

The Monetary-Fiscal Policy Mix

Empirical Analysis and Theoretical Implications

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One of the most remarkable features of the American economy is its strongly enforced separation of fiscal and monetary policymaking powers. While a number of countries have adopted this division of labor in economic policymaking, the Federal Reserve was the first central bank to explicitly enumerate its independence from the sway of the elected legislature in its founding documents, and this separation has doubtless helped the American economy achieve non-inflationary economic growth over the expanse of the 20th century. By not giving fiscal policymakers control over the money supply, the US avoids the temptation of paying off deficits by printing money – a deadly trap that, if left unchecked, can result in severe hyperinflation.

However, the separation of economic policymaking powers is not without a tradeoff: the independent actions of Congress and the Federal Reserve could result in a mix of uncoordinated policies, as both fiscal and monetary forces attempt to pull the economy in opposite directions. The implications of such divergent policy mixes are not trivial, as they could potentially slow the economy's long term growth rate or cause unwanted surges in inflation. Over the last 40 years, has the independence of monetary and fiscal policymaking resulted in such disjointedness? If so, what are the potential consequences for dissimilar policy stances in both the short and long run? These questions and others will be explored in this paper.

THEORETICAL OVERVIEW OF THE POLICY MIX

There are essentially four types of possible outcomes for the mix of policies in an economy

in which monetary and fiscal decisions are made independently: 1. loose fiscal policy / easy monetary policy; 2. loose fiscal policy / tight monetary policy; 3. tight fiscal policy / easy monetary policy; and 4. tight fiscal policy / tight monetary policy. From a purely theoretical perspective, the coordinated stances of loose fiscal / easy money and tight fiscal / tight money are most effective when they are applied counter-cyclically. As the standard IS/LM framework reveals, simultaneous expansionary fiscal and monetary policies would be most beneficial for an economy experiencing a recession: the simultaneously loose fiscal and easy money policies produce a large increase in output at the expense of little or to increase in real interest rates. Similarly, a coordinated contractionary mix would work best in reducing a positive output gap.

Policy divergence, however, can produce mixed results depending on the relative strength of one policy's effects to another. While a loose monetary, tight fiscal posture has been rarely observed empirically, a loose fiscal, tight monetary posture almost always raises the equilibrium level of real interest rates, potentially resulting in crowding out effects on investment demand and moderating any expansionary attempts of the government. However, the simple IS/LM model, while elegant in its exposition of the short run, can only approximate what occurs during times of policy disjointedness. To get a better understanding of what actually happens during such dissimilar policy mixes, and to see if they actually have occurred empirically, we must first examine policies in the United States from both historical and quantitative points of view.

HISTORICAL OVERVIEW

One of the ways to characterize the monetary-fiscal policy mix during the post-war years, specifically from 1960 to 2001, is to examine the policies that were made from a purely historical perspective. While such a survey has limitations in its quantitative rigor, it can nevertheless be

quite revealing to understand why a particular policymaker chose to lower interest rates or increase governmental spending, and what sort of conditions of political climate or other exogenous factors led to policy decisions. In order to best assess this forty-year period of history, we will address the concerns of policymaking by examining the fiscal and monetary policies as conducted under each of the nine presidents who served our country in the post-war era.

John F. Kennedy (1961-63) became the 35th president of the United States, succeeding Dwight D. Eisenhower, in early 1961. Kennedy entered the oval office in the wake of a mild recession, and although positive growth began to return during the first few quarters of his term, by late 1961 it was clear that the economy was showing signs of slowing. In response to the recessionary tensions, Kennedy and his advisors planned on enacting a tax cut to spur economic growth and revitalize employment. Kennedy's policies were heavily influenced by the work of John Maynard Keynes, whose theories regarding the role of government spending in moderating the business cycle were at the time gaining wide appeal among economists and policymakers. Unfortunately, Congressional debates delayed the passage of the tax cut, and ultimately Kennedy was assassinated before the plan could be enacted.¹

During the presidencies of Kennedy, Johnson, and Nixon, monetary policy was guided chiefly by the leadership of William McChesney Martin, Jr. (1951-70), the longest serving Fed Chairman in history. Martin's career at the Federal Reserve was focused both on strengthening the central bank's independence from fiscal policymaking bodies and on promoting non-inflationary economic growth. The work of A.W. Phillips in formalizing the tradeoff relationship between inflation and unemployment proved to be quite influential in monetary policy during the 1960's, as Martin's policies at times favored reductions in unemployment, causing the gradual increase in the

¹ Gary M. Walton and Hugh Rockoff. *History of the American Economy* (New York: The Dryden Press, 1998): 647-8.

rate of inflation over the 1960's.²

Lyndon B. Johnson's (1963-69) fiscal policies, after working to pass Kennedy's tax cut program, included a great deal of social legislation and welfare spending programs, known collectively as the "Great Society." Johnson's programs initially received adequate funding from tax revenues and thus deficit spending was not frequently relied upon; however, once the war in Vietnam escalated, fiscal pressures to expend intensified, and the tax cut program of Kennedy had to be gradually phased out in order to prevent deficit spending from spiraling out of control. As military and social welfare spending intensified, inflation gradually began to creep up on a dollar backed by gold. Because the dollar was increasingly losing its value, more and more people wanted to exchange dollars for their value in gold bullion, causing strains on gold reserves everywhere.

When Richard Nixon (1969-74) entered office, the threats against the dollar were so fierce that the administration was forced to "close the gold window" and forbid individuals from exchanging their dollars for gold.³ Nixon imposed a system of wage and price controls to maintain the dollar's credibility and to try to keep prices from soaring in the threat of monetary worthlessness. When Martin stepped down as Fed Chairman in January of 1970, he was replaced by Arthur Burns (1970-78), who initially attempted to maintain the dollar price of gold pegged at the same market rate. Pressures for devaluation intensified, and after devaluing the dollar 8%, in August of 1973, the administration allowed the dollar to float, letting its price be set not by government law, but by market forces. Prices soared as a result, as in 1974 alone, immediately

² Biography of William McChesney Martin, Jr. (March 2001) The Fiftieth Anniversary of the Treasury-Federal Reserve Accord. Federal Reserve Bank of Richmond Website. April 20, 2002.
< <http://www.rich.frb.org/research/specialtopics/treasury/index.html>>

³ Walton and Rockoff, 650.

following the dollar's devaluation, prices rose at 12.2% annual rate.⁴

Chairman Burns, under President Gerald Ford (1974-77), attempted to use contractionary monetary policy in 1974 and 1975 to reduce the rapidly increasing level of prices. Unfortunately, Burns was unable to maintain the Fed's credibility and popularity, and his aggressive inflation fighting policies were widely cited as the cause of the sharp recession of 1976. The tight monetary posture, it was argued, resulted in increased unemployment and ultimately contributed to Jimmy Carter's success in winning the 1976 presidential election.⁵ Burns sharply changed his policy stance to promote economic expansion once Carter was in office, and as the stock of money increased sharply by 13.7 percent between 1976 and 1977, prices began to swell.⁶

Jimmy Carter (1977-81) entered the oval office with the opportunity to quell inflationary threats once and for all; instead, his administration enacted huge social legislation programs, including spending on Social Security, veterans benefits payments, pensions, and other social welfare legislation. Inflation continued to grow in the late 1970's, as OPEC reduced the supply of oil. Meanwhile, monetary policy continued on an expansionary path under the guidance of G. William Miller (1978-79), noted for having the shortest reign as Fed Chairman in history. Poorly qualified for the office, Miller only exacerbated inflationary problems and his failure to stabilize prices caused his prompt removal from office in August of 1979.

Paul Volcker (1979-87) succeeded Miller as the next Fed Chairman, and he swiftly enacted the "New Fed Policy" of targeting the money supply to reduce inflation.⁷ Volcker successfully curtailed money growth, and over the 1980's, inflation was dramatically reduced. Realizing that

⁴ Walton and Rockoff, 650.

⁵ Ibid.

⁶ Hetzel, Robert L. "Arthur Burns and Inflation," *Federal Reserve Bank of Richmond Economic Quarterly*. 84 (1998): 21-25.

⁷ Walton and Rockoff, 659-60.

the money supply is remarkably difficult to target, Volcker shifted his use of policy tools back to short-term interest rates like the Fed Funds and Discount rates. Widely regarded as the greatest Fed Chairman in US history, Volcker's policy of fighting inflation was remarkably successful, as growth in the CPI was reduced from 13.3 percent in 1980 to 3.9% in 1982.⁸

On the fiscal side, the election of 1980 brought forth a dramatic shift in the political climate, as the republicans once again gained control of the White House with the election of Ronald Reagan (1981-89). Yet, in many ways, the expansionary fiscal policies of Jimmy Carter did not change, as Reagan's infamous supply-side tax cuts and military spending created the need for the government to run huge deficits. In a three-year period, Reagan's administration reduced tax rates 23 percent, and such expansionary actions were clearly in the spirit of Arthur Laffer's theories on the role of the tax rate in the promotion of economic activity. However, the reductions in the tax rate only further increased the government's need to run deficits, and by the end of his two terms as President in 1988, the federal deficit was over \$200 billion.⁹

George H. W. Bush (1988-92) succeeded Reagan in his victory in the election of 1988 and continued the Republican party's legacy in controlling the executive branch. His campaign promises included intentions to moderate fiscal spending; however, while Bush's first years were exhibited fiscal moderation on the spending side, his efforts at reducing the capital gains tax rate, motivated by the increasingly dated theories of supply side economics, clearly worked against these promised ends. Furthermore, military spending continued throughout Bush's presidency, as the efforts in the Persian Gulf escalated into war. In the middle of 1990, the economy dipped into a sharp recession, and many blamed the elevations in oil prices as a result of the US entry into the

⁸ Walton and Rockoff, 660.

⁹ Ibid.

Gulf War as one factor that caused the contraction.

The new Chairman of the Board of Governors of the Federal Reserve, Alan Greenspan (1987-present), was also blamed for his inaction during this recession. The successor to Paul Volcker, Greenspan was criticized for his failure to reduce interest rates more quickly during this period of contraction, and although such measures might have stifled the recessionary tendencies of the economy, Greenspan was wary of the spike in inflation that had occurred as a result of the surge in oil prices, and thus refrained from quick expansionary policies. The recession continued until 1991, and it is widely believed that Bush's chances at reelection were soundly diminished as a result of its duration.

William Jefferson Clinton (1992-2001) defeated Bush in the 1991 election, and the return of the Democratic Party to the White House brought with it attempts at shifting the fiscal policymaking posture. Clinton attempted to redress the policies of the supply side era by increasing tax rates of the wealthiest income brackets, and such measures proved effective in increasing tax revenues and reducing the national debt. Clinton's surpluses were also ironically aided by the legislature, in its sound defeat of the many of the administration's attempts at social spending and health-care reform.

Monetary policy under the Clinton era continued its focus on achieving of low rates of inflation. Greenspan tightened interest rates throughout the period to keep the price level in check. Despite his continued contractionary measures, the economy grew soundly as it was driven by information technology improvements and the resulting productivity gains. When the economy finally did turn sour in 2001, Greenspan was quick to inject liquidity into the system, and after lowering the Fed Funds Rate eleven times in the span of less than a year, monetary policy remains

currently at a neutral stance.

George W. Bush defeated Clinton's vice President Al Gore in a soundly contested election of 2000, and thus far, his policies could be characterized as fairly expansionary. The War on Terrorism that the US is waging against Osama bin Laden has brought forth increases in the need for military expenditures, and his proposals for a tax cut and a tax rebate to curb recessionary tendencies and increase consumption spending have been already been implemented. His presidency is not yet over, but many are forecasting that the deficits of the 1980's will return, if at least in a tamer form.¹⁰

The historical perspective on the monetary-fiscal policy mix, while quite revealing, does little to quantitatively assess the character of policy stances over the period, and while it would seem from historical observation that monetary and fiscal policy were often dissimilar, one cannot make sound judgments on this statement without first examining and evaluating the economic data gathered over the period.

STATISTICAL ANALYSIS: MEASURING FISCAL POLICY

Acquiring a quantitative understanding of fiscal policy is no great task, but it does require a good understanding both of how the government affects and is affected by the economy. Since the two means of conducting fiscal policy are through changing taxes and spending, a reasonable way to ascertain whether or not government is engaging in loose or tight fiscal policy would be to examine data on the federal budget balance, the difference between fiscal revenues and fiscal expenditures. The Bureau of Economic Analysis (BEA) publishes information on inflation-adjusted fiscal expenditures and receipts in a quarterly fashion in the National Income and Product Accounts (NIPA), and such data is readily available from their website.

¹⁰ Walton and Rockoff, 671-3.

However, there is a significant problem in using only the real budget balance data as published in the NIPA tables. Embedded in balance budget data are automatic stabilizers – elements of both tax revenues and fiscal spending that are actually designed to fluctuate against changes in the business cycle. The most obvious automatic stabilizer results from the fact that tax revenues are a function of income: when national income falls during recessions, tax revenues decrease, and when national income increases during economic expansions, tax revenues increase. Another stabilizer that affects the spending side results from the direct relationship between spending on entitlement programs and the unemployment rate. If unemployment rises, as it usually does during recessions, spending on entitlements, including unemployment insurance, food stamps, and Medicaid, automatically increases.¹¹

As a result of these automatic stabilizers that are embedded in fiscal policymaking, during a recession, tax revenues will go down and spending will automatically increase, and thus an inclination for running deficits is all the more common; similarly, during expansions, tax revenues increase while government spending decreases, resulting in an increased likelihood of the government running a surplus.

If we want to assess the character of fiscal policy over this forty-year period, it is important to remove the effects of the business cycle on the budget balance, as such effects are automatic and do not contribute to the discretionary components of fiscal policy that actually constitute either tight or loose policy. The Congressional Budget Office (CBO) publishes an annual set of estimates of NAIRU and potential GDP, and they use their estimates of potential GDP as a reference trend in calculating cyclical adjustments.

¹¹ The Standardized Budget and Other Adjusted Budget Measures. (April 2002) Congressional Budget Office Website. May 1, 2002. < <http://www.cbo.gov/showdoc.cfm?index=3351&sequence=0>>

If actual output is below its potential, as it would be during an economic recession, the cyclical adjustment to fiscal *revenues* is positive, compensating for the automatic negative effects of a reduction in tax revenues. During recessions, the cyclical adjustments to fiscal *spending* are negative, offsetting increases in entitlement spending that result automatically from elevated levels of unemployment. The inverse is also true: during positive output gaps, cyclical adjustment reduces federal revenues and increases federal expenditures, canceling out any effects of automatic stabilizers on the budget balance. After removing the business cycle's effects from both fiscal revenues and fiscal outlays, CBO economists subtract these cyclically adjusted revenues from expenses to acquire the *cyclically adjusted budget balance*.¹²

Yet, even after adjusting the budget balance to compensate for the effects of the business cycle, problems remain. The CBO has discovered a number of components of the cyclical budget balance that either were not removed in cyclical adjustment or are temporary and should not affect in historical time-series investigations. In removing these factors, the CBO creates a new measurement of the budget balance, called the *standardized-budget balance*.

The largest of the factors removed from the cyclically adjusted budget balance are capital gains tax receipts: because capital gains receipts generally increase with upward movements in the business cycle, as stock prices are often driven up during booms and investors seek to cash in on their profits, theoretically, capital gains receipts also act as an automatic stabilizer. However, the process of cyclical adjustment neglects to take this into account, and in calculating the standardized-budget balance, capital gains receipts are subtracted from fiscal revenues.¹³

Another adjustment made to the cyclical budget balance is an accounting issue: certain

¹² The Standardized Budget and Other Adjusted Budget Measures.

¹³ Ibid.

pieces of Congressional legislation have shifted the times at which federal receipts and outlays are to occur, as often Congress wants to move fiscal expenditures from the end of one year to the beginning of the next. In order to maintain the comparability of one year's budget balance figures with another, such pieces of timing legislation have to be taken into account.

After making a number of minor adjustments, including removing the sales of assets, spectrum licenses, and outlays from deposit insurance, the CBO's standardized-budget balance is calculated.¹⁴ For the purposes of this study, the CBO's standardized measure of the budget balance was used, as it is thought to give the best representation of discretionary fiscal policy. The standardized measure compensates for both dilatory inconsistencies in historical data, and it also removes the full effects of automatic stabilizers, leaving the best picture of fiscal posture available. To its credit, the standardized budget balance data matches up quite well with historical and anecdotal evidence: the average annual deficit under Reagan's supply side tax cuts and military spending was 165.6 billion dollars, and the budget deficits continued to decrease under Clinton's presidency, actually reaching to surplus levels for 1998, 1999, and 2000.

Figure 1 shows the standardized-budget balance over the last 40 years, as measured and calculated by the CBO. For the purposes of our study, we will take surpluses to be positive, and deficits to be negative, implying that expansionary fiscal policy will occur when the standardized budget balance is less than zero and that contractionary fiscal policy will occur when the balance is greater than zero.

STATISTICAL ANALYSIS: MEASURING MONETARY POLICY

Quantitatively assessing monetary policy also has its intricacies. Despite the Fed's brief reliance on monetary targets in conducting policy, for the most part, the major tool of monetary

¹⁴ Ibid.

policy that was used over the forty-year period was the Federal Funds Rate. It would seem that examining changes in this short-term lending rate would be sufficient in getting a qualitative sense of fiscal policy. Data on the Federal Funds Rate is readily available and it is published by regional banks of the Federal Reserve at very frequent intervals.

However, just as the budget balance is affected by fluctuations in the business cycle, if the central bank were following a standard monetary policy rule and were targeting a low level of inflation, the Fed Funds rate would also be affected by business cycle fluctuations. Changes in the Fed Funds rate that result purely from responses to these macroeconomic variables should be considered normal, and in order to get a sense of the true conduct of monetary policy, we should compensate for standard monetary reactions such as those implied by the Taylor rule. In attempting to calculate the typical reactions of the Fed Funds rate to macroeconomic variables, the following modified version of John Taylor's equation was used:

$$f_t^\circ = 2.5 + \mathbf{p}_{t-1} + \frac{(\mathbf{p}_{t-1} - \mathbf{p}^T)}{2} + \frac{100 \times (y_{t-1} - y_{t-1}^p)}{2}$$

where f_t° is this period's implied federal funds rate, \mathbf{p}_{t-1} is the rate of inflation in the previous period, \mathbf{p}^T is the Fed's target rate of inflation, y_{t-1} is the log of the previous period's level of real output, and y_{t-1}^p is the log of the previous period's level of potential GDP.¹⁵ Using this equation, one can set some target rate of inflation, \mathbf{p}^T , and given the previous period's data on the output gap and actual inflation, the Fed Funds rate implied by adherence to this monetary policy rule can be calculated.

In using the above formula, estimates of potential GDP were taken from the same data set

¹⁵ Monetary Trends. Federal Reserve Bank of St. Louis. (April 2002): 19.

that the CBO used in its cyclical adjustment procedures. Price data was derived from annual data on the Personal Consumption Expenditures Chain-Type Price Index, published as an addendum to the NIPA. Figure 2 shows the actual Fed Funds Rate over the forty-year period compared with the rate implied by the application of the Taylor Rule when choosing inflation targets at 0, 1, 2, 3, and 4 percent from top to bottom respectively.

In order to measure the effective monetary policy stance, discounting the amount of policy governed by the Taylor rule, the spread between the implied Federal Funds Rate and the actual Fed Funds rate, Δf_t^{SP} , was calculated using the following formula:

$$\Delta f_t^{SP} = f_t - f_t^\circ$$

where f_t is the actual Fed Funds rate determined by open market operations for a given year and f_t° is the implied Fed Funds rate for a given year, calculated with a target rate of inflation of 3 percent. If Δf_t^{SP} is positive, the actual Fed Funds rate is greater than that which is required by the Taylor Rule, implying the existence of a contractionary monetary posture; if Δf_t^{SP} is negative, the implied Fed Funds rate is greater than the actual rate, suggesting that the authorities at the central bank are not targeting inflation as they should and are behaving in a manner consistent with loose monetary policy.

As a measure of monetary policy stance, Δf_t^{SP} seems to behave quite well, given the historical and anecdotal evidence already presented. The average spread during Arthur Burns's time as chairman was -3.56 , a number consistent both with Burns's noted ineptitude in fighting inflation in the 1970s and with his expansionary policies under Jimmy Carter. Moreover, the average spread under Paul Volcker's reign was 1.28 , which is also consistent with anecdotal

evidence on Volcker's policies of restoring price stability throughout the early 1980s. Because this Fed Funds spread measure works reasonably well in capturing the monetary policy stance, it was used as the chief measure of comparison in this study.

Using a standard two-sample correlation procedure, the annual Fed Funds target spreads were compared with the standardized budget balance data. Because negative signs of both the standardized-surplus data and the Fed Funds spreads imply expansionary policy, and vice versa, no further adjustments to the data were necessary. Once the two measures were compared, the resulting correlation was slightly negative at approximately -0.1831. The statistically insignificant correlation would imply that over the forty year period, monetary and fiscal policy were not conducted with any sort of coordinated posture in mind; moreover, the fact that the correlation coefficient is slightly negative would imply that a small inverse relationship exists between measures of monetary and fiscal policy over the forty year period. Thus, both the signs of historical information and those of the qualitative data seem to suggest that, over the period from 1960-2001, monetary and fiscal policy were conducted with disjointed postures. What are the short and long run implications of such dissimilar policy mix outcomes?

IMPLICATIONS OF THE DISJOINTED POLICY MIX

The predominant literature on the uncoordinated policy mix discusses the implications of the tight monetary / loose fiscal policy stance, as it was most abundantly exhibited during the 1980's, in which Volcker's contractionary monetary policy used for fighting inflation bumped heads with Reagan's supply side tax reductions and military spending. James Tobin presented the classical arguments against such a policy mix, assessing both its short and long run affects using mostly standard models of analysis. Tobin's arguments center around the effects of running large

deficits on the loanable funds markets: because the government runs is forced to borrow directly in the credit market, there is less money available for borrowing to finance private investments. This inward shift in the supply of loanable funds raises the real interest rate, increasing the costs of borrowing and financing investment expenditures in the short run.¹⁶

However, Tobin's analysis does not stop there; using a standard neoclassical growth model, Tobin shows that the continual growth of deficit spending results in a misallocation of loanable funds and consequently reduces national savings. The reduction in national savings, according to the neoclassical growth model, reduces the economy's steady state capital to output ratio, and thus the lack of capital formation resulting from such a disjoint policy mix causes the steady state growth rate of the economy to fall.¹⁷

Generally considered the standard view on the implications of the tight monetary / loose fiscal policy mix, Tobin's analysis has come under heated debate from a number of economists. In their paper, Frederick C. Ribe and William Beeman of the Congressional Budget Office cited the lack of empirical support for the crowding out effects of deficit spending as problematic for Tobin's story: instead, they argue, the time needed for such crowding out effects to actually cause substantial capital accumulation problems is nearly 20 years. Since fiscal policies change so frequently depending on which presidential candidate is in power, such crowding out effects are highly unlikely to ever gain a foothold on the economy.¹⁸ Moreover, Mickey Levy, Chief Economist at the Bank of America, seems to think that as a result of the different goals of monetary and fiscal policies, such disjointed policy mixes are inevitable. As the Federal Reserve's goal of price stability

¹⁶ James Tobin. "The Monetary-Fiscal Mix: Long Run Implications." The American Economic Review 78, 2 (May 1986): 213.

¹⁷ Ibid, 213-4.

¹⁸ Frederic C. Ribe and William J. Beeman. "The Monetary-Fiscal Mix and Long-Run Growth in an Open Economy." The American Economic Review 78, 2 (May 1986): 209.

can often run counter to the fiscal goals of low unemployment and economic growth, policy mixes should happen and are not unreasonable at all.¹⁹

CONCLUSION

While it seems abundantly clear that the independence of the monetary authority in the US has resulted in many periods of disjointed policy mixes, the implications of a dissimilar use of monetary and fiscal policy remain in question. Unfortunately, not a great deal of research has been done on the question of policy mix implications, and while such questions will most likely remain unsettled for quite some time, further investigations need to occur. It is my belief that while Ribe and Beeman are correct in critiquing Tobin's assessment of the dangers in the Reagan / Volcker policy mix, the negative effects on an economy's levels of capital accumulation are still possible. Political changes are difficult to predict, and just as one policymaker's deficit spending programs might be quelled by the surpluses of another, there is no reason to think that Reagan's deficits couldn't have continued for another ten years, had Bush won his reelection in 1992.

If monetary and fiscal policymaking do indeed have real impacts on macroeconomic variables, their relative postures compared with each other should be examined constantly. Policymakers and economists alike should work to better understand the implications the policy mixes that are created as a result of the separation of monetary and fiscal powers, and until such questions are settled, both sets of policymakers should strive to levy policies that are consistent with non-inflationary economic growth.

¹⁹ Mickey D. Levy. "Don't Mix Monetary and Fiscal Policy: Why Return to an Old, Flawed Framework?" Cato Journal 21, 2 (Fall 2001): 277-79.

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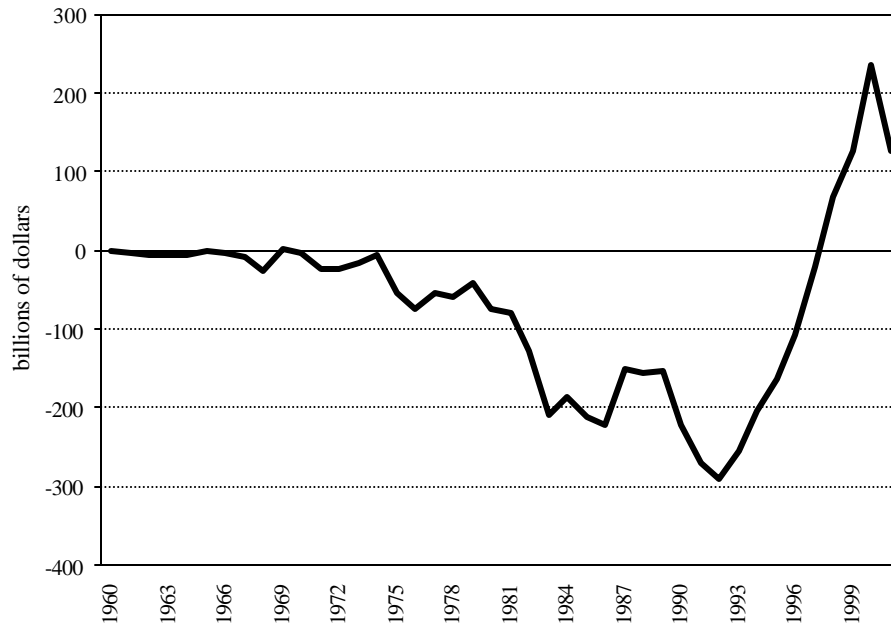
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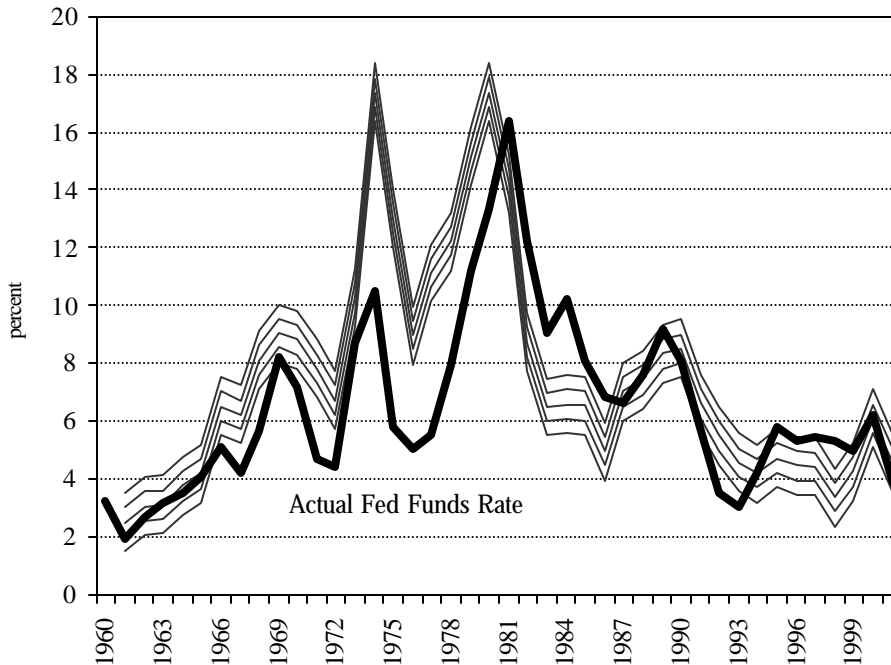
APPENDIX

Figure 1: Cyclically Adjusted Federal Budget Balance (1960-2001)



Source: Congressional Budget Office

Figure 2: Fed Funds Rate and Inflation Targets* (1960-2001)



Source: Congressional Budget Office, Federal Reserve Bank of St. Louis, Bureau of Economic Analysis
 *Implied Fed Funds Rate drawn for inflation targets at 0%, 1%, 2%, 3%, and 4% (from top to bottom)