

DEFICITS, MONEY AND INFLATION

Comment*

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This paper re-examines the fiscal policy-money growth linkage analysed by Hamburger-Zwick (1981) in this *Journal*. Newly revised national income accounts data are employed. Unlike Hamburger-Zwick we do not find any strong evidence of a positive Federal budget deficit-money growth relationship over the period 1961-1974. When the estimation period is extended to 1976 and then to 1978, the results suggest no relationship between deficits and money growth.

1. Introduction

In a recent article in this *Journal*, Hamburger and Zwick [hereafter (H-Z)] (1981) examine the relationship between Federal deficits and the growth rate of *M1* using Barro's (1978) money supply equation. Over Barro's sample (1954-1976) their results are said to reinforce Barro's conclusion that it is government expenditures rather than deficits that affect money growth. They employ two measures of government expenditures. One is Barro's measure of departures of government expenditures from the normal level — the logarithm of the current level of real government expenditures minus normal expenditures which are measured as a distributed lag of current and past values of real government expenditures. The other measure (*FED*) of their own construction is nominal government expenditures divided by the *GNP* deflator multiplied by trend real *GNP*.¹ Substitution of *FED* for Barro's measure does not substantially alter the results and is used in subsequent estimation. The results reported in their table 1 use the negative of the nominal national income accounts Federal surplus divided by the *GNP* deflator times trend real *GNP* (*DEFA*) as the deficit measure.

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¹Trend real *GNP* is calculated from a regression of real *GNP* on a constant and time over the period 1953-1978.

Table 1
Equation of *DM* (annual data).^a

Eq.	Constant	DM_{-1}	<i>FED</i>	<i>DEFA</i>	<i>DEFB</i>	R^2	<i>D-W</i>	ρ	<i>S.E.</i>
<i>1961-1974</i>									
(1)	-0.08 (-1.29)	0.42 (1.83)	0.57 (1.56)			0.611	2.19	-0.20	0.0119
(2)	0.012 (1.84)	0.74 (5.55)		0.47 (1.13)		0.570	2.38	-0.35	0.0125
(3)	-0.08 (-0.97)	0.42 (1.59)	0.55 (1.16)	0.04 (0.07)		0.611	2.21	-0.20	0.0124
(4)	0.005 (0.62)	0.78 (6.42)			0.85 (1.83)	0.632	2.39	-0.35	0.0115
(5)	-0.021 (-0.25)	0.70 (2.26)	0.16 (0.31)		0.69 (0.98)	0.635	2.32	-0.35	0.0120
<i>1961-1976</i>									
(1)	-0.021 (-0.43)	0.48 (2.38)	0.23 (0.88)			0.510	2.12	-0.05	0.0123
(2)	0.018 (2.56)	0.65 (4.38)		-0.006 (-0.02)		0.486	2.20	-0.15	0.0126
(3)	-0.106 (-1.35)	0.24 (0.96)	0.74 (1.65)	-0.55 (-1.34)		0.573	1.94	0	0.0119
(4)	0.018 (2.40)	0.65 (4.42)			0.015 (0.07)	0.486	2.19	-0.15	0.0126
(5)	-0.11 (1.29)	0.18 (0.61)	0.79 (1.55)		-0.51 (-1.23)	0.564	2.12	0	0.0121
<i>1961-1978</i>									
(1'')	-0.049 (-1.14)	0.41 (2.16)	0.40 (1.86)			0.585	2.04	0	0.0120
(2'')	0.018 (2.38)	0.67 (4.47)		0.11 (0.43)		0.515	2.05	-0.10	0.0129
(3'')	-0.134 (-2.07)	0.19 (0.83)	0.90 (2.40)	-0.63 (-1.68)		0.654	1.87	0	0.0113
(4'')	0.017 (2.16)	0.67 (4.56)			0.14 (0.68)	0.524	2.03	-0.10	0.0128
(5'')	-0.139 (-1.87)	0.14 (0.52)	0.95 (2.14)		-0.57 (-1.46)	0.639	2.03	0	0.0116

^at-statistics are in parentheses. $DM = \log(MI) - \log(MI_{-1})$. *FED* = nominal Federal expenditures / [(GNP deflator) · (trend real GNP)]. *DEFA* = nominal Federal deficit, national income accounts / [(GNP deflator) · (trend real GNP)]. *DEFB* = nominal change in stock of outstanding Federal debt (i.e., funds raised in credit markets by U.S. Government in the Flow of Funds Accounts) / [(GNP deflator) · (trend real GNP)].

H-Z, following Buchanan and Wagner (1977), assume that a structural change in the macroeconomic policy process toward 'Keynesian' prescriptions occurred in 1961, although their hypothesis is not formally tested. When H-Z re-estimate the equation over 1961-1974 they find that Barro's results are reversed so that deficits have a stronger influence on money growth than expenditures. In a footnote they point out that when the change in the outstanding stock of government debt (funds raised in credit markets by the U.S. government in the Flow of Funds Accounts) (*DEFB*) is substituted for *DEFA* the results are even stronger in favor of the deficit-money growth linkage. This finding provides support for the Buchanan-Wagner contention that deficits have had a significant impact on the growth rate of the money supply. H-Z note, however, that this finding should be interpreted with caution due to the small sample size. It should be pointed out that they do not argue that a deficit-money growth linkage has always held true over the longer 1961-1978 period, as 1975 and 1976 are seen as exceptions to the 'general tendency' for budget deficits to stimulate money growth.

Since the publication of H-Z's study, revised data on *GNP*, Federal expenditures, and the Federal deficit have become available. The purpose of this comment is to re-examine H-Z's conclusions using this revised data and employing alternative sample periods.

2. Estimation results

When the revised data for 1961-1974 are employed in the estimation of H-Z's equations, neither Barro's nor H-Z's conclusions are strongly supported. The results from the re-estimations appear in table 1. Eqs. (1)-(3) employ *FED* and *DEFA* and eqs. (4) and (5) use *FED* and *DEFB*. Following H-Z, eqs. (1)-(5) are estimated using the Hildreth-Lu technique and data from 1960-1974 are used to avoid losing a degree of freedom.²

From eqs. (1)-(3), table 1, we see that none of the coefficients on either *FED* or *DEFA* are significant.³ The coefficient on *DEFB* in eq. (4) is not significant at the 5% level but is significant at the 10% level. When *FED* is added to the regression eq. (5), the coefficients on *FED* and *DEFB* are not significant.

²All equations in table 1 were also estimated by the GLS (Prais-Winsten) procedure described in Maddala (1977). None of the conclusions in the text were altered. Eqs. (1)-(3) table 1 were also estimated over 1961-1974 using the residual-adjusted Aitken estimator developed by Hatanaka (1974). This technique is appropriate when the error term is an autoregressive process and a lagged dependent variable is employed as an explanatory variable. This technique yields asymptotically efficient estimates. The conclusions in the text were unchanged by the use of this technique.

³Like H-Z we find that Barro's lagged unemployment variable is not statistically significant in any equation over 1961-1974.

The results from extending the sample through 1976 and 1978 are also reported in table 1. From table 1, 1961–1976, we see that the coefficients on *DEFA* in eqs. (2') and (3') are negative as in the coefficient on *DEFB* in eq. (5'). However, none of the coefficients on *FED*, *DEFA*, or *DEFB* are significant even at the 10% level. Over 1961–1978 we see that none of the coefficients on *DEFA* or *DEFB* are significant. When *FED* and *DEFA* or *DEFB* are included in the same equation, the coefficient on *FED* is positive and significant while the coefficients on *DEFA* and *DEFB* are negative and insignificant. Eqs. (3'') and (5'') thus lend some support to Barro's hypothesis, although the results from 1961–1974 and 1961–1976 are not favorable to this hypothesis.⁴

3. Conclusion

The conclusion drawn by H-Z (1981, p. 149, emphasis added) 'that monetary policy is *strongly* influenced by the Federal Government's fiscal policy actions, measured *either* by expenditures or budget deficits' is not supported by this study. Over the period 1961–1978 some evidence of a link between Federal expenditures and money growth is found but this effect is present only when a deficit measure is included in the equation. Some weak evidence of a Flow of Funds deficit measure–money growth linkage is found over 1961–1974 but is absent in the longer samples. In none of the samples is a national income accounts deficit–money growth linkage discovered. In general, this study finds no strong or consistent relationship between deficits and money growth in the United States since 1961.⁵

These results should be interpreted with caution due to the small sample size. It should be emphasized that the change in results from H-Z stem from the use of revised data and not from a change in the specification of their equations.

⁴The question of the exogeneity of *FED*, *DEFA*, and *DEFB* is not raised by H-Z although it is briefly discussed by Barro (1978). To deal with this potential problem a two-stage Hildreth-Lu technique appropriate for a lagged dependent variable and serial correlation is used. To conserve space the estimates are not reported here but are available on request. The conclusions drawn from these estimates are similar to those reported in the text. Over 1961–1974, the coefficient on *FED* is positive and significant when *FED* is the only fiscal variable as is the coefficient on *DEFB* when *DEFB* is the only fiscal variable. However, in other equations none of the fiscal variables are significant. Over 1961–1976 none of the fiscal coefficients in any equation are significant. Over 1961–1978 neither of the deficit variables are significant in any equation but *FED* is significant at the 10% level when it is the sole fiscal variable and is significant at the 5% level when used jointly with *DEFA*. It is not significant in any other equation.

⁵Previous studies that have used quarterly or monthly data to examine the linkage between fiscal policy and various monetary or reserve aggregates have yielded mixed results. Evidence of a positive relationship is found by Froyen (1974), McMillin and Beard (1980b), and McMillin (1981). Evidence of a negative linkage is found by Wood (1967), Friedlaender (1973), Cacy (1975), and Gordon (1977). These and other studies are surveyed in McMillin and Beard (1980a).

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