GOALS AND CONSTRAINTS OF THE FEDERAL RESERVE SYSTEM: A STUDY OF ITS 'PROFITS' POLICY

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ABSTRACT

This paper models the Federal Reserve's pursuit of goals within the constraining forces of Congress, the President, financial firms and the public. Two hypotheses are empirically examined. Hypothesis 1 is that the federal budget deficit is a determinant of Federal Reserve "profits," or U.S. Treasury deposits from the Federal Reserve. Hypothesis 2 is that government spending is significantly influenced by U.S. Treasury deposits from the Federal Reserve. Empirical support of these hypotheses suggests that the Federal Reserve is partially responsible for changes in the federal budget deficit and government spending.

INTRODUCTION

The Public Interest view argues that Federal Reserve policy is solely directed toward achieving economic stability. Policymakers are modeled as passive agents of society whose only dilemma is how to utilize the prescriptions of competing economic theories. Policy debates, for example, center on such issues as whether policymakers should favor discretion or rules of behavior in their money supply policies. This view has come under
examination as economists have elevated bureaucratic incentives to appropriate subjects of inquiry. Partly due to the poor predictive ability of the Public Interest view, the Public Choice view has increasingly been used to study government bureaus like the Federal Reserve. Policy attributes of the Federal Reserve which do not appear consistent with the Public Interest view include its secrecy, large employment, churning of its open market portfolio and its inflationary bias.

Public Choice views policy behavior as a function of goals and the incentives, or constraints, for meeting those goals and is analogous to modeling consumer behavior as subject to constraints. Modeling Federal Reserve behavior is difficult since, as Buchanan (1989) argues, its only mandated goal is the responsibility to "do good." Lack of specific mandates makes it difficult to judge performance of the Federal Reserve and its creator, Congress. Modeling is further complicated by a complex network of constraints that include at least four actors: the Congress, the President, the public and private banks.¹

This paper hypothesizes that Federal Reserve payments to the U.S. Treasury, or "profits," are one of the policy goals of the Federal Reserve. "Profits" are the residual between its expenses and income and are taxed at the rate of 100 percent. Even though the Federal Reserve does not receive a budget appropriation from Congress, this does not necessarily imply that its policy is totally self-determined. Because "profits" generally benefit politicians by reducing, dollar-for-dollar, budget deficits, Federal Reserve policy may be partly influenced by the desires of politicians. Two hypotheses are examined. One, are "profits" influenced by the financing needs of political sponsors? While textbooks typically argue the case of political independence, this
view overlooks that the Federal Reserve is a creation of politics (Congress) and its major players are nominated by the President and approved by the Senate. Two, because the financing method that Congress imposes on the Federal Reserve constitutes a 100 percent tax on "profits," do increases in "profits" (taxes) lead to higher government spending? Consistent with the views that hidden taxes are preferred by politicians and that taxes cause spending, "profits" are hypothesized to be a significant determinant of federal spending. Confirmed hypotheses would suggest that Federal Reserve policy is not only dependent on politics, but sponsor-interest in high "profits" may explain political reluctance toward heightened monitoring of its overall performance.

The paper is organized as follows. The next section surveys the literature with emphasis on the goals, incentives and constraints on the Federal Reserve. After discussing the goals and incentives associated with "profits," the two hypotheses are empirically examined. Summary and policy conclusions close the paper.

CONSTRAINTS AND GOALS OF THE FEDERAL RESERVE

Goals

The Federal Reserve is a bureaucracy since it regulates financial firms and the money supply within existing laws. It is subject to mandated and personal goals. Personal, or Niskanen's (1971) bureaucratic, goals include salary, amenities, reputation, secrecy, power, etc., and any satisfaction over improving economic stability. Mandated goals are imposed by sponsors and include price level stability, low interest rates and unemployment and come under the requirement "to do good." Lack of mandated policy rules means that discretion is used to promote "good" policy and allows, according to Cukierman and Meltzer (1986), it to respond to changes in mandated goal priorities.
Congressional Constraints

Since 1947, the Federal Reserve has voluntarily transferred its excess earnings, or "profits," to the U.S. Treasury where they, dollar-for-dollar, reduce the federal budget deficit. It is often argued that the reason why Congress placed the Federal Reserve outside of its appropriations process is motivated by its desire to make it independent of politics. However, there is no requirement that it transfer "profits" to the U.S. Treasury and, as Toma (1982) argues, previous episodes of rising "profits" sparked congressional interest which the Federal Reserve feared might be expressed in legislative measures, such as mandating their particular disposition. Partially in response to these fears, "profits" are voluntarily transferred to the U.S. Treasury where they are recorded as "miscellaneous receipts" in the revenue side of the federal budget where they are no different than any other tax and may be used to finance spending, or reduce operating deficits. "Profits," for FY 1989, amounted to $19.6 billion, an amount approximately equal to custom duties.

Another motivation for budgetary autonomy may be suggested by the observation that these "profits" represent sizable offsets to the federal budget deficit and therefore there may exist sizeable political gains from budgetary independence. This view suggests that political constraints on Federal Reserve behavior may influence "profits" policy and is consistent with Buchanan and Wagner's (1977) argument that the Federal Reserve responds to the financing needs of the federal government. The churning of its Treasury portfolio is one means by which it may enhance "profits." For example, the Federal Reserve's open market desk conducted gross market purchases of $1,396,877 million in 1989; however, the net change in the open market account was $16,070 million.
The difference between the two numbers is one measure of churning. By taking capital gains on its extensive portfolio, it affects "profits" and, in addition to Friedman's (1982) argument that churning may be related to promoting a sense of importance to its staff, enhancing the incomes of ex-officials (bond traders and chief private economists who "read the tea leaves" behind FOMC policy) and "muddying" the waters, churning may reflect a desire to affect U.S. budgetary affairs. This may not be surprising since, and as Auerbach (1990) discusses, budgetary affairs are a perpetual theme in the speeches and testimonies of Federal Reserve officials.

This discussion does not argue that the Federal Reserve maximizes "profits." Rather, because it desires to consume bureaucratic goals, it may appease its sponsors' desires in those areas that it has some control over (e.g., inflation, interest rates, budget deficits). In other words, "profit" policy may affect the Federal Reserve's ability to consume personal bureaucratic goals. Incentives or constraints for lower deficits may be conveyed as, for example, in return for larger "profits," sponsors agree to lower monitoring of the Federal Reserve's attainment of bureaucratic goals. Therefore, portfolio churning may reflect desires to affect budgetary affairs as well as the promotion of broad mandated goals related to economic stability.

Other related arguments have been forwarded. Buchanan and Wagner (1977) argue that is unlikely that central bankers will pursue policy that is in sharp contrast to the people who nominated them. They predict that growing external demands for accommodation of growing budget deficits will result in an inflationary policy bias. Toma (1982) presents evidence in support of the hypothesis that, because "profits" supplement the government's general fund, it reduces the costs of
fund-raising and therefore should expand public spending. His evidence suggests that the Federal Reserve conducts open market operations with an awareness of their wealth transfer effect and that it personally benefits, via higher spending, from inflationary monetary policy.

While Congress created the Federal Reserve in 1913 and it can change its goals and constraints, past changes have generally been in the direction of greater powers and broader general responsibilities. For example, in response to the Great Depression, Congress endowed the Federal Reserve with more authority and power. The Banking Acts of 1933 and 1935 increased the power and autonomy of the Board relative to the Regional Banks and the Treasury. The Acts also removed the Treasury Secretary and the Comptroller of the Currency from the Board, increased the size of the Board, and lengthened the terms of office of the Governors. The Board was also given the authority to approve the chief operating officers of each Regional Bank and, in its creation of the FOMC, the Banking Act of 1935 achieved centralization of open market operations.

Evidence indicates that Congressional changes have resulted in greater power-centralization at the Federal Reserve. The 1935 Banking Act centralized the power of the FOMC with the Board in Washington, D.C. and repositioned power away from Regional Banks to the Board. Growing centralization is consistent with studies demonstrating that the Federal Reserve acts like a monopoly. For example, Toma (1988) argues that reserve requirements are "taxes" and a guarantee that banks demand Federal Reserve output of base money. Toma hypothesizes that when, prior to 1980, banks could choose their regulator (state or federal), the Federal Reserve would not choose monopolistic levels of reserve requirements. Toma argues that when the Depository
Institutions Deregulation and Monetary Control Act (MCA) of 1980 granted the Federal Reserve a monopoly in reserve requirements, reserve requirements rose. Moreover, because the MCA was passed, in part, in reaction to declining Federal Reserve membership, the MCA enhanced its monopoly powers.\(^9\)

Increased centralization as a predictor of monopoly policy is also consistent with the "expense preference" theory of Edwards (1977). Expense preference theory argues that, when firms (bureaus) are not closely monitored by their owners (sponsors), they will incur expenses beyond profit-maximizing levels. This hypothesis has been applied to bureaus like the Federal Reserve because, since it can not retain dollar profits, it consumes more bureaucratic goods such as salary, trips, secrecy, etc. Finding a positive and significant relation between the monetary base and Federal Reserve employment, Shughart and Tollison (1983) argue that base growth is motivated, in part, by a desire to expand its bureaucracy.\(^{10}\) Boyd (1984), Strong (1984) and Allen et al (1988) provide contrary evidence to this hypothesis while Boyes (1988) and Mounts and Sowell (1990) provide confirming evidence.

Bureaucracy theory also predicts that bureaus have an incentive to hide information from sponsors. Toma and Toma (1985) argue that, by obscuring information, the Federal Reserve reduces sponsors' knowledge of alternatives to the current monetary order. Without useful information on alternatives to the control of inflation and banking stability, secrecy increases the demand for the Federal Reserve and lowers the quality of political monitoring. It is hypothesized that internal research that positively favors alternative policy is viewed as unproductive since it lowers the demand for itself and may result in smaller budgets or increased
scutiny. Toma and Toma note that the Federal Reserve conducts pre-publication review of articles in its reviews.\textsuperscript{11} They also demonstrate that the budgets of 2 Regional Banks (St. Louis and Minneapolis) suffered budgetary discipline when they favorably reported about policies that the Federal Reserve was not currently pursuing.\textsuperscript{12}

**Presidential Constraints**

The U.S. President nominates and appoints, subject to Senate confirmation, the Governors of the Federal Reserve Board. Subject to Senate confirmation, the President also appoints the Chairman and Vice Chairman of the Board of Governors. These appointments are important since the Governors constitute a majority on the FOMC, approve discount rate changes and may alter reserve requirement ratios.\textsuperscript{13} However, after their confirmation and because of staggered terms, the conventional textbook-view sees Presidential influence as relatively unimportant. However, many of the above arguments regarding Congressional influence may be relevant since "profit" policies may benefit the President in much the same way.

Kane (1980) argues that Congress and the President benefit from the lack of mandated Federal Reserve goals since this arrangement allows powerful special interests to influence policy. Since powerful interest groups are often adversely affected by rising interest rates, this autonomy forces the Federal Reserve to be influenced by special interests (the constituents of politicians) who promote policies that lean against rising interest rates. Lack of clearly-written mandated goals also may allow politicians to claim the "high moral ground" when it comes to rating monetary policy since politicians may claim responsibility for "good" policy and blame the Federal Reserve for "bad" policy -- an arrangement where the Federal Reserve is a political scapegoat.
Another literature argues that the President usually receives the monetary policy (money growth) of his choosing. Grier and Neiman (1987) argue that the influence of the budget deficit on money growth is related to the party affiliation of the incumbent President in that the non-structural budget deficit influences money growth only under Democratic presidential administrations. Kane (1980), Woolley (1984), Meiselman (1986) and Harvrilesky (1988) also argue that monetary policy is affected by incumbent Presidents.

Private Bank Constraints

Wagner (1986) argues that Tullock's (1967) rent-seeking hypothesis partially explains Federal Reserve policy and predicts that cartel-like arrangements with banks will evolve over time. Rent-seeking predicts that it is in the banks' self-interests to engage in activities that transfer wealth to themselves through tax laws, subsidies and legislation and views the Federal Reserve as agent, or broker, for these services. Skaggs and Wasserkrug (1983) argue that, in pursuit of autonomy, the Federal Reserve develops a constituency with banks as a means of protecting itself from Congress. Shughart (1988) argues that similar arrangements explain the emergence of the Glass-Steagall Act.\textsuperscript{14}

Anderson, Shughart and Tollison (1988) question the Friedman and Schwartz (1963) theory that Federal Reserve behavior during the Great Depression was based on irrationality. They view the restrictive monetary policy of 1929-33 as rational, self-interested behavior that promoted a large differential failure rate between member and nonmember banks. Over 1930-33, the percentage of suspensions that were members averaged only 20\% (or 40\% of total deposits). These failures are argued to have served two purposes. For members, it enhanced their
monopoly power and, for the Federal Reserve, it enhanced its control over the banking system. 15

Havrilesky (1990) argues that, via the Federal Advisory Council, the banking industry influences Federal Reserve policy.

Private Market Constraints

The public constrains the Federal Reserve through their ability to elect members of Congress and the President who, in turn, nominate and approve the Governors of the Federal Reserve. To the extent that voters are concerned about Federal Reserve policy, elected representatives may signal to the Federal Reserve the concerns of their constituents. For example, the Banking Committees of the House and Senate may constitute one avenue whereby voters indirectly signal to the Federal Reserve. This method is long-run since it is a function of the terms of office of elected representatives and Federal Reserve officials and the degree of useful information at the public's disposal.

One policy dilemma is that what the public monitors is different from what the Federal Reserve can directly control. The public and politicians want "low" interest rates, "fast" economic growth and price stability. Acheson and Chant (1973) argue that several factors explain central bank goals: the degree goals are identified as goals of the central bank, the visibility of attainment and priorities of sponsors. Failure to meet visible goals increases the odds of examination, while failure to meet less visible goals does not. One policy dilemma is that the ability to achieve many of the visible goals rests with money growth -- a statistic not monitored as closely as interest rates or economic growth. Scrutiny then is placed on variables that lie outside the direct control of the Federal Reserve and may force it to meet multiple goals that are many times incompatible in the short run and/or long run.
Randomness, or unpredictability, in money growth may be one way the Federal Reserve meets conflicting goals over time. Moreover, if the Federal Reserve follows a rational expectations view of the world, observed policy randomness, or policy secrecy, may suggest that Federal Reserve policy is aimed at stabilizing the economy. Such randomness is consistent with Goodfriend's (1986) reporting that, in the course of a Freedom of Information Act suit, the Federal Reserve argued that secrecy was an important tool of monetary policy. Finally, policy randomness may also be consistent with the attainment of bureaucratic goals since, to the extent it fosters low accountability, it may be consistent with Auerbach's (1990) emphasis on self-preservation as a policy goal.

AN EXAMINATION OF TWO HYPOTHESES

Political sponsors may benefit from "profits" since higher "profits" reduce budget deficits. If the political costs of financing government spending through "profits" are relatively low, politicians may signal incentives to the Federal Reserve in such ways as to promote large "profits." If the bureaucratic goals of the Federal Reserve include self-preservation, autonomy and expense-preference behavior, the Federal Reserve may appease political sponsors by producing "profits" policy that minimizes the odds of adverse changes in its ability to consume those bureaucratic goals. Such behavior may afford the Federal Reserve the ability to further bureaucratic goals as well as those mandated by sponsors (budget deficits, macroeconomic stability, etc.)

Commercial bankers and bond traders may benefit from large "profits" since, to the extent that policy involves higher open market churning, rising "profits" may raise the profitability of bond traders and increase their value as Fed-watchers. If "profits" policy leads to lower political scrutiny of Federal Reserve performance, such
policy may also translate into lower scrutiny or regulation of financial firms and bond traders. If the public is concerned over budget deficits, as reflected in their influence over the timing of interest rate and price level changes, they may also influence the ability of the Federal Reserve to meet policy goals relating to interest rates and inflation. To the extent that rising budget deficits affect its ability to meet interest-rate and inflation goals, "profits" may be partially influenced by the deficit.17

Two hypotheses stem from this discussion. The first hypothesis is that the federal budget deficit is a determinant of the size of Federal Reserve "profits." That is, relatively large budget deficits are hypothesized to be associated with relatively large "profits." Hypothesis 1 is related to the reaction function literature and specifically the issue of whether or not the Federal Reserve monetizes federal budget deficits. The issue is whether or not, in the face of rising deficits and a goal of interest rate stability, the Federal Reserve alters money growth. While Barro (1977), Dwyer (1982) and Niskanen (1978) report that money growth is not related to deficits, Levy (1981), Laney and Willett (1983) and Grier and Neiman (1987) report the opposite. Recently, Joines (1990) argues that the current length of time series precludes our ability to test this issue. This issue bears on hypothesis 1 since, to the extent that its open market activity is responsive to rising deficits, a positive relationship between "profits" and budget deficits may be guaranteed since Federal Reserve revenues are primarily determined by open market activity.

These complications, however, do not necessarily suggest an alternative to hypothesis 1 since, in reaction to rising deficits, open market operations may react in
several distinct manners. One manner is to expand its
open market account, on a net basis, in such a manner as
to alter money growth and inflation. Another manner is to
simply increase its gross portfolio churning without
permanently changing money growth. These two manners need
not raise "profits" since they may be consistent with
either capital gains or losses when the Federal Reserve
is attempting to stabilize interest rates. Another
possibility is that open market policy remains unchanged
in the face of rising deficits. Finally, even if rising
deficits bring higher revenues through the open market
desk, increased revenues may lead to higher consumption
of bureaucratic goals (as predicted by "expense-
preference" theory) and therefore not lead to changes in
"profits." These complexities indicate that the "profit"
- deficit relationship is an empirical issue and that
testing of hypothesis 1 is preliminary or suggestive.

The second hypothesis is that public sector spending
is influenced by "profits." This hypothesis follows from
the fiscal illusion notion of Buchanan and Wagner (1977)
that predicts that government spending will be larger,
the greater taxes are hidden from taxpayers. In addition,
the tax-spend hypothesis of Friedman (1978) argues that
when taxes are raised, spending increases follow. Since
"profits" may be a well-hidden tax, it is hypothesized
that higher "profits" cause higher government spending.
Note that a positive "profits" - spending relationship is
not necessarily the result of conscious decision-making,
but rather may simply be a by-product of the incentives,
constraints and goals facing the Federal Reserve.

One important counter-hypothesis to the "fiscal
illusion" hypothesis of government spending is the
Ricardian Equivalence hypothesis. For example, Barro
(1977) argues that voters are not myopic about the costs
of different forms of government finance. Rather, this
hypothesis assumes that voters appropriately discount the
many different types of finance (taxes, deficits, loan
guarantees, etc.) when deciding on how much government to
vote for. Under this view, voters realize the taxes
associated with Federal Reserve "profits" and therefore
the ratio of government spending that is funded by
"profits" should not influence government spending.
Moreover, this view predicts that there is no fundamental
difference between the case where the Federal Reserve
pays "profits" to the Treasury and the case where it adds
them to its own surplus. In either case, this view would
predict that the financial position of the U.S.
government is the same.

There are various potential problems with this
counter-view of the influence of Federal Reserve
"profits" on government spending. One issue is whether or
not the public actually properly discounts "profits" as
taxes that ultimately fund government spending, or reduce
budget deficits. Another issue is whether or not Congress
would behave the same whether or not it directly receives
Federal Reserve "profits" or if those dollars remain as
Federal Reserve surplus. It is not clear how Congress
could spend Federal Reserve "profits" when they remain in
Federal Reserve surplus. However, when "profits" are
transferred to the Treasury, they may be immediately
spent, or used to lower the budget deficit.

Moreover, under present institutional arrangements,
the Federal Reserve is not an "on-budget" government
agency. While its "profits" (when sent to the Treasury)
show up on the government's balance sheet under payments,
or taxes, its spending does not show up on either side of
the government's balance sheet. Moreover, if the Federal
Reserve retains "profits" as surplus, changes in either
side of the Federal Reserve's balance sheet will have no
effect on the balance sheet of the federal government.
Therefore, it would appear that the argument that it doesn't matter, from a consolidated balance sheet approach, whether the Federal Reserve retains "profits" as surplus or sends them to the Treasury is not particularly useful. In any event, these points remain empirical issues and, if the Ricardian Equivalence approach is correct, there should be no support for Hypothesis 2.

Figure-1 demonstrates the increasing importance of "profits" to the overall financing efforts of the federal government. As a percentage of federal revenues, "profits" have risen from approximately .2 percent to 2 percent of federal revenues over 1947-89. Figure-2 exhibits the contribution that "profits" have made to lowering the federal budget deficit. The "before" deficit is measured as the budget deficit less "profits" and the "after" deficit nets out the contribution from "profits." Casually, "profits" have grown with federal deficit growth and, consistent with Figure-1, the contribution of "profits" towards lowering the budget deficit has risen during the 1980s.

Tests of Hypothesis 1

Testing of hypothesis 1 is performed by regressing a time series of "profits" PROFIT on a constant and the net federal budget deficit NETDEF, which is equal to the federal budget deficit less "profits." The deficit NETDEF is measured on a net basis since it is hypothesized that Federal Reserve policy is based on its perception of the size of the budget deficit that would prevail without any reduction from "profits." "Profits" PROFIT is obtained from Office of Management and Budget (1990) and represents Treasury "deposits of earnings from the Federal Reserve System." The federal budget deficit is obtained from Council of Economic Advisors (1990). The choice of sample period is based on the fact that the
Figure 1: Federal Reserve "Profits"

Figure 2: Federal Budget Deficit
PROFIT series commences in 1947. All data are first-differenced because most time series of level data contain some time trend. All data are measured in $ billions.

Two alternative specifications are considered: nominal and inflation-adjusted. The inflation-adjusted specification uses the GNP deflator and controls for the common element of inflation premiums in both federal deficits and "profits." The following coefficients (t-statistics) were estimated over 1948-89 for the nominal model:

\[
\text{PROFIT} = 0.38 - 0.02 \text{ NETDEF} \\
\begin{array}{c}
(3.16) \\
(3.67)
\end{array}
\]

\[R^2 = .23 \quad \text{s.e.e.} = 0.77 \quad \text{DW} = 1.47 \quad F(2,40) = 13.48.\]

The statistically significant inverse relationship between NETDEF and PROFIT is consistent with the hypothesis that, when deficits are relatively high, they lead to relatively large "profits." Note, that because deficits are represented as negative numbers, larger deficits (negative numbers) will interact with the negative coefficient to exert a positive effect on "profits." The coefficient on NETDEF is statistically significant from zero at the .001 level (2-tailed test).

Because casual inspections of Figure-1 and Figure-2 indicate that the size of "profits," relative to the budget deficit, is much greater in the recent past, several other sample periods are considered in order to determine whether or not the estimates are time-sensitive. The following periods are considered: 1965-89 and 1975-89. For 1965-89, the following coefficients were estimated:

\[
\text{PROFIT} = 0.62 - 0.02 \text{ NETDEF} \\
\begin{array}{c}
(3.31) \\
(2.84)
\end{array}
\]

\[R^2 = .23 \quad \text{s.e.e.} = 0.92 \quad \text{DW} = 1.66 \quad F(2,23) = 8.07.\]

For 1975-89, the following coefficients were estimated:
\[
\text{PROFIT} = 0.76 - 0.02 \text{ NETDEF} \\
(2.64) \quad (2.60)
\]
\[
R^2 = .29 \quad \text{s.e.e.} = 1.07 \quad \text{DW} = 1.43 \quad F(2,13) = 6.78.
\]
These results suggest that the effect of NETDEF on PROFIT is unchanged over the time period.

The following coefficients (t-statistics) were estimated over 1948-89 for the inflation (GNP deflator)-adjusted model:
\[
\text{PROFIT} = 0.34 - 0.01 \text{ NETDEF} \\
(2.40) \quad (1.67)
\]
\[
R^2 = .04 \quad \text{s.e.e.} = 0.90 \quad \text{DW} = 2.09 \quad F(2,40) = 2.79.
\]
Based on a two-tailed test, the estimated inverse relationship between NETDEF and PROFIT is 0.103, or slightly below the commonly-used benchmark of .10. As in the nominal specification, two other sample periods are considered in order to determine whether or not the estimates are time-sensitive. For 1965-89, the following coefficients were estimated:
\[
\text{PROFIT} = 0.47 - 0.01 \text{ NETDEF} \\
(2.23) \quad (1.36)
\]
\[
R^2 = .03 \quad \text{s.e.e.} = 1.05 \quad \text{DW} = 1.92 \quad F(2,23) = 1.85.
\]
For 1975-89, the following coefficients were estimated:
\[
\text{PROFIT} = 0.32 - 0.02 \text{ NETDEF} \\
(1.14) \quad (2.33)
\]
\[
R^2 = .24 \quad \text{s.e.e.} = 1.08 \quad \text{DW} = 1.48 \quad F(2,13) = 5.43.
\]
While the estimations over 1965-89 indicate no statistical relationship between NETDEF and PROFIT, the estimations over 1975-89 indicate a statistically significant and inverse relationship at the .036 level (2-tailed test). That the relationship is only statistically significant in the later period may be consistent with the casual evidence in Figure-1 that indicates that "profits" exert a larger effect on the budget deficit in the second half of the sample period.

Consistent with the previously-discussed caveats regarding the difficulty of modeling "profits" behavior,
these results provide some preliminary support for the hypothesis that "profits" are influenced by the budget deficit.

Tests of Hypothesis 2

Hypothesis 2 tests the following model of government size:

\[ \text{SIZE} = f(\text{RATIO}, \text{DEC}, \text{GRANT}, Y, \text{POP}) \]

where \( \text{SIZE} = \) (federal & nonfederal spending) / GNP

\( \text{RATIO} = \) Federal Reserve "profits" / federal revenues

\( \text{DEC} = \) nonfederal spending/(federal & nonfederal spending)

\( \text{GRANT} = \) grants / (federal & nonfederal spending)

\( Y = \) per capita real income ($1982)

\( \text{POP} = \) population

A similar model of government size is used in Oates (1986) and Marlow (1988).\(^{20}\) RATIO measures the degree to which federal revenues are composed of "profits."\(^{21}\) The expected sign on RATIO is positive following the argument that relatively higher values of RATIO cause greater fiscal illusion, and therefore government expenditure as well.

DEC controls for fiscal decentralization and is expected to exert an inverse effect on SIZE. The expected sign on GRANT is positive following the argument that intergovernmental grants are cartel-like devices that expand monopoly power of government. Population POP controls for demand changes and per capita real income \( Y \) controls for Wagner's Law, or that government expenditures are income-elastic. All data are log first-differenced and therefore represent growth rates and, in response to data constraints, the estimations are conducted over 1948-89. The regression coefficients (2-tailed t-statistics) for the SIZE equation are given below.
SIZE = 0.02 - 0.72 DEC + 0.11 GRANT - 0.88 Y
(1.06) (6.76) (1.69) (3.48)
+ 0.98 POP + 0.05 RATIO
(0.86) (4.59)

\[ R^2 = 0.72 \quad \text{s.e.e.} = 0.028 \quad DW = 1.80 \quad F(6,36) = 21.71 \]

As hypothesized, RATIO exerts the hypothesized positive effect and one that it is highly statistically significant (.001 level). The coefficient on DEC is statistically significant (.0001 level) and exerts the hypothesized inverse effect on government size. Population growth is not found to exert a statistically significant effect on SIZE. Per capita income growth exerts a negative and statistically significant effect (.027 level) on SIZE; a result that suggests that government is an inferior good. The coefficient on GRANTS exhibits the hypothesized sign and is weakly statistically significant (.099 level).

In order to determine if the above results are sensitive to time, estimations are conducted over two subsamples. In order to correct for serial correlation over this time period, a first-order autoregressive term SIZE(-1) is added to the equation. The following coefficients are estimated over 1965-89:

\[
\text{SIZE} = 0.02 - 1.29 \hspace{1mm} \text{DEC} + 0.07 \hspace{1mm} \text{GRANT} - 0.39 \hspace{1mm} Y \\
(1.11) \hspace{1mm} (4.33) \hspace{1mm} (1.22) \hspace{1mm} (1.48) \\
+ 3.68 \hspace{1mm} \text{POP} + 0.10 \hspace{1mm} \text{RATIO} + 0.75 \hspace{1mm} \text{SIZE}(-1) \\
(2.61) \hspace{1mm} (3.80) \hspace{1mm} (3.93) \\
\]

\[ R^2 = 0.65 \quad \text{s.e.e.} = 0.020 \quad DW = 1.74 \quad F(7,18) = 8.50 \]

RATIO continues to exert a statistically significant positive effect (.001 level) on SIZE. The coefficient on DEC remains statistically significant and negative. Population growth is now found to exert a positive and statistically significant (.02 level) influence on SIZE. Per capita income growth no longer exerts a statistically
significant effect on SIZE and the coefficient on GRANTS no longer exhibits statistical significance.

The following coefficients are estimated over 1975-89:

\[
\begin{align*}
\text{SIZE} &= 0.02 - 0.76 \text{DEC} + 0.23 \text{GRANT} - 1.21 Y \\
&\quad + 0.55 \text{POP} + 0.11 \text{RATIO} + 0.66 \text{SIZE(-1)} \\
&\quad + 0.66 \text{SIZE(-1)}
\end{align*}
\]

\[
(0.51) \quad (1.26) \quad (1.25) \quad (1.56) \quad (0.20) \quad (2.34) \quad (1.73)
\]

\[
R^2 = 0.68 \quad \text{s.e.e.} = 0.020 \quad \text{DW} = 1.67 \quad F(7,18) = 21.71
\]

RATIO continues to exhibit the hypothesized positive effect -- though it is now of lower statistical significance (.047 level, 2-tailed). The coefficient on DEC is no longer statistically significant which suggest that its influence on SIZE varies over 1948-89. Population growth is not found to exert a statistically significant effect on SIZE -- a result consistent with the total time span of 1948-89, but not with the estimation over 1965-89. Per capita income growth does not influence SIZE which is consistent with the estimations over 1965-89, but inconsistent with the 1948-89 time period. GRANTS is not found to influence SIZE -- a result consistent with the 1965-89 estimation which found no relation and the 1948-89 estimation which found a very weak influence. It is noted that estimation over such a short period (15 observations) may involve serious degrees-of-freedom problems which may severely limit the usefulness of this estimation.

In sum, the results tend to support hypothesis 2. Estimations over 1948-89 and two subsamples indicate that government spending is influenced by Federal Reserve "profits."\(^{22}\)

**CONCLUSIONS**

The results of this paper suggest that the political dependence of the Federal Reserve is an important ingredient in our understanding of its policy. This view
does not predict that macroeconomic goals like price or interest rate stability are absent from the Federal Reserve's goal function; only that these goals do not necessarily dominate policy. The constraints facing the bureau are a determining factor of the degree to which each goal is promoted and, in order for the Federal Reserve to place emphasis on efforts aimed at stabilizing the economy, it must operate under constraints that promote that end. Other goals, such as bureaucratic or the resolving of political problems related to budget deficits may also be pursued and therefore affect policy behavior.

The evidence reported here suggests some support for the hypothesis that the Federal Reserve's "profits" policy reflects a desire to reduce federal budget deficits. This hypothesis views such behavior as optimal on the part of the Federal Reserve, given the constraints imposed on the Federal Reserve by Congress, the President, the banking community and the public. "Profits" policy also appears to exert an independent influence on government spending.

One implication is that the Federal Reserve is responsible, to some degree, for changes in the budget deficit. Because Congress set up the Federal Reserve with the ability to raise taxes through "profits", its activities can affect the size of the deficit through its covert role in fiscal policy. Further research on the extent to which open market churning is related to the Federal Reserve's concern for the budget deficit may contribute to our understanding of the much-studied randomness in money growth. That is, to what extent do the many constraints on Federal Reserve policy contribute to the randomness of money growth?
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REFERENCES


FOOTNOTES

1. It may also be argued that the Federal Reserve is subject to its own internal constraint, or "code of conduct."


3. Figure obtained from Office of Management and Budget (1990).


5. Buchanan and Wagner (1977, p.119) also argue that, because the effects of its policy actions are uncertain, it will be relatively difficult for the Federal Reserve to resist external pressures on their policies. Relatively high uncertainty of policy outcomes is consistent with Meltzer's (1987, p.11) argument that our predictive abilities are so unreliable that it is generally impossible to "distinguish consistently between a boom and a recession either in the current quarter or a year in advance."

6. See Toma (1982) and Congressional Budget Office (1985) for discussions of these changes.

7. Brennan and Buchanan (1980) argue that growing government centralization adversely affects government
performance. See Marlow (1988) and Joulfaian and Marlow (1990) which test the hypothesis that greater centralization allows governments to act more like monopolists in their taxation and spending decisions.

8. Data reported in Shughart and Tollison (1983) also indicates growing employment centralization of the Federal Reserve. That is, the ratio of Board employees-to-total employees of the Federal Reserve System exhibits a positive trend and reflects a greater power base in Washington, D.C.

9. Haslag and Hein (1989) dispute the argument that the MCA has raised average reserve requirements of all financial institutions.

10. After controlling for growth in various activities (like check clearing), empirical evidence supports the hypothesis that bureaucratic incentives (employment) drive the money supply process and contradict the conventional view that increases in money result in more employees for the purpose of handling larger numbers of duties. Note, however, that Banaian et al (1988) argue that, under the current institutional structure with the 100% tax, there is no behavioral reason to need to increase revenues in order to increase expenses.

11. As partial support of this hypothesis, the authors cite a 1979 Business Week article which reports that Chairman Arthur Burns instigated this policy.

12. Rolnick (1985) argues that their empirical work is suspect.

13. See Federal Reserve Board (1984) for these duties.

14. Rather than wishing to promote banking safety, Shughart argues that the Act promoted three other interests: 1. brokerage firms eliminated competition from banks in the investment banking market; 2. bankers eliminated competition from securities dealers in the market for deposit taking; and 3. the U.S. Treasury benefitted from the expansion of the market for its securities.

15. Assuming that policy was based on the wishes of congressmen serving on oversight committees (the agents of member banks in their states), they examined bank failure rates across states and concluded that nonmember failure rates were significantly higher in states with representation on the House Banking and Currency Committee.
16. Marlow (1990) argues that policy predictability affects the degree to which the Federal Reserve can control real GNP and inflation.

17. An unresolved issue is how important a component of "profits" is churning. For example, does it have more of an effect on the timing of profits than on their total magnitude?

18. See Manage and Marlow (1986) and Marlow and Orzechowski (1988) for theory and empirical evidence on this hypothesis. Crain and Marlow (1990) provide evidence that another "hidden" tax, Social Security contributions, affects government spending in a similar manner.

19. While there exists, as discussed in Grier and Neiman (1987), the issue of whether or not to cyclically adjust budget deficits, this is not considered here.

20. SIZE measures the expenditure-based size of government and follows the Marlow (1988) argument that, when governments run persistent budget deficits, expenditure-based measures provide a better measure of government's resource absorption than those based on revenues. Expenditure-based, or revenue-based, measures of government size still fail to capture many other government activities such as laws, regulations and off-budget spending (see Marlow and Joulfaian 1989). All units of government are measured in SIZE based on the Joulfaian and Marlow (1990) argument that empirical work is misspecified when all competing governments are not included in measures of government size. The estimated relationship between RATIO and SIZE is not affected by this issue; i.e., when SIZE is measured without nonfederal spending, the estimated relationship did not change.

21. An alternative measure of RATIO, "profits"/(federal + nonfederal revenues), did not alter the estimated relationship.

22. It is also noted that there may be a causality problem here that may warrant further research in this area. If, holding taxes constant, an increase in government size generates higher monetary expansion (and hence higher "profits"), a larger RATIO may result. Further research of this issue may wish to examine some forms of causality tests.