have evil consequences of their own; either more inflation, or more government borrowing from private lenders, which in turn means less chance for private firms to borrow funds needed for capital improvements and expansion."<sup>32</sup> Others say "an increase in the budget deficit ... does not necessarily mean either a crowding out of private investment or an accentuation of

November 1979, pp.18-19, and Alan S. Blinder and Robert M. Solow, "Analytical Foundations of Fiscal Policy," in *The Economics of Public Finance*, The Brookings Institution, Washington, D.C., 1974, pp. 3-115.

<sup>30</sup>The current concern, of course, centers on President Reagan's budget proposals. For a discussion of the Reagan economic program as well as a comparison with policies over the last 30 years, see James R. Barth, "The Reagan Program for Economic Recovery: An Historical Perspective," this *Review*, October 1981, pp. 14-25. The rationale for "Reaganomics" or "supply-side" economics is found in James R. Barth, "The Reagan Program for Economic Recovery: Economic Rationale (A Primer on Supply-Side Economics)," this *Review*, September 1981, pp. 4-14. Also, see John A. Tatom, "We are All Supply-Siders Now!", Federal Reserve Bank of St. Louis *Review*, May 1981 pp. 18-30, and James R. Barth and Joseph J. Cordes, "Supply-Side Economics: Political Claims vs. Economic Reality," *Journal of Studies in the Social Sciences*, forthcoming.

<sup>31</sup>Deficits, however, only represent part of a broader area of controversy within macroeconomics. To illustrate, consider the following quotes: (1) "Supply-side economics, currently the most popular counter-revolution, is also the most amorphous. Without a Keynes or Friedman or Lucas, it lacks a sacred text expounding its theoretical foundations. It is more spirit, attitude, and ideology than coherent doctrine, and its enthusiasts are of many minds." See James Tobin, "Supply-Side Economics: What Is It: Will It Work?", *Economic Outlook USA*, Summer 1981, p. 51; (2) "Keynesian economics is dead ... At research seminars, people don't take Keynesian theorizing seriously anymore; the audience starts to whisper and giggle to one another." Also, "crackpot proposals like the ... Roth-Kemp bills (multi-year tax cuts) get attention along with serious ones..." See Robert E. Lucas, Jr., "The Death of Keynes," in *Viewpoints on Supply-Side Economics*, Thomas J. Hallstones, ed., Robert F. Dame, Inc., Richmond, 1982, pp. 3 and 5, respectively; and (3) "The rational expectations hypothesis is a statement



inflationary pressure.”<sup>33</sup> To understand the potential economic impact of budget deficits, we will discuss the rationale underlying such different views.

As discussed earlier, federal deficits may be bond-financed and/or money-financed. There is broad agreement that money-financed deficits do indeed increase aggregate demand, push prices higher, and drive up the nominal, if not real, rate of interest. The monetization of deficits, in other words, is generally considered to be inflationary. To the extent that the inflation is anticipated, nominal interest rates, in turn, will be higher insofar as they embody an inflation premium, particularly long-term rates of interest. As far as crowding out (that is, the decline in interest-sensitive private investment and durable goods spending due to big deficits) is concerned, there should be none. Money-financed deficits are likely to leave the real rate of interest unaffected or, if affected, cause it to decline.

But how can one be sure that budget deficits will not be money-financed? Since the Federal Reserve is independent of the Treasury Department, there is no requirement that it purchase federal securities whenever there is a deficit. If the Federal Reserve so decides, deficits may be completely bond-financed. Historically, this has not been the case. On the other hand, the record does not demonstrate that deficits are completely money-financed, either. What appears to be the case is that the Federal Reserve monetizes a varying fraction of budget deficits. Even when the Federal Reserve monetizes a portion of the deficit, however, it doesn't necessarily mean that the money stock increases one-for-one with the deficit. For example, the deficit was \$3.8 billion in 1962. This deficit became a surplus of \$0.7 billion in 1963. At the same time,

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**“In general, movements in money do not track movements in budget deficits one-for-one.”**

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money growth (M1) more than doubled, from a rate of 1.8 percent in 1962 to 4.0 percent in 1963. An even more striking example occurred during the 1974-75 period. In 1974, the deficit was \$4.7 billion. The deficit ballooned to \$63.8 billion in 1975. Money growth, however, remained relatively constant, growing at a rate of 4.9 percent in 1975 as compared to a rate of 4.7 percent in 1974.

In general, movements in money do not track movements in budget deficits one-for-one. Whether the movements are much closer once we adjust for the level of economic activity (so as to distinguish between “passive” and “active” deficits) is another matter. The evidence relating to whether deficits in the past have led to faster money growth and, thus, inflation appears to be somewhat mixed.<sup>34</sup> In any event, regardless of what has happened in the past, the Federal Reserve is in a strong position to prevent future deficits from becoming inflationary.

More controversial is the case of bond-financed deficits, in which deficits are financed

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of tautological probabilities that can be imposed on a model but not tested. Even in cases where the rational expectations hypothesis is imposed, the model may not be identifiable unless certain *a priori* conditions, neglected in previous econometric discussions of rational expectations, are assumed.” See P.A.V.B. Swamy, J. R. Barth, and P. A. Tinsley, “The Rational Expectations Approach to Economic Modeling,” Special Studies Paper No. 143, Federal Reserve Board, July 1980, and *Journal of Economic Dynamics and Control* May 1982, pp. 125-147.

<sup>32</sup>See Carl F. Christ and Alan A. Walters, “The Mythology of Tax Cuts,” *Policy Review*, Spring 1981, p.86.

<sup>33</sup>See David Raboy, “Norman B. True on Supply-Side Economics,” in *Viewpoints on Supply-Side Economics*, Thomas J. Hailstones, ed., Robert F. Dame, Inc., Richmond, 1982, p.65.

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<sup>34</sup>M. J. Hamburger and B. Zwick, for example, find that throughout most of the 1960s and 1970s larger federal deficits were accommodated by faster monetary growth. See “Deficits, Money and Inflation,” *Journal of Monetary Economics*, January 1981. Also, Scott H. Hein states that “only when monetary authorities attempt to prevent interest rates from rising will federal deficits lead to increases in the money stock and, subsequently, inflation.” He goes on to say that “this link was apparently important from 1955 through early 1975... more recently, however, the link appears to have been broken...” See “Deficits and Inflation,” Federal Reserve Bank of St. Louis *Review*, March 1981, p. 10. Robert J. Barro, however, states that “the principal link from the federal budget to money creation in recent U.S. experience involves departures of federal spending from normal—especially the positive response to wartime spending and the negative reaction to post-war spending cuts—rather than the surplus position (or the level of federal spending), per se.” See “Comment from an Unreconstructed Ricardian,” *Journal of Monetary Economics*, August 1978, p. 578. For a more general discussion of the reaction of the Federal Reserve to various economic variables, see James R. Barth, Robin Sickles, and Philip Wiest, “Assessing the Impact of Varying Economic Conditions on Federal Reserve Behavior,” *Journal of Macroeconomics*, Winter 1982, and the references cited therein.



through the sale of securities to the public. The crucial issue here is whether the bonds that are sold increase aggregate demand and thus drive up prices as well as increase the real rate of interest. Output effects may also occur which, via an "acceleration mechanism", can temporarily offset any reduction in interest-sensitive components of real aggregate demand. Some economists contend that government bonds are properly considered as a component of private wealth. According to this view, bond-financed deficits will therefore increase wealth which, in turn, will stimulate consumption and the demand for money. Increased consumption and money demand will lead to a higher real rate of interest. This, they argue, will generate crowding out as investment in plant and equipment and purchases of consumer durables decline due to higher real interest rates. If interest rates rise sufficiently, there will be complete crowding out, which means that the bond-financed deficit will not increase aggregate demand and thus prices. Although the deficits will not be inflationary in this more extreme situation, they will still drive up real interest rates and thus generate crowding out.<sup>35</sup>

Other economists disagree with this scenario. They contend that government bonds do not represent net wealth.<sup>36</sup> According to this view, there are no wealth effects associated with bond-financed deficits. Proponents argue that people realize the bonds issued will pay interest and will eventually be retired. This means that issuance of bonds implies an offsetting future tax liability to cover the interest payments and principal. To meet this future tax liability, the public will save more. This means that the federal deficit (government dis-saving) will be matched exactly by an increase in private

saving. In this case, there will be no increase in aggregate demand and thus no increase in prices.<sup>37</sup> Furthermore, the increase in private saving to match the budget deficit means that the deficit will not siphon funds away from private investment. In short, real interest rates will be unaffected and, as a result, there will be no crowding out.

Still another view of bond-financed deficits maintains that cuts in tax rates (particularly marginal tax rates), will increase the after-tax rate of return to saving. As a result, it is argued that tax-induced deficits will stimulate a greater amount of saving. If stimulated sufficiently, this additional saving will be available to purchase the government bonds that are sold to finance the deficit. In this way, there need not be any crowding out or increased inflationary pressure.<sup>38</sup> The

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**"Deficits caused by increased federal spending are likely to be more inflationary and generate more crowding out than those caused by cuts in marginal tax rates."**

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increase in saving will prevent aggregate demand from rising and will provide the additional funds to keep real interest rates from moving upward.

<sup>35</sup>Once again, the empirical evidence appears to be mixed. Otto Eckstein and Christopher Probyn, for example, state that "the failure to achieve an average of balance in the budget reduces the growth of the economy's ability to produce and worse... inflation." They go on to say that "the principal mechanisms are the effects of deficits on interest rates and the crowding out of private financing, which, in turn, reduces investment spending..." See "Do Budget Deficits Matter?" **Data Resources U.S. Review**, December 1981, p. 1 and 15. Lawrence A. Kudlow also reports results showing that "increased federal borrowing raises interest rates and inflation and ultimately inhibits the growth of output." See "Statement of Lawrence A. Kudlow, Assistant Director for Economic Policy, Office of Management and Budget before the Senate Budget Committee, October 20, 1981, Statistical Appendix, p. 1. Gerald P. Dwyer, Jr., on the other hand, reports that "no evidence is found that larger government deficits increase prices, spending, interest rates, or the money stock." **Economic Inquiry**, forthcoming, p. 18.

<sup>36</sup>See Robert J. Barro, "Are Government Bonds Net Wealth?" **Journal of Political Economy**, November/December 1974, pp. 1095-1117.

<sup>37</sup>Preston J. Miller, among others, questions this ultra-rationality hypothesis, however, he argues that since the government has run so many deficits during the past 20 years, "few people expect the government to retire its debt." As a result, "because the bonds are not likely to be paid off by higher taxes in the future, they are merely promises to deliver currency in the future." He goes on to say that "in fact, they are really much like currency." Thus, "when bonds are almost identical to money, any change in policy that increases the deficit is inflationary." See **Quarterly Review**, Federal Reserve Bank of Minneapolis, Summer 1980, p. 2.

<sup>38</sup>Paul Craig Roberts states for example, that "savings, of course, represent the supply of funds in financial markets. So deficits caused by tax rate cuts add to the supply of funds as well as to the demand for funds. This allows the deficit to be financed without pressure on interest rates and money creation. There is no need to monetize the deficit and thus no inflationary effect." See "The Economic Case for Kemp-Roth," **The Wall Street Journal**, August 1, 1978.



We can probably safely draw the following conclusions.<sup>39</sup> First, if anything, deficits caused by increased federal spending are likely to be more inflationary and generate more crowding out than those caused by cuts in marginal tax rates.<sup>40</sup> Second, money-financed deficits are more likely to be inflationary but less likely to generate crowding out than are bond-financed deficits. Third, deficits that persist and grow (both absolutely and as a share of GNP) during peacetime, nonrecessionary periods are more likely to be inflationary and lead to crowding out, regardless of how they are financed. Fifth, as should perhaps now be clear, attempting to predict the impacts of government spending and tax rate changes on the economy is an extremely difficult task, especially if it is not clear whether the changes are temporary or permanent.<sup>41</sup> For this and related reasons, a sensible budget policy may be to set government spending and tax rates so

as to balance the budget not every year but over the course of a business cycle. In this way, deficits could occur with wars and recessions, while surpluses could occur during cyclically expansionary periods.

## The Budgetary Bottom Line

Despite the fact that budget deficits may not always be painful economically, they always seem to be painful politically. This is a case in which perceptions may be more important than reality. So whether the economic issues as discussed above are fully understood or not, in such a situation, deficits do indeed matter. If the Congress perceives that federal deficits are harmful—politically and/or economically—it surely will take steps to eliminate them. The issue then becomes whether the resulting actions are more harmful to the economy than the deficits would have been.

—James R. Barth  
and Stephen O. Morrell

<sup>39</sup>For a more detailed analysis of the views of Keynesian, Monetarists, Rational Expectationists, and Supply-Siders regarding fiscal and monetary policies, see James R. Barth, "The Costs of Slowing Inflation: Four Views," this *Review*, January 1982, pp. 39–49. Also, for an interesting analysis of the interactions between the monetary and fiscal authorities when there is a deficit and their implications for inflation, see Thomas J. Sargent and Neil Wallace, "Some Unpleasant Monetarist Arithmetic," *Quarterly Review*, Federal Reserve Board of Minneapolis, Fall 1981, pp. 1–17.

<sup>40</sup>In this regard, see Vito Tanzi and George Iden, "The Impact of Taxes on Wages in the United States: An Example of Supply-Side Economics?" Fiscal Affairs Department, International Monetary Fund, April 7, 1981, mimeo.

<sup>41</sup>It should also be noted that nothing thus far has been said about allocative effects due to deficits. For a discussion of some of the allocative effects associated with tax cuts, see James R. Barth and Joseph J. Cordes, "Industrial Impacts of the 1981 Business Tax Cuts," this *Review*, May 1982.

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## Appendix

Year	Unified Federal Budget Surplus or Deficit (\$ millions)	Public Holdings of Federal Debt (\$ millions)	Nominal GNP (\$ millions)	Unified Federal Budget Surplus or Deficit as a Share of GNP (millions)	Public Holdings of Federal Debt as a Share of GNP (millions)
1789	.150	0.000	174.000	.09	0.00
1790	.150	75.464	198.000	.08	38.11
1810	1.228	58.006	650.000	.19	8.92
1830	9.701	39.123	1053.000	.92	3.72
1850	4.060	63.453	2556.000	.16	2.48
1870	101.602	2035.881	8392.000	1.21	24.26
1890	85.040	711.313	13100.000	.65	5.43
1910	-18.105	913.318	35400.000	-.05	2.58
1930	738.000	15158.000	90700.000	.81	16.71
1950	-3112.000	200692.000	286457.000	-1.09	70.06
1970	-2845.000	227166.000	968800.00	-.29	23.45
1980	-59563.000	594259.000	2567500.000	-2.32	23.15
1981	-57932.000	669968.000	2858600.000	-2.03	23.44

\*Complete annual data for 1789-1981 available from authors.

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# Cyclical and Secular Components of the Federal Budget: Implications for Credit Market Activity

The large and persistent federal budget deficits of recent years have generated intense debate about their effects on economic activity. Assessing the influence of deficits on economic activity requires an understanding of the factors contributing to the growth of the deficit.<sup>1</sup> Important to this understanding is the distinction between cyclical and secular components of the federal government budget.

Cyclical or "passive" changes in the budget are those that occur automatically in response to changes in the stage of the business cycle.<sup>2</sup> That is, the cyclical element of the budget represents changes in federal government receipts and expenditures which reflect variations in the pace of economic activity and occur as a result of previously enacted taxing and spending legislation. For example, once the administration and Congress have determined tax rates, the amount of tax revenue collected depends on the level of personal income, corporate profits, and spending. Moreover, unemployment insurance laws are written so that benefits change automatically in response to changes in economic activity.<sup>3</sup> Consequently, this element of the budget varies countercyclically, with the deficit increasing during recessions and decreasing during expansions. This effect of economic activity and demographic changes on the budget is referred to as the budget's cyclical or passive component. By contrast, the secular or "active" component of the budget refers to discretionary changes in expenditures and taxes which result from current congressional and administration actions.

The distinction between cyclical and secular elements in the budget is important for a number of reasons.<sup>4</sup> First, the effects of the deficit on total credit demand and interest rates depend largely on whether the deficit is primarily the result of cyclical or secular elements. Because credit finances economic activity and the private demand for credit generally varies procyclically, a large secular element will produce a greater increase in the total demand for credit than if the deficit reflected primarily cyclical elements. On the other hand, if the deficit is primarily due to cyclical components, the demand for credit will not be as large

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"The effects of the deficit on total credit demand and interest rates depend largely on whether the deficit is primarily the result of cyclical or secular elements."

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because the decline in economic activity which increases the deficit is also generally accompanied by a decrease in the private demand for credit.

A second reason for distinguishing between cyclical and secular budget components is that the secular elements are generally thought to provide a more accurate measure of the impact of fiscal policy on the economy,<sup>5</sup> reflecting changes

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<sup>1</sup>It also requires an understanding of the policy regimes which produced the deficits and under which the deficits are financed. On this point, see Thomas Sargent and Neil Wallace, "Some Unpleasant Monetarist Arithmetic," *Quarterly Review*, Federal Reserve Bank of Minneapolis, Fall 1981, pp. 1-17.

<sup>2</sup>For an alternative discussion of "active" and "passive" deficits, see Keith Carlson, "Large Federal Budget Deficits: Perspectives and Prospects," *Review*, Federal Reserve Bank of St. Louis, October 1976, pp. 2-7.

<sup>3</sup>This does not suggest, however, that the previous tax and spending decisions of the federal government do not affect current economic activity.

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<sup>4</sup>For a discussion of the impact of cyclical and secular components of the budget on monetary policy, see William G. Dewald, "Disentangling Monetary and Fiscal Policy," *Economic Review*, Federal Reserve Bank of San Francisco, Winter 1982, pp. 7-18.

<sup>5</sup>For a discussion of the high employment budget, which is generally



**Cyclical or “passive” government deficits usually generate less intense credit market pressures, while secular or “active” deficits may crowd out private investment.**

in spending and taxing decisions due to discretionary actions such as new legislation. The third reason for distinguishing between cyclical and secular elements is to guide policy makers in determining how much of a reduction in government spending is necessary to balance the budget—cyclical factors notwithstanding. This article develops operational measures of the active and passive components of the federal budget and relates these measures to credit market activity.

### Separating Cyclical and Secular Components of the Deficit

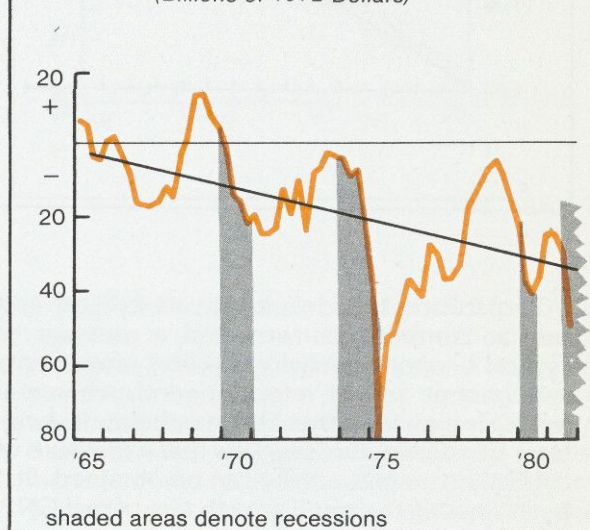
Chart 1 presents quarterly calendar year data on the real federal budget deficit from 1965 to 1981.<sup>6</sup> It focuses on the real deficit, the nominal deficit adjusted for inflation, because that provides a more accurate measure of the government's claim on the economy's real resources in excess of those provided by tax receipts. That is, because interest rates and inflation generally rise and fall together, a higher inflation rate will, other things being equal, increase the nominal deficit due to increased interest payments on outstanding debt. In addition, other components of spending as well as taxes respond to changes in inflation. Therefore, the nominal deficit data need to be adjusted for the effects of inflation to obtain a good measure of the deficit's effect on the economy.<sup>7</sup>

regarded as the best single measure of the net effect of fiscal policy on economic activity, see Frank de Leeuw, et al., “The High Employment Budget: New Estimates, 1955-1980,” *Survey of Current Business*, November 1980, pp. 13-43.

<sup>6</sup>Unless otherwise noted, the deficits are measured from the National Income and Products Accounts, which is an accrual method and not from the Unified Budget which is measured on a cash flow basis. The price index used to obtain the real deficit is the GNP implicit price deflator with 1972 = 100.

<sup>7</sup>A more detailed discussion of the effects of inflation on the government's borrowing requirement can be found in Brian Horingan and Aris Protopopadakis, “Federal Deficits: A Faulty Gauge of Government's Impact on Financial Markets,” *Business Review*, Federal Reserve Bank of Philadelphia, March/April 1982, pp. 3-16.

**Chart 1. Real Deficit (NIA)**  
1 Qt. 1965 - 4 Qt. 1981  
(Billions of 1972 Dollars)



Two features of the data in chart 1 stand out. The first is the countercyclical nature of the deficit. The deficit has grown during periods of economic contraction, marked on the graph by the shaded areas, and has tended to shrink during expansionary phases of the business cycle. The second feature is that, aside from cyclical fluctuations, there has been a strong tendency for the real deficit to increase over time. The trend growth of the real deficit has been at a rate of roughly \$580 million per year.<sup>8</sup>

<sup>8</sup>The trend growth of the real deficit was obtained by regressing the real deficit against time using quarterly calendar year data from 1965 to 1981. The estimated relationship is:

$$\text{Real Deficit} = 1.70 + .58T + u_t$$

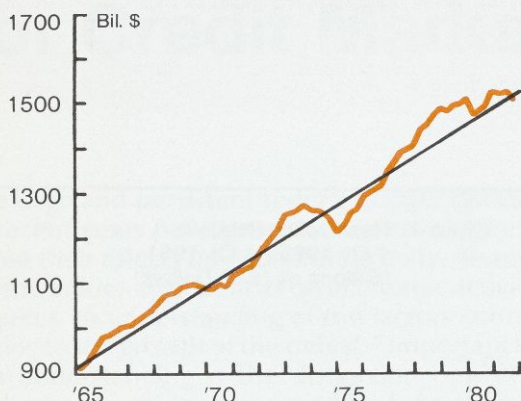
(2.90)      (2.67)

$$R^2 = .72, DW = 1.71, SE = .51.$$

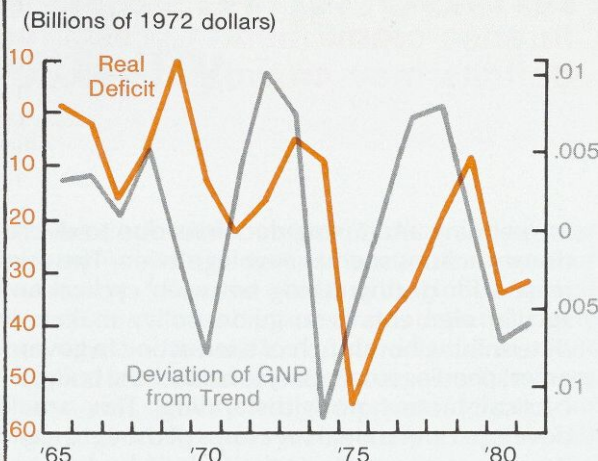
The absolute values of the t-statistics are in parentheses below the estimated coefficients and the estimates were corrected for first-order serial correlation.



**Chart 2.** Actual and Trend  
Gross National Product  
(Billions of 1972 Dollars)



**Chart 3.** Real Deficit (NIA) and Deviation  
of GNP from Trend



To partition the deficit into its cyclical and secular components, we need a measure of cyclical economic activity. Cyclical movements in economic activity refer to periods when real output is growing either above or below its long-term trend rate. This suggests that a measure of cyclical economic activity can be obtained, first by estimating the trend growth rate of real GNP. Then, the deviations of the actual rates of growth of real GNP from its estimated trend rate of growth provide a measure of cyclical economic activity.

From the first quarter of 1965 through the fourth quarter of 1981, real GNP grew at an estimated annual average rate of 3 percent.<sup>9</sup> Chart 2 depicts this trend rate of growth along with the actual path of real GNP growth for this period. The gap between the actual and trend growth for real GNP illustrates the deviation of real GNP from its trend.

In chart 3, the percentage deviation of real GNP from trend is plotted along with data on the real deficit. The size of the real deficit varies directly with the deviation of output from trend.

That is, in periods where real output is growing in excess of its trend growth, the size of the real deficit decreases and, in periods when real GNP is growing below trend, the real deficit increases. Chart 3 also suggests a lagged relationship between movements of real GNP from trend and the real deficit. This means that, for example, the effects of below trend real GNP growth on the size of the real deficit are not observed immediately but instead occur with some lapse of time.

We can now determine the cyclical or passive component of the budget by statistically estimating the relationship between the real deficit and our measure of cyclical economic activity. The estimated relationship, for the period I:65 - IV:81, using ordinary least squares (OLS) regression techniques, is presented as equation 1 (absolute value of t-statistics in parentheses):

$$(1) \text{RD}_t = 257\text{YD}_t + 449\text{YD}_{t-1} + 275\text{YD}_{t-2}$$

(2.42)                      (3.72)                      (2.43)

$$R = .75, \text{DW} = 1.95, \text{SE} = .47, p = .94$$

where RD is the real deficit, YD is the deviation of real GNP from trend, and the subscripts  $t$ ,  $t-1$ , and  $t-2$  refer to the contemporaneous and lagged values of YD.<sup>10</sup>

<sup>9</sup>The estimated relationship for the trend growth rate of real GNP for the period 1/65-4/81 is:

$$\log \text{RGNP} = 6.83 + .0075T + u_t$$

(352)      (16.21)

$$R^2 = .995, \text{DW} = 1.40, \text{SE} = .002.$$

<sup>10</sup>The results presented in equation 1 were corrected for first order autocorrelation. Also additional lagged values of YD were not statistically significant when added to the equation.



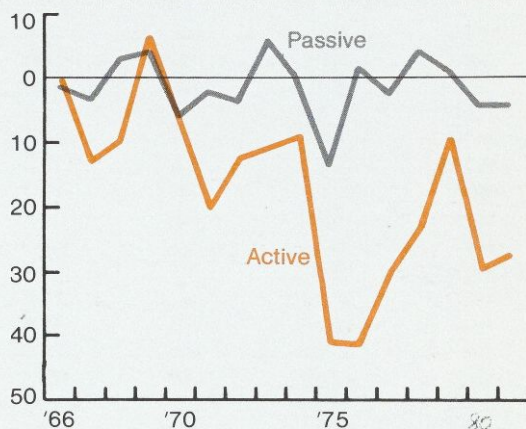
The results of equation 1 indicate that a significant amount of the variation in the real deficit, roughly 75 percent, is accounted for by variations in the deviation of real GNP from its trend growth. The estimated relationship also reveals that deviations of real GNP from trend affect the current real deficit with a two-quarter lag and that cyclical changes in output one quarter ago have the largest impact on the current real deficit. To see this, consider the coefficient on  $YD_{t-1}$ —the one quarter lag of the deviation of real GNP from trend. The magnitude of the coefficient, 449, means that each one percent deviation of real GNP below (above) trend growth which persists for one quarter will result in an increase (decrease) in the current quarter's real deficit by \$4.49 billion. The sum of the coefficients on the contemporaneous and lagged YD variables implies that a one percent movement of real GNP away from trend growth which lasts three quarters will cause the real deficit to change in the same direction by approximately \$9.7 billion.

The breakdown of the real deficit into its cyclical and secular (or passive and active) components is illustrated in chart 4. The passive or cyclical element is derived from equation 1. That is, it is the predicted or fitted magnitude obtained by substituting the actual values for YD into equation 1. The difference between the actual real deficit and that predicted from equation 1 measures the active or secular part of the real deficit. As we can see from chart 4, the active component of the real budget deficit generally has been quite small compared to the passive or cyclical element. The cumulative secular real deficit since 1965 has been approximately \$29 billion while the total cyclical real deficit has been roughly \$283 billion—larger by a factor of almost 10. This disparity reflects the fact that taxing and spending legislation passed in any one year generally has not had a major impact on the size of the real deficit in that year. Instead, the above results suggest that the cumulative interaction of previously enacted legislation with the state of the economy is a prime determinant of the size of the real deficit.

### Credit Market Effects of Active and Passive Deficits

As discussed earlier, any increase in government borrowing increases the total demand for credit. However, the impacts of an increased

**Chart 4.** Active and Passive Components of the Deficit (NIA)  
(Billions of 1972 dollars)



federal deficit on the total demand for credit depends in part on whether the deficit can be attributed primarily to active or passive budgetary elements. An increase in the federal deficit which can be traced largely to passive budgetary developments will tend to produce a smaller increase in the total demand for credit than one primarily associated with active elements. Hence, observed increases in real federal deficits caused primarily by passive budget elements should be associated with smaller observed increases, and perhaps decreases, in total real credit demand. Other things being equal, this implies less pressure on real interest rates.<sup>11</sup>

Table 1 presents annual data on the real deficit and its active and passive components. In seven of the 17 years from 1965 through 1981, the real value of the deficit increased from its level of the previous year.<sup>12</sup> Hence, the discussion will focus on these seven years. In five of these years, the increase in the passive aspect of the deficit was the primary driving force behind the increase in the total real deficit.<sup>13</sup> In 1974 and, to a lesser

<sup>11</sup>Because concerns about the effects of deficits on private investment work through real interest rate channels, the discussion in this section is couched in terms of real rates of interest.

<sup>12</sup>The seven years are 1966, 1967, 1970, 1971, 1974, 1975, and 1980.

<sup>13</sup>The five years are 1966, 1967, 1971, 1975, and 1980.



**Table 1.** Active and Passive Components of the Deficit\*\* (billions of 1972 dollars)

Calendar Year	Deficits (\$)*	Active Component	Passive Component
1965	+ 0.7	0.2	0.5
1966	2.3	+ 0.3	2.6
1967	16.7	3.5	13.2
1968	7.3	+ 2.5	9.9
1969	+ 9.7	+ 3.9	+ 5.8
1970	13.6	6.3	7.2
1971	22.9	2.5	20.4
1972	16.8	3.8	12.8
1973	5.3	+ 5.5	10.9
1974	10.0	0.5	9.4
1975	55.2	14.1	41.2
1976	40.2	+ 1.3	41.5
1977	33.2	2.8	30.3
1978	19.5	3.7	23.4
1979	9.1	+ 0.9	9.9
1980	34.5	4.7	29.7
1981	32.0	4.6	27.4

\*NIA budget

\*\*Columns may not sum to total due to rounding.

+denotes surplus

extent, 1970 active budgetary items were the proximate cause for the increase.

In 1966, 1975, and 1980, real funds raised by private nonfinancial sectors decreased by more than the increase in the passive deficit (see Table 2). Consequently, total funds raised by nonfinancial sectors decreased. Such a scenario is consistent with reduced pressure on real rates of interest. Quarterly data from 1965 to 1981 on two real rates of interest, 90-day Treasury bills and long-term Treasury bonds, are presented in chart 5.<sup>14</sup> As the table illustrates, real rates of interest generally declined from their previous year's levels in 1966 and 1975. Real rates of interest also fell during part of 1980 but by year-

end had risen above their 1979 end-of-year levels.<sup>15</sup> For both real interest rates and the quantity of funds raised in credit markets to have decreased, the demand for credit must have declined—both absolutely and relative to the supply of credit. Hence, the behavior of real rates of interest in 1966, 1975, and, to a lesser extent, in 1980 is consistent with the expected credit market effects of higher real deficits due primarily to passive budgetary developments.

Unlike the episode discussed above, real funds raised by private nonfinancial sectors did not decline in the presence of higher passive deficits in 1967 and 1971. Instead, funds raised by private nonfinancial sectors were essentially unchanged in 1967 while they increased significantly in 1971. Therefore, total funds raised by nonfinancial sectors increased in both years, suggesting more intense credit market pressure.

Chart 5 confirms that, as expected, real rates of interest tended to increase in 1967. In order for both real interest rates and the quantity of funds raised in credit markets to have increased, the demand for credit must have increased—both absolutely and relative to the supply of credit. Since funds raised by private nonfinancial sectors were essentially unchanged in 1967, it is likely that in this year the source of the increase in the real demand for credit was the increase in the government's demand for credit arising from a higher passive deficit.

In 1971, however, the behavior of real interest rates was not entirely consistent with the analysis presented here. Although real rates of interest increased throughout the second and third quarters of that year, they fell back in the fourth quarter. The failure of real interest rates to rise generally in conjunction with a significant increase in the total real funds raised by nonfinancial sectors implies that the supply of credit increased by relatively more than any increase in credit demand. An approximately 5.2 percent increase in the private savings rate in 1971 may have been largely responsible for the presumed increase in the supply of credit.

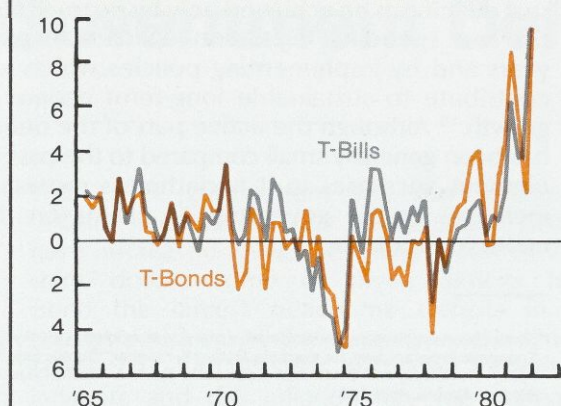
In contrast to the five years examined above in which passive budgetary developments largely accounted for the increased real deficits, 1974

<sup>14</sup>Since real rates of interest cannot be directly observed, one simple method of measuring them *ex post* is to subtract the actual rate of inflation from the observed nominal rate of interest. Such a procedure is employed here using quarterly average data for the nominal Treasury bill and bond rates and the GNP deflator. One potential problem with this method is that in periods of unanticipated changes in the price level, nominal rates of interest may not reflect fully the actual changes in the price level. This will lead to a divergence between *ex post* and *ex ante* real rates of interest. For example, in periods of unanticipated inflation, real interest rates, after the fact, may be negative, although it is generally presumed that expected real interest rates are positive.

<sup>15</sup>The year 1980 perhaps does not provide an accurate assessment of the effects of passive deficits on credit markets because of the experience with credit controls from March through July of this year.



**Chart 5. Real Interest Rates**



was the only year in which the real deficit increased from the previous year and in which active budgetary elements were solely responsible for the higher deficit. In 1970, active budgetary elements contributed to roughly 44 percent of the increase in the real deficit. As a consequence, we would expect the credit market effects of these two deficits to differ from the ones associated with passive budget elements.

Tables 1 and 2 reveal that during 1970 the increase in the active deficit largely offset the decline in funds raised by private nonfinancial sectors. Total funds raised in 1970 were basically unchanged from the previous year. Moreover, compared to their levels of the previous year, real interest rates exhibited little change in 1970. These events are consistent with unchanged total demands for credit and supplies of credit in 1970. If the total demand for credit did not change in 1970, then any decrease in private sector demand for credit was offset by an increase in the government's demand for credit. This suggests that active budgetary elements prevented a net decline in credit demand, keeping real interest rates higher than otherwise and crowding out some private sector borrowing.

As mentioned earlier, the increased deficit in 1974 was solely a result of active budgetary elements. However, funds raised by private non-

**Table 2. Funds Raised by Nonfinancial Sectors\*\***  
(billions of 1972 dollars)

Calendar Year	Total	U.S. Government	All Other Nonfinancial
1965	\$ 96.4	\$ 1.7	\$ 94.1
1966	88.9	3.0	84.1
1967	103.3	11.3	86.9
1968	119.8	12.7	103.3
1969	104.0	- 1.5	108.2
1970	104.2	14.1	91.3
1971	148.4	27.1	122.5
1972	166.3	14.3	151.2
1973	184.3	7.5	176.4
1974	163.1	10.5	152.9
1975	160.7	68.4	92.7
1976	199.0	52.3	146.7
1977	238.5	41.2	197.9
1978	264.1	36.7	228.3
1979	242.1	23.8	219.1
1980	201.3	44.9	156.6
1981	206.5	45.3	161.4

\*\*Columns may not sum to total due to rounding.

Sources: "Summary of Funds Raised in Credit Markets: Credit Market Funds Raised by Nonfinancial Sectors," and "Sector Statements of Saving and Investment: U.S. Government," Flow of Funds Section, Division of Research and Statistics, Board of Governors of the Federal Reserve System.

financial sectors decreased by more than the increase in the deficit, resulting in a lower level of total funds raised in credit markets. Additionally, real interest rates declined in 1974, suggesting that the demand for credit declined relative to the supply.

## Conclusions

An assessment of the economic effects of large and persistent real federal budget deficits requires an understanding of the factors contributing to their growth. That is, one must look beyond the mere size of a deficit in order to gauge its likely effects. The results presented here indicate that roughly three-fourths of the variation in the real deficit can be attributed to the combination of previously enacted legislation and relative weakness in economic activity. On average, only about 25 percent of the growth in the real deficit in any given year represents the effects of taxing and spending legislation enacted in that year.



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**“Active deficits may be associated with the crowding out of private investment.”**

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Once the deficit is divided into passive and active budgetary elements, the credit market effects can be more readily discerned. The findings presented here suggest that higher deficits caused by passive budgetary items frequently do not generate more intense credit market pressures. By contrast, active deficits may be associated with the crowding out of private investment.

The significantly larger size of the passive budgetary items implies that the so-called uncontrollable elements in the budget are quite large. An implication for economic policy is that **permanent** reductions in the passive element of the real deficit can be achieved only by restructuring tax and spending legislation enacted in prior years and by implementing policies which will contribute to sustainable long-term economic growth.<sup>16</sup> Although the active part of the deficit has been generally small compared to the passive element, increases in it nonetheless represent increases in the government's claims on the economy's resources.

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<sup>16</sup>Some observers have argued that such a policy is embodied in the Reagan Economic Program. See, for example, Robert E. Keleher, "Supply-Side Tax Policy: Reviewing the Evidence," **Economic Review**, Federal Reserve Bank of Atlanta, April 1981.

**—Stephen O. Morrell**

*Joseph Doyle and Amy Van Schelt provided valuable research assistance on this project.*



# Is Inflation a Consequence of Government Deficits?

The U. S. government has run substantial deficits since World War II, and these deficits have increased over the years. Even in constant dollars some of these deficits have been the largest peacetime deficits in the country's history. At the same time, the United States has had its first sustained peacetime inflation, and this inflation rate has increased over the years.

Many observers have concluded that these government deficits are responsible for at least part of the inflation. Some also argue that the decline of a balanced-budget orthodoxy is partly responsible for the relatively high growth of government spending.<sup>1</sup>

A somewhat different interpretation is implicit in the "Proposed Constitutional Amendment to Limit Federal Spending" drafted by a committee of the National Tax Limitation Committee.<sup>2</sup> With exceptions, the amendment limits federal spending as a fraction of gross national product. One stated purpose of this amendment is "to promote sound fiscal and monetary policies." Implicit in this statement is the supposition that rapidly growing government spending has resulted in deficits financed in part by purchases of debt by the Federal Reserve. Thus, by limiting

spending, the proposed amendment "get(s) at the root cause of inflation" according to a cover memorandum. Some observers explicitly argue that a major reason for the increase of inflation since World War II is the large government deficits.<sup>3</sup>

Yet, as this article shows, the evidence does not support the theory that large government deficits increase inflation.

## Deficits, Inflation, and Outstanding Bonds

The positive relationship between budget deficits and inflation in the postwar period is quite strong. As Chart 1 indicates, the rate of inflation has increased substantially since 1952.<sup>4</sup> As Chart 2 indicates, the federal government's deficit has increased substantially at the same time. The deficit is measured as the change in the par value of Treasury and federal agency securities held by the public and the Federal Reserve. This nominal deficit is converted into 1967 dollars by dividing it by the Consumer Price Index at the end of each fiscal year; hence, the increased deficits are not just a result of failing to correct for the rising level of

<sup>1</sup>James M. Buchanan and Richard E. Wagner, *Democracy in Deficit: The Political Legacy of Lord Keynes* (New York: Academic Press, 1977).

<sup>2</sup>National Tax Limitation Committee, "A Proposed Constitutional Amendment to Limit Federal Spending," January 1979.

<sup>3</sup>Darryl R. Francis, "How and Why Fiscal Actions Matter to a Monetarist," Federal Reserve Bank of St. Louis *Review*, May 1974, pp. 1-7.

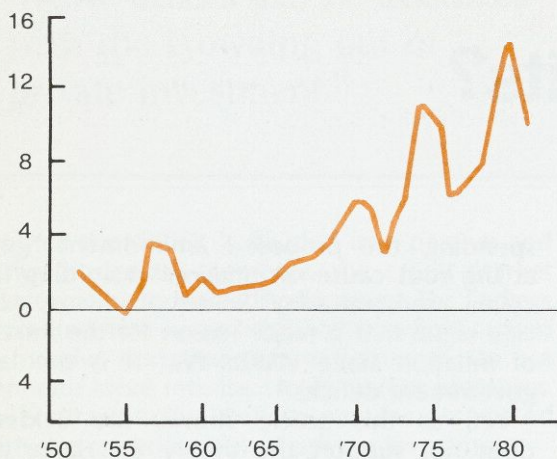
<sup>4</sup>The period analyzed begins in 1952 because the period from 1945 through 1951 has some special characteristics due to the end of World War II and the Korean War. While an analysis of this earlier period would be interesting, the controversy about any connection between deficits and inflation is about the period since the Treasury—Federal Reserve Accord in 1951.

**Some say government deficits are pushing inflation upward, but evidence indicates that deficits may be more the result than the cause of inflation.**



**Chart 1. The Rate of Inflation**

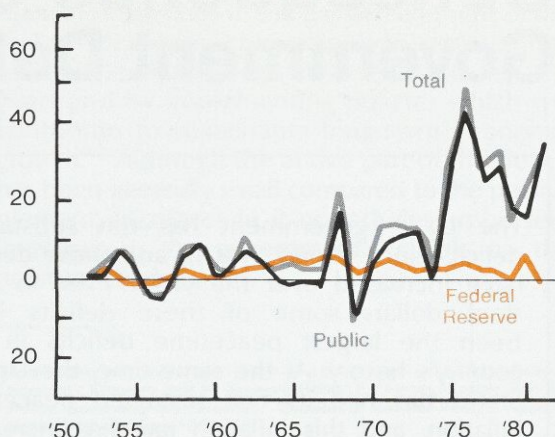
% per year



*Inflation has risen sharply since 1952...*

**Chart 2. Total Deficit and Amounts Purchased by the Public and the Federal Reserve**

Billions of 1967 Dollars



*And the federal deficit has also increased,*

prices.<sup>5</sup> On this basis the federal government has run surpluses in three of these 30 years.<sup>6</sup> The correlation of the deficits and inflation is obviously quite high; indeed it is 0.51.

In Chart 2, the total deficit is broken into the parts acquired by the public and the Federal Reserve. This figure certainly does not indicate strikingly that the Federal Reserve responds to a large government deficit by monetizing part of it. Any correlation of the deficits and debt acquired by the Federal Reserve is less apparent than the correlation of the deficits and debt acquired by the public. Indeed, the correlation of the deficits with debt acquired by the public is 0.99 and the correlation of the deficits with debt acquired by the Federal Reserve is a much smaller 0.39.

As Chart 3 shows, the par value of outstanding bonds in 1967 dollars shows little tendency to rise. Despite the substantial deficits, federal government indebtedness has not increased substantially because the nominal

growth of bonds associated with deficits is wiped out by inflation. Despite the overwhelming predominance of deficits, the total debt in 1967 dollars has fallen in 14 of the 30 years from 1952 through 1981. The trend growth rate of the debt (estimated from a regression equation) for 1952 through 1981 is a statistically and numerically insignificant 0.05 percent per year.

It is possible that some of these decreases in the debt are due to unanticipated increases of the price level which have reduced the government's debt and in effect expropriated part of bondholders' wealth. On the other hand, increases in the price level may have been anticipated. Increases in bond yields are not a direct explanation of the increases in the debt because the bonds are measured at par value, or the redemption price (which is close to issue price).<sup>7</sup> Debt held by the Federal Reserve has increased over the period, but debt held by the public is close to the same in 1952 and 1981.

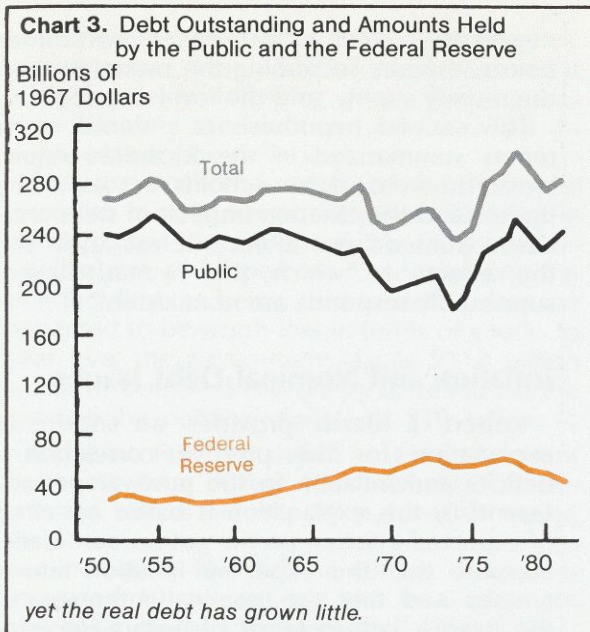
## Possible Connections Between Inflation and Deficits

With the above background, we can go on to examine the hypothesized connections between inflation and government deficits.

<sup>5</sup>The correlation of this measure of the deficit and the deficit on the unified-accounts basis used as the federal-government budget is 0.94 for 1952 through 1981. The fiscal year changes from June to September in 1976. June figures are used for all years to preserve comparability.

<sup>6</sup>On the unified accounts basis there have been four surpluses since 1952. The difference arises in 1960 when, in 1967 dollars, a surplus of \$30 billion is recorded on a unified-accounts basis and a deficit of \$2.45 billion is recorded on the basis of securities issued by the Treasury and government-owned federal agencies.





### Government Debt as Net Wealth

The most longstanding explanation of a connection between deficits and inflation is based on the hypothesis that households perceive government debt as net wealth.<sup>8</sup> If so, then lower taxes financed by issuing debt increase consumption spending and raise interest rates and the level of prices.

Why might households perceive government debt as net wealth? Fundamentally, holdings of government debt are part of the assets of owners; the value of this asset is the current price. For the households, however, there is an implied liability: the taxes necessary to make the payments promised by the debt. Only if the value of government bonds held by the public is greater than the perceived present value of the taxes will issuing debt and lowering taxes increase households' perceived wealth. As a result,

the supposition must be that the value of the bonds is greater than the perceived present value of taxes implied by the debt.

Economists have advanced various reasons for this supposition.<sup>9</sup> Perhaps the most longstanding is that households consider only their tax payments and not tax payments that extend beyond their lifetimes. As a

Indeed, the correlation of the deficits with debt acquired by the public is 0.99 and the correlation of the deficits with debt acquired by the Federal Reserve is a much smaller 0.39.

result, the stream of discounted tax payments ends at some point. The stream of payments on which the bonds' values are based, however, extends over the bonds' lifetimes, not just over a household's lifetime. The basic proposition is that government debt can be used to defer taxes until a later generation, thereby increasing the wealth of the current generation.<sup>10</sup>

An alternative but possibly complementary reason why households might see government debt as part of their own net wealth is that households may discount the tax payments at a higher interest rate than the government's interest rate. In effect, lowering taxes now, increasing government debt, and

<sup>7</sup>John J. Seater, "The Market Value of Outstanding Government Debt, 1919-1975," *Journal of Monetary Economics* 8 (July 1981), pp. 85-101, presents a market-value series and finds that the par-value and the market value of federal government debt are closely related from 1947 through 1975.

<sup>8</sup>See Lloyd A. Metzler, "Wealth, Saving, and the Rate of Interest," *Journal of Political Economy* 59 (April 1951), pp. 93-116, Don Patinkin, *Money, Interest, and Prices*, Second edition (New York: Harper and Row Publishers, 1965), and Robert A. Mundell, *Monetary Theory* (Pacific Palisades, California: Goodyear Publishing Company, Inc. 1970).

<sup>9</sup>See the references in footnote 8 as well as Robert J. Barro, "Are Government Bonds Net Wealth?" *Journal of Political Economy* 82 (November/December 1974), pp. 1095-1118, and Allen Dracén, "Government Debt, Human Capital, and Bequests in a Life-Cycle Model," *Journal of Political Economy* (June 1978), pp. 505-516.

<sup>10</sup>In these terms, the issue was first raised in the postwar period by James M. Buchanan. A collection of the relevant papers is contained in James M. Ferguson, ed., *Public Debt and Future Generations* (Chapel Hill: University of North Carolina Press, 1970).



paying for the debt with higher taxes in the future constitutes a loan from holders of government securities to taxpayers. If the interest rate at which taxpayers borrow is greater than the interest rate at which the government borrows, then these loans passed through the government can increase the taxpayer's wealth.<sup>11</sup>

An alternative hypothesis, which has been dubbed the "Ricardian equivalence theorem," denies the significance of debt as net wealth.<sup>12</sup> If households behave as if the tax liability associated with government debt is equal to the value of the debt, then more debt to finance lower taxes does not increase the perceived wealth of households and thereby consumption. Randall G. Holcombe discusses this argument in detail in another article in this issue of the *Review*.

## Monetization of Deficits

Rather than attributing the positive correlation of inflation and government deficits to this direct connection, some economists have attributed it to the Federal Reserve's behavior.<sup>13</sup> Although no well-structured economic theories have been advanced, the hypotheses fall into one of two general classes.

The first is based on the role money creation plays in financing expenditures. If government expenditures and the deficit increase, then the Federal Reserve monetizes more debt to reduce expected future tax liabilities.

The second hypothesis is based on the Federal Reserve's operating strategy in most of the post-World War II period. One component of that operating strategy, at least until October 6, 1979, was hitting a target interest rate. To the extent that debt issues increase interest rates, the Federal Reserve could

negate this effect by purchasing government bonds, thereby increasing the monetary base, the money supply, and the level of prices.

This second hypothesis is a denial of the tenets summarized in the Ricardian equivalence theorem. If households act as if they understand the taxation implicit in debt and if debt issues do not affect interest rates, then the effects to which the Federal Reserve supposedly responds are nonexistent.

## Inflation and Nominal Debt Issues

Robert J. Barro provides an alternative explanation for the positive correlation of deficits and inflation in the postwar period.<sup>14</sup> Essentially this explanation is based on effects of expected inflation on the government deficit. Suppose that the expected inflation rate increases and that the nominal interest-rate—the interest rate in terms of dollars—increases to reflect the expected depreciation of the value of the dollar over time. This raises the government's interest expenditures and, holding constant other government spending and taxes, increases the deficit.

This increase in the deficit, however, will not cause government debt in constant dollars to increase. The increased growth of debt associated with the deficit will be offset precisely by increases in the price level. Another way of saying the same thing is to note that the higher nominal interest rate on bonds reflects compensation to bondholders for the declining value of their bonds in constant dollars. If the government finances this inflation compensation through higher taxes or decreased spending, then the government's real debt actually falls over time. By increasing the dollar amount of bonds outstanding, the government can prevent this inflation-induced decline in the value of bonds in constant dollars.

Suppose that government spending (not including interest payments) and taxes are equal and constant and that the government issues only one-period bonds. For simplicity in the calculations, further suppose that the nominal interest rate and the inflation rate are

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<sup>11</sup>On empirical and theoretical grounds, I assume that the growth rate of the economy is not greater than the interest rate. If this were not true, then growth of the bonds at the growth rate of the economy would allow for payment of all of the interest without taxes and without the value of the bonds becoming larger relative to the economy as time went on.

<sup>12</sup>See Robert J. Barro, "Are Government Bonds Net Wealth?" On the use of this name, evidently due to James Buchanan, see Gerald P. O'Driscoll, Jr., "The Ricardian Nonequivalence Theorem," *Journal of Political Economy* 85 (February 1977), pp. 207-210.

<sup>13</sup>See, e.g., James M. Buchanan and Richard E. Wagner, *Democracy in Deficit: The Political Legacy of Lord Keynes*, Michael J. Hamburger and Burton Zick, "Deficits, Money, and Inflation," *Journal of Monetary Economics* 7 (January 1981), pp. 141-150, and Mickey D. Levy, "Factors Affecting Monetary Policy in an Era of Inflation," *Journal of Monetary Economics* 8 (November 1981), pp. 351-373.

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<sup>14</sup>See Robert J. Barro, "On the Determination of the Public Debt," *Journal of Political Economy* 87 (October 1979), pp. 240-271, and Gerald P. Dwyer, Jr., "Inflation and Government Deficits," *Economy Inquiry*, 1982, in press.



both initially zero. Under these circumstances, if government debt is \$10 billion in year one, it is the same in following years. Since prices are constant, the debt is also constant in terms of year one dollars.

Suppose that the expected inflation rate increases in year one to 10 percent. Then the bonds issued in year one will carry a nominal interest rate of 10 percent to compensate the bondholders for being paid in dollars that are expected to be worth less in terms of goods. In year two, the government issues \$110 billion worth of bonds—\$100 billion to refinance the outstanding nominal debt and \$10 billion to pay the interest. The deficit in terms of current and year one dollars has increased. If the inflation rate is actually 10 percent, however, the value of the debt in year one dollars has not increased. The debt in current dollars has increased 10 percent but the level of prices also has increased 10 percent.

This analysis applies only to debt acquired by the public. Debt acquired by the Federal Reserve does not result in net interest expenditures because the Fed returns its interest receipts to the Treasury net of its expenditures. It is unlikely that the Federal Reserve's expenditures in constant dollars increase with an increase of expected inflation. As a consequence, such an expectation simply increases the receipts returned to the Treasury and the underlying inflation provides revenue to the federal government through its sale of bonds to the Federal Reserve. Hence, explicit consideration of the Federal Reserve alters the conclusion because the federal government's revenue from money creation is part of the deficit. As a result, the debt monetized by the Federal Reserve may have a very different significance for inflation than the debt acquired by the public.

## SUMMARY OF THE EVIDENCE

### Government Debt as Net Wealth

The key to any direct connection between inflation and government debt is the proposition that households act as if their wealth is greater when government debt is increased. Thus, the basic question is how households respond to greater government debt.

Tests of the proposition that increased government debt increases households' consump-

tion uniformly indicate that such an effect is not significant. Using time-series data for the United States, Levis Kochin, J. Ernest Tanner, John J. Seater, J. Walter Elliot, William H. Buiter and James Tobin, and Martin J. Feldstein found evidence consistent with the hypothesis that government debt does not affect consumption expenditure in the economy.<sup>15</sup> Some of these studies have also tested the hypothesis that deficits are accompanied by compensating changes in saving. The test results, which are subject to problems of interpretation, suggest some although perhaps not complete compensating changes.

In some of these same studies, however, there are tests of hypotheses derived from the proposition that increased government debt does increase households' consumption. These hypotheses are not rejected. Hence, the results in these studies are consistent with both propositions — that government debt does affect consumption and that it does not. The resolution of this question must await more powerful tests.

Because Social Security is part of the federal government's unfunded debt, tests of the hypothesis that anticipated future Social Security payments affect consumption are also relevant.<sup>16</sup> Using time-series data for the United States, Martin Feldstein finds a substantial effect, but Dean R. Leimer and Selig D. Lesnoy find that this result does not survive

<sup>15</sup>See Levis A. Kochin, "Are Future Taxes Anticipated by Consumers?" *Journal of Money, Credit, and Banking* 6 (August 1974), pp. 385-394; J. Ernest Tanner, "Fiscal Policy and Consumer Behavior," *Review of Economics and Statistics* 61 (May 1979), pp. 317-321; J. Ernest Tanner, "Empirical Evidence on the Short-Run Real Balance Effect in Canada," *Journal of Money, Credit, and Banking* 2 (November 1970), pp. 473-485; John J. Seater, "Are Future Taxes Discounted?" unpublished paper, September 1980; J. Walter Elliot, "Wealth and Wealth Proxies in a Permanent Income Model," *Quarterly Journal of Economics* 95 (November 1980), pp. 509-535; William H. Buiter and James Tobin, "Debt Neutrality: A Brief Review of Doctrine and Evidence," in *Social Security versus Private Saving*, ed. by George M. von Furstenberg (Cambridge, Massachusetts: Ballinger Publishing Company, 1979), and Martin J. Feldstein, "Government Deficits and Aggregate Demand," *Journal of Monetary Economics* 9 (January 1982), pp. 1-20.

<sup>16</sup>See Martin J. Feldstein, "Social Security, Induced Retirement, and Aggregate Capital Accumulation," *Journal of Political Economy* 82 (September/October 1974), pp. 905-926; Martin J. Feldstein, "Social Security, Induced Retirement, and Aggregate Capital Accumulation: A Correction and Updating," Working Paper No. 579, National Bureau of Economic Research, November 1980; Dean R. Leimer and Selig D. Lesnoy, "Social Security and Private Saving: A Reexamination of the Time Series Evidence Using Alternative Social Security Wealth Variables," Working Paper No. 19, Office of Research and Statistics, Social Security Administration, November 1980; Dean R. Leimer and Selig D. Lesnoy, "Social Security, Induced Retirement, and Aggregate Capital Accumulation: A Correction and Updating" by Martin J. Feldstein: Comment," unpublished paper, Office of Research and Statistics, Social Security Administration, April 1981, and Michael R. Darby, *The Effects of Social Security on Income and Capital Stock* (Washington, D. C.: The American Enterprise Institute for Public Policy Research, 1979).



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## Tests show that increased government debt does not significantly increase households' consumption.

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correction of an error in Feldstein's calculations. Feldstein has replied with evidence in favor of an effect, but Leimer and Lesnoy show that the evidence is not robust to small changes in the tests. Using other data, Michael R. Darby finds that Feldstein's initial estimated effect of Social Security wealth is implausibly large as well. As a result, the hypothesis of no effect of Social Security debt seems to be quite consistent with the available data.<sup>17</sup>

Evidence concerning the effects of deficits on total spending is also pertinent.<sup>18</sup> The correct result remains a subject of debate, but overall the results suggest that if there is any effect of government deficits on total spending, the effect is trivial.

### Monetization of Debt

There are several tests of the hypothesis that the growth of monetary aggregates increases when deficits are larger.<sup>19</sup> Robert J.

Barro and William A. Niskanen find no support for the notion that larger deficits result in faster growth of the money supply. These are direct tests of monetization but they are in the context of specific, rather ad hoc models of the money supply. Also using an ad hoc model, Michael J. Hamburger and Burton Zwick find some evidence of debt monetization for the last two decades, but the evidence is not substantial.

In the best of these papers, Mickey D. Levy finds substantial evidence that changes in the monetary base in the United States from 1952 through 1978 are in large measure a result of government deficits. Even these results, however, are sensitive to the specification. In fact, when a problem with autocorrelated residuals is corrected, the results are quite consistent with the hypothesis that changes in the monetary base are unrelated to government deficits.<sup>20</sup>

The significance of the results presented by Barro, Niskanen, Hamburger and Zwick, and Levy is clouded by their use of ad hoc models which appear to influence their results substantially.

### Government Deficits and Expected Inflation

In the context of a specific model of government debt behavior, Barro tests the hypothesis that increases in expected inflation increase the growth rate of the debt. He finds significant support for this hypothesis.<sup>21</sup>

In a technical paper on this subject, I test whether government debt growth has any significance for future inflation.<sup>22</sup> The tests in this paper are tests of restrictions on a vector autoregression estimated with quarterly U. S. data for 1952 through 1978. The data series included as the dependent variables in the vector autoregression—a set of regression equations—are the growth of total spending measured by nominal Gross National Product, the rate of inflation calculated with the Consumer Price Index, the interest rate on three-month Treasury bills, the growth rate of the

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<sup>17</sup>There are three studies based on international data but the results are conflicting and of little value because of poor data. See Martin J. Feldstein, "International Differences in Social Security and Saving," *Journal of Public Economics* 14 (October 1980), pp. 225-244, Martin J. Feldstein, "Social Security and Private Savings," in *The Economics of Public Services*, ed. by Martin J. Feldstein and Robert P. Inman, (London: Macmillan Publishing Company, 1977), and Robert J. Barro and Glenn M. MacDonald, "Social Security and Consumer Spending in an International Cross Section," *Journal of Public Economics* 11 (June 1979), pp. 275-289.

<sup>18</sup>See Leonall C. Anderson and Jerry L. Jordan, "Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization," *Federal Reserve Bank of St. Louis Review* 50 (November 1968), pp. 11-24, and Keith M. Carlson, "Does the St. Louis Equation Now Believe in Fiscal Policy?" *Federal Reserve Bank of St. Louis Review* 60 (February 1978), pp. 13-19.

<sup>19</sup>See Robert J. Barro, "Comment From an Unreconstructed Ricardian," *Journal of Monetary Economics* 4 (August 1978), pp. 569-581, William A. Niskanen, "Deficits, Government Spending, and Inflation: What Is The Evidence?" *Journal of Monetary Economics* 4 (August 1978), pp. 591-602, Michael J. Hamburger and Burton Zwick, "Deficits, Money, and Inflation," and Mickey D. Levy, "Factors Affecting Monetary Policy in an Era of Inflation."

<sup>20</sup>Gerald P. Dwyer, Jr., "Factors Affecting Monetary Policy in an Era of Inflation: Resolution of a Puzzle," unpublished paper, April 1982.

<sup>21</sup>Robert J. Barro, "On the Determination of the Public Debt."

<sup>22</sup>Gerald P. Dwyer, Jr., "Inflation and Government Deficits."



money stock measured by old M1 and M2, the growth rate of debt held by the Federal Reserve, and the growth rate of debt held by private investors. None of the data series is seasonally adjusted. Four lagged values of each of the variables and seasonal dummy variables are included in the unrestricted version of the vector autoregression.

The tests can be interpreted as: (1) tests if variables help to predict the other variables; and (2) tests of structural restrictions on a reduced-form representation of the economy. The results uniformly indicate that **debt purchases by the Federal Reserve help to predict** changes in prices, total spending, the money stock, interest rates, and debt purchases by the public. They also indicate that **debt purchases by the public do not help to predict** changes in prices, total spending, the money stock, interest rates, or debt purchases by the Federal Reserve. These results are consistent with the hypothesis that the existence of a structural representation of the economy in which deficits have no effect on inflation unless they are monetized by the Federal Reserve, and deficits have no effect on purchases by the Federal Reserve. In addition, a weak test of Barro's hypothesis that increased inflation results in increased deficits is consistent with that hypothesis.

In sum, this empirical evidence is quite consistent with the hypothesis that deficits are a result of inflation and have little or no significance for future inflation.

## Summary and Conclusion

Despite deficits in 27 of 30 years, the real debt of the United States federal government has increased in only 16 of the 30 years from 1952 through 1981. Deficits, increases in the nominal value of bonds, are associated with decreases in the real value of bonds because

the rate of increase of the nominal value of bonds is less than the rate of inflation. The real debt held by the Federal Reserve has increased, but debt held by the public is nearly the same in 1952 and 1981.

In the literature, three possible connections between inflation and government deficits can be identified. Increases in real debt holdings may result in increases in households' perceived wealth and consumption which cause increases in interest rates and the level of prices. The Federal Reserve may monetize part of the debt when that debt increases, either because of the greater tax liability or higher interest rates associated with a larger real debt. Lastly the deficits, increases in the nominal value of bonds, may be a result of inflation just as increases in the nominal value of any other individual variable in the economy is a result of inflation.

Nothing in the underlying data or in the empirical evidence contradicts the hypothesis that the deficits from 1952 through 1981 were a result of inflation, and the inflation was not a result of deficits. The failure of the real debt to increase implies that, even if real debt increases cause increases in consumption and the level of prices, the rising level of prices wasn't a result of increases in the funded real debt. Furthermore, if a model is posited in which the Federal Reserve responds to deficits for reasons other than just nominal increases in the debt, monetization of deficits is unlikely to have been important. There were large deficits from 1952 through 1981, but these appear to have been a consequence of inflation and not an important causal element in inflation over that period.

What does this imply for current and future fiscal and monetary policy? Changes in real government debt affect the allocation of taxes over time. They have not played, and I conclude will not play, a causal role in determining the inflation rate.

—Gerald P. Dwyer Jr.

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# The "Crowding Out" Controversy: Arguments and Evidence

Do government deficits cause higher interest rates and thus "crowd out" private investment?

Herbert Stein, former chairman of the Council of Economic Advisers, says "yes." Speaking of Ronald Reagan's decision to allow the deficit to expand, he recently said, "His (Reagan's) decision is ironic, but not necessarily wrong. Despite much conventional Republican rhetoric, running deficits is not a sin. Deficits do have a cost, however. They raise interest rates, crowd out private investment and slow economic growth."<sup>1</sup>

George Perry, senior fellow at the Brookings Institution, agrees. He recently wrote, "Deficits are hardly the end of the world, and they are often not only necessary, but desirable. The large deficit that will emerge with the present recession is a case in point."<sup>2</sup>

Taking the opposite position, William Niskanen, member of the President's Council of Economic Advisers, "declared that 'the simple relationship between deficit and inflation is as close to being empty as can be perceived.'"

"Mr. Niskanen said that there was 'no necessary relationship' with money supply growth—meaning that deficits did not have to force the Federal Reserve to crank out too much bank credit—and the crowding-out theory was 'not consistent with the evidence.'"<sup>3</sup>

The government can finance deficits in three ways using any combination of the following:

- increasing revenues through taxation;
- printing money (open market purchases of government securities); or
- borrowing in the open market.

Tax increases would be contrary to the administration's stated program. Printing money also would be an unlikely course of action, given the Fed's determination to keep tight control of the money supply. Therefore, it is not unreasonable to assume that the government will cover deficits primarily by borrowing.

## The Theory

Financing the government deficit by issuing debt can be viewed as a government intrusion on the capital markets. Ignoring the foreign market, private saving must exceed private investment by the amount of the government's debt issue. Government securities compete with private securities for investors' dollars, and only those funds which are left after the sale of government bonds are available to finance the private sector's accumulation of physical capital. Thus, deficit financing may displace private investment or, alternatively stated, deficits may "crowd out" private investment.

A government debt issue is seen to increase private saving, to reduce (that is, crowd out) private investment, or to induce a combination of both of these responses. Which of these alternatives actually occurs? That has been

<sup>1</sup>Los Angeles Times, "Reagan Should Take a Lesson From Stockman," Herbert Stein, November 15, 1981.

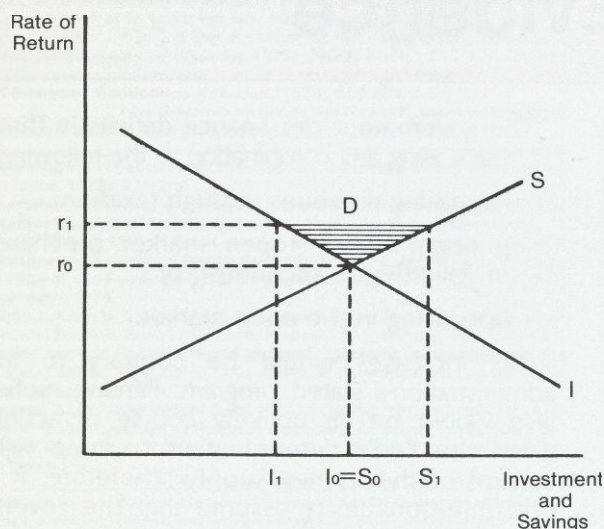
<sup>2</sup>Los Angeles Times, "Reaganomics' First Year a Failure," George L. Perry, November 24, 1981.

<sup>3</sup>The New York Times, "Reagan Aides Defend Deficits," Edward Cowan, December 9, 1981.

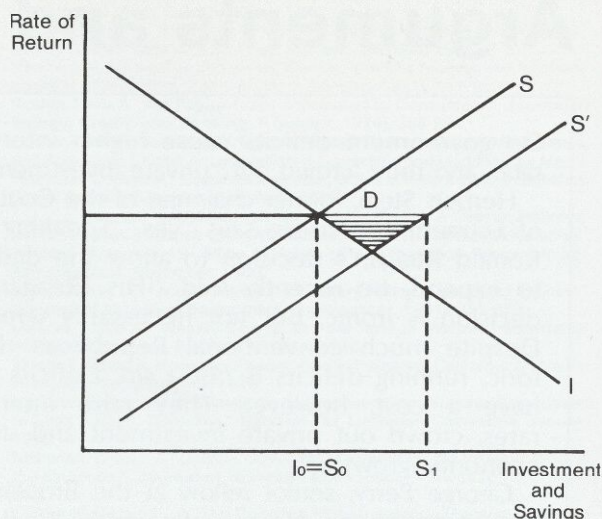
**Tests show that the historical relationship between budget deficits and interest rates has not been a consistent one. As a result, information in addition to budget deficits may be necessary to gauge their effects on credit markets.**



**Chart 1.** How Incremental Government Debt May Crowd Out Private Investment



**Chart 2.** How Incremental Government Debt May Not Crowd Out Private Investment



the subject of considerable debate during the last few years. The most widely held view, at least until recently, has been the "crowding-out" proposition, one version of which is depicted in Chart 1.

The  $I$  locus characterizes the private sector investment schedules. Other things constant, a decrease in the interest rate increases the number of profitable projects. Similarly the  $S$  locus denotes the private sector savings. Other things constant, an increase in the rate of return to savings will also increase private savings. Before the government debt issue, the equilibrium interest rate will be the one for which the market clears, one that equates private savings and private investment. This will occur when  $I_0 = S_0$  and the interest rate is  $r_0$ . If the government floats a bond issue of size  $D$ , then bond prices are bid down and the interest rate is forced up to  $r_1$ . The increase in interest rates stimulates saving, which moves up the savings schedule to  $S_1$ , and stifles investment, which falls along the investment schedule to  $I_1$ . The reduction in investment from  $I_0$  to  $I_1$  denotes the amount by which the deficit "crowds out" the private sector.

If, on the other hand, saving is completely insensitive to the interest rate, the saving curve is vertical rather than upward-sloping. In this most extreme version of the crowding-out hypothesis, saving remains constant while

investment falls by the full amount of the debt issue. The private sector is "crowded out" by the full amount of the deficit as opposed to the case shown in Chart 1 where the public sector "crowding out" of the private sector is only a fraction of the deficit. Under any version of the crowding-out proposition, however, private investment must decrease, while saving may increase or remain constant.

The crowding-out hypothesis has been called into question by those who argue that government bonds are not perceived as net wealth by the private sector and thus do not reduce private capital formation.<sup>4</sup> The argument is essentially as follows. Suppose the government reduces the current tax bill of every taxpayer by one dollar and finances this tax reduction by issuing bonds which bear the market rate of interest. A lump sum tax equal to one dollar plus interest will be levied on each taxpayer next year in order to retire the current bond issue. Will taxpayers feel wealthier today as a result of this transaction? Will they therefore increase their consumption and lower private capital accumulation?

If people behave rationally, the argument goes, the answers to these questions must be "no." People will save the dollar they currently

<sup>4</sup>See Robert J. Barro, "Are Government Bonds Net Wealth?," *Journal of Political Economy* 82, November/December 1974, pp. 1095-1117.



receive so as to be able to meet their increased future tax liabilities. Current saving will increase by the amount of the government debt issue. Private capital accumulation will not be crowded out (Chart 2). Now a debt issue of size  $D$  causes the saving schedule to shift rightward by an equal horizontal distance  $D$  to  $S'$ . Saving increases to  $S_1$ . But in this case investment remains unchanged at  $I_0$ , and the interest rate remains constant at  $r_0$ . According to this view, crowding out can be avoided only if the private sector takes complete account of the future tax liabilities implied by government bonds and thus regards these bonds as a substitute for claims on physical capital.

## The Tests

We performed two tests to determine what effect, if any, changes in the budget deficit have on interest rates. To the extent that bigger deficits are associated with an increase in interest rates, crowding out is evident as well. One test is based on the work of Granger (1969).<sup>5</sup> The other uses procedures developed by Sims (1972).<sup>6</sup>

## Granger Test

The Granger Test is based on the premise that if forecasts of the interest rates obtained using both past values of interest rates **and** past values of the deficit are better than forecasts obtained using past values of interest rates alone, then the deficit is said to "cause" interest rates.

## Sims Test

The test procedure proposed by Sims involves obtaining estimates of the deficit using past, current and future values of the interest rates. If the deficit estimate is not better than those using only current and past interest rates alone (that is, if knowledge of the future values of interest rates does not improve the deficit forecast), then interest rates are "exogenous" to the deficit. Alternatively stated, the deficit does not "cause" interest rates.

<sup>5</sup>Granger, C.W.J., "Investigating Causal Relations by Econometric Models and Cross Spectral Methods," *Econometrica*, July 1969, pp. 424-438.

<sup>6</sup>Sims, C. A., "Money Income and Causality," *American Economic Review* (September 1972), pp. 540-552.

**Table 1. Regression Results – Granger Test**  
(Joint Significance of Independent Variable)

Y	X	F 4, 38
Nominal Federal Deficits	Interest Rates	(2.38)
Real Federal Deficits	Interest Rates	1.41
Nominal Total Deficits	Interest Rates	2.29
Real Total Deficits	Interest Rates	1.58
Interest Rates	Nominal Federal Deficits	0.69
Interest Rates	Real Federal Deficits	0.34
Interest Rates	Nominal Total Deficits	0.52
Interest Rates	Real Total Deficits	0.25
	99%	95%
F(4, 38)	3.87	2.63

**Table 2. Regression Results – Sims Test**  
(Joint Significance of Future Variables)

Y	X	F(4, 33)
Nominal Federal Deficits	Interest Rate	0.43
Real Federal Deficits	Interest Rate	0.20
Nominal Total Deficits	Interest Rate	0.36
Real Total Deficits	Interest Rate	0.19
Interest Rate	Nominal Federal Deficits	2.21
Interest Rate	Real Federal Deficits	1.48
Interest Rate	Nominal Total Deficits	2.42
Interest Rate	Real Total Deficits	1.66
	99%	95%
F(4, 33)	3.96	2.67



## The Evidence

The data in this study span the 1929-80 period.<sup>7</sup> The interest rates used were one-year yields on Treasury bills and Treasury notes.<sup>8</sup> Annual changes in (1) the nominal budget deficit, (2) the budget deficit deflated by the Consumer Price Index, and (3) one-year interest rates, were employed in the tests.

The empirical results indicated that increasing budget deficits were not necessarily associated with increased interest rates (see Appendix for technical explanation). There was no conclusive

evidence that information on changes in past budget deficits combined with changes in past interest rates provided more accurate forecasts of changes in current interest rates than information on past interest rates alone (Granger test). These results are reported in the lower half of Table 1.

Moreover, changes in the "current year's" budget deficit had no statistically significant association with changes in future interest rates taken as a group (Sims test). These results are reported in the upper half of Table 2.

### APPENDIX

The coefficients in the Granger tests are reported in Table A-1. The Granger test requires the data to exhibit stationary characteristics, a requirement satisfied by differencing the series (only first difference was required). Diagnostic checks on the residuals of the estimated regressions failed to uncover any evidence of serial correlation.<sup>10</sup> The F statistic reported in Table 2 in the text tests the joint significance of the lagged values of X, given lagged values of Y. The hypothesis that deficit spending does not cause changes in the level of interest rates cannot be rejected at the one percent level of significance. Similarly, the hypothesis that changes in the interest rates do not cause changes in the deficit cannot be

<sup>10</sup> An alternative interpretation of the results presented here is based on the view that the United States is an open economy. As such, if the size of its deficits are small relative to the size of world capital markets, then it is possible for domestic crowding out to occur without the deficits affecting interest rates.

rejected at the 5 percent level. Notice, however, that the result for the deficit in current dollars does suggest the possibility of a causal relationship going from interest rates to the deficit (in nominal, i.e. current dollars).

To further investigate the economic relationship between deficit and interest rates, the Sims procedures are implemented. The coefficients and estimated regression are contained in Table A-2. Table 2 in the text reports the F statistics corresponding to the Sims test. These tests investigate the joint significance of the future coefficients. If the sets of future coefficients are significantly different from zero, then Y causes X. The results reported in Table 2 replicate those of the Granger test (the bottom half of Table 2 corresponds to the upper half of Table 1). The hypothesis that interest rates are exogenous to the deficit cannot be rejected at the one percent significance level. In contrast, although interest rates do not cause changes in the real deficit, they do appear to cause changes in the nominal deficit.

Table A.1\* Regression Results – Granger Test

$$EY_t = \sum_{j=1}^4 a(j) \Delta Y(t-j) + \sum_{j=1}^4 b(j) \Delta X(t-j) + e_t$$

Y	X	a1	a2	a3	a4	b1	b2	b3	b4	Constant	R <sup>2</sup>
Nom. Federal Deficits	Interest Rates	-.0044 (.028)	-.0937 (.619)	-.3001 (2.04)	0.9584 (.374)	-73956 (.438)	-396830 (2.47)	-123560 (.640)	236610 (1.32)	-889.44 (.433)	.341
Interest Rates	Nom. Fed. Deficits	-.0801 (.468)	-.0976 (.600)	-.0076 (.039)	.1415 (.777)	.0000 (.313)	.0000 (.140)	.0000 (1.553)	.0000 (.413)	.0026 (1.249)	.115
Real Federal Deficits	Interest Rates	.2712 (1.732)	-.1631 (1.03)	-.1965 (1.25)	0.1458 (.942)	-791.7 (.373)	-2168.4 (1.09)	516.23 (.220)	3843.5 (1.77)	-2.738 (.105)	.301
Interest Rates	Real Fed. Deficits	-.0556 (.327)	-.1361 (.851)	-.0667 (.355)	.1053 (.593)	.0000 (.075)	.0000 (.490)	.0000 (1.06)	.0000 (.781)	.0028 (1.33)	.083
Nom. Total Deficits	Interest Rates	-.0791 (.493)	-.1505 (.995)	-.3207 (2.22)	-.0428 (.280)	-46874 (.274)	-384460 (2.35)	-53635 (.269)	272590 (1.48)	-181.92 (.088)	.375
Interest Rates	Nom. Total Deficits	-.0804 (.470)	-.1004 (.611)	.0009 (.005)	.1610 (.870)	.0000 (.698)	.0000 (.510)	.0000 (.961)	.0000 (.560)	.0028 (1.32)	.099
Real Total Deficits	Interest Rates	.2236 (1.432)	-.1700 (1.09)	-.1997 (1.31)	-.1378 (.902)	-681.83 (.321)	-2407.8 (1.21)	1090.3 (.459)	4088.5 (1.83)	.1585 (.006)	.304
Interest Rates	Real Total Deficits	-.0581 (.341)	-.1324 (.827)	-.0700 (.368)	.1138 (.633)	.0000 (.006)	.0000 (.506)	.0000 (.852)	.0000 (.699)	.0028 (1.33)	.074

\* Statistics in parenthesis



The lack of a statistical relationship over the entire 1929-80 period implies that government bonds have not invariably been viewed as net wealth. Government borrowing has not invariably crowded out private investment.<sup>9</sup>

Next, we used these two tests to determine if interest rate increases can explain increases in the deficit. The results for the Granger Test are reported in the upper half of Table 1, results for the Sims Test in the lower half of Table 2. The tests indicate that changes in past values of interest rates together with past changes in the nominal budget deficit predict changes in the current deficit more accurately than just past changes in the deficit. Similarly, changes in future budget deficits were associated in a statistically significant way with changes in current interest rates. However, no relationship was evident when the deficit was corrected for changes in the price level. These results indicate that an increase in interest rates contributes to a larger budget deficit through higher interest expense in the future.

## Conclusions

This evidence calls into question the popularly held view that higher deficits necessarily have led to higher interest rates and have "crowded out" private investment.

The results imply that, over the whole 1929-1980 period:

- budget deficits have not been a consistently accurate predictor of interest rates
- changes in interest rates cannot be shown to have caused changes in real budget deficits
- changes in interest rates have, however, partially explained changes in nominal budget deficits.

Using the past as our guide, the relationship between deficits and interest rates has not been a consistent one.

—Victor A. Canto and  
Donald Rapp

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<sup>7</sup>The data are available on request from the authors.

<sup>8</sup>Where annual instruments were not available, yields on the next closest maturity were annualized.

<sup>9</sup>In the case for the regressions reported in Tables 1 and 2 any of the autocorrelations of residuals up to 12 lags exceeded the two standard error limit. Furthermore, in each case, the Box-Pierce statistic was well below its expected value under the null hypothesis of zero autocorrelations. These results are also available from the authors on request.

**Editor's Note:** For an alternative view of crowding out, see Randall G. Holcombe, "Deficits, Savings and Capital Formation," in this issue.

Table A.2\* Regression Results - Sims Test

$$\Delta Y_t = \sum_{i=-4}^4 a(i) \Delta X(t-i) + u(t)$$

Y	X	a(-1)	a(-2)	a(-3)	a(-4)	a(0)	a(1)	a(2)	a(3)	a(4)	Constant	R <sup>2</sup>
Nom. Fed. Deficits	Interest Rates	-11632 (.048)	-381770 (1.76)	-110750 (.510)	246260 (1.28)	94188 (.381)	22659 (.093)	-91640 (.429)	-202890 (1.03)	142160 (.790)	-613.73 (.234)	.2722
Real Fed. Deficits	Interest Rates	-1289.4 (.375)	-3597.0 (1.17)	-380.38 (.124)	369.98 (1.35)	-357.5 (.102)	-1154.9 (.335)	-1114.1 (.368)	-1314.4 (.470)	2062.6 (.808)	-55.937 (.015)	.1490
Nom. Total Deficits	Interest Rates	-35237 (.139)	-458460 (2.03)	-66045 (.292)	303150 (1.51)	72388 (.280)	90861 (.358)	-32434 (.146)	-152790 (.743)	178220 (.949)	-640.94 (.234)	.2796
Real Total Deficits	Interest Rates	-1460.5 (.427)	-4273.7 (1.40)	-104.96 (.034)	4127.6 (1.52)	-616.98 (.177)	-823.3 (.240)	-852.9 (.284)	-992.17 (.357)	2178.9 (.860)	.13137 (.004)	.1679
Interest Rates	Nom. Fed. Deficits	.0000 (.911)	.0000 (.950)	.0000 (.565)	.0000 (.848)	.0000 (1.03)	.0000 (.652)	.0000 (1.36)	.0000 (.477)	.0000 (2.13)	.0011 (.581)	.2932
Interest Rates	Real Fed. Deficits	.0000 (.781)	.0000 (.694)	.0000 (.454)	.0000 (1.04)	.0000 (1.27)	.0000 (.309)	.0000 (.629)	.0000 (.464)	.0000 (1.99)	.0008 (.459)	.2120
Interest Rates	Nom. Total Deficits	.0000 (.579)	.0000 (.586)	.0000 (.169)	.0000 (.510)	.0000 (.581)	.0000 (.489)	.0000 (1.58)	.0000 (.009)	.0000 (1.89)	.0008 (.474)	.2824
Interest Rates	Real Total Deficits	.0000 (.596)	.0000 (.513)	.0000 (.248)	.0000 (.916)	.0000 (1.06)	.0000 (.403)	.0000 (.912)	.0000 (.099)	.0000 (1.92)	.0008 (.411)	.2118

\*t Statistics in parenthesis



# Deficits, Savings and Capital Formation

One of the oldest issues in economics is the question of who bears the burden of the national debt. Adam Smith discussed the burden question extensively in **The Wealth of Nations**, published in 1776, and economists are still debating the issue today.

There have always been two basic sides to the controversy. One side says the burden of national debt is passed forward into the future, while the other argues that there is no real difference between debt finance and taxation so that the burden is borne at the time the debt is issued.

These theoretical arguments ultimately boil down to one issue: how does deficit financing affect the national savings rate and hence the amount of money available for investment? During the current policy discussion on deficit finance, some people have argued that the size of the budget deficit is not important as long as the amount of government spending is reduced. Others have argued for tax increases because they believe that deficits cause high interest rates, reduce investment, and hamper economic growth.

We will examine the record to see how deficit finance has affected actual saving and investment behavior. Some evidence indicates

that deficit finance does cause higher interest rates and lower investment. The lower investment of today makes the economy less productive in the future, so the burden of the debt is passed on. The economy is less productive in the future if the government uses deficit finance today.

The historical debate on this issue is fascinating, because the issues being discussed today are the same ones that economists have been discussing for hundreds of years.

## Historical Roots of the National Debt Controversy

During the Great Depression, when the American economy had several years of budget deficits in a row, President Roosevelt argued that deficits were innocuous. The debt was really not a burden, he said, because we owe it to ourselves. The argument that FDR was making was at least 200 years old, and was made by French economist Jean Francois Melon in 1735.<sup>1</sup> Adam Smith, argued against this position in 1776:

In payment of the interest of the public debt, it has been said, it is the right hand which pays the left.... It supposes that the whole public debt is owing to the inhabitants of the country.... But that the whole debt were owing to the inhabitants of the country, it would not upon that account be less pernicious.<sup>2</sup>

Smith argued that the problem with government borrowing was that lenders did not need to assess the merits of spending projects as they would in the private sector. Lenders will

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**“During the Great Depression when the American economy had several years of budget deficits in a row, President Roosevelt argued that deficits were innocuous.”**

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<sup>1</sup>Jean Francois Melon, **Essai Politique sur le Commerce** (Amsterdam: F. Changuion, 1735), Chapter 23.

<sup>2</sup>Adam Smith, **The Wealth of Nations** (New York: Modern Library, 1937, originally published in 1776), p. 879.



**Deficit financing reduces private savings and investment and lowers future productivity. Government deficits funded through bond issues instead of increased taxes are passed on to future taxpayers.**

lend to a private corporation only if they view the borrower as making sound investments. Otherwise, the borrower might not be able to repay the loan. With the government, on the other hand, lenders can be paid back from tax revenues whether taxpayers like it or not. Therefore, there is no assurance that the government will spend the proceeds from its borrowing wisely. Smith went on to note: "The practice of (deficit finance) has gradually enfeebled every state which has adopted it."<sup>3</sup> Even in the 1700s, economists were debating the burden of the national debt.

Perhaps the most insightful analysis of the national debt was done by David Ricardo in the early 1800s.<sup>4</sup> Much of the current analysis is based on the foundation that Ricardo laid over a century and a half ago. Ricardo reasoned that in theory the burden of the national debt should be no different from the burden of taxation to finance the same expenditures. If a tax is levied, taxpayers must pay the burden immediately. If deficit finance is substituted for taxation, though, taxpayers are instead given the burden of paying interest payments on the debt. The present value of the interest payments will be the same as the amount of taxes that would have been levied, so the burden of the debt is the same as the burden of taxation.<sup>5</sup>

An example will help to illustrate Ricardo's idea. Assume that the government decides to increase its spending by an amount that will raise a person's taxes by \$1,000. If the government decided instead to borrow the money, it would increase the individual's share of the national debt by \$1,000. If the interest rate

were 10 percent, this person's taxes would go up by \$100 per year in order to pay the interest on the debt. From the individual's standpoint, the choice is to either pay \$1,000 in taxes now, or to have the government borrow the money and pay \$100 more in taxes every year. Either way the individual bears a burden of \$1,000 at the time the government spends the money.

This example illustrates that the burden on the individual taxpayer will be the same whether government expenditures are financed by taxation or by debt. According to this theory, the burden of deficit finance is the same as the burden of taxation, so from this standpoint, it makes no difference whether government expenditures are financed by taxation or debt.

Ricardo saw that there was another side to this argument, however.<sup>6</sup> The careful and prudent taxpayer would realize that, with a 10 percent rate of interest, the effect on an individual's wealth will be the same whether a one-time tax assessment of \$1,000 is levied, or if tax rates increase by \$100 per year. But Ricardo argued that despite this equivalence, taxpayers will tend to treat the \$100 per year tax increase as a smaller increase, and will not save enough to offset the future stream of taxes. If the government borrowed that \$1,000, the individual would have to save \$1,000 in order to offset the future liability of \$100 per year. Ricardo argued that despite the possibility for individuals to save now in order to offset higher future tax payments, people in fact will not save enough to offset future tax payments, so that tax finance and debt finance will not be equivalent. Ricardo's argument, ironically, was

<sup>3</sup>Ibid., p. 881. In place of deficit finance, Smith used the term "funding," which was the contemporary name of government borrowing.

<sup>4</sup>David Ricardo, *The Principles of Political Economy* (London: J. M. Dent & Sons, Ltd., 1912, originally published in 1821).

<sup>5</sup>This assumes that interest payments are discounted at the government's borrowing rate.

<sup>6</sup>Gerald P. O'Driscoll, Jr., explains Ricardo's views on the burden of the debt in "The Ricardian Nonequivalence Theorem," *Journal of Political Economy* 85, No. 1 (February 1977), pp. 207-210.



that the so-called Ricardian equivalence theorem is in fact not true.

Although Ricardo developed these ideas in the early 1800s, their relevance to the issues of deficit finance in the 1980s is crucial. The key issue is how individuals respond when the government uses debt to finance its expenditures instead of taxation. Table 1 uses hypothetical data to illustrate the two sides of the debate. The first column shows how the individual spends his income of \$30,000 under the current state of affairs. The individual's income

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**“The key issue is how individuals respond when the government uses debt instead of taxation to finance its expenditures.”**

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can be divided into three general categories: consumption, saving, and taxes. The debate over the Ricardian equivalence theorem then asks the hypothetical question: What if government spending does not change, but the government lowers taxes and borrows the money to make up for the foregone taxes? The second column shows the answer if the equivalence theorem is true. The person's taxes go down by \$1,000, but the person realizes that this must mean future taxes will go up, as previously explained. The taxpayer increases his savings by \$1,000 to offset the lower present taxes and higher future taxes triggered by the deficit spending. Consumption remains unchanged. This hypothetical example illustrates the equivalence theorem in action.

The third column shows the result that Ricardo thought would be more likely if debt finance were used instead of taxation. The individual's income remains unchanged, and taxes are lowered as they were in the second column, but in the third column the individual does not save all of the reduction in taxes. Saving goes up by only \$200 in this example, and consumption rises by \$800. In this case, financing by taxes and financing by debt are not equivalent, because debt finance causes consumption to

rise. Individuals do not save for their future higher taxes, but instead use the money from lower taxes primarily for consumption. The validity of the equivalence theorem is a key element in understanding current issues regarding the national debt.

## **The Current Issues**

Two events made discussions of the debt burden especially relevant after World War II. The first was the fact that the nation had increased the national debt by over five times in the years from 1940 to 1945. The national debt was \$48.5 billion in 1940, but because of the war it had increased to \$259.1 billion by 1945. After the war, the nation questioned the impact of this massive increase. The second event was the publication of John Maynard Keynes' **General Theory** in 1936, and its enthusiastic acceptance by the economics profession in the intervening years.<sup>7</sup> Writing during the Depression, Keynes argued that the government could use taxes and expenditures to maintain full employment with low inflation. If unemployment threatened, a budget deficit would be called for, while inflation could be reduced by a budget surplus. This type of policy—functional finance, as it was called—argued against a goal of balanced budgets every year. Instead, it said the government should have the flexibility to use functional finance to help solve the nation's economic problems.

According to this theory, several consecutive years of budget deficits might be required to fight an unemployment problem. This naturally raises the question of who bears the burden of the debt resulting from the deficit. This theoretical issue plus the real-world question about the debt resulting from World War II renewed economists' interest in the question.

The generally accepted answer at that time was explained by Abba Lerner in 1948.<sup>8</sup> Lerner said the national debt was really not a burden because the debt was, for the most part, owned by Americans, and therefore we owe it to ourselves. This, of course, is the same argument made more than two centuries before by Jean

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<sup>7</sup>John Maynard Keynes, **The General Theory of Employment Interest and Money** (New York: Harcourt, Brace and Company, 1936).

<sup>8</sup>Abba P. Lerner, "The Burden of the National Debt," in **Income, Employment, and Public Policy** (New York: W. W. Norton and Company, 1948).



**Table 1.** Expenditures of a Hypothetical Individual

	Tax Finance	Debt Substituted for Some Taxation, Equivalence	Debt Substituted for Some Taxation, Equivalence
		Theorem Holds	Theorem Does Not Hold
Consumption	\$20,000	\$20,000	\$20,800
Saving	2,000	3,000	2,200
Taxes	8,000	7,000	7,000
Total Income	\$30,000	\$30,000	\$30,000

Francois Melon. Given the history of the debate, it is surprising that Lerner's argument generally went unchallenged through most of the 1950s.

The first serious questioning of Lerner's theory was done by James M. Buchanan in 1958.<sup>9</sup> Buchanan argued that the present sellers and purchasers of the public debt voluntarily agree to the transaction, and so are not bearing the burden of the debt. However, future taxpayers who face higher taxes as a result of the debt are being made worse off. The government, because of its ability to force future taxpayers to pay higher taxes, pushes the debt burden into the future. Once again, we note the similarity between Buchanan's argument and that made by Adam Smith. In 1776, Smith said that deficit finance would gradually enfeeble a nation because the government has the power to burden future taxpayers. This certainly appears to be a case of intellectual history repeating itself, but the story is not finished yet.

In 1974, Robert Barro published a restatement of the Ricardian equivalence theorem.<sup>10</sup> Barro argued that if debt finance were used instead of taxation, people would save more, so there would be no real difference between taxation and debt. Other economists disagreed, saying that people would not save enough to make up for the debt finance.<sup>11</sup> Surprisingly, the state of

the theoretical debate seems to remain much as Ricardo left it in 1821.

### **The Equivalence Theorem and the Burden of the Debt**

The intellectual history we have reviewed is interesting in its own right, but it is also crucial to the contemporary debate on deficit finance. Ultimately, questions about the effects of the budget deficit are questions about the equivalence theorem. At one extreme is the argument that the size of the budget deficit does not matter, that the only truly significant variable in government finance is the size of the budget. How this budget is divided between taxes and

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**"In 1776 Adam Smith said that deficit finance would gradually enfeeble a nation because the government has the power to burden future taxpayers."**

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<sup>9</sup>James M. Buchanan, *Public Principles of Public Debt* (Homewood, Illinois: Richard D. Irwin, Inc., 1958).

<sup>10</sup>Robert J. Barro, "Are Government Bonds Net Wealth?," *Journal of Political Economy* 82 (November/December 1974), pp. 1095-1117.

<sup>11</sup>See, for examples, James M. Buchanan, "Barro on the Ricardian Equivalence Theorem," *Journal of Political Economy* 84 (April 1976), pp. 337-342, and Martin Feldstein, "Perceived Wealth in Bonds and in Social Security," *Journal of Political Economy* 84 (April 1976), pp. 31-336.



reduce private saving and investment. A look back at Table 1 illustrates why private sector investment will decline if the equivalence theorem does not hold.

This decline in investment is what causes concern about deficit financing. By running a deficit, the level of private saving and investment declines, which lowers the future productivity of the economy. Because of this lower future productivity, the debt burden is passed on into the future.

## Does the Budget Deficit Matter?

These theoretical issues are directly relevant to the contemporary discussion about the budget deficit. If recent political campaigns are any indication, the budget deficit is an important issue; major candidates have run on a platform of balancing the budget. Now, with the prospect of large deficits continuing for the foreseeable future, some economists argue that the size of the budget deficit really does not matter, and that the important thing is to lower government spending. In this view, the level of government expenditures is the relevant variable in public finance, not whether those expenditures are financed by taxes or debt. The opposing view argues that large amounts of government borrowing raise interest rates and as a result make it more difficult for businesses to borrow, which lowers capital accumulation and hinders economic growth.

A look at both sides of the argument reveals an important difference, again related to the equivalence theorem. If the size of the budget deficit is not important, then individuals must be willing to save additional amounts to offset government borrowing. If individuals do not save more to offset the government's borrowing, then less money will be available for private borrowing and private investment. The key to the debate, both contemporary and historical, is how private saving responds to changes in the government's debt.

Professors John Jackson, Asghar Zardkoohi, and I examined data from 1929 to 1976 to estimate the relationship between saving and the government budget deficit.<sup>12</sup> We estimated

a log-linear regression equation using annual data with saving ( $S$ ) as a function of the budget deficit that year ( $D$ ), government spending ( $G$ ), a dummy variable for the increased saving of the World War II years ( $W$ ), the inflation rate ( $I$ ), the change in the unemployment rate from the previous year ( $U$ ), a measure of transitory income ( $Y$ ), and a variable for liquid asset holdings ( $A$ ). The resulting regression equation was:

$$S = \begin{matrix} -39.19 \\ (2.87) \end{matrix} + \begin{matrix} .20D \\ (4.71) \end{matrix} + \begin{matrix} .07G \\ (2.78) \end{matrix} + \begin{matrix} .07W \\ (2.78) \end{matrix} + \begin{matrix} 78.68I \\ (2.34) \end{matrix} \\ + \begin{matrix} 806.6U \\ (3.55) \end{matrix} + \begin{matrix} .42Y \\ (6.15) \end{matrix} + \begin{matrix} .03A \\ (4.19) \end{matrix} \\ R^2 = .97 \quad F = 185.53 \quad DW = 2.29 \\ \quad \quad \quad (42.7)$$

The purpose of our estimation was to find the relationship between deficit finance and saving, taking account of the other variables. Since the equation was run in log-linear form, the coefficient of .2 on the debt variable implies that a one percent deficit will result in only a 0.2 percent increase in private savings.

This result supports the view that the size of the budget deficit does make a difference for the time period under study. If an increase in the national debt of \$1 caused an increase in saving of only 20 cents, this meant that, in a closed economy, the other 80 cents of the increase in the debt must come from money that otherwise would have been used for private investment. As a result of increasing the debt, private investing was reduced by about 80 percent of the deficit.

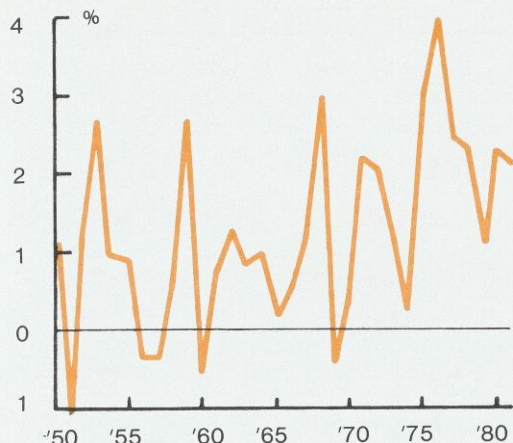
## The Burden of the Debt

The burden of the national debt is indeed borne by future generations, but not because the debt must be repaid, or because interest must be paid on the outstanding debt. Those future payments will be made by some people in the future to others in the future. The burden is passed on to the future because deficit financing by the government lowers private saving. Lower private saving means less money

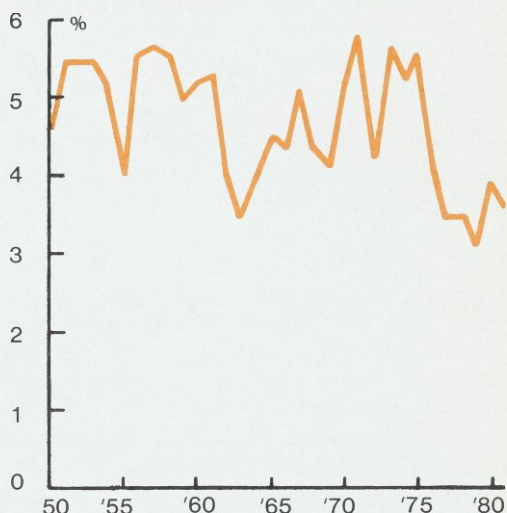
<sup>12</sup>Randall G. Holcombe, John D. Jackson, and Asghar Zardkoohi, "The National Debt Controversy," *Kyklos* 34 (1981), pp. 186-202. See that article for a more complete discussion of our work than is given here.



**Chart 1.** Federal Budget Deficit (NIA) as a Percent of GNP, by Year



**Chart 2.** Personal Saving as a Percent of GNP, by Year



available for private borrowers, which in turn lowers private investment. Less investment today means a less productive economy in the future, so the debt burden is passed into the future in the form of lower future productivity.

The regression equation (1) shows the effect of deficit financing on saving, and the same ideas are illustrated graphically in Charts 1 and 2. Chart 1 plots the federal government's budget deficit as a percent of GNP from 1950 to 1981. In the 25 years before 1975, the deficit exceeded 2 percent of GNP only four times, in 1953, 1959, 1967, and 1971. These years also contain five years of budget surplus, in 1951, 1956, 1957, 1960, and 1969. In contrast, six out of the past seven years have seen budget deficits greater than 2 percent of GNP. In the 25 years from 1950 to 1974, the budget deficit averaged 2.5 percent of GNP. Looking at the budget deficit as a percent of GNP, only three times from 1950 to 1974 has the budget deficit been larger than the average deficit from 1975 to 1981.

If the equivalence theorem is not true, as was suggested in the earlier analysis, then individual savings should not have been sufficient to offset the increase in deficit financing since 1975. In fact, a look at Chart 2, which plots personal saving as a percent of GNP, shows a

large decrease in the savings rate since 1975. From 1950 to 1975, personal saving averaged 4.9 percent of GNP. From 1976 to 1981, the average has been 3.6 percent. The low average savings rate over the past six years is remarkable, especially since only in one year between 1950 and 1975 did the saving rate fall below the average of the past six years. In 1963 the savings rate fell to an anomalously low 3.4 percent of GNP, but the savings rate for each of the past five years has been lower than in any year since 1950 with the exception of 1963.

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**“The low average savings rate over the past six years is remarkable, especially since only in one year between 1950 and 1975 did the saving rate fall below the average of the past six years.”**

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## Conclusion

Over a century and a half has passed since Ricardo analyzed the burden of the national debt, but the same issues still are being debated. Some economists argue that the size of the budget deficit does not matter because people can save to offset the effects of the deficit, while others contend they will not save so investment will decline and future productivity will be lower as a result.

The evidence seems to support the latter view. Regression analysis indicates that, holding everything else constant, a \$1 increase in the deficit accompanied by a \$1 decrease in taxes will lead to an increase in savings of only 20 cents. Therefore private sector investment will decline by 80 percent of the deficit. The budget deficit as a percent of GNP has increased substantially since 1974 and, as a result, the personal savings rate has shown a substantial decline since 1975.

The conclusion is that the burden of the national debt is passed on to the future. Deficit

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**A \$1 increase in the deficit accompanied by a \$1 decrease in taxes will lead to an increase in savings of only 20 cents. Therefore, private sector investment will decline by 80 percent of the deficit.**

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financing reduces private saving and investment. Lower investment means a less productive economy in the future, and the lower future productivity is the price we pay for deficit financing.

**—Randall G. Holcombe**

*Randall G. Holcombe is associate professor of economics at Auburn University.*



# Fiscal Policy: An Ineffective Stabilizer?

## I. Introduction

The belief that fiscal policy can be an effective tool in stabilizing the economy has weakened substantially since it peaked in the mid to late 1960s. The present economic structure appears to many to have changed significantly and, therefore, is less responsive to the fiscal policies that worked in earlier periods. Indeed, some argue that present problems stem from a misguided belief in the beneficial effects of stimulatory fiscal policy reflected by government deficits.

It would be wonderful to be able to say that recent research has found a solution to these difficulties. Unfortunately, that isn't the case, and economists, judging from the political rhetoric we hear, are not yet in agreement about the potential role fiscal policy should and could play. However, some recent research does suggest that major portions of the Reagan economic recovery program are consistent with the best advice academic economists have to offer. This article will analyze the current discussion of the use of fiscal policy to stabilize the economy.

## II. The Evolution of Fiscal Policy in the United States

The major step in applying the theory of fiscal policy to the U. S. economy was the incorporation of automatic stabilizers into the system shortly after World War II. As Herbert Stein points out in *The Fiscal Revolution in America*,<sup>1</sup> the Committee for Economic Develop-

ment in 1947 led the charge for acceptance of automatic stabilizers to level the employment fluctuations in the post - World War II economy. This committee of businessmen gave heavy weight to keeping tax rates at a level where they would yield a moderate surplus at high employment and deficits during low employment periods. Because of forecasting problems and the traditional conservative objective of exerting discipline by requiring that expenditures be funded by taxes, the committee felt automatic variations in tax revenues producing surpluses at high employment would be more stabilizing than what they called the "managed, compensatory policy."

But, while the idea of annual budget balancing was given up for balance over the cycle, the committee questioned the idea of discretionary contracyclical fiscal policies. Its members were strongly skeptical of the stabilizing effect of tax rate changes and expenditure changes. Experience showed that, even with considerable planning, expenditures could not be increased quickly nor could they be turned off quickly without significant waste. Similarly, the fundamental view that held sway during the Eisenhower years was that the political environment would make tax policy a pretty sluggish instrument too.

However, with John F. Kennedy's election to the presidency in November 1960, a more activist view came to Washington.<sup>2</sup> Their first

<sup>1</sup>Herbert Stein, *The Fiscal Revolution in America*, University of Chicago Press, 1969, pp. 220-232.

<sup>2</sup>Led by Walter Heller of Minnesota along with the Keynesian brain trust from the Northeast—including Paul Samuelson and Robert Solow of MIT;

**Confidence is dropping in fiscal policy as a tool to put the economy back on course. The strategy of increasing government deficits in recession and running surpluses in boom periods now appears to have significantly less effect than commonly thought.**



piece of fiscal legislation, the tax cut of 1964, often has been cited as the successful fiscal experiment which could be used as the pattern for future fiscal policy legislation to stabilize the economy.

But the sluggish enactment of the 1964 tax cut confirmed the fears of the Committee for Economic Development about potentially long lags in the operation of fiscal policy. Congress passed a stripped-down version of President Kennedy's tax package only after his death and then only at President Johnson's special request.

The apparent success of the 1964 tax legislation in stimulating the economy led the Congressional Subcommittee on Fiscal Policy to call in 1966 for the enactment of standby tax changes.<sup>3</sup> Although Congress did not act upon the recommendations, President Johnson's 1968 tax surcharge is an example of a temporary tax designed to stabilize the national economy. President Ford's tax rebate of 1975 and the rebate proposed by the Carter administration in early 1977 and subsequently withdrawn are more recent examples of discretionary, but temporary, fiscal policies used as a major tool for macroeconomic stability. Taxes were reduced in a more permanent manner by President Nixon in 1970, by President Carter in 1978 and, most recently, by President Reagan—a 25 percent phased-in tax reduction over three years beginning last October.

### III. Evaluation of the Fiscal Effects: Some Preliminary Observations

It is often said that the 1964 tax cut validates the Keynesians' claims about the effectiveness of fiscal policy since it was responsible for the 1964-65 expansion. Indeed, in reviewing fiscal policy, E. Cary Brown of MIT writes, "The 1964 tax cut has been regarded rightly as one of the great successes in the use of fiscal policy to stabilize the economy."<sup>4</sup>

Ironically, only four years later, in mid-1968, Congress enacted a tax surcharge to cut back aggregate demand. The administration proposed the surtax in 1967. To make it only a national income stabilization device and not to provide funds for expansion of Great Society programs, Congress passed it only after combining the surtax with legislation limiting many non-defense expenditures.<sup>5</sup>

Consumers' inadequate response to this tax increase allowed aggregate demand to continue increasing in spite of the government's budget going into surplus and proved to be the turning point in the discussion of contracyclical fiscal policy.

Recent experience appears similar. Cash generated by the tax rebate program and the reduction of tax withholding in the second quarter of 1975 was largely saved. In a detailed study of temporary tax changes, Modigliani and Steindel of MIT found that only "16 percent of the rebate was spent in the quarter in which it was paid out ..." leading them to say, "We conclude, therefore, that there is strong, though not uniform, evidence that a rebate is not a particularly effective way of producing a prompt and temporary stimulus to consumption."<sup>7</sup>

If the 1964 tax cut worked, why were the more recent experiments of an increase in 1968 and the reductions in 1975 failures? Explanations are long and varied. The most frequent explanation is that the 1968 tax surcharge and the 1975 rebates were temporary in nature and the 1964 reduction was permanent. Temporary changes do not affect consumers' permanent income and, therefore, have little effect on consumption. Rather, temporary changes in disposable income flow into savings, this theory goes, leaving consumption largely unaffected.<sup>8</sup> Others suggest the tax bills were delayed in Congress so long that by the time they were enacted it was too little and too late.<sup>9</sup>

Kenneth Arrow, James Duesenberry and Otto Eckstein of Harvard, and James Tobin and Robert Triffin of Yale as advisers—the activists began introducing discretionary fiscal policy. From the list of Council members and consultants contained in the *Economic Report of the President*, January 20, 1962.

<sup>3</sup>*Tax Changes for Short-run Stabilization*, Subcommittee on Fiscal Policy of the Joint Economic Committee, 89 Congress, 1966.

<sup>4</sup>E. Cary Brown, "Reflections on Fiscal Policy" in Henry Aaron and Michael Boskin (eds.), *The Economics of Taxation*, Brookings Institution, 1980, p. 351. See also Walter Heller, *New Dimensions of Political Economy*,

Harvard University Press, 1966, pp. 70-79 and James Tobin, *The New Economics One Decade Older*, Princeton University Press, 1974, pp. 24-27.

<sup>5</sup>See Lawrence Pierce, *The Politics of Fiscal Policy Formation*, Goodyear Publishing Company, 1971, Chapter 7.

<sup>6</sup>Franco Modigliani and Charles Steindel, "Is a Tax Rebate an Effective Tool for Stabilization Policy?" *Brookings Papers on Economic Activity*, 1977, p. 182.

<sup>7</sup>*Ibid.*, p. 200.

<sup>8</sup>For example, see Robert Eisner, "Fiscal and Monetary Policy Reconsidered," *American Economic Review*, December 1969, pp. 897-905. Michael Darby "The Permanent Income Theory of Consumption - A Restatement,"



However, many non-Keynesians, including the monetarists, argue that fiscal policy, of itself, has little effect on aggregate demand in the short run. According to their explanation, the reason that fiscal policy worked in 1964 was that monetary policy became more expansionary in 1963 and remained that way through 1965. In the more recent experiments, monetary policy often was not complementary to fiscal policy and the economy did not respond as predicted.<sup>10</sup>

Table 1 presents some of the relevant data on this issue since 1950. In looking at this table, one should recall the extensive empirical literature of Milton Friedman and others showing a lag of six to nine months or more from monetary changes to output changes.<sup>11</sup> Because inflation occurs still later, in the context of this table there is a positive effect of money growth last year but a negative effect of money growth of two years ago on output today.<sup>12</sup>

Examine the 1964 tax cut experiment. As a percentage of GNP, federal government receipts fell from 19.2 percent in 1963 to 18.1 percent in calendar year 1964 and remained at 18.1 percent in 1965 before rising to 18.8 percent in 1966. Because of what was happening to government expenditures, from a balance in 1963 the government posted a deficit in 1964, a slight surplus in 1965 and a deficit again in 1966 and 1967. Real GNP grew 5.3 percent in 1964 and at a 6 percent rate in 1965 and 1966 before dropping back to 2.7 percent in 1967.

The years 1964-66 appear to confirm the fiscalist hypothesis, but what about 1967? Clearly, by conventional measures, fiscal policy was at least as expansionary in 1967 as in 1964-66. The deficit was over three times as large in 1967 as in 1964, and yet real growth was less than half the average of the previous three years. The reason is the sharp decline in the rate of monetary growth in 1966. Similarly, the sharp rise in the money supply in 1968 cancelled

that year's tax surcharge as an effective deflationary tool.

Looking at 1970, when the surcharge was lifted, the evidence for the fiscalist view again is bothersome. Reflecting the high money growth in 1968 (and therefore inflation and lower output two years later) and low money growth in 1969, output actually fell in spite of the fiscal stimulus. Evidence for the other periods is equally non-supportive.<sup>13</sup>

Perhaps the most often cited evidence on this issue, but also the most controversial, is a Federal Reserve Bank of St. Louis study. This provocative study tested the propositions that the response of economic activity to fiscal action was larger, more predictable and faster than the response of the economy to monetary action. It found that, if monetary policy variables are held constant, government fiscal policy has no statistically significant effect on economic activity. Indeed, it concluded that if you separated expenditures from taxes and treated them separately, expenditures did have some impact but taxes had none. An expenditure increase tended to have a positive influence for a quarter or two after the increase, but it had a negative influence in the next two quarters, which tended to outweigh the positive effects.<sup>14</sup>

## IV Fiscal Policy and the Monetarists' Position

Since aggregate demand is simply the sum of private and government demands, how could

<sup>13</sup>Using econometric techniques, we could test the proposition that fiscal policy adds a significant amount of explanation to changes in output given the stance of monetary policy. Such a test for the 1951-81 period for the United States is:

$$\begin{aligned} DY_t = & .061 + .79 DM_{t-1} - .76 DM_{t-2} \\ & (.4) \quad (.51) \quad (.47) \\ & - .03 DT_{t-1} - .06 DT_{t-2} \\ & (.6) \quad (1.1) \\ & + .01 DG_{t-1} + .03 DG_{t-2} \\ & (.2) \quad (.8) \\ R^2 = & .64 \quad D.W. = 2.1 \end{aligned}$$

where DY is the percentage change in real GNP, DM is the percentage change in M1, DT is the percentage change in federal taxes DG is the percentage change in government expenditures and the "t" values are in parenthesis below their respective coefficients. The F test that all fiscal policy coefficients are equal to zero is 0.64. Because the critical F(4, 24) is 2.8 at the 5 percent level, the test indicates the fiscal variables have no significant effect on output in the short run.

<sup>14</sup>Leonall Anderson and Jerry Jordan, "Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization," *Review*, Federal Reserve Bank of St. Louis, November 1968, pp. 11-23.

*Quarterly Journal of Economics*, May 1974, pp. 228-250, William Springer, "Did the 1968 Surcharge Really Work?" *American Economic Review*, September 1975 and Modigliani and Steindel, *op cit*.

<sup>9</sup>Cary Brown writes "...one should not lose sight of the congressional failure to act promptly on urgent stabilization legislation." Brown, *op cit*, p. 353.

<sup>10</sup>See Friedman's section in *Monetary vs. Fiscal Policy*, Walter Heller and Milton Friedman, New York, 1969.

<sup>11</sup>See, for example, Milton Friedman and Ana Schwartz, "Money and Business Cycles," *Review of Economics and Statistics*, February 1963.

<sup>12</sup>See, for example, Robert Barro, "Unanticipated Money, Output, and the Price Level in the United States," *Journal of Political Economy*, August 1978, pp. 549-580.



the evidence indicate that increased government expenditures had only small positive effects at first and then negative effects, leaving aggregate demand virtually unchanged after a few quarters? Or alternatively, how could it be that the size of the deficit does not seem to affect total spending permanently?

The traditional monetarist answer is that government borrowing competes with private borrowing so that when government demands on the credit markets increase, private credit demands are crowded out. If the federal government runs a large deficit, the government has to borrow in the market, raising the demand for loanable funds and pushing interest rates up. Conversely, if the government budget shifts to a surplus, that adds to the supply of loanable funds, urging interest rates down.<sup>15</sup> As a result, it is maintained that the state of the budget by itself has no significant effect on aggregate demand, on output, on inflation or on the business cycle.

Suppose the government cuts taxes as it did in the fall of 1981 but keeps on spending roughly the same amount as it did before. Then the tax cut increases the amount it has to borrow. If it raises \$30 billion less in taxes, it now has to borrow \$30 billion more. Taxpayers have more money but the people who loaned the money to the government have less. And so, according to this theory, there's a standoff. Taxpayers have \$30 billion more. Yet private borrowers are forced to sit on the sidelines because the government's demand for the funds pushes interest rates up, making it unprofitable for many to borrow at the higher rates.

Even though this explanation is often given in academic writings and in the popular press today, the evidence supporting this proposition is not conclusive. Examine the federal government surplus and the long-term treasury bond interest rate columns of Table 1. Aside from the upward trend in interest rates over the last 32 years and the higher average level of deficits in the last 10 years, the relationship between deficits and interest rates is not strong. During the period of relative price stability from 1957

to 1965 for example, interest rates were lowest in 1958 and highest in 1965. Yet, as a percentage of GNP, the deficit was the largest in 1958 and the government budget was actually in surplus in 1965. The 1966 to 1975 period looks similar. The large deficit in 1967 was accompanied by an interest rate of 4.85 percent, while the surplus of 1969 accompanied an interest rate of 6.10 percent. The 2 percent of GNP deficit by 1971 was accompanied by a drop in interest rates to 5.74 percent. Likewise, the 1975 to 1981 period does not seem to support the theory, as the deficit dropped from 4.6 percent of GNP in 1975 to 2.1 percent in 1981 and yet the interest rate rose from 6.98 percent to 12.87 percent over this period.<sup>16</sup>

Since interest rates do not seem to move as conventional theory suggests and yet fiscal policy changes have no significant effects on economic activity, what then is the answer? Why didn't the 1968 surcharge and the rebate in 1975 work as expected? Some macro theorists now explain the rise in 1968 and the fall in 1975 as resulting from these fiscal changes on future tax liabilities. Thus, rather than shedding light on the controversy, these fiscal experiments may be evidence on the "rationality" of the private sector and its ability to perceive the effects on future tax liabilities of current fiscal actions. For if consumers do foresee these effects, current tax increases or decreases (whether viewed by policy makers as being temporary as in 1968 and 1975 or as being permanent as in 1981) will have little effect on aggregate demand. With the continuing debate on President Reagan's fiscal program, a close examination of this hypothesis is warranted.

## V. The New "New Macroeconomics"

The new "new macroeconomists" or rational expectations economists aren't surprised by the lack of empirical support for the fiscal activists' or monetarists' positions because they don't believe that the public treats government debt as net wealth. Rather, their theory supports the proposition that the public discounts the taxes implied by government debt. For example,

<sup>15</sup>For an early statement of this result in today's terms, see John R. Hicks, "Mr. Keynes and the 'Classics': A Suggested Interpretation," *Econometrica*, 1937, pp. 147-159. This article lays out what is now the common tool of analysis in undergraduate macro textbooks - the IS-LM diagram.

<sup>16</sup>However, it should be noted that deficits can be relatively low (high) and interest rates high (low) because both can be influenced by other factors. During a recession, for example, deficits can be high and rates low.



**Table 1.** Federal Government Deficits (NIA) as Percentage of GNP and Money Growth

(1) Calendar Year	(2) Fed Govt Receipts	(3) Fed Govt Expenditures	(4) Fed Govt Surplus	(5) % Change in Money Supply	(6) % Change in Real GNP	(7) Long Term Treasury Rate
1950	17.5%	14.3%	+3.2%	4.7%	8.7%	2.32%
1951	19.5%	17.5%	+2.0%	5.8%	8.3%	2.57%
1952	19.4%	20.5%	-1.1%	3.6%	5.7%	2.68%
1953	19.1%	21.1%	-2.0%	1.4%	-3.8%	2.94%
1954	17.4%	19.1%	-1.7%	2.8%	-1.2%	2.55%
1955	18.2%	17.1%	+1.1%	2.1%	6.7%	2.84%
1956	18.5%	17.1%	+1.4%	1.4%	2.1%	2.08%
1957	18.5%	18.0%	+0.5%	-0.7%	1.8%	3.47%
1958	17.5%	19.8%	-2.3%	3.9%	-0.4%	3.43%
1959	18.5%	18.7%	-0.2%	0.4%	6.0%	4.07%
1960	19.0%	18.4%	+0.6%	0.6%	2.2%	4.01%
1961	18.7%	19.5%	-0.8%	3.2%	2.6%	3.90%
1962	18.8%	19.6%	-0.8%	1.8%	5.8%	3.95%
1963	19.2%	19.2%	+0.0%	3.7%	4.0%	4.00%
1964	18.1%*	18.6%	-0.5%	4.6%	5.3%	4.15%
1965	18.1%*	18.0%	+0.1%	4.7%	6.0%	4.21%
1966	18.8%	19.1%	-0.3%	2.5%	6.0%	4.66%
1967	18.9%	20.6%	-1.7%	6.6%	2.7%	4.85%
1968	20.1%†	20.8%	-0.7%	7.7%	4.6%	5.25%
1969	21.1%	20.1%	+0.9%	3.2%	2.8%	6.10%
1970	19.6%	20.8%	-1.2%	5.3%	-0.2%	6.59%
1971	18.7%	20.7%	-2.0%	6.6%	3.4%	5.74%
1972	19.4%	20.9%	-1.5%	9.3%	5.7%	5.63%
1973	19.8%	20.3%	-0.5%	5.5%	5.8%	6.30%
1974	20.5%	21.2%	-0.7%	4.4%	-0.6%	6.99%
1975	18.8%*	23.4%	-4.6%	5.0%	-1.1%	6.98%
1976	19.5%	22.7%	-3.2%	6.6%	5.4%	6.78%
1977	19.8%	22.4%	-2.6%	8.1%	5.5%	7.06%
1978	20.0%	21.4%	-1.4%	8.3%	4.8%	7.89%
1979	20.5%	21.1%	-0.6%	7.2%	3.3%	8.74%
1980	20.6%	22.9%	-2.3%	6.4%	-0.2%	10.81%
1981	21.4%	23.5%	-2.1%	6.3%	1.9%	12.87%

\*Legislated Income Tax Reductions

†Legislated Income Tax Increase

in econometric equations explaining consumption, adding the real value of government debt held domestically to a fairly complete set of variables including the private stock of capital produces an insignificant coefficient on government debt.<sup>17</sup>

<sup>17</sup>See Ernest Tanner, "An Empirical Investigation of Tax Discounting," *Journal of Money Credit and Banking*, May 1979, pp. 214-218. Recent research by Martin Feldstein, however, shows that consumption expendi-

This implies that the outstanding government debt has no effect on current consumption. Because the private stock of capital increases consumption from a wealth effect—for a given level of income, the more wealth a consumer has, the more he will consume—the absence of

tures are responsive to the real value of government debt. See Martin J. Feldstein, "Government Deficits and Aggregate Demand," *Journal of Monetary Economics*, 9 (January 1982), pp. 1-20.



any effect of the outstanding stock of government debt on consumption means it is not treated as wealth by all consumers.

However, government bonds have value to their holders because they expect to receive interest payments. But where can the government obtain the funds to pay the bonds? Only from the taxpayers. If the same discount rate is used by the bond holder and the taxpayer, the discounted capital value of the tax liabilities to the taxpayer is equal to the capital value to the bond holder. In such a case, variations in the value of the government debt will have no real wealth effect. Government debt is simultaneously both a liability and an asset.

Because governments can pay for expenditures in only two ways, by taxing or by borrowing, the above result says they are equivalent if consumers look at "permanent" income in forming their consumption decisions. The issue of a bond to finance current expenditures leads to future interest payments and possible ultimate repayment of principal. It implies future taxes that would not be necessary if the expenditures were financed by taxes.<sup>18</sup>

Others have argued that this theory can not be right because consumers have finite lives while the government is infinitely lived. For the consumer, the relevant horizon for future taxes is much less than for interest payments and repayment of principle. As a result, the value of government debt to the bond holder must exceed the perceived liability to the taxpayer.<sup>19</sup>

In the model of overlapping generations used by many macro theorists in recent years, this argument is moot. This framework basically says that people worry about their children and take care of them by inheritance. As a consequence, current taxpayers will not consume at the expense of their heir but rather will increase their personal savings so that their bequests, net of the government debt, would be the same as if the government deficit had not occurred. "This extra private savings to increase

the bequest just offsets the reduced public savings associated with a government deficit."<sup>20</sup>

Empirical evaluation of this theory using U. S. data is not inconsistent with it. Not only is the bequest motive a strong factor in explaining aggregate savings,<sup>21</sup> but also the evidence suggests that government surpluses reduce private savings while deficits increase private savings.

This relationship can be seen in Chart 1 where the savings ratio is plotted along with the deficit ratio. The savings ratio is defined as one minus the ratio of consumption expenditures to income, and the deficit ratio is the difference between federal government expenditures and taxes divided by income. While not perfect, deficit movements clearly are highly correlated with movements in the savings ratio. Higher deficits, then, are clearly associated with higher private savings ratios and vice versa.

However, we may have proved too much in our discussion surrounding Chart 1. The best of the current research, in my view, breaks the deficit down into two components — one component which can be "perceived" or "expected" based upon prior information and one which is "unperceived" or "unexpected." This research argues that unperceived deficits are not known to consumers and they do not respond to them.

The implications for contracyclical policy are obvious. The automatic fiscal stabilizers which have been part of the system in the post-World War II period appear to have significantly less effect than commonly thought. Any change in the deficit which occurs as a result of the normal fluctuations in the economy is widely expected and would be offset by changes in savings. As a result, the higher tax rates at cycle peaks do not curb consumption demands nor do the lower tax rates during cycle downturns stimulate consumption demands. Consumption remains more or less constant over the cycle with savings rates climbing in periods of reces-

<sup>18</sup>For arguments along these lines, see Martin Bailey, "The Optimal Full-Employment Surplus," *Journal of Political Economy*, July 1972, pp. 649-661, Levis Kochin, "Are Future Taxes Anticipated by Consumers?" *Journal of Money, Credit, and Banking*, August 1974, pp. 385-394, Merton Miller and Charles Upton, *Macroeconomics: A Neoclassical Introduction*, Homewood, Illinois, 1974, and Ernest Tanner, "Empirical Evidence on the Short Run Real Balance Effect in Canada," *Journal of Money, Credit and Banking*, November 1970, pp. 473-485.

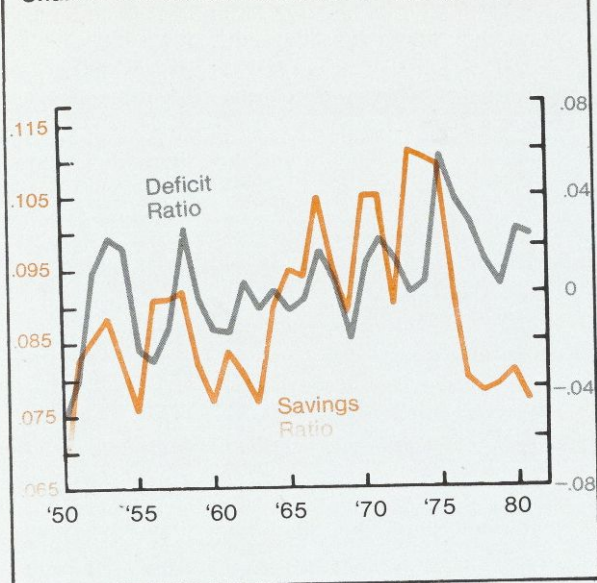
<sup>19</sup>This argument is made most forcefully by Earl Thompson in "Debt Instruments in Both Macroeconomic Theory and Capital Theory," *American Economic Review*, December 1976, pp. 1196-1210.

<sup>20</sup>Ernest Tanner, "Fiscal Policy and Consumer Behavior," *Review of Economics and Statistics*, May 1979, p. 317. For a comprehensive theoretical treatment of this model, see Robert Barro, "Are Government Bonds Net Wealth?" *Journal of Political Economy*, December 1974, pp. 1095-1118.

<sup>21</sup>Kotlikoff and Summers write "The evidence presented indicates that intergenerational transfers account for the vast majority of aggregate U.S. capital formation; only a negligible fraction of actual capital accumulation can be traced to life-cycle or 'lump' savings." Laurence J. Kotlikoff and Lawrence Summers, "The Role of Intergenerational Transfers in Aggregate Capital Accumulation," *Journal of Political Economy*, 1981, p. 706.



Chart 1. The Deficit Ratio and the Savings Ratio



sions but falling during expansions.

Discretionary fiscal policies may not be any better as stabilizing tools. Because the consumer takes into account known public action in making his consumption decisions, discretionary fiscal actions such as those in 1968 and 1975 would be expected to affect only savings rates, leaving consumption largely unaffected. As a result, neither discretionary fiscal actions nor the automatic stabilizers should be expected to serve our needs for a policy tool contributing to short run economic stability.

The empirical evaluation and testing of this theory is not inconsistent with the hypothesis. Unexpected deficits—largely unexpected government spending changes—lead to increases in aggregate demand above balanced budgets. The evidence for unexpected deficits appears to conform exactly to the Keynesian theory. Not only do unexpected deficits cause aggregate demand to rise, but also they cause interest rates to rise and increase real output.<sup>22</sup> Although the evidence is not crystal clear, it does indicate that unexpected deficits may have little inflation effect because of the sharp short run rise in output and in interest rates.<sup>23</sup>

<sup>22</sup>This research is not published but is contained in Ernest Tanner, "Will Monetary and Fiscal Stabilization Policies Work?" Working Paper, Tulane University, 1981.

## VI. Some Concluding Thoughts on Fiscal Policy

As a tool for short-term economic stability, fiscal policy has come almost full cycle in the past 50 years. From a position of no status in the classical model that dominated economic thinking until 1935, contracyclical fiscal policy reached its pinnacle in the 1960s—the heyday of Keynesian macroeconomics. It may now be on the wane as the new "new macroeconomics" of rational expectations replaces the Keynesian model.

In the rational expectations framework where bequests are an important motive for savings, perceived deficits are no more expansionary than equal government spending financed by taxes. Because deficits mean higher taxes in the future, the consumer's optimal response is to save the amount of the deficit. If this is done, the implied future tax liabilities do not make the consumer better off than if the government budget were balanced in the present by a higher level of taxes.

The evidence indicates that contracyclical fiscal policies have had little effect on the stability of the U. S. economy in the past 30 years. Only unexpected or "unperceived" fiscal policies work as Keynes suggested. Unfortunately, these unperceived policies cannot work for long or consistently in the desired direction because they rely on misperceptions. And as we all know, you cannot fool all the people all the time. Yet that is what must be done if we attempt to use fiscal policies to solve the business cycle.

—J. Ernest Tanner

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<sup>23</sup>Robert Hall argues that a transitory increase in aggregate demand (if the deficit is unperceived, it must be transitory) will raise the real rate of interest. This increased real rate of interest will be perceived as being temporary and workers will respond by working harder now as the higher real rate of interest makes future goods cheaper in terms of the unchanged price of present goods. If the worker is in equilibrium in his work/leisure trade-off today and decreases it in the future. Robert Barro's test of the proposition involved looking at military and non-military expenditures. He found substantial real output effects of transitory military spending but was unable to precisely measure the output effects of non-defense federal expenditures. See Robert Hall, "Labor Supply and Aggregate Fluctuations," *Carnegie-Rochester Series on Public Policy*, Spring 1980, pp. 7-33 and Robert Barro, "Output Effects of Government Purchases," *Journal of Political Economy*, 1981, pp. 1086-1121.





# FINANCE

# STATISTICAL SUPPLEMENT

	JUN 1982	MAY 1982	JUN 1981	ANN. % CHG.		JUN 1982	MAY 1982	JUN 1981	ANN. % CHG.
\$ millions									
<b>UNITED STATES</b>									
Commercial Bank Deposits	1,136,517	1,123,789	1,023,201	+ 11	Savings & Loans				
Demand	289,188	289,024	295,716	- 2	Total Deposits	529,812	527,933	512,859	+ 3
NOW	56,820	56,153	41,844	+ 36	NOW	9,759	9,531	5,778	+ 69
Savings	150,909	150,270	155,661	- 3	Savings	92,348	92,199	98,392	- 6
Time	672,815	659,361	561,061	+ 20	Time	428,332	426,790	408,417	+ 5
Credit Union Deposits	47,546	46,238	37,195	+ 28		MAY	APR	MAY	
Share Drafts	3,174	3,090	2,151	+ 48	Mortgages Outstanding	505,217	505,624	503,036	+ 0
Savings & Time	40,613	39,868	33,007	+ 23	Mortgage Commitments	16,550	16,304	18,635	- 11
<b>SOUTHEAST</b>									
Commercial Bank Deposits	123,302	122,293	110,126	+ 12	Savings & Loans				
Demand	34,138	34,549	33,911	+ 1	Total Deposits	78,296	77,743	74,831	+ 5
NOW	7,376	7,348	5,319	+ 39	NOW	1,582	1,562	888	+ 78
Savings	14,848	14,851	15,290	- 3	Savings	11,639	11,678	12,438	- 6
Time	70,329	68,935	58,316	+ 21	Time	65,099	64,532	61,356	+ 6
Credit Union Deposits	4,335	4,235	3,389	+ 28		MAY	APR	MAY	
Share Drafts	318	315	242	+ 31	Mortgages Outstanding	74,369	74,195	73,372	+ 1
Savings & Time	3,728	3,656	2,887	+ 29	Mortgage Commitments	3,233	3,431	4,058	- 20
<b>ALABAMA</b>									
Commercial Bank Deposits	13,852	13,512	12,599	+ 10	Savings & Loans				
Demand	3,468	3,511	3,372	+ 3	Total Deposits	4,472	4,440	4,392	+ 2
NOW	641	636	476	+ 35	NOW	83	80	47	+ 77
Savings	1,558	1,555	1,636	- 5	Savings	552	555	635	- 13
Time	8,694	8,276	7,452	+ 17	Time	3,860	3,826	3,719	+ 4
Credit Union Deposits	627	599	552	+ 14		MAY	APR	MAY	
Share Drafts	62	61	51	+ 22	Mortgages Outstanding	3,963	3,985	4,002	- 1
Savings & Time	580	559	494	+ 17	Mortgage Commitments	59	58	123	- 52
<b>FLORIDA</b>									
Commercial Bank Deposits	40,388	40,332	36,683	+ 10	Savings & Loans				
Demand	12,070	12,305	12,715	- 5	Total Deposits	47,550	47,230	45,465	+ 5
NOW	3,219	3,244	2,337	+ 38	NOW	1,087	1,081	632	+ 72
Savings	6,282	6,321	6,558	- 4	Savings	7,773	7,821	8,327	- 7
Time	19,791	19,466	15,985	+ 24	Time	38,598	38,251	36,311	+ 6
Credit Union Deposits	2,061	2,016	1,572	+ 31		MAY	APR	MAY	
Share Drafts	177	175	137	+ 29	Mortgages Outstanding	45,602	45,516	44,567	+ 2
Savings & Time	1,617	1,591	1,195	+ 35	Mortgage Commitments	2,640	2,833	3,369	- 22
<b>GEORGIA</b>									
Commercial Bank Deposits	17,165	17,047	14,765	+ 16	Savings & Loans				
Demand	5,977	6,040	5,495	+ 9	Total Deposits	9,804	9,681	9,485	+ 3
NOW	1,051	1,041	760	+ 38	NOW	172	168	89	+ 93
Savings	1,656	1,637	1,616	+ 2	Savings	1,193	1,182	1,288	- 7
Time	9,426	9,243	7,426	+ 27	Time	8,490	8,367	8,131	+ 4
Credit Union Deposits	817	803	571	+ 43		MAY	APR	MAY	
Share Drafts	30	29	18	+ 67	Mortgages Outstanding	9,277	9,268	9,468	- 2
Savings & Time	738	728	541	+ 36	Mortgage Commitments	180	172	170	+ 6
<b>LOUISIANA</b>									
Commercial Bank Deposits	22,301	22,045	19,670	+ 13	Savings & Loans				
Demand	6,073	6,140	5,926	+ 2	Total Deposits	7,733	7,681	7,077	+ 9
NOW	1,015	999	715	+ 42	NOW	105	98	49	+ 114
Savings	2,466	2,456	2,479	- 1	Savings	1,221	1,222	1,220	+ 0
Time	13,313	13,051	11,076	+ 20	Time	6,420	6,371	5,824	+ 10
Credit Union Deposits	122	120	86	+ 42		MAY	APR	MAY	
Share Drafts	10	10	5	+ 100	Mortgages Outstanding	7,246	7,155	6,963	+ 4
Savings & Time	114	111	79	+ 44	Mortgage Commitments	269	281	256	+ 5
<b>MISSISSIPPI</b>									
Commercial Bank Deposits	10,260	10,227	9,118	+ 13	Savings & Loans				
Demand	2,309	2,378	2,299	+ 0	Total Deposits	2,414	2,408	2,359	+ 2
NOW	550	546	395	+ 39	NOW	47	46	20	+ 135
Savings	741	740	762	- 3	Savings	221	221	238	- 7
Time	6,878	6,797	5,889	+ 17	Time	2,158	2,152	2,104	+ 3
Credit Union Deposits	N.A.	N.A.	N.A.			MAY	APR	MAY	
Share Drafts	N.A.	N.A.	N.A.		Mortgages Outstanding	2,187	2,144	2,201	- 1
Savings & Time	N.A.	N.A.	N.A.		Mortgage Commitments	17	20	43	- 60
<b>TENNESSEE</b>									
Commercial Bank Deposits	19,336	19,131	17,292	+ 12	Savings & Loans				
Demand	4,242	4,175	4,104	+ 3	Total Deposits	6,323	6,303	6,053	+ 4
NOW	899	883	636	+ 41	NOW	89	87	51	+ 75
Savings	2,145	2,141	2,239	- 4	Savings	679	676	730	- 7
Time	12,227	12,103	10,488	+ 17	Time	5,572	5,564	5,267	+ 6
Credit Union Deposits	708	697	608	+ 16		MAY	APR	MAY	
Share Drafts	39	40	31	+ 26	Mortgages Outstanding	6,094	6,127	6,171	- 1
Savings & Time	679	667	578	+ 17	Mortgage Commitments	68	67	97	- 30

**Notes:** All deposit data are extracted from the Federal Reserve Report of Transaction Accounts, other Deposits and Vault Cash (FR2900), and are reported for the average of the week ending the 1st Wednesday of the month. This data, reported by institutions with over \$15 million in deposits as of December 31, 1979, represents 95% of deposits in the six state area. The major differences between this report and the "call report" are size, the treatment of interbank deposits, and the treatment of float. The data generated from the Report of Transaction Accounts is for banks over \$15 million in deposits as of December 31, 1979. The total deposit data generated from the Report of Transaction Accounts eliminates interbank deposits by reporting the net of deposits "due to" and "due from" other depository institutions. The Report of Transaction Accounts subtracts cash in process of collection from demand deposits, while the call report does not. Savings and loan mortgage data are from the Federal Home Loan Bank Board Selected Balance Sheet Data. The Southeast data represent the total of the six states. Subcategories were chosen on a selective basis and do not add to total.

N.A. = fewer than four institutions reporting.





# EMPLOYMENT

	MAY 1982	APR 1982	MAY 1981	ANN. % CHG.		MAY 1982	APR 1982	MAY 1981	ANN. % CHG.
<b>UNITED STATES</b>									
Civilian Labor Force - thous.	109,914	108,814	108,586	+ 1	Nonfarm Employment- thous.	90,259	89,897	91,432	- 1
Total Employed - thous.	99,957	98,858	100,855	- 1	Manufacturing	19,049	19,059	20,262	- 6
Total Unemployed - thous.	9,957	9,957	7,730	+29	Construction	3,907	3,750	4,235	- 8
Unemployment Rate - % SA	9.5	9.4	7.5		Trade	20,603	20,445	20,520	+ 0
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	16,159	16,145	16,388	- 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	18,996	18,962	18,594	+ 2
Mfg. Avg. Wkly. Hours	39.0	38.7	40.1	- 3	Fin., Ins., & Real Est.	5,327	5,312	5,296	+ 1
Mfg. Avg. Wkly. Earn. - \$	330	325	318	+ 4	Trans. Com. & Pub. Util.	5,059	5,053	5,151	- 2
<b>SOUTHEAST</b>									
Civilian Labor Force - thous.	14,113	13,973	13,226	+ 7	Nonfarm Employment- thous.	11,446	11,488	11,449	- 0
Total Employed - thous.	12,824	12,680	12,286	+ 4	Manufacturing	2,195	2,200	2,316	- 5
Total Unemployed - thous.	1,288	1,293	939	+37	Construction	679	677	702	- 3
Unemployment Rate - % SA	10.2	10.4	7.7		Trade	2,700	2,705	2,650	+ 2
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	2,156	2,160	2,177	- 1
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	2,228	2,242	2,132	+ 5
Mfg. Avg. Wkly. Hours	39.1	38.9	40.3	- 3	Fin., Ins., & Real Est.	640	642	629	+ 2
Mfg. Avg. Wkly. Earn. - \$	285	284	274	+ 4	Trans. Com. & Pub. Util.	696	699	698	- 0
<b>ALABAMA</b>									
Civilian Labor Force - thous.	1,712	1,695	1,646	+ 4	Nonfarm Employment- thous.	1,337	1,338	1,348	- 1
Total Employed - thous.	1,487	1,473	1,502	- 1	Manufacturing	346	347	366	- 5
Total Unemployed - thous.	225	223	144	+56	Construction	64	64	67	- 4
Unemployment Rate - % SA	13.6	14.0	9.3		Trade	273	273	271	+ 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	295	295	295	0
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	213	213	210	+ 1
Mfg. Avg. Wkly. Hours	39.2	39.2	40.1	- 2	Fin., Ins., & Real Est.	59	59	59	0
Mfg. Avg. Wkly. Earn. - \$	284	288	279	+ 2	Trans. Com. & Pub. Util.	71	71	72	- 1
<b>FLORIDA</b>									
Civilian Labor Force - thous.	4,710	4,644	4,133	+14	Nonfarm Employment- thous.	3,789	3,815	3,725	+ 2
Total Employed - thous.	4,364	4,278	3,857	+13	Manufacturing	456	460	467	- 2
Total Unemployed - thous.	346	366	276	+25	Construction	257	256	282	- 9
Unemployment Rate - % SA	7.9	8.7	7.3		Trade	1,030	1,035	981	+ 5
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	618	623	628	- 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	909	918	857	+ 6
Mfg. Avg. Wkly. Hours	38.9	38.6	40.5	- 4	Fin., Ins., & Real Est.	281	282	272	+ 3
Mfg. Avg. Wkly. Earn. - \$	269	266	261	+ 3	Trans. Com. & Pub. Util.	229	231	228	+ 0
<b>GEORGIA</b>									
Civilian Labor Force - thous.	2,666	2,638	2,588	+ 3	Nonfarm Employment- thous.	2,165	2,166	2,192	- 1
Total Employed - thous.	2,469	2,448	2,439	+ 1	Manufacturing	496	499	524	- 5
Total Unemployed - thous.	197	190	149	+32	Construction	99	99	103	- 4
Unemployment Rate - % SA	7.6	7.7	5.7		Trade	498	497	501	- 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	440	440	440	0
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	366	365	359	+ 2
Mfg. Avg. Wkly. Hours	39.2	38.5	40.5	- 3	Fin., Ins., & Real Est.	115	115	114	+ 1
Mfg. Avg. Wkly. Earn. - \$	262	258	255	+ 3	Trans. Com. & Pub. Util.	142	142	144	- 1
<b>LOUISIANA</b>									
Civilian Labor Force - thous.	1,864	1,854	1,774	+ 5	Nonfarm Employment- thous.	1,622	1,629	1,627	- 0
Total Employed - thous.	1,672	1,664	1,641	+ 2	Manufacturing	204	205	221	- 8
Total Unemployed - thous.	192	189	133	+44	Construction	132	134	138	- 4
Unemployment Rate - % SA	10.5	10.4	7.6		Trade	370	371	368	+ 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	314	314	309	+ 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	296	296	288	+ 3
Mfg. Avg. Wkly. Hours	39.9	40.0	40.9	- 2	Fin., Ins., & Real Est.	76	76	74	+ 3
Mfg. Avg. Wkly. Earn. - \$	370	374	345	+ 7	Trans. Com. & Pub. Util.	131	131	132	- 1
<b>MISSISSIPPI</b>									
Civilian Labor Force - thous.	1,076	1,071	1,063	+ 1	Nonfarm Employment- thous.	805	809	828	- 3
Total Employed - thous.	968	968	979	- 1	Manufacturing	210	210	224	- 6
Total Unemployed - thous.	107	103	84	+27	Construction	40	41	43	- 7
Unemployment Rate - % SA	10.6	10.4	8.1		Trade	163	162	164	- 1
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	185	188	189	- 2
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	122	122	122	0
Mfg. Avg. Wkly. Hours	38.7	38.6	39.7	- 3	Fin., Ins., & Real Est.	33	33	33	0
Mfg. Avg. Wkly. Earn. - \$	248	246	237	+ 5	Trans. Com. & Pub. Util.	40	40	40	0
<b>TENNESSEE</b>									
Civilian Labor Force - thous.	2,085	2,071	2,022	+ 3	Nonfarm Employment- thous.	1,728	1,731	1,729	- 0
Total Employed - thous.	1,864	1,849	1,868	- 0	Manufacturing	483	479	514	- 6
Total Unemployed - thous.	221	222	153	+44	Construction	87	83	85	+ 5
Unemployment Rate - % SA	11.0	11.1	8.0		Trade	366	367	365	+ 0
Insured Unemployment - thous.	N.A.	N.A.	N.A.		Government	304	300	316	- 4
Insured Unempl. Rate - %	N.A.	N.A.	N.A.		Services	322	328	296	+ 9
Mfg. Avg. Wkly. Hours	38.6	38.2	40.3	- 4	Fin., Ins., & Real Est.	76	77	77	- 1
Mfg. Avg. Wkly. Earn. - \$	275	272	266	+ 3	Trans. Com. & Pub. Util.	83	84	82	+ 1

**Notes:** All labor force data are from Bureau of Labor Statistics reports supplied by state agencies.  
 Only the unemployment rate data are seasonally adjusted.  
 The Southeast data represent the total of the six states.  
 The annual percent change calculation is based on the most recent data over prior year.  
 N.A. = Not Available





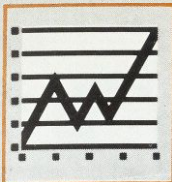
# CONSTRUCTION

	MAY 1982	APR 1982	MAY 1981	ANN % CHG		MAY 1982	APR 1982	MAY 1981	ANN % CHG
12-month Cumulative Rate									
<b>UNITED STATES</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	47,332	51,168	48,839	- 3	Value - \$ Mil.	35,175	36,074	49,677	- 29
Industrial Bldgs.	6,271	6,842	7,924	- 21	Residential Permits - Thous.				
Offices	15,367	15,028	12,043	+ 28	Number single-family	473.1	488.6	737.8	- 36
Stores	5,859	5,918	6,570	- 11	Number multi-family	381.0	385.5	501.1	- 24
Hospitals	1,594	1,594	1,385	+ 15	Total Building Permits				
Schools	790	793	715	+ 10	Value - \$ Mil.	86,275	87,242	98,516	- 12
<b>SOUTHEAST</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	6,683	6,627	6,937	- 4	Value - \$ Mil.	6,770	7,048	10,326	- 34
Industrial Bldgs.	810	810	858	- 6	Residential Permits - Thous.				
Offices	1,447	1,351	1,274	+ 14	Number single-family	96.9	99.9	160.6	- 40
Stores	1,090	1,106	981	+ 11	Number multi-family	85.6	88.2	132.4	- 35
Hospitals	285	277	182	+ 57	Total Building Permits				
Schools	90	89	97	- 7	Value - \$ Mil.	13,451	13,677	17,273	- 22
<b>ALABAMA</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	400	422	449	- 11	Value - \$ Mil.	241	250	432	- 44
Industrial Bldgs.	79	80	49	+ 61	Residential Permits - Thous.				
Offices	41	36	71	- 42	Number single-family	4.1	4.2	8.9	- 54
Stores	69	68	74	- 7	Number multi-family	5.0	4.9	8.1	- 38
Hospitals	31	32	20	+ 55	Total Building Permits				
Schools	7	6	13	- 46	Value - \$ Mil.	641	672	881	- 27
<b>FLORIDA</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	3,393	3,355	3,811	- 11	Value - \$ Mil.	4,445	4,715	6,951	- 36
Industrial Bldgs.	393	391	419	- 6	Residential Permits - Thous.				
Offices	654	588	550	+ 19	Number single-family	54.4	57.6	93.8	- 42
Stores	574	591	534	+ 7	Number multi-family	56.5	58.9	92.1	- 39
Hospitals	165	160	57	+189	Total Building Permits				
Schools	23	23	20	+ 15	Value - \$ Mil.	7,838	8,070	10,762	- 27
<b>GEORGIA</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	1,054	1,046	1,115	- 5	Value - \$ Mil.	1,016	1,010	1,324	- 23
Industrial Bldgs.	177	178	197	- 10	Residential Permits - Thous.				
Offices	260	255	313	- 17	Number single-family	20.0	19.6	28.3	- 29
Stores	122	119	104	+ 17	Number multi-family	9.2	9.9	11.0	- 16
Hospitals	24	30	18	+ 33	Total Building Permits				
Schools	32	33	31	+ 3	Value - \$ Mil.	2,070	2,057	2,439	- 15
<b>LOUISIANA</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	931	910	810	+ 15	Value - \$ Mil.	553	557	716	- 23
Industrial Bldgs.	90	90	109	- 17	Residential Permits - Thous.				
Offices	309	294	239	+ 29	Number single-family	9.1	9.0	12.3	- 26
Stores	172	175	100	+ 72	Number multi-family	7.6	7.6	9.2	- 17
Hospitals	30	27	56	- 46	Total Building Permits				
Schools	21	19	20	+ 5	Value - \$ Mil.	1,483	1,468	1,525	- 3
<b>MISSISSIPPI</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	180	178	187	- 4	Value - \$ Mil.	141	137	274	- 49
Industrial Bldgs.	22	22	23	- 4	Residential Permits - Thous.				
Offices	43	44	33	+ 30	Number single-family	2.9	2.9	5.1	- 43
Stores	38	37	50	- 24	Number multi-family	1.8	1.7	4.9	- 63
Hospitals	6	6	5	+ 20	Total Building Permits				
Schools	1.0	0.8	1.1	- 9	Value - \$ Mil.	320	315	462	- 31
<b>TENNESSEE</b>									
Nonresidential Building Permits - \$ Mil.					Residential Building Permits				
Total Nonresidential	725	716	565	+ 28	Value - \$ Mil.	374	379	629	- 41
Industrial Bldgs.	49	49	61	- 20	Residential Permits - Thous.				
Offices	140	134	68	+106	Number single-family	6.4	6.6	12.2	- 48
Stores	115	116	119	- 3	Number multi-family	5.5	5.2	7.1	- 23
Hospitals	29	22	26	+ 12	Total Building Permits				
Schools	6	7	12	- 50	Value - \$ Mil.	1,099	1,095	1,204	- 9

## NOTES:

Data supplied by the U. S. Bureau of the Census, Housing Units Authorized By Building Permits and Public Contracts, C- 40. Nonresidential data excludes the cost of construction for publicly owned buildings. The southeast data represent the total of the six states. The annual percent change calculation is based on the most recent month over prior year. Publication of F. W. Dodge construction contracts has been discontinued.





# GENERAL

	JUN 1982	MAY 1982	JUN 1981	ANN. % CHG.		JUN 1982	MAY (R) 1982	JUN 1981	ANN. % CHG.
<b>UNITED STATES</b>									
Personal Income-\$ bil. SAAR (Dates: 4Q, 3Q, 4Q)	2,412.9	2,340.5	2,155.8	+12	Agriculture				
Retail Sales - \$ mil.- SA	89,301	90,682	87,299	+ 2	Prices Rec'd by Farmers				
Plane Pass. Arrivals (thous.) APR	N.A.	N.A.	N.A.		Index (1977=100)	138	139	142	- 3
Petroleum Prod. (thous. bls.)	8,622.1	8,688.1	8,633.6	- 0	Broiler Placements (thous.)	84,455	84,912	83,935	+ 1
Consumer Price Index					Calf Prices (\$ per cwt.)	64.20	64.20	66.30	- 3
1967=100 MAY	287.1	284.3	269.0	+ 7	Broiler Prices (\$ per lb.)	28.6	28.0	29.9	- 4
Kilowatt Hours - mils. FEB	182.8	192.1	178.6	+ 2	Soybean Prices (\$ per bu.)	6.07	7.27	7.05	-14
					Broiler Feed Cost (\$ per ton)	215	217	234	- 8
<b>SOUTHEAST</b>									
Personal Income-\$ bil. SAAR (Dates: 4Q, 3Q, 4Q)	282.1	272.8	249.2	+13	Agriculture				
Taxable Sales - \$ mil.	N.A.	N.A.	N.A.		Prices Rec'd by Farmers				
Plane Pass. Arrivals (thous.) APR	4,459.0	4,672.8	4,466.8	+ 0	Index (1977=100)	125	123	134	- 7
Petroleum Prod. (thous. bls.)	1,387.0	1,393.0	1,444.9	- 4	Broiler Placements (thous.)	33,744	32,468	33,466	+ 1
Consumer Price Index					Calf Prices (\$ per cwt.)	58.60	60.16	59.77	- 2
1967=100	N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	27.6	26.7	27.5	+ 0
Kilowatt Hours - mils. FEB	27.8	29.5	28.7	- 3	Soybean Prices (\$ per bu.)	6.28	6.43	7.18	-13
					Broiler Feed Cost (\$ per ton)	213	214	228	- 7
<b>ALABAMA</b>									
Personal Income-\$ bil. SAAR (Dates: 4Q, 3Q, 4Q)	32.4	31.4	29.1	+11	Agriculture				
Taxable Sales - \$ mil.	N.A.	N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arrivals (thous.) APR	106.2	122.6	118.9	-11	(Dates: APR, APR)	572	-	561	+ 2
Petroleum Prod. (thous. bls.)	55.0	56.0	63.0	-13	Broiler Placements (thous.)	10,826	10,830	10,684	+ 1
Consumer Price Index					Calf Prices (\$ per cwt.)	56.00	57.00	57.80	- 3
1967=100	N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	27.0	26.5	27.5	- 2
Kilowatt Hours - mils. FEB	4.0	4.3	4.1	- 2	Soybean Prices (\$ per bu.)	6.18	6.13	6.91	-11
					Broiler Feed Cost (\$ per ton)	215	225	250	-14
<b>FLORIDA</b>									
Personal Income-\$ bil. SAAR (Dates: 4Q, 3Q, 4Q)	102.4	98.3	88.8	+15	Agriculture				
Taxable Sales - \$ mil.	67.2	67.8	62.8	+ 7	Farm Cash Receipts - \$ mil.				
Plane Pass. Arrivals (thous.) APR	2,251.3	2,440.4	2,089.7	+ 8	(Dates: APR, APR)	1,907	-	1,839	+ 4
Petroleum Prod. (thous. bls.)	77.0	79.0	114.4	-33	Broiler Placements (thous.)	1,887	2,087	1,992	- 5
Consumer Price Index - Miami					Calf Prices (\$ per cwt.)	64.70	66.60	65.20	- 1
Nov. 1977 = 100	155.7	155.1	143.2	+ 9	Broiler Prices (\$ per lb.)	28.0	26.0	26.0	+ 8
Kilowatt Hours - mils. FEB	6.9	7.7	7.8	-12	Soybean Prices (\$ per bu.)	6.18	6.13	6.91	-11
					Broiler Feed Cost (\$ per ton)	225	225	240	- 6
<b>GEORGIA</b>									
Personal Income-\$ bil. SAAR (Dates: 4Q, 3Q, 4Q)	48.7	47.6	43.7	+11	Agriculture				
Taxable Sales - \$ mil.	N.A.	N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arrivals (thous.) APR	1,640.1	1,642.2	1,747.3	- 6	(Dates: APR, APR)	801	-	803	- 0
Petroleum Prod. (thous. bls.)	N.A.	N.A.	N.A.		Broiler Placements (thous.)	13,065	12,841	13,040	+ 0
Consumer Price Index - Atlanta					Calf Prices (\$ per cwt.)	55.40	56.70	56.60	- 2
1967 = 100	280.2	279.8	265.9	+ 5	Broiler Prices (\$ per lb.)	27.0	26.0	26.5	+ 2
Kilowatt Hours - mils. FEB	4.5	4.5	4.3	+ 5	Soybean Prices (\$ per bu.)	6.23	6.22	7.17	-13
					Broiler Feed Cost (\$ per ton)	205	210	210	- 2
<b>LOUISIANA</b>									
Personal Income-\$ bil. SAAR (Dates: 4Q, 3Q, 4Q)	40.4	39.1	35.3	+14	Agriculture				
Taxable Sales - \$ mil.	N.A.	N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arrivals (thous.) APR	284.3	284.2	265.5	+ 7	(Dates: APR, APR)	419	-	441	- 5
Petroleum Prod. (thous. bls.)	1,164.0	1,164.0	1,172.5	- 1	Broiler Placements (thous.)	N.A.	N.A.	N.A.	
Consumer Price Index					Calf Prices (\$ per cwt.)	58.50	59.60	59.80	- 2
1967 = 100	N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	29.5	27.5	28.0	+ 5
Kilowatt Hours - mils. FEB	4.2	4.4	4.1	+ 2	Soybean Prices (\$ per bu.)	6.44	6.81	7.51	-14
					Broiler Feed Cost (\$ per ton)	260	250	245	+ 6
<b>MISSISSIPPI</b>									
Personal Income-\$ bil. SAAR (Dates: 4Q, 3Q, 4Q)	18.3	17.7	16.5	+11	Agriculture				
Taxable Sales - \$ mil.	N.A.	N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arrivals (thous.) APR	31.7	33.4	33.4	- 5	(Dates: APR, APR)	605	-	559	+ 8
Petroleum Prod. (thous. bls.)	91.0	94.0	95.0	- 4	Broiler Placements (thous.)	6,566	6,590	6,428	+ 2
Consumer Price Index					Calf Prices (\$ per cwt.)	57.30	62.40	60.70	- 6
1967 = 100	N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	29.0	28.5	29.5	- 2
Kilowatt Hours - mils. FEB	1.8	1.9	1.7	+ 6	Soybean Prices (\$ per bu.)	6.28	6.34	7.04	-11
					Broiler Feed Cost (\$ per ton)	210	197	220	- 5
<b>TENNESSEE</b>									
Personal Income-\$ bil. SAAR (Dates: 4Q, 3Q, 4Q)	39.8	38.8	35.8	+11	Agriculture				
Taxable Sales - \$ mil.	N.A.	N.A.	N.A.		Farm Cash Receipts - \$ mil.				
Plane Pass. Arrivals (thous.) APR	150.3	150.0	145.5	+ 4	(Dates: APR, APR)	486	-	415	+17
Petroleum Prod. (thous. bls.)	N.A.	N.A.	N.A.		Broiler Placements (thous.)	1,399	1,384	1,322	+ 2
Consumer Price Index					Calf Prices (\$ per cwt.)	58.60	57.50	57.70	+ 2
1967 = 100	N.A.	N.A.	N.A.		Broiler Prices (\$ per lb.)	27.5	25.0	29.5	- 7
Kilowatt Hours - mils. FEB	6.4	6.7	6.7	- 4	Soybean Prices (\$ per bu.)	6.22	6.49	7.23	-14
					Broiler Feed Cost (\$ per ton)	192	197	225	-15

Notes: Personal Income data supplied by U. S. Department of Commerce. Taxable Sales are reported as a 12-month cumulative total. Plane Passenger Arrivals are collected from 26 airports. Petroleum Production data supplied by U. S. Bureau of Mines. Consumer Price Index data supplied by Bureau of Labor Statistics. Agriculture data supplied by U. S. Department of Agriculture. Farm Cash Receipts data are reported as cumulative for the calendar year through the month shown. Broiler placements are an average weekly rate. The Southeast data represent the total of the six states. N.A. = not available. The annual percent change calculation is based on most recent data over prior year.

R = revised.



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