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THE WAY DEFICITS SHOULD BE MEASURED

Michael Parkin

This paper contains preliminary findings from research work still in progress and should not be quoted without prior approval of the author.

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WHAT CAN MACROECONOMIC THEORY TELL US ABOUT
THE WAY DEFICITS SHOULD BE MEASURED

by

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I. INTRODUCTION

Deficits in the federal government accounts of $30 billion--approximately 10% of GDP--have generated two diametrically opposed reactions. Both reactions are of alarm, but the perceived sources of that alarm stand in direct conflict with each other.

Perhaps the most common reaction and certainly the most common one coming from non-economists is that of seeing the deficit as being too big, as being the source of high real interest rates and (until recently) stubborn (possible to be subsequently renewed) inflation. The resulting high interest rates are seen as responsible for low levels of expenditures on capital equipment and household durable goods that, in turn, are seen as the source of high unemployment. On this view then--a view hard to document in academic writings but commonly seen in less formal journalistic discussion--the deficit is too big and, as a consequence, interest rates, inflation and unemployment are all too high.

The second reaction, coming mainly from economists, is one that reaches exactly the opposite conclusion. Using traditional concepts of opportunity cost and the newer (though by no means new) ideas of post-Keynesian macro-economic theory, economists are suggesting that the conventionally calculated deficit requires adjustment for (at least) three clearly identifiable factors that are mistreated in the financial accounting procedures employed by national income and public sector accountants. One of these factors would have the effect of making the deficit, as correctly measured, larger than the accounting measure, but the other two factors would make the deficit smaller.

It is the way in which the government sector accounts treat pension operations that makes the conventionally measured deficit smaller than the
correctly calculated one. This arises from the fact that the financial accounts treat the pension funds on a cash-receipts rather than accruals basis. In the early stages of a new pension's program, such as the Canada Pension Plan, cash receipts from the large number of working contributors substantially exceed the cash payments to those already retired and eligible for a pension. The government is, however, incurring a liability to existing contributors in just the same way as it incurs a liability when it sells a bond. At the present time there is a surplus on the cash flow of the government pension plan of something in excess of $1 billion annually. In the absence of changes in either benefit rates or contributions (or subsidies from general taxation) that surplus will become a substantial (and increasing) deficit as the pension plan reaches maturity and the stock of eligible pension recipients increases. Noting that the cash flow approach understates the true deficit as compared with what would be revealed by accruals approach, economists have suggested that the best way of handling government pension plans is to remove them completely from the government sector accounts so as to measure the deficit net of any surplus contributed by the pension plan.

The factors that economists regard as misleadingly swelling the deficit are high rates of inflation and unemployment. Inflation has to be allowed for by recognizing that the high market rates of interest that the government is paying on its debt in part merely reflect compensation to bond holders for the falling value of money. To the extent that they do reflect that, as opposed to reflecting real interest, the interest payments on the government debt need to be reduced. Further, the real value of of the government's monetary--non-interest bearing liability--is falling at the rate of inflation and that, too, should be allowed for. In terms of opportunity cost (as opposed to financial) accounting, there can be no
question that these adjustments to the financial accounts are required in order to establish the current real resource transfers that are taking place between the government and private sectors.

The final factor to be adjusted for--unemployment--stems not from opportunity costs considerations but from the ideas of Keynesian macro-economic theory. Central to Keynesian economics is the proposition that high unemployment and low real income result from insufficient aggregate demand. If aggregate demand was at an adequate level, there would be "full employment". High unemployment and low income swell the government deficit partly by inducing extra unemployment compensation payments and partly by lowering tax receipts. These induced components of the deficit are transitory and will disappear when the economy returns to its full-employment state. They should not, therefore, be counted as part of the "core" (or "chronic") deficit.

Allowing for all these factors results in what at first appears to be an alarming deficit being transformed into an equally alarming surplus. On the calculations of John Bossons and Peter Dungan (1983) "if the economy were at full employment and the government surplus or deficit were correctly measured, the current taxation and expenditure programs of all governments combined would yield a surplus of approximately $6 billion". (Op. cit., p. 1.) This "discovery" of a surplus has led these and perhaps a majority of economists to conclude that "as a result, the current fiscal position of Canadian governments is depressing rather than stimulating the Canadian economy". (Op. cit., p. 1.) That is, far from the big deficit being the source of high interest rates, inflation and unemployment, it is the big adjusted surplus that is responsible for our problems because it is depressing aggregate demand.
Which view is correct? What does economic theory in general and macroeconomic theory in particular tell us about the way in which deficits should be measured? These are the questions to be addressed here. I shall begin, in Section II, with a review of the alternative ways in which the conventional accounting deficit may be adjusted to arrive at a variety of alternatively defined deficits (one of which will be the "full employment" real deficit/surplus) conventionally calculated by economists. I shall then pose the question: Which of these alternatives (if any) is the right one? The answer to this question will be of the "it-depends-on" variety. In this case it depends on which of various questions concerning macroeconomic performance we wish to address, and also on which model of economic behavior best describes the world in which we live.

I shall identify and address four questions of substance concerning macroeconomic performance in each of the next four section of the paper (III-VI). The first concerns the influence of the deficit on aggregate demand, the second on the real rate of interest, the third on the levels of output and unemployment, and the fourth on inflation. In addressing these questions, I shall use a theoretical framework that is sufficiently general to permit an examination of the consequences for the way in which deficits should be measured of alternative views about macroeconomic behavior. The paper concludes with a brief summary of the main conclusions (VII).

The main conclusion reached and worth anticipating is that macroeconomic theory is much less clear-cut in its implications for how the deficit should be measured than most economists seem ready to believe. To the extent that it does offer guidance, however, it suggests that we face a potentially serious problem arising from an evolving deficit that has been too big, is too big, and promises to remain too big. I offer no calculations in this
paper so I am not able to say how large a problem we face. The rosy picture painted by the real full employment deficit calculations is, however, clearly misleading and probably seriously so.

I also offer no policy prescription. (This may be inferred as implying a no-change in policy prescription under current circumstances.) My only prescription is for more research. We need to know more not only about macroeconomic behavior, but also about the political processes whereby fiscal policy and the resulting deficit are generated. I suspect that until we have better knowledge of these matters we shall not make any serious progress in improving the performance of fiscal policy. We shall at best be able to inject addition (unwanted) noise but not have the capacity to change the underlying structural process.

II. FINANCIAL AND ECONOMIC MEASURES OF THE DEFICIT

There are two readily available bases for measuring government economic activity. One is known as the National Accounts basis and the other the Public Accounts basis. The National Accounts basis is more comprehensive than that of the Public Accounts. The differences in total revenues and total expenditures between the two bases are quite sizeable though the difference between the deficits on the two alternative methods of measurement are much smaller. In what follows I shall (implicitly) regard the National Accounts measures of government activity as the appropriate ones.

A starting point for discussing the deficit is the government's receipts and payments in current dollars. Purchases of goods and services, transfer payments, the payment of interest on outstanding bonds and redemption of bonds all have to be financed by tax revenues, the sale of new bonds,
and the creation of new money balances. This necessary equality between outlays and receipts may be expressed in the form of an equation as follows:

\[ (1) \quad G_t - V_t + \frac{R_t}{(1+R_t)} B_t - (B_t - B_{t-1}) - (M_t - M_{t-1}) = 0 \]

where
- \( G_t \) is nominal government spending on goods and services
- \( V_t \) is nominal tax receipts net of transfer payments
- \( R_t \) is the nominal rate of interest
- \( B_{t-1} \) is the value of bonds redeemed at \( t \)
- \( B_t \) is the value of bonds to be redeemed at \( t+1 \)
- \( M_{t-1} \) is the nominal money supply outstanding at the end of the previous period
- \( M_t \) is the nominal money supply outstanding at the end of the current period.

The first two terms in equation (1) are self-explanatory. The other terms, however, require some elaboration. To keep things simple I am supposing that the government issues only one-year bonds.\(^1\) Because of this assumption, the amount paid out in the current period to redeem old bonds is the entire outstanding stock \( (B_{t-1}) \). The analytically convenient fiction used is that in the previous year the government sold commitments to pay out \( (B_{t-1}) \) one year hence. In the current year the government has sold a commitment to pay out \( (B_t) \) one year hence. The price for which the government has sold such a promise is \( 1/(1+R_t) \)--the price of a one-period bond in the current period. Thus, \( R_t B_t/(1+R_t) \) represents the implicit interest payments on the current year's bonds.\(^2\) The final two terms in the above equation capture the contribution of newly created money to the government's budget. This is to be though of as the liability only of the central bank (Bank of
Canada) and not of the chartered banks as well. This means that equation (1) consolidates the Bank of Canada and the government. Government bond transactions with the Bank of Canada are not included in (B).

Care is required to interpret equation (1) correctly for an open economy. In such a case, the money supply has to be redefined as the equivalent of the stock of domestic securities held by the central bank (domestic credit) and not as the total high-powered money stock. Under a cleanly floating exchange rate regime where the stock of foreign exchange reserves was either zero or constant, the change in domestic credit (domestic credit expansion (DCE)) would, of course, be equal to the change in the nominal stock of high-power money \( (M_t - M_{t-1}) \).

Although the equation above describes the cash receipts and outlays of the government we could, with a suitable redefinition of the various items, represent the government's income and expenditure on an accruals basis using the same equation. Accruals-base definitions of income and expenditure differ from a cash receipts definition in exactly the same way that an accountant's profit-and-loss account differs from his cash account. It reflects changes in liabilities even if those liabilities are not represented by an explicit contractual transaction. As was noted in the introductory remarks made above, one aspect of government activity--its involvement in pension plans--makes it important to recognize the distinction between cash receipts and accruals for the purpose of calculating the government's budget position. In the cash accounts the pension activities of the government appear in the term \( V \) in equation (1). Included in \( V \) will be all the
payments made to existing pension recipients minus the amounts received from existing contributors. In order to calculate the government's budget on the more appropriate accruals-basis, this amount should be subtracted from V. At the same time an equivalent amount should be added to the current period receipts from the sale of bonds. Although the government does not actually sell an explicit bond to a member of its pension plan, it may nevertheless be thought of selling an implicit bond. Simply removing the net cash flow arising from pension plan operations from V is not, however, sufficient. A further reduction in V (with a consequential increase in the value of implicit bonds outstanding) has to be made to allow for any true (accruals base) deficit on the pension program. With this discussion in mind we may now reinterpret equation (1) as an accruals equation.

Converting from a cash flow to an accruals-basis does not affect purchases of goods and services or the creation of money (the first and last two items in the equation). It does, however, involve juggling items between taxes net of transfers and bonds outstanding. A correct calculation allowing for the actual features of existing pension plan arrangements would lower V and increase both the level of and growth rate in the stock of bonds outstanding to include the implicit bonds which represent claims on the government's future resources. On this accruals-basis reinterpretation of equation (1) care has to be taken to note that neither V nor bond market operations that are actually measured in the conventionally reported data represent the accruals measures which are the appropriate ones.

The next adjustment to be made to the government accounts involves deflating to allow for the effects of inflation. Instead of considering the
government's account in current dollars it may be considered in constant dollars by dividing each item in the above equation by the general price level (the GDP deflator). Denoting the real values of variables (nominal values divided by the GDP deflator) by the corresponding lower case letter and defining \(1 + r_t \equiv (1+R_t)/(1+\pi_t)\) where \(\pi\) is the rate of inflation gives:

\[
g_t - v_t + \frac{r_t}{1+r_t} b_t - (b_t - b_{t-1}) - (m_t - m_{t-1}) - \pi_t m_t = 0
\]

The first two terms in (2) are real government expenditure on goods and services and real tax receipts (net of transfers), respectively. The third term is best interpreted in two parts. First, \(r_t\) is the real interest rate and, second, \(b_t/(1+r_t)\) is the current real value of the stock of outstanding bonds. The next two composite terms represent the growth in the stock of real bonds \((b_t - b_{t-1})\) and of real money balances \((m_t - m_{t-1})\). The final term represents the inflation tax—the real revenue accruing to the government is a result of the decline in the outstanding real stock of its monetary liabilities.

Various alternative definitions of the government's deficit may now be obtained by, in effect, simply rearranging equation (2). The first and narrowest definition of the deficit is

\[
d_{1t} \equiv g_t - v_t
\]

This is the real deficit exclusive of debt interest. It is the magnitude focussed on in several papers (notably by Bennett McCallum [1982] and by Thomas Sargent and Neil Wallace [1981]). It is equivalently, of course

\[
d_{1t} = (b_t - b_{t-1} + m_t - m_{t-1}) + \pi_t m_t - \frac{r_t}{1+r_t} b_t
\]
What this says is that the deficit (excluding debt interest) has to be financed by the growth in the stock of real bonds and real money balances outstanding (the first term in equation (3b)), and the inflation tax (the second term in equation (3b)). The final term in equation (3b) \((\frac{r_t}{1+r_t} b_t)\) is simply the interest payments on the existing stock of debt that has to be subtracted from the growth of liabilities and inflation tax.

A second fairly natural definition of the deficit is one which includes real interest on the real debt outstanding. That is,

\[(4a) \quad d_{2t} = g_t - v_t + \frac{r_t}{1+r_t} b_t\]

This, of course, is equivalent to

\[(4b) \quad d_{2t} = (b_t - b_{t-1} + m_t - m_{t-1}) + \pi_t m_t\]

What this says is that the deficit inclusive of real interest payment has to be covered by the inflation tax and the growth in the real value of the government's bond and money liabilities.

A third definition recognizes that the government's real monetary liabilities are falling as a result of inflation and subtracts that fall in the real value of money from the above deficit to give

\[(5a) \quad d_{3t} = g_t - v_t + \frac{r_t}{1+r_t} b_t - \pi_t m_t\]

This, of course, is equivalent to

\[(5b) \quad d_{3t} = b_t - b_{t-1} + m_t - m_{t-1}\]

Thus, this definition of the deficit amounts to simply the change in the real value of the government liabilities between \(t-1\) and \(t\).
There is a further definition suggested by the famous Ricardian equivalence proposition. If government bonds are perceived as generating a future tax liability having the same present value as the market value of the bonds, then, the above discussion concerning the distinction between a cash receipts and accruals definition of the government's account are seriously incomplete. Whilst a bond sale represents a cash receipt, it does not, under the conditions of Ricardian equivalence, generate a revenue on an accrual's basis. A further definition of the deficit which takes account of this is

\[ d_{4t} = g_t - v_t + \frac{r_t}{1 + r_t} - \pi_t m_t - b_t + b_{t-1} \]

or, equivalently

\[ d_{4t} = m_t - m_{t-1} \]

What this says is that, if bonds and future tax liabilities are equivalent to each other, then bonds are not part of private sector wealth and any change in the stock of bonds outstanding represents a change neither in private sector wealth nor government liability. It is only the change in real money balances (equation (6b)) that represents a change in private sector wealth.

Each of the above alternative definitions of the deficit take account of opportunity cost notions. They do not, however, pay any attention to the macroeconomic arguments concerning the need for cyclical adjustment of the deficit. A cyclically adjusted deficit ("full employment" deficit) could be defined for each of the four alternative deficit definitions presented above. It is simplest, however, to examine the full employment version of the deficit in connection with the \( d_1 \) definition. The basic
The idea behind the full-employment adjustment is that government expenditures and tax receipts \((g_t - v_t)\)--or, equivalently \(d_{lt}\)--will reflect both the programs and tax regulations in place as well as the current state of the economy. We could represent this as

\[
(7) \quad d_{lt} = d_{ot} + \alpha_t y_t
\]

Here \(d_{ot}\) denotes the level of the deficit that is independent of the current state of the economy. \(y_t\) represents the state of the economy at the current moment in time. \(\alpha_t\) reflects the effects of the existing tax and spending regulations on the way in which the current state of the economy influences the deficit. In principle \(\alpha\) and \(y\) are vectors of high dimension. It is convenient, however, to regard \(y\) as simply real GDP and \(\alpha\) as the effects of real GDP on the deficit. Using that simplification we could define the full employment deficit as that which occurs when income is at its full-employment level. Calling \(y_d\) full employment real income at time \(t\), the full employment deficit would then become

\[
(8) \quad d_{lt}^* = d_{ot} - \alpha_t y_t^*
\]

Subtracting equation (8) from equation (7) and rearranging slightly produces

\[
(9) \quad d_{lt} = d_{lt}^* + \alpha_t (y_t^* - y_t)
\]

What this is telling us is that the deficit is equal to its full employment counterpart plus an adjustment for the deviation of income from full employment. Each of the other definitions of the deficit have a full employment equivalent which involves precisely the same adjustment—the subtraction of \(\alpha_t (y_t^* - y_t)\) from the definition given above.

Thus, we now have eight alternative definitions of the deficit (actual and cyclically adjusted) for four real definitions of varying breadth. Which, if any, of these deficit measures are interesting
from a macroeconomic perspective? The answer to this question clearly depends on the underlying question of substance of macroeconomic performance which it is sought to address. Some possible questions of substance are:

1. Is the deficit stimulating or retarding aggregate demand?
2. Is the deficit raising real interest rates?
3. Is the deficit raising or lowering output and employment (relative to some "full employment" levels)?
4. Is the deficit inflationary?

Notice that questions (1) and (3) are not the same. Question (1) asks about the effects of the deficit on aggregate demand which may or may not be the same thing as the level of actual output.

None of these questions can be answered with reference solely to the government's accounts (somehow arranged). All need to be addressed by way of an analysis of the behavior of the private sector and of the behavior of government. In pursuing such analyses some definitions of the deficit will turn out to be useful; some will not. To see that, however, it is necessary to turn and address the specific questions posed above. This is what will now be done starting with the deficit and aggregate demand.

III. THE DEFICIT AND AGGREGATE DEMAND

Is fiscal policy, as reflected in the deficit, stimulating or retarding aggregate demand? This is a question of interest to both Keynesians and non-Keynesians alike. The Keynesian interest in this question stems from the direct link between aggregate demand and actual output and employment (as well as unemployment) in the simplest Keynesian frameworks. The non-Keynesian is interested in this question because of the potential effects
of aggregate demand on both real income and on the price level (or more generally the inflation rate).

A starting point to any analysis of the effects of the deficit on aggregate demand must be a theory of aggregate demand. There is not much dispute within the profession concerning this matter (though there are some secondary matters that would divide economists). A general proposition about aggregate demand which would be widely subscribed to is one that states that aggregate demand will be higher the higher is the quantity of real money balances, the higher is the stock of real government bonds outstanding, the higher is the expected rate of inflation, and the higher is the level of government purchases of goods and services. This last-named variable implies that the level of government expenditure as well as the deficit and the way in which it is financed is a crucial factor influencing the level of aggregate demand. For present purposes we shall, however, treat that level of expenditure as given. Further, the composition of public expenditure is also of vital importance. Expenditure on profitable (revenue creating) activities clearly have different implications from pure waste. I shall abstract from (though recognize the importance of) these matters also in what follows. Finally, other considerations such as time lags and foreign influences on demand are also ignored for present purposes.

For a given expected rate of inflation and a given level of government expenditures on goods and services, aggregate demand will change with changes in real money balances and the real stock of government bonds outstanding. There is no disagreement concerning the role of real balances. Some economists, however (Ricardians), would want to hypothesize that the effects of government bonds on aggregate demand are unimportant because of the offsetting change in future tax liabilities. As a general proposition most would agree that the effects of bonds on aggregate demand is less than the effects of real money balances.
If the level of aggregate demand depends upon the levels of real
money and real bond holdings, then changes in real money balances and
real government debt outstanding will influence the growth rate of aggre-
gate demand. In the light of these considerations, which of the alter-
native deficit definitions are needed in order to understand the effects
of the deficit on aggregate demand? The answer is immediate and direct.
It is a combination of the definitions $d_3$ and $d_4$ given above.
If the economy really is Ricardian, then $d_4$ is the appropriate definition.
If bonds and money had equally important effects on aggregate demand (an
extreme position to which hardly anyone would subscribe), then definition $d_3$
would be appropriate. In general a weighted average of $d_3$ and $d_4$ would be
required where the weights would reflect the degree to which bonds constitute
net worth.

It is worth emphasizing that it is the deficit as measured by a com-
bination of $d_3$ and $d_4$ on an accruals rather than cash-receipts basis which
is appropriate. Changes in individuals' perceived wealth through their par-
ticipation in public sector pension schemes are just as important as any
other sources of perceived wealth changes. Of course if the world is
Ricardian, then this consideration loses its force.

We have seen, then, that definitions of the deficit $d_3$ and $d_4$ are
the appropriate ones for telling us about the effects of the deficit on
changes in aggregate demand. Changes in real money balances and real bonds
outstanding will however in part be induced by changes in the current level of
real income. This suggests the need for a measure of deficit that is
independent of the actual level of income. The full employment version
of deficits \( d_3 \) and \( d_4 \) are therefore suggested as the appropriate ones. Which particular level of employment is select as the full employment level is a matter of secondary importance in this regard. All that is needed is a constant level of real income so that the effects of changes in income on induced changes in the growth rates of real money and real bonds outstanding are removed.

It is important to note that the level of the deficit yielded by this calculation tells a little in and of itself. It is changes in the deficit yielded by this calculation that provide information on the direction and magnitude of the effects of fiscal policy on changing the growth rate of aggregate demand.

It is noteworthy that the measure of the deficit required to provide an answer to the question concerning the effects of the deficit on aggregate demand, the full employment version of either \( d_3 \) or \( d_4 \) is very close to the adjusted deficit calculated by Bossons and Dungan (1983). There are, however, two features of their work that make their calculations and inferences slightly different from those reached above. First, they do their calculations on a definition of government that excludes the government's pension activities. By removing the cash-receipts contribution of the pension program to the deficit they do not provide a conversion from cash-receipts to accruals base for the pension program. Rather, they ignore pensions. The second difference between the above discussion and the work of Bossons and Dungan has to do with levels versus changes in levels. It was remarked above that it is changes in the full employment deficit \( (d_3, d_4 \) definition) which provide information about changes in the growth rate of aggregate demand induced by active fiscal policy. Bossons and Dungan seek to make inferences from the level of the full employment
surplus concerning its effects upon aggregate demand. Of course, to say that a change in the deficit (appropriately defined) induces a change in the growth rate of aggregate demand is equivalent to saying that the level of the deficit induces a change in the level of aggregate demand. There is however a crucial difference between these two propositions, at least as empirically implemented by Bossons and Dungan. It is that, to make statements about the effects of a change in the deficit on the change in the growth rate of aggregate demand one does not need to be sure that one is using the correct level of unemployment in order to calculate the full employment deficit. In order to make statements about changes in the level of aggregate demand from statements about the level of the deficit one does need to know that the full employment level used in the calculated adjustments is the correct one.

Those who advocate fiscal stimulation in current conditions assume that any rise in aggregate demand would have a sufficiently large output effect and a sufficiently small price effect for such stimulation to be worthwhile. The possible effects of the increased deficit (or decreased surplus) on the price level and on aggregate supply are either ignored or downplayed. I shall return to this issue in Part V. First, however, I shall examine the effects of the deficit on real interest rates.

IV. THE DEFICIT AND REAL INTEREST RATES

There are certain situations (some actual and some hypothetical) in which the real rate of interest is a parameter and not subject to any influence either from the government's fiscal policy or from any other domestic source. One example is that of the small open economy facing effectively perfectly
elastici supplies of capital from the world capital market. A country like Canada, in current conditions, probably fairly well approximates such an economy. Another situation is one in which bonds are not treated by their holders as part of net wealth—when they are perfect substitutes for future tax liabilities. A third case is where there is a constant rate of time preference which bolts down the equilibrium real rate of interest (in stationary equilibrium) and forces adjustments of the capital stock to ensure that the marginal product of capital equals that parametrically given rate of time preference. In all these cases, it is evident that, regardless of how it is defined and measured, the deficit has no effect on the real rate of interest.

Aside from these situations, when the rate of interest is an endogenous variable responding to current domestic economic conditions, it is of some importance to enquire how it is affected by the deficit (on some appropriate definition). Although this question may be of limited practical importance for Canada, it is clearly of importance for the world economy as a whole and for such large economies as the United States.

A moment's reflection will reveal that the question is almost the same as the question just considered in the preceding section concerning the influence of the deficit on aggregate demand, for we may regard both the level of aggregate demand and the level of the real rate of interest as being simultaneously determined by goods market and money market equilibrium. Aside from the special cases noted above, and ruling out perverse cases, the standard reduced form predictions coming from a variety of alternative structures would have the real rate of interest falling as the quantity of real money balances increases and rising as the stock of real bonds increases. If we suppose that we are dealing with a situation in which the expected (and actual) rate of inflation is constant so that real balances are also constant, the only remaining influence (stemming from fiscal policy) on the real rate of interest is the size of the real stock
of government bonds outstanding. If that stock is rising (in per capita terms) then, aside from the special cases that we are not considering here, the real rate of interest will rise. Such a rise in the real rate of interest will induce intertemporal substitution in consumption of both goods and leisure and induce a smaller equilibrium capital stock and, temporarily, a slower rate of accumulation.

Which is the appropriate measure of the deficit for judging the influence of fiscal policy on the real interest rate? The answer appears to be the definition \( d_3 \). With a constant inflation rate and real balances constant in equilibrium, that measure of the deficit would be a direct measure of the increase in the stock of real government bonds outstanding.

In common with the discussion that we had in the preceding section, if we are interested in removing any effects stemming from changes in real bonds outstanding induced by the state of the economy it will be the full employment version of \( d_3 \) that provides an indication of the qualitative effects of the deficits on the real rate of interest.

The importance of these considerations for Canada taken alone is probably negligible. (These matters are discussed by Ronald Wirick (1983) in his paper for the conference.)

Let us now turn to the third question: that concerning the effects of the deficit on the actual levels of output, employment and unemployment.

V. THE DEFICIT AND THE LEVEL OF REAL ECONOMIC ACTIVITY

The level of real economic activity may be viewed as being determined by the interaction of aggregate supply and aggregate demand. Even the most eclectic introductory textbooks in economics now adopt this approach. (See, for example, Lipsey, Purvis, Sparks and Steiner (1982).) On this view, if
aggregate demand and aggregate supply both rise, but aggregate demand rises more, then income will rise and the price level will rise. If they both rise, but if supply rises faster than demand, then income will fall in the face of rising prices--stagflation. Conversely, if aggregate demand falls but by less than the fall in aggregate supply, then income will still rise but the price level (or inflation rate) will fall and, finally, if aggregate demand falls but by more than the fall in aggregate supply, then both income and the inflation rate will fall. To determine the effects of the deficit, therefore, on the level of real economic activity, it is necessary to examine its effects on both aggregate supply and aggregate demand. I have already discussed its effects on aggregate demand (in Section II above). I now need to focus attention, therefore, on aggregate supply.

The most general approach to an analysis of aggregate supply is to suppose that the amount that will be supplied at any given point in time depends on the price level prevailing at that point relative to the expectations of the price level formed at various dates in the past. In a special case--the so-called New Classical version of the theory of aggregate supply--it is only the most recently formed expectation of the current price level that matters. In the alternative so-called New-Keynesian or long-term contract approach, it is the expectations of the current price level that were formed on the dates at which all the labour market (and other input market) contracts still in force at the present time were entered into. To the extent that current changes in aggregate demand were anticipated at those past dates, such changes will have no effects upon real economic activity and will have all their effects on the price level. To the extent that such changes
in aggregate demand were not anticipated, however, they will have real effects. Thus, the crucial thing for output determination is not the level of aggregate demand, but rather its level relative to the anticipated level (where the anticipations in general would have been formed at various dates in the past). It immediately follows from this that it is not the level of the deficit that is important for the determination of the level of real economic activity but rather the predictability of the deficit. If the deficit is currently at a level that was well anticipated in the past then its effects will come through aggregate demand to influence the price level but not the level of output and employment. Regardless of how one is measuring the deficit therefore, it is not possible, simply by examining the deficit and its effects upon the level of aggregate demand, to reach any conclusions concerning the effects of the deficit on the levels of employment and unemployment.

These considerations have important implications for the policy advice which is often given concerning the deficit. Those economists who regard the current state of the deficit as being contractionary and therefore advocate fiscal stimulus, need to ask how it will be possible to generate fiscal stimulus that has not been reasonably well anticipated by the time it actually occurs. In view of the decision and legislative lags, as well as implementation lags, it is hard to believe that much of what happens on the fiscal policy front can be regarded as unanticipated.

The outcome of the above remarks is that, from the point of view of understanding what determines the level of economic activity, there appears to be no major role to be played by any particular measure of the deficit. It is only the current level of the deficit relative to its previously expected (cyclically adjusted) level that is of concern.
There does, of course, exist an alternative view to that presented above. It is a view which holds that the price level (and inflation rate) are largely (though not entirely) independent of aggregate demand. If that is the case, variations in aggregate demand will indeed be associated with variations in actual output and employment. That econometric models can be built to fit the facts and to incorporate this view of the world is a patent fact. It may, therefore, justifiably be asked how I can spend so much time on this topic in total silence on this alternative (Keynesian) approach. This is not a suitable place to engage in a lengthy appraisal of this Keynesian tradition. There do, however, seem to be cogent reasons for doubting the ability of the approach to offer anything other than a description—and not an understanding and explanation—of the facts.  

Let us now turn to the final problem identified, the relationship between the deficit and inflation.
VI. THE DEFICIT AND INFLATION

"Is the deficit inflationary?" is an often-asked and clearly important question. Equally clearly, is the question that cannot be answered with reference to either the $d_3$ or $d_4$ definitions of the deficit identified in the earlier sections as influencing aggregate demand and real interest rates. The reason why these measures of the deficit are incapable of handling questions concerning inflation is that they in no way depend on the rate of inflation. They are entirely real definitions. They could occur at any rate of inflation.

What meaning can we attach to the concept of an inflationary deficit? Do any of the other definitions posed above help? In particular, what about $d_1$ and $d_2$. Each of these contain the inflation rate in the definition of the deficit and each *ceteris paribus* say that the higher is the deficit, the higher is the rate of inflation (with real money balances being a factor of proportionality linking the two). Each definition also, however, indicates that there are sufficient degrees of freedom for the perpetual issue of bonds on an ever-increasing scale to sustain any inflation rate regardless of the value of the deficit (whether measured on the $d_1$ or $d_2$ definition). Thus, neither of these two definitions of the deficit provides a direct measure of its inflationary orientation.

In reaching this conclusion it was necessary to say that any inflation performance could be achieved provided the *future path* of bonds was appropriate. This suggests that in trying to attach meaning to the concept of an inflationary deficit we need to pay attention not to some existing state of affairs at some point in time, but to an ongoing process over time. Thus, whilst there is no meaning to be attached to being in a *state* of inflationary deficit there may be some
meaning to be attached to the notion of an inflationary deficit process. This is the way in which several scholars, spanning widely differing viewpoints, have sought to analyze the bond-financing of ongoing deficits.\textsuperscript{8}

In an analysis of ongoing inflation, no explicit attention need be paid to fluctuations in income and employment around their average levels so that, in terms of the deficit definitions introduced above, it is a "full employment" variant that needs to be considered. Some care is required, however, concerning the precise way in which full employment is defined, and I shall return to that matter later in this section. For now, let us proceed on the presumption that the full-employment adjustment has been done correctly. The starting point for the analysis is a full-employment statement of the government's real accounts, i.e.;

\begin{equation}
\frac{d^*_t}{1_t} + \frac{r^*_t}{1 + r^*_t} - (b_t - b_{t-1} + m_t - m_{t-1} - \pi_t m_t) = 0.
\end{equation}

$d^*_t$ is the full-employment level of government expenditures on goods and services less taxes (net of transfers) expressed in real terms. It is this variable that is treated as exogenous in the analyses of Sargent and Wallace and McCallum.\textsuperscript{9}

The government is presumed to choose a path for $d^*_t$ that is independent of the real rate of interest, the levels of real bonds and money balances outstanding and the inflation rate. (For McCallum, $d^*_t$ is a deterministic path whereas for Sargent and Wallace it is a stochastic path.) Notice that the assumption that $d^*_t$ is an exogenous process is restrictive. Any feedback effects from interest rates or inflation to the deficit are ignored by this assumption. Nevertheless, it is a useful starting point to get ideas focussed. It shows what would happen if governments were totally unresponsive to any havoc which they might create. It also perhaps shows tendencies that
would emerge if governments were slow to act in response to a deteriorating situation. In addition, and for simplicity, the real rate of interest is treated as independent of the government's budget. This is probably a reasonable assumption for a small open economy, operating in the neighbourhood of solvency, but probably not otherwise. 10

The rate of inflation is related to the level of real balances by way of a demand for money function and money market equilibrium. Thus there is a given (but inverse) relationship between real balances and the rate of inflation, the latter being determined by the rate of growth of the nominal money supply. If the government's budget equation (10) above is satisfied, if the real full-employment deficit is exogenous, if the real rate of interest is given, and if the inflation rate is linked to the level of real balances by a demand for money function, then, a rule for the growth rate of the money supply implies a path for the stock of real bonds. The question that can now be posed is this: Can a rule for the money supply be specified that delivers a desired rate of inflation regardless of the behavior of d^*_1t? Or rather, is it the case that the entire sequence of deficits \{d^*_1t\} may be such as to prevent a desired inflation path under any feasible rule for the growth rate of the money supply? Notice that the deficit concept that is relevant to dealing with this question is d^*_1t but viewed as a sequence or process rather than as a single point in time event.

What Scarth (1980) and Sargent and Wallace (1981) show is that a Friedman (1956) k-percent rule for the money supply growth rate cannot work unless it happens that the deficit path is a deterministic one and of the "right" size. They further show, however, that a Friedman (1948) "monetize-the-deficit" rule can work, but that the deficit in that case determines the growth rate of the money
supply and inflation. In that event, then, the rate of inflation depends directly upon the deficit sequence \( d_t^* \). Sargent and Wallace go on to show—and this is the "unpleasant" aspect of their results—that if, in the face of a given exogenous deficit, an attempt is made to control inflation by slowing down the growth rate of the money supply the effect will be a rise in the rate of inflation.

It is easy to understand why these results arise. The attempt to pursue a fixed money supply growth rule with a random deficit requires that the path of bonds be random. This however induces additional noise in the requirement to service the bond stock. Interest has to be paid on a random stock of bonds which is added to the noise generated by the deficit itself. The result is a stochastic process that has no equilibrium. An attempt to slow down inflation by lowering the growth rate of the money supply simply involves issuing more bonds at the present time. If more bonds are issued, then more interest must be paid on them and this implies that at some later stage more money must be printed to retire those bonds and to pay the interest that has been incurred by them.

Thus tight money now implies more inflationary monetary growth later. That in turn induces a higher inflation rate now by a very simple and natural mechanism. Expectations of more rapid money growth later imply expectations of more inflation later. This leads to an expectation of a drop in the demand for money (to avoid the inflationary losses) and that in turn has the same effects on inflation as a rise in the growth rate of the supply of money. To avoid the higher opportunity costs of holding money, when the money supply growth
rate has finally increased, involves lowering the demand for money before the money supply growth rate increases. That in turn increases the inflation rate before the inflationary rise in the growth rate of the money supply occurs. This process (conceptual process) has to unwind all the way back to the present, for only by reducing holdings of money balances now can the consequences of future inflation be avoided. Thus lowering money balance holdings now has the same effect now on the inflation rate as a rise in the growth rate of the money supply now would have.

McCallum conducts an analysis similar to that of Scarth and Sargent and Wallace but uses a deterministic exogenous deficit path. In that case (and implicitly in agreement with earlier findings) he shows that a Friedman k-percent rule can be followed provided that the deficit is not "too large". What "too large" means in this context is that the growth rate of bonds implied by the deficit and the k-percent rule for the money supply must not exceed the sum of the real rate of growth of the economy and the rate of time preference. Clearly the stock of bonds outstanding can grow at the growth rate of the economy without any consequence. They can, however, grow faster than that provided there is a finite present value to the entire future path of bonds outstanding.

None of the foregoing analyses make predictions about the world in which we live. Rather they generate predictions that are the logical consequences of following particular rules for deficit financing proposed by prominent economists and following those rules in the face of an exogenous (unyielding) deficit process. Instead of analyzing the consequences of examples of rules advocated by economists, it may be of greater interest to analyze the consequences of rules that would in fact be followed by rent maximizing
politicians and central bankers.

Barro (1983) and Barro and Gordon (1982), as well as Blinder (1982), have developed some suggestive theoretical models in this direction but no definitive results are available. Clearly, more work is needed on the positive theory of government and central bank behavior as well as statistical investigations on the behavior of $d^*_t$. Its exogeneity, or its links with other economic variables and the relationship between the money creation process and the deficit thus defined clearly are matters requiring urgent attention.

In the above discussion no attention was paid to fluctuations in the deficit induced by fluctuations in the level of economic activity. Clearly such fluctuations do occur so that the definition of the deficit employed has to be one that has already controlled for such fluctuations. Does the "full employment"--or what is sometimes more fittingly perhaps called the "high employment"--adjustment already discussed do the required trick? There are good reasons for believing that it does not. In order to analyze the influence of the deficit on inflation and abstracting from fluctuations in employment and unemployment we clearly need to work with a definition of the deficit that is normalized for the average sustainable level of real economic activity. Is the average sustainable level the same as the full employment (or high employment) level? The answer is almost assuredly not and for two classes of reasons, each of which is probably important in the current Canadian situation.

First there is an important distinction between the natural, or full employment level of employment and the average level of employment that is compatible with a fixed average rate of inflation. This arises from the (universally accepted) fact of a non-linear relationship between inflation and
unemployment. The point is most easily made with the help of a diagram. Figure 1 shows a conventional non-linear Phillips curve (labelled P). The inflation rate $\pi^*$ is the desired or target inflation rate and $u^*$ is the natural rate of unemployment. The vertical line above $u^*$ can be thought of as the long-run Phillips curve. If it was possible to run the economy bang on the natural rate of unemployment at all times then the target inflation rate $\pi^*$ could be delivered. If, alternatively, there are fluctuations in activity about $u^*$, then $u^*$ cannot be the average rate of unemployment unless inflation is continuously accelerating. To see this, consider a special case.

Imagine that the economy bounces between a high unemployment rate ($u_H$) and a low unemployment ($u_L$) and spends half the time at each. In that case, the average unemployment rate would indeed by $u^*$. What would the average inflation rate be? Clearly, it would be the average of $\pi_L$ (associated with $u_H$) and $\pi_H$ (associated with $u_L$). That average inflation rate is found where a cord joining the two relevant points on the non-linear Phillips curve intersects the long-run or vertical Phillips curve above $u^*$. That average inflation rate is $\pi_A$. Evidently, $\pi_A$ is greater than $\pi^*$. If the economy operated at the average unemployment rate of $u^*$, clearly the inflation rate, $\pi^*$, could not be the expected inflation rate so that the short-run Phillips curve labelled P could not be the relevent short-run Phillips curve. In fact, no equilibrium steady-state inflation rate exists in this situation. There does, however, obviously exist an average rate of unemployment greater than $u^*$ but less than $u_H$ that would deliver $\pi^*$ as the average rate of inflation. That is,
if the range of unemployment between $u_H$ and $u_L$ was held constant but the absolute levels of unemployment increased, it would be possible to find a combination of $u_L'$ and $u_H'$ averaging between $u_H$ and $u^*$ that delivered $\pi^*$ as the average inflation rate. The more curved is the Phillips curve and the bigger is the range of variability in unemployment, the higher is the average sustainable unemployment rate relative to the natural unemployment rate. In adjusting the measured budget deficit for the effects of unemployment, it is the average sustainable unemployment rate and not the natural rate of unemployment that should be used.

The second factor that needs to be taken into account in calculating the full employment deficit is the structural and other non-cyclical factors that affect the natural rate of unemployment and that may operate for relatively long periods of time to keep the natural rate of unemployment at historically
high levels. There is little doubt that for the past several years, and probably for a reasonable number of years into the future, the natural rate of unemployment has been, and is likely to be, unusually high. The natural rate of unemployment is of course nothing other than that rate of unemployment that reflects turnover in the labour market in a situation in which all expectations concerning nominal magnitudes are fulfilled. As such, the natural rate of unemployment depends crucially upon the amount of resource reallocation (and therefore labour force reallocation) taking place in the economy. The amount of reallocation going on in most industrial economies and certainly in the Canadian economy in recent years has been unusually large. This has probably arisen from unusually big changes in relative prices associated with (but not exclusive to) the energy sector and also associated with unusually large movements in real rates of interest in recent years. This has led to unusually massive reallocations of resources away from capital and durables oriented industries and also away from energy intensive technologies and towards other sectors of the economy. In the face of such large scale reallocation, it is inevitable that the natural rate of unemployment register a rise. Measures of the natural rate of unemployment for the United States based on an explicit measure of the amount of sectoral reallocation taking place (see David Lillien [1982]) suggest that much of the fluctuation in unemployment in that economy can be accounted for by these forces and that, in recent years, the amount of reallocation occurring has been unusually large.

Taken together, these two considerations indicate that, in adjusting the budget deficit for the level of employment, a great deal of caution needs to be exercised.\textsuperscript{12} It is clearly inappropriate to calculate unemployment adjusted deficits
for unemployment rates in the neighborhood of 5 or 6 percent. Bossons and Dungan, in their own calculations, accept that judgment. They use unemployment rates between 7 and 7 1/2 percent (with 8.2 percent for 1982). Such values for the no recession unemployment rate perhaps seem high. When, however, one takes account of the above two sets of factors it is likely that even these numbers are too low. Unemployment rates closer to 10 percent, at least for the current and foreseeable future, appear to be more appropriate ones for reflecting the current possibilities concerning the sustainable constant-inflation average unemployment rate.

I have suggested that the entire sequence of deficits as measured by the real deficit exclusive of debt interest (d_{LE}), adjusted appropriately to the average sustainable unemployment rate level (but with a smaller adjustment than that performed by Bossons and Dungan), is the appropriate concept of the deficit for judging the inflationary stance of fiscal policy. If this is correct, then we still have some potential for concern about the deficit. There appears to be in place a process—a political process—that is generating ever-increasing expenditures and ever-growing deficits—even on an employment adjusted basis—so that there is substantial inflation potential built into the deficit process. 13

It is also worth emphasizing that viewing the deficit as the outcome of an ongoing political process makes the cash-flow basis and not the accruals basis definition of the deficit the relevant one. The current value of the accruals basis deficit may contain information about the future cash-flow deficit but it is the sequence of cash-flows that have to be financed.
Although the deficit looks serious when viewed as an exogenous process, a very different conclusion emerges if the deficit is responsive to monetary policy constraints. Specifically (and this was shown by Sargent and Wallace (1981)), that, if monetary policy can be placed on a k-percent growth rule and if the deficit itself can become an endogenous variable responsive to the constraints imposed on it by the growth rate of the money supply, then all will be well. Thus the real issue concerns not the size of the deficit, but its exogeneity. If the deficit is exogenous with money supply growth reacting to it we are, on current trends, in for substantially more inflation in the future. If alternatively the money supply growth process is or can be made exogenous with fiscal policy endogenous then the size of the deficit at any given point in time or indeed its historical path are irrelevant for determining the future course of inflation.

Whether the deficit is exogenous or is responsive to money growth, real interest rates, inflation and a variety of other possible influences is, of course, an empirical question but, unfortunately, a question to which we do not know the answer. Obtaining that answer and, in particular, establishing whether or not the existing tax and spending programs and their built-in dynamic paths are consistent with returning us, eventually, to an acceptable level of steady-state inflation is an urgent and difficult research objective.

Let me now draw together the threads and summarize my main conclusions.
VII. SUMMARY AND CONCLUSIONS

I have developed various alternative definitions of the deficit and analyzed their role in answering four questions of concern for macroeconomic policy. We have discovered that the full-employment deficit, defined to include the real interest payment on the government debt but excluding the inflation tax, is the appropriate concept of the deficit for studying the effects of fiscal policy on aggregate demand and (with qualifications, on the real rate of interest) at a given price level. I have also suggested that aggregate demand as such has no simple effect on the level of real economic activity. Rather it is the level of aggregate demand relative to the level anticipated at the time at which existing wages and prices were determined that affects the level of actual output and employment. The concept of the deficit that helps us understand the determinants of aggregate demand is, therefore, of limited value in helping us understand what determines the actual level of economic activity. Furthermore, that measure of the deficit tells us nothing about the inflationary stance of fiscal policy for it is a measure that is independent of inflation.

For understanding the effects of the deficit on inflation the relevant deficit concept is one that focusses on the deficit process rather than deficit state. Here the central issue is not so much the size of the deficit but rather its exogeneity. If the deficit, measured to exclude fluctuations of the level of economic activity from its average sustainable level (and not from its full-employment level) is indeed exogenous, then it will dominate inflation and the relevant deficit measure is the difference between real government expenditures
on goods and services and transfers net of taxes (appropriately adjusted for average sustainable activity levels). If on the other hand, monetary growth is exogenous and the deficit ultimately responds to that exogenous monetary policy, then no matter what the deficit is at any given moment in time it is monetary policy that dominates the inflation path. We know too little about these processes and clearly need much more research both theoretical and empirical on the interaction of government policymaking and its interactions with private economic behavior.
FOOTNOTES

1 A similarly simple formulation could be achieved by assuming that all the bonds are perpetuities. In fact the average-term maturity of Canadian government bonds at the present time is of the order of six years. Nothing of substance turns on this simplification.

2 A more direct way of writing (1) is

\[(1') \quad G_t - V_t + B_{t-1} - \frac{1}{1+R_t} B_t + M_{t-1} - M_t = 0.\]

The equation in the text is (1') with \(B_t\) added and subtracted. This has the advantage (useful later) of directly displaying the (implicit) interest on the government debt. As written in (1'), there is no distinction between interest payments and bond redemptions. The amount \(B_{t-1}\) is paid out on last period's bonds and the amount \(B_t\) that will be paid out next period has generated a revenue this period of \(B_t/(1+R_t))\).

3 I am grateful to Brian Scarfe for pointing out my omission of open-economy considerations and to William Scarth for his kindness in providing me with an efficient and thorough guided tour through the literature on this topic. For a much fuller discussion of this and related issues the reader is referred to Scarth (1975). Scarth's open-economy equation (7) in that paper (p. 11) is equivalent to my equation (1) above. Scarth's bonds are perpetuities, however, and he models tax collections (my \(V\)) endogenously.
The steps from equation (1) to equation (2) are as follows: First, define the GDP deflator at \( t \) as \( P_t \). Then divide equation (1) by \( P_t \) to give the government's budget in constant dollars as:

\[
\frac{G_t}{P_t} - \frac{V_t}{P_t} + \frac{R_t}{(1 + R_t)} - \frac{B_t}{P_t} - \frac{B_{t-1}}{P_t} - \frac{M_t}{P_t} - \frac{M_{t-1}}{P_t} = 0.
\]

Next, multiply and divide the last and third last terms by \( P_{t-1} \), use the fact that \( P_{t-1}/P_t \equiv 1/(1+\pi_t) \) and let lower case letters denote the real value of the relevant variable, to give:

\[
g_t - v_t + \frac{R_t}{1 + R_t} - \frac{b_t}{(1 + \pi_t)} - \frac{b_{t-1}}{(1 + \pi_t)} - \frac{m_t}{(1 + \pi_t)} - \frac{m_{t-1}}{(1 + \pi_t)} = 0.
\]

Next, use the definition \((1 + R_t) \equiv (1 + r_t)(1 + \pi_t)\) and multiply through (b) by \( (1 + \pi_t) \) to give:

\[
(1 + \pi_t)(g_t - v_t) + \frac{R_t b_t}{1 + r_t} - (1 + \pi_t)b_t - \frac{b_{t-1}}{(1 + \pi_t)} - ((1 + \pi_t)m_t - m_{t-1}) = 0.
\]

Noting that \( R_t - \pi_t \approx r_t \) and treating \( t \) as a short interval so that \( \pi_t(g_t - v_t) \) vanishes gives

\[
g_t - v_t + \frac{r_t b_t}{1 + r_t} - (b_t - b_{t-1}) - \frac{m_t - m_{t-1}}{\pi_t m_t} = 0
\]

which is equation (2) in the text.


Although neither of these papers incorporate fiscal policy and therefore deficits, they could fairly readily be modified to do so.

See especially Stanley Fischer (1977) and John B. Taylor (1979). Also for a general discussion of this and the new classical model, see Parkin (1982).
7 For a fuller development of this theme see especially Parkin (1983).

8 See, for example, Alan S. Blinder and Robert M. Solow (1973), William M. Scarth (1976) and Carl F. Christ (1979) for Keynesian analyses in which either the price level or the expected rate of inflation are given; James Tobin and Willem Buiter (1976) for both Keynesian and perfect foresight, full-employment analyses; and William M. Scarth (1980), Thomas Sargent and Niel Wallace (1981) and Bennett T. McCallum (1982) for perfect foresight or rational expectations analyses.

9 In the Keynesian models referred to in the previous footnote, deviations of output from full employment are a crucial feature of the analysis and tax collections are endogenous. Indeed, if an equilibrium exists in those models, it is achieved by an equilibrating change in income. For present purposes it is appropriate to focus on the full-employment studies already referred to.

10 See Wirick (1983) on this.

11 This analysis was first suggested by and draws on an important but unfortunately unpublished paper by Malcolm Gray and Richard Lipsey (1974).

12 There is an interesting possible additional cyclical adjustment needed arising from cyclical movements in the ratio of money to bonds. If that ratio rises in a recession then the normal, cyclically corrected, bond interest payments will exceed the actual payments.
What I am saying here in general and abstract terms David Slater put in more detailed and graphic terms in his remarks from the floor at the Conference. He noted (as I interpreted him) the pressures for increased government spending stemming from the effects of an aging population on pension revenues and outlays and on health programs, the pressures for ever better education programs and the pent up bureaucratic demands for easier budgets and yet better pay and conditions for themselves.
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