Do The Federal Deficits Matter?

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ABSTRACT

The sharp and sustained increases in the budget and current-account deficits have once again raised a great deal of concern among many economists on the reemergence of the twin deficits of the1980s and their impacts upon macroeconomic variables. In view of majority of economists, these developments will be creating economic problems such as high real rates of interest, low savings, stagnant economic growth, large and persistent current account deficits, and probably a higher inflation. All economists, however, do not share this view. Those associated with the writings of Robert Barro, argue the Ricardian Equivalence Theorem that budget deficits do not matter and they have no real effects on the economy. The empirical evidence on this issue has been rather inconclusive. In contrast to the previous studies that have used single equation, I use a balance of payment model to investigate simultaneously the impacts of budget deficits on a number of macroeconomic variables using a system of simultaneous equations.

INTRODUCTION

At the beginning of 1980, the size of the Federal government outstanding gross debt amounted to $700 billion and the federal deficits were only $16.1 billion. When President Reagan came to office at the beginning of 1981, national debt was $909 billion which was 33 percent of gross domestic product (GDP) and the federal government budget deficits were $61.3 billion. At the end of 1995 fiscal year, national debt was over $5 trillion and the federal deficits were $185 billion. At around the end of the fiscal year 2005, the budget deficits exceeds $400 billion and national debt is over $7.9 trillion. In addition to substantial increase in the national debt, the net international investment position of the United State has deteriorated as well. In 1981 the U.S. was a net international lender. However, as a result of persistent large trade deficits U.S. became a net debtor in recent years.

In view of majority of economists, these developments will be creating economic problems such as high real rates of interest, low savings, stagnant economic growth, large and persistent current account deficits, and probably a higher inflation. All economists, however, do not share this view. Those associated with the writings of Robert Barro, argue that budget deficits do not matter and they have no real effects on the economy. Robert Barro (1987 & 1989), argues the Ricardian equivalence proposition that if government finances its expenditure by borrowing, the public will realize that it will only have to pay higher taxes in the future to service the government debt. Thus, deficit merely postpones taxes and private sector will have to save more to face higher tax in the future. Therefore, decrease in government saving, i.e., a current budget deficit, leads to an offsetting increase in desired private saving, and hence there is no change in desired national saving. Since national saving does not change, the real interest rate does not have to rise in a closed economy to maintain balance between desired national saving and investment demand. Also in an open economy, there would be no effect on current account balance because the increase in desired private saving prevents borrowing from abroad. So budget deficits do not lead to current account deficits. This is a conclusion, which contradicts the conventional view of budget deficit. According to the conventional view, the substitution of budget deficit for current taxation will result in an increase in the current disposable income and hence in an increase in aggregate consumption. Private saving will also rise but by less than the tax cut, so that desired national saving will decrease. For a closed economy, real interest rates must rise to insure the equality of saving and investment. Thus budget deficit should place upward pressure on interest rate. In an open economy however, decrease in national saving will be offset by increase in borrowing from abroad rather than increase in interest rate. That is, budget deficit will contribute to capital inflows and hence to trade deficits.

The primary purpose of this study is to assess the impacts of U.S. federal budget deficits on trade balance, Capital inflows, exchange rates, and interest rates using a system of simultaneous equations within a balance of payment model. Section II contains a review of the literature as it relates to these areas. The theoretical model and the methodology are presented in section III. Section IV reports the empirical results. Section V concludes.

THE METHODOLOGY

In contrast to the previous studies that have used a single equation, I use a balance of payment model to investigate simultaneously the impacts of budget deficits on as many macroeconomic variables as possible. Moreover, most of these studies have estimated their regression equations in the presence of high degree of multicollinearity that exists among the explanatory variables in their model. Hence, the precision of their results are questionable. Variance inflation factor, (a measure of multicollinearity that has been in the literature for a long time, but has not been used in applied econometrics) is used to assess the degree of collinearity that exists among the explanatory variables.

Theoretical Specification Of The Model

A similar balance-of-payments model used by Haas and Alexander, has been employed to investigate the effects budget deficits on trade deficit, capital flows, exchange rate, and interest rate.

$$TB = f(E, BD, Y, Y^*, M, M^*, TOT) \quad (1)$$
$$CF = g(E, BD, R, R^*, Y, Y^*) \quad (2)$$
$$E = h(CF, BD, R, R^*, Y, Y^*) \quad (3)$$
$$R = R(E, BD, Y, M, CF) \quad (4)$$
$$TB + CF - OP = 0 \quad (5)$$

Where,

TB = trade balance (defined as imports minus exports)
CF = net capital flow

E = effective spot exchange rate (defined as number of foreign currency per unit of domestic currency)

R = domestic interest rate
BD = budget surplus (deficit) if positive (negative)
Y = measure of domestic income
Y* = world income
M = domestic money supply
M* = world money supply
R* = rest of the world interest rate
PX = index of export price
PM = index of import price
TOT = terms of trade, defined as PX/PM
OP = official purchases of foreign exchange, a policy determined variable.

The model is a five-equation system in twelve variables (TB, CF, E, R, BD, Y, Y*, M, M*, R*, TOT, OP). TB, CF, E, and R are endogenous variables. The remaining variables are exogenous. The values of exogenous variables are completely determined out side of the system. One may argue that the federal budget variable should rather be endogenous. For example, Eisner (1987) argues that in order to study the impact of budget deficit on the economy one must first recognize that the deficit is in large part endogenous in the economic system, that is, the economy affects deficit too. During recessionary periods national income falls and so do the tax receipts, and at the same time payouts of unemployment benefits rise. Hence, recessions bring on or increase deficits. On the other hand prosperity and booms will correspondingly reduce or eliminate deficits. I use cyclically adjusted federal budget, also adjusted for seasonal variation. I used this definition of budget rather than actual budget, because this definition is not sensitive to changes in economic conditions. Thus, any change in government budget position reflects the stance of fiscal.

Since there are endogenous variables among the explanatory variables in the simultaneous equations, ordinary least squares estimators of the structural coefficients are not consistent (Johnston, 1984 p. 440). Thus, the estimates of the structural parameters can be obtained by estimating these equations simultaneously. The estimation technique being used for this model is the two stage least squares.

EMPIRICAL RESULTS

Trade Balance Equation

The linearized equation for the U.S. trade balance could be written as

$$TB = a_{10} + a_{11}E + a_{12}BD + a_{13}Y + _{14}Y^* + a_{15}M + a_{16}M^* + a_{17}TOT + u_{1.}$$

The expected theoretical sign of the coefficients are as follows:

Variable:	E	BD	Y	Y^*	M	M^*	TOT
Sign:	-	-	+	-	+	-	+

Table 1: Coefficient Estimates of Trade Balance Equation

Predictor	Coef	SDV	t-ratio	p^*	VIF
Constant	-154.85	30.94	-5.01	0.000	
BD	-0.01398	0.04052	-0.34	0.731	38.0
TOT	4.353	9.082	0.48	0.634	3.1
Y*	1.0267	0.1953	5.26	0.000	30.4
Y	-0.019459	0.007418	-2.62	0.011	389.3
E*	0.3265	0.1248	2.62	0.011	15.7
M*	-0.10801	0.04165	-2.59	0.012	54.2
M	0.17256	0.04943	3.49	0.001	384.4
R^2=94.7% (adj)R^2 = 94.1%					

Table 2: Trade Balance Equation Excluding Y

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	-93.13	21.10	-4.41	0.000	
BD	-0.08510	0.03162	-2.69	0.009	21.0
TOT	17.102	8.058	2.12	0.038	2.2
Y*	0.6088	0.1187	5.13	0.000	10.2
E*	0.03595	0.06032	0.60	0.554	3.3
M*	-0.11431	0.04367	-2.62	0.011	54.0
M	0.05835	0.02457	2.37	0.021	86.1

R^2 = 94.1% (adj)R^2 = 93.5%

Table 3: Trade Balance Equation Excluding M and Y

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	-84.75	21.61	-3.92	0.000	
BD	-0.12795	0.02698	-4.74	0.000	14.1
TOT	12.089	8.082	1.50	0.140	2.1
Y*	0.6516	0.1219	5.35	0.000	9.9
E*	0.02196	0.06238	0.35	0.726	3.3
M*	-0.0240	0.02229	-1.08	0.286	13.0

R^2 = 93.5%, (adj) R^2 = 93.0%

Table 4: Trade Balance Equation Excluding M, M*, Y, & YW

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	31.500	8.111	3.88	0.000	
BD	-0.21883	0.01086	-20.14	0.000	1.5
TOT	-19.132	6.914	-2.77	0.008	1.0
E*	-0.16025	0.05196	-3.08	0.003	1.5

R-sq = 89.9%   R-sq(adj) = 89.4%

Capital Flow Equation

It is assumed that CF depends in an approximately linear fashion to spot rate E, budget deficit BD, domestic and foreign interest rates R and R*, domestic and foreign real income Y and Y*. Thus, the capital flow equation becomes

$$CF = a_{20} + a_{21}E + a_{22}BD + a_{23}R^* + a_{24}R + a_{25}Y + a_{26}Y^* + u_{2.}$$

Table 5: Coefficient Estimates of Capital Flow Equation

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	-538.343	5.080	-105.98	0.000	
BD	1.3322	0.01383	96.32	0.000	98.3
R*	-0.2066	0.04239	-4.87	0.000	2.40
E*	2.6118	0.02336	111.80	0.000	12.3
Y*	3.4928	0.03811	91.66	0.000	25.7
Y	0.0311	0.00049	62.83	0.000	38.6
R'	-17.3273	0.1674	-103.53	0.000	16.0

R^2 = 99.8%   (adj)R^2 = 99.8%

Table 6: Capital Flow Equation Excluding BD

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	-160.38	40.93	-3.92	0.000	
R*	0.1255	0.5360	0.23	0.816	2.4
E*	0.5376	0.1149	4.68	0.000	1.8
Y*	1.1544	0.3727	3.10	0.003	15.3
Y	-0.004540	0.00417	-1.09	0.281	17.0
R'	-2.4949	0.8317	-3.00	0.004	2.4

R^2 = 67.4%   (adj)R^2 = 64.6%

Table 7: Capital Flow Equation Excluding Y and Y*

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	-23.71	12.52	-1.89	0.063	
BD	-0.15231	0.02720	-5.60	0.000	1.8
R*	0.1849	0.6177	0.30	0.766	2.4
E*	0.1688	0.1228	1.37	0.175	1.6
R'	-0.4036	0.9680	-0.42	0.678	2.5

R^2 = 56.0% (adj)R^2 = 53.0%

Exchange Rate Equation

The exchange rate equation is specified as follows:

$E = a_{30} + a_{31}BD + a_{32}R^* + a_{33}R + a_{34}M + a_{35}Y + a_{36}CF + u_3.$

Table 8: Coefficient Estimates of Exchange Rate Equation

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	85.857	6.512	13.18	0.000	
BD	-0.59271	0.07765	-7.63	0.000	13.9
R*	-0.0610	0.6299	-0.10	0.923	2.4
R'	6.939	1.242	5.59	0.000	4.0
Y	-0.029147	0.004183	-6.97	0.000	12.4
CF*	0.0003415	0.0001328	2.57	0.013	2.3

R^2 = 60.2% (adj)R^2 = 56.8%

Table 9: Exchange Rate Equation Excluding Y

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	108.552	7.039	15.42	0.000	
BD	-0.47226	0.06262	-7.54	0.000	9.0
R*	-0.0630	0.6317	-0.10	0.921	2.4
R'	3.746	1.023	3.66	0.001	2.7
M	-0.15435	0.02229	-6.93	0.000	7.8
CF*	0.0003261	0.0001328	2.45	0.017	2.3

R^2 = 60.0% (adj)R^2 = 56.6%

Interest Rate Equation

A simple portfolio balance model is used to specify the determinants of the interest rate as follows:

$R = a_{40} + a_{41}E + a_{42}BD + a_{43}Y + a_{44}M + a_{45}CF + u_{4.}$

The expected theoretical sign of the coefficients are as follows:

Variable:	E	BD	Y	M	CF
Sign:	-	-	+	-	-

Table 10: Coefficient Estimates of Interest Rate Equation

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	7.243	5.327	1.36	0.179	
BD	0.03767	0.01515	2.49	0.016	25.0
Y	0.009167	0.001654	5.54	0.000	91.2
M	-0.04884	0.01498	-3.26	0.002	166.2
E*	-0.00041	0.03898	-0.01	0.992	7.2
CF*	-0.00135	0.02270	-0.06	0.953	3.1

R^2 = 67.6% (adj)R^2 = 64.8%

Table 11: Interest Rate Equation Excluding M

Predictor	Coef	SDV	t-ratio	p	VIF
Constant	-8.376	2.516	-3.33	0.002	
BD	0.079170	0.008870	8.93	0.000	7.4
Y	0.0039402	0.0004423	8.91	0.000	5.6
E*	0.10928	0.02127	5.14	0.000	1.9
CF*	-0.03836	0.02121	-1.81	0.076	2.3

R^2=61.6%,(adj)R^2=59.0

CONCLUSION

The size of U.S. federal budget deficit and its impact upon macro economic variables have been the subject of investigation by many economists. In view of majority of economists, government budget deficits are creating economic problems such as high real rates of interest, low savings, stagnant economic growth, large and persistent current account deficits, and probably a higher inflation. This view, however, is not shared by all economists. Some economists associated with the writings of Robert Barro argue that budget deficits do not matter and they have no real effects on the economy. Evidence presented in this paper indicates that budget deficits do matter and the Ricardian equivalence theorem is contradicted by data. The empirical results also indicate that federal deficits have contributed to trade deficits, capital inflows, and appreciation of the U.S. dollar. Empirical analysis further indicates that budget deficits did not raise interest rates. The fact that interest rates failed to rise in the 1980s, despite the large and persistent government budget deficits may be due to capital inflows into the United States.

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