

BUDGET SIZES - MATHS OR MYTHS? MORE - OR LESS - THAN MEETS THE EYE



by DAVID REES

Budget deficits and surpluses are accepted as a measure of a government's economic performance. But measuring a deficit can be a matter of chance or interpretation.

The recent success of the Australian government in producing small fiscal deficits, and the long-term failure of the United States government to achieve the same, are popularly regarded as a kind of litmus test of the success or failure of overall government economic policy.

Within the economic profession there is less agreement, however. Economists disagree about both the theoretical significance and the practical consequences of government budget deficits.

The impact which budget deficits have on the economy may be nothing more than a debating point for economists. If, however, we are going to make the size of the budget deficit the cornerstone of fiscal policy — and in Australia, as in the United States, this appears to be a matter of common ground between various political parties — then we had better be sure that an accurate measuring rod is being used to determine the size of that deficit.

Regrettably, there is little ground for confidence that this is the case. While governments adhere to established international conventions in their national accounts, the methods themselves are open to serious distortion, especially in times of volatile exchange rates and high inflation.

There are two major problems with the budget deficit as conventionally measured. First, it includes items which should be excluded and excludes items which should be included. Interest payments, for example, are included, but

should be excluded. Foreign exchange reserves are an example of an item which is excluded but should be included.

Second, the budget, as conventionally measured, fails to take account of inflation, and the effect which inflation has on the market value of assets.

As conventionally measured, the budget deficit takes little account of market values. Government debts, such as Treasury notes or bonds, are either ignored or appear only at face value. This may not matter much when the inflation rate is low or zero. It matters a great deal during periods of persistently high or volatile inflation.

The budget deficit, as usually calculated, fails to distinguish adequately between stocks and flows. This leads to confusion when the Australian Government sells off the Tokyo embassy or Mrs Thatcher sells off British Telecom and council houses, thereby “reducing the deficit.”

A simple example illustrates the point. Suppose I buy a house for \$100,000. Assume I have an equity stake in the house of \$40,000, the rest being owned by the building society. I also have an income of \$40,000 a year. On January 1 my assets are valued at \$40,000, or 40 per cent of one house. During the year assume I spend \$42,000, borrowing the additional \$2,000 from the building society against the security of the house. Suppose

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inflation runs at 10 per cent a year. As conventionally measured, and as national income calculation would have it, I have run a deficit. My expenditure has exceeded my income, and my debts have risen from \$60,000 to \$62,000.

But what is the reality? The house has increased in value along with inflation, and is now worth \$110,000. My share of the house is now \$48,000, or 43.6 per cent. Despite running a "deficit" I own a larger proportion of the house than before. It is possible to run a "deficit" and get richer.

It is also possible to run a "surplus" and get poorer. Suppose I now decide to sell the house. After paying off the mortgage I am left with \$110,000 minus \$62,000, that is, \$48,000 in cash. This money, plus my income of \$40,000, enables me to enjoy life to the full. I spend \$86,000 during the year. This expenditure is less than my cash inflow (\$48,000 plus \$40,000 equals \$88,000) and I have a "surplus". Obviously, though, by the end of the second year I am much poorer than I was at the beginning.

How then is the deficit to be measured? Willem Buiter (1983) has produced one of the most careful discussions on this subject in recent years. The argument is best understood in terms of a simplified version of the State's balance sheet:

Liabilities

1. Interest bearing Government debt held by residents
2. Interest bearing Government debt held by foreigners
3. Stock of money
4. Present value of social insurance program

Assets

1. Social overhead capital
2. Equity in public enterprises
3. Land and mineral assets
4. Present value of future tax program
5. Net foreign exchange reserves
6. Imputed net value of Government's cash monopoly

Balancing item

Public Sector Net Worth

If these items are calculated on a constant price basis from one year to the next, the "real deficit" is then the change in Public Sector Net Worth from one year to the next.

In this calculation, assets and liabilities are included at market, not nominal, values. Further, only government debt held by the private sector

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or by foreigners is included. Treasury bonds taken up by the Reserve Bank or other government agencies, for example, are excluded. The reason for this is that we are drawing up a consolidated balance sheet for government. Transactions between the Treasury and the Reserve Bank are viewed simply as interdepartmental transfers.

Obviously this calculation differs in significant respects from the budget deficit as conventionally measured. Interest payments are excluded, and with good reason. Inflation may drive up interest rates and consequently reduce the market value of existing debt. Taxpayers benefit from this, at the expense of bondholders, and this benefit must be included. Interest rates are relevant only to the extent that they determine the current market value of debt. It is the real value of assets, not the cost of capital, that we should be trying to measure.

This balance sheet approach also helps to clarify the effect of selling off government assets. The sale of, say, an overseas embassy reduces item 3 and increases item 5 on the asset side of the balance sheet. If the proceeds of the sale are used to retire foreign debt, then the reduction on the asset side of the balance sheet is exactly offset by the reduction in item 2 on the liabilities side.

In either case Public Sector Net Worth (and therefore the real deficit) is unaffected by the transaction. If, on the

other hand, the proceeds of the sale are used to finance age pensions (a form of consumption), the public sector deficit increases. When an embassy is sold we cannot know the effect on the deficit until we know how the money was spent.

Some of the fiscal policy effects on the deficit may be rather subtle. One way to reduce the deficit, as conventionally measured, may be, for example, to reduce expenditure on defence. This would, indeed, reduce outlays. Presumably, however, the object of defence expenditure is to make Australia a safer place. Reduced expenditure on defence may thus be reflected in a reduction in the market value of land and mineral assets, which are now viewed as more risky investments. The deficit is thereby increased.

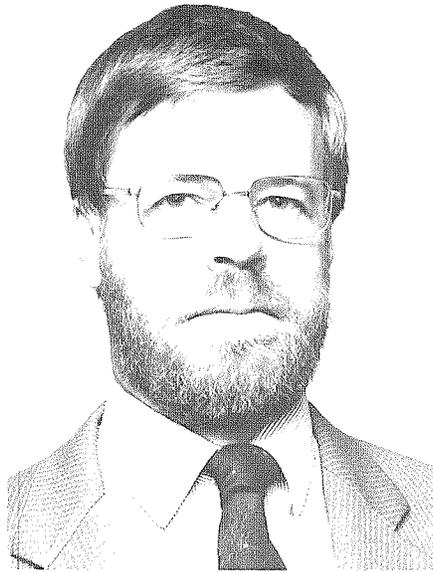
This approach to deficit management also helps to put foreign debt into perspective. A depreciation of the exchange rate may cause both the market value of the debt (denominated in foreign currency terms) and the interest payments to rise dramatically. Such a depreciation, however, has an exactly equivalent but opposite effect on foreign exchange reserves and other foreign assets.

Rather discouragingly, it should be noted that market values, particularly market values of foreign debt and assets, are largely outside the control of the Treasury. No matter how firm the intention, the real deficit may behave

TABLE 1: Estimates of the deficit.

Date	Foreign Exchange	+ Cash Monopoly	- Domestic Debt	- Foreign Debt	- Stock of Money	= Net Worth
(\$ mill, 1980 prices)						
30/6/80	5681	810	3927	4437	6874	-9953
30/6/81	5216	908	3096	3146	6932	-9582
30/6/82	4969	1081	3022	3233	7115	-9334
30/6/83	7040	895	3726	4040	6809	-8344
30/6/84	7601	1039	7599	3587	7326	-10770
30/6/85	6370	1103	10462	4468	7893	-16684
30/6/86	5743	1025	9616	6262	8014	-19316

\$500 PRIZE TO JASSA CONTRIBUTOR



Wayne Lonergan

THE 1987 JASSA Prize has been awarded to Mr Wayne Lonergan, a partner in the accounting firm Coopers & Lybrand.

The annual prize — \$500 and a certificate — is awarded to the author of the article judged to be the best piece of original work published in JASSA. Judging is carried out by a sub-committee of the JASSA Editorial Board.

Mr Lonergan's contribution was published in the December 1987 issue. Under the title *Where They Go Wrong — Traps in Share Valuations*, he discussed "some significant errors which have occurred recently in valuation methodology."

Dangers existed in such areas as the valuation of intangibles, the impact on

the market of special purchasers, and the effect of interest income and expense, he wrote. "Despite its apparent simplicity, the valuation of shares and businesses is much more of a science than many people believe."

And he warned that in the aftermath of the 1987 sharemarket collapse there could be serious professional negligence writs over valuation reports.

The JASSA Prize judges commended Mr Lonergan's article for its originality, its relevance to the contemporary securities market and the clarity with which its viewpoints were presented. They said they hoped the award of the prize would encourage the contribution of more original articles on topics of importance to the securities industry. □

very differently from the stated program.

Measuring the Deficit

A major problem with the balance sheet set out above is that several of the items, such as Social Overhead Capital, have no readily ascertainable market value. Others, such as the Present Value of the Social Insurance Program, involve intricate demographic calculations as well as heroic assumptions regarding the social policies of future governments.

The calculations set out in Table 1 are limited to items 1, 2 and 3 on the liabilities side and items 5 and 6 on the assets side. Naturally this leaves the calculation incomplete. One possible answer to this criticism is that these calculations of the real deficit are in the tradition of other estimates of the real deficit (for example, Barro [1979] and Buiter [1983]). A second defence would be that to include the other items listed would involve arbitrary and largely hypothetical assumptions which would detract from our attempt to obtain more useful, rather than more debatable, estimates of the deficit.

The real deficit, defined as the change in Net Worth at constant prices, can be compared with the "official" real deficit, obtained by deflating the published deficit figures by the consumer price index.

Conclusion

The difference between the official and the revised figures is substantial.

TABLE 2: Comparisons.

Year	"Official" Deficit	Revised Deficit
	(\$ mill, 1980 prices)	
1980/1	-1010	+372
1981/2	-450	+248
1982/3	-3333	+990
1983/4	-5702	-2427
1984/5	-4527	-5913
1985/6	-3526	-2632

(+ indicates surplus; - indicates deficit)

In three of the six years, deficits turn into surpluses. Only in fiscal year 1984/5 is the deficit increased. This occurs because of ballooning domestic debt. Foreign debt rises over the period, but until 1985 this increase is matched by the increase in foreign exchange reserves.

These results are not, in themselves, surprising. Most countries reveal similar discrepancies between "official" deficits and revised calculations. Clearly, if deficits are, in reality, substantially different from the official calculations, this has implications for the conduct of economic policy. It is not, however, appropriate to explore these issues here.

THE MEASURES

The basis for the calculations was as follows:

Real Money: Money base, Table A.1 RBA *Bulletin*, December 1986, deflated by Consumer Price Index, Table L.2, RBA *Bulletin*.

Real Commonwealth Foreign Debt: In the absence of direct market prices

it was necessary to use an approximation. Interest liability on Commonwealth debt (RBA *Bulletin*, table L.11) together with United States Government medium term bond yield (International Monetary Fund, International Financial Statistics, item 61a) was used to calculate the market price of foreign debt in \$US. This was then adjusted for exchange rate changes and US inflation rates. This calculation embodies a number of assumptions, the major ones being (a) all foreign debt is denominated in \$US, (b) all foreign debt has a maturity of five years, (c) purchasing power parity prevails.

Real Commonwealth Domestic Debt:

The market value of all Commonwealth securities on issue to the private sector (Budget Paper No. 7) was calculated at prices ruling on or as close as possible to June 30 each year. It was assumed that securities held by the private sector have the same maturity profile as total securities on issue.

Real Foreign Exchange:

The nominal foreign exchange reserves (RBA *Bulletin*, Table K.4) were adjusted for exchange rate changes and US inflation rates. The assumption is that purchasing power parity holds.

Value of Cash Monopoly:

The money base was multiplied by long-term bond rates to derive the shadow price of the Government's cash monopoly.

All nominal figures were deflated by the Consumer Price Index.

REFERENCES

- R. Barro (1979), *Macroeconomics*, John Wiley and Sons, New York.
- Buiter, W. H. (1983), "Measurement of the Public Sector Deficit and Its Implications for Policy Evaluation and Design", *IMF Staff Papers*. □