NBER WORKING PAPER SERIES

# MEASURING THE FED'S REVENUE FROM MONEY CREATION

Robert J. Barro

Working Paper No. 883

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge MA 02138

April 1982

NBER Working Paper #883
April 1982

# Measuring the Fed's Revenue from Money Creation

ABSTRACT

The national accounts include the Fed's payments to the Treasury as a component of corporate taxes. These payments constituted 22% of reported corporate profits taxes in 1981. This paper discusses alternative concepts of inflationary finance. Measures for these concepts are reported for the post-World War II period.

Robert J. Barro
Economics Department
University of Rochester
Rochester, N.Y. 14627

(716) 275-2669

Most economists know that the Federal Reserve system pays out the bulk of its net revenues to the U.S. Treasury. However, very few economists (actually, none whom I have asked) know where this term appears in the national accounts. The Federal Reserve is treated as a member of the corporate sector. The Fed's payments to the Treasury (labeled as "interest on Federal Reserve notes") are regarded as taxes on corporate profits (at nearly a 100% rate in this case). Therefore, the category, "corporate profits tax accruals," includes as a substantial component the earnings of the Fed. Anyone using the aggregate corporate tax figures to measure levies on the activities of private businesses should know about this peculiarity in the data.

The data from 1946-81 for amounts paid from the Fed to the U.S. Treasury, corporate profits tax accruals (which include the first item), and the ratio of the Fed's payments to the figures on corporate profits taxes are shown in Table 1. (Payments from the Fed were near zero for most years prior to 1946.) The Fed's payments constitute 22% of measured corporate profits taxes in 1981! The ratio was 17% in 1980, between 8% and 12% from 1969 to 1979, between 3% and 7% from 1959 to 1968, and below 3% prior to 1959. In other words the "tax payments" by the Fed significantly distort the reported measures of total corporate profits taxes for recent years. Presumably, this effect will be at least this important in the near future.

We often measure the inflation tax as the product of an interest rate, R, and the quantity of high-powered (non-interest-bearing) money, H. Auernheimer (1974) discusses the sense in which this construct, $R \cdot H$, measures the effective flow of revenues for the government. He

Table 1

The Fed's Payments to the Treasury in Relation to Corporate Profits Taxes

| Year | (1) Payments from Fed to Treasury | (2) Corporate Profits Taxes | (3) Ratio: (1)/(2) |
|---|---|---|---|
| 1946 | 0.0 | 8.6 | .000 |
| 47 | 0.1 | 10.7 | .009 |
| 48 | 0.2 | 11.8 | .017 |
| 49 | 0.2 | 9.6 | .021 |
| 50 | 0.2 | 17.2 | .012 |
| 1951 | 0.3 | 21.7 | .014 |
| 52 | 0.3 | 18.6 | .016 |
| 53 | 0.3 | 19.5 | .015 |
| 54 | 0.3 | 16.9 | .018 |
| 55 | 0.3 | 21.1 | .014 |
| 1956 | 0.4 | 20.9 | .019 |
| 57 | 0.5 | 20.4 | .025 |
| 58 | 0.5 | 18.0 | .028 |
| 59 | 0.9 | 22.5 | .040 |
| 60 | 0.9 | 21.4 | .042 |
| 1961 | 0.7 | 21.5 | .033 |
| 62 | 0.8 | 22.5 | .036 |
| 63 | 0.9 | 24.6 | .037 |
| 64 | 1.6 | 26.1 | .061 |
| 65 | 1.3 | 28.9 | .045 |
| 1966 | 1.6 | 31.4 | .051 |
| 67 | 1.9 | 30.0 | .063 |
| 68 | 2.5 | 36.1 | .069 |
| 69 | 3.0 | 36.1 | .083 |
| 70 | 3.5 | 30.6 | .114 |
| 1971 | 3.4 | 33.5 | .101 |
| 72 | 3.2 | 36.6 | .087 |
| 73 | 4.3 | 43.3 | .099 |
| 74 | 5.6 | 45.1 | .124 |
| 75 | 5.4 | 43.6 | .124 |
| 1976 | 5.9 | 54.6 | .108 |
| 77 | 5.9 | 61.6 | .096 |
| 78 | 7.0 | 71.2 | .098 |
| 79 | 9.3 | 74.6 | .125 |
| 80 | 11.7 | 70.2 | .167 |
| 81 | 14.0 | 64.9 | .216 |

Notes: All amounts are in billions of dollars. Payments from the Fed are given in the Board of Governors of the Federal Reserve System, Annual Report, various issues. Corporate profits tax accruals are in Economic Report of the President, various issues.

also relates this measure to the change in the stock of base money, $\Delta H$. If we neglected the finite maturity of the Fed's bond portfolio, and such items as administrative expenditures net of fees, gold, float, Treasury deposits, and surplus, then the payments of net revenues to the Treasury would maintain equality over time between the monetary base (now consisting of Federal Reserve notes and the reserves of depository institutions held at the Fed) and the Fed's total portfolio of securities and loans. Hence, the amount earned on the Fed's portfolio (all of which would be transferred to the Treasury) would equal $R \cdot H$. In practice, there are some differences--these include the following: 1) when interest rates rise, the yield on the Fed's holdings (measured at book value) respond only gradually, and vice versa when interest rates fall; 2) a small part of the Fed's revenues go into surplus; and 3) there are changes over time in gold, treasury deposits, float, etc.

Table 2 reports values from 1946-81 for the Federal Reserve's net revenues; for the product, $R \cdot \bar{H}$ (where $\bar{H}$ is the annual average of high-powered money); and for the change in base money, $\Delta H$. The interest rate, R, is measured as the yield on U.S. government securities with 3-year maturities (3 to 5 years before 1953). This rate approximates the yield on the Fed's portfolio. The Fed's revenues are always below the constructed measure, $R \cdot \bar{H}$. Principally, this gap reflects an excess (currently about $20 billion) of the monetary base over the Fed's loan portfolio (measured at book value). Basically, a gap of roughly this size appeared with the large acquisitions of gold during the 1930s. Otherwise, this gap has fluctuated mostly because of changes in Treasury deposits, float, and gold holdings (measured at book value, except for a few increases in the official price of gold).

Table 2

Measures of the Revenue from Inflationary Finance

| Year | Net Revenues of the Fed | $R.\bar{H}$ | $\Delta H$ |
|---|---|---|---|
| 1946 | 0.1 | 0.5 | 1.0 |
| 47 | 0.1 | 0.6 | 0.7 |
| 48 | 0.2 | 0.7 | 2.2 |
| 49 | 0.2 | 0.6 | -4.4 |
| 50 | 0.2 | 0.7 | 1.2 |
| 1951 | 0.3 | 0.9 | 4.2 |
| 52 | 0.4 | 1.1 | 2.2 |
| 53 | 0.4 | 1.2 | -0.8 |
| 54 | 0.3 | 0.8 | -0.9 |
| 55 | 0.3 | 1.2 | 0.5 |
| 1956 | 0.5 | 1.6 | 0.8 |
| 57 | 0.6 | 2.0 | 0.0 |
| 58 | 0.6 | 1.4 | -0.1 |
| 59 | 0.7 | 2.2 | 0.1 |
| 60 | 1.0 | 2.0 | -1.7 |
| 1961 | 0.8 | 1.7 | 1.5 |
| 62 | 0.9 | 1.8 | 1.2 |
| 63 | 1.0 | 1.9 | 2.7 |
| 64 | 1.1 | 2.2 | 2.8 |
| 65 | 1.4 | 2.4 | 3.3 |
| 1966 | 1.7 | 3.2 | 3.2 |
| 67 | 2.0 | 3.2 | 3.6 |
| 68 | 2.5 | 3.9 | 5.3 |
| 69 | 3.1 | 5.2 | 3.6 |
| 70 | 3.6 | 5.6 | 4.1 |
| 1971 | 3.3 | 4.7 | 5.8 |
| 72 | 3.4 | 5.1 | 4.7 |
| 73 | 4.5 | 6.6 | 8.6 |
| 74 | 5.7 | 8.1 | 8.4 |
| 75 | 5.7 | 8.1 | 4.4 |
| 1976 | 6.0 | 7.8 | 7.6 |
| 77 | 6.2 | 8.2 | 9.5 |
| 78 | 7.7 | 11.2 | 14.8 |
| 79 | 9.6 | 14.3 | 10.5 |
| 80 | 11.9 | 18.3 | 13.1 |
| 81 | 14.6 | 23.6 | 8.0 |

Notes: All amounts are in billions of dollars. Net revenues of the Fed are in the Annual Report, various issues. R from 1953-81 is the yield on U.S. government securities with 3-year maturities (Economic Report of the President), and from 1946-52 is the yield for 3- to 5-year maturities (Banking and Monetary Statistics, 1941-70). $\bar{H}$ is the annual average of the monetary base, as reported in Banking and Monetary Statistics, 1941-70; Annual Statistical Digest, 1970-79; and the Federal Reserve Bulletin. $\Delta\bar{H} \equiv H_t - H_{t-1}$, where $H_t$ is the seasonally-unadjusted value for December (sources as above for $\bar{H}$).

Recently, the Fed's revenues have lagged behind $R \cdot \bar{H}$ because of sharp increases in interest rates. In 1981 the Fed's net proceeds of $14.6 billion were substantially below the figure of $R \cdot \bar{H}$ = $23.6 billion .

The change over the year in the monetary base, $\Delta H$, would correspond to $R \cdot \bar{H}$ only if the nominal interest rate equaled the growth rate of the monetary base. Typically, $\Delta H < R \cdot \bar{H}$ applies, although substantial fluctuations arise from year to year. Notice that the change in high-powered money for 1981 is only $8.0 billion, as compared with the Fed's revenue of $14.6 billion and the value of $R \cdot \bar{H}$ = $23.6 billion. (A rise in the real interest rate means more revenue to the Fed without any change in the growth rate of prices or the monetary base.)

Table 3 expresses the measures of inflationary finance as ratios to the federal government's total tax and non-tax receipts, T, and as ratios to nominal GNP. As a fraction of total federal receipts in 1981, the inflation tax, $R \cdot \bar{H}$, is 3.8%, while the Fed's revenues are 2.3%. These percentages are roughly double those applying in the early 1960s. As a fraction of GNP in 1981, the inflation tax is 0.8%, while the Fed's revenues are 0.5%. These fractions are more than double those for the early 1960s.[1]

Table 3

Inflationary Finance in Relation to Total Federal Taxes and GNP

| Year | $\frac{\text{Net Fed Revenues}}{T}$ | $\frac{R \cdot \bar{H}}{T}$ | $\frac{\Delta H}{T}$ | $\frac{\text{Net Fed Revenues}}{GNP}$ | $\frac{R \cdot \bar{H}}{GNP}$ | $\frac{\Delta H}{GNP}$ |
|---|---|---|---|---|---|---|
| 1946 | .003 | .013 | .026 | .0005 | .0024 | .0048 |
| 47 | .002 | .014 | .016 | .0004 | .0025 | .0030 |
| 48 | .005 | .017 | .051 | .0008 | .0029 | .0085 |
| 49 | .005 | .017 | -.114 | .0008 | .0025 | -.0170 |
| 50 | .004 | .013 | .024 | .0007 | .0023 | .0042 |
| 1951 | .005 | .014 | .065 | .0009 | .0027 | .0127 |
| 52 | .006 | .016 | .033 | .0011 | .0030 | .0063 |
| 53 | .006 | .018 | -.011 | .0011 | .0034 | -.0022 |
| 54 | .005 | .013 | -.014 | .0008 | .0022 | -.0025 |
| 55 | .004 | .017 | .007 | .0008 | .0030 | .0012 |
| 1956 | .006 | .020 | .010 | .0012 | .0038 | .0019 |
| 57 | .007 | .024 | .000 | .0014 | .0045 | .0000 |
| 58 | .008 | .018 | -.001 | .0013 | .0031 | -.0002 |
| 59 | .008 | .025 | .001 | .0014 | .0046 | .0002 |
| 60 | .010 | .021 | -.018 | .0020 | .0039 | -.0034 |
| 1961 | .008 | .018 | .015 | .0015 | .0033 | .0029 |
| 62 | .008 | .017 | .011 | .0016 | .0031 | .0021 |
| 63 | .009 | .017 | .024 | .0017 | .0032 | .0045 |
| 64 | .010 | .019 | .024 | .0017 | .0035 | .0044 |
| 65 | .011 | .020 | .027 | .0020 | .0035 | .0048 |
| 1966 | .012 | .023 | .023 | .0022 | .0043 | .0042 |
| 67 | .013 | .022 | .024 | .0025 | .0041 | .0045 |
| 68 | .014 | .023 | .030 | .0029 | .0045 | .0061 |
| 69 | .016 | .026 | .018 | .0033 | .0055 | .0038 |
| 70 | .019 | .029 | .021 | .0036 | .0057 | .0041 |
| 1971 | .017 | .024 | .029 | .0031 | .0044 | .0054 |
| 72 | .015 | .022 | .021 | .0029 | .0043 | .0040 |
| 73 | .017 | .025 | .033 | .0034 | .0050 | .0065 |
| 74 | .020 | .028 | .029 | .0040 | .0056 | .0059 |
| 75 | .020 | .028 | .015 | .0037 | .0052 | .0028 |
| 1976 | .018 | .023 | .023 | .0035 | .0045 | .0044 |
| 77 | .017 | .022 | .025 | .0032 | .0043 | .0050 |
| 78 | .018 | .026 | .034 | .0036 | .0052 | .0069 |
| 79 | .019 | .029 | .021 | .0040 | .0059 | .0043 |
| 80 | .022 | .034 | .024 | .0045 | .0070 | .0050 |
| 81 | .023 | .038 | .013 | .0050 | .0081 | .0027 |

Notes to Table 3: T is total federal tax and non-tax receipts, and GNP is nominal GNP (Economic Report of President). Other variables are defined in Table 2.

## Reference

Auernheimer, L., "The Honest Government's Guide to the Revenue from the Creation of Money," Journal of Political Economy, 82, May/June 1974, 598-606.

## Footnotes

*The research reported here is part of the NBER's research program in Economic Fluctuations. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research. I have benefited from research support by the National Science Foundation. Jo Anna Gray was a great help in locating some data for 1981. Cathy McDevitt found some other data. Marty Feldstein motivated me to look into this topic. He told me that the Fed's revenues appeared in a strange place in the national accounts, but he couldn't remember where.

[1]At least someone is making a lot of money in recent years.