

**The Fight Against Inflation: A Comment**

by Allan H. Meltzer\*

The development of rational expectations is one of the most important, and intellectually exciting, developments of economic theory in recent decades. Implications for economic theory, econometric theory and practice and for economic policy continue to flow, and it is both safe – and rational – to expect that we are nearer to the beginning than to the end of these developments.

Thomas Sargent and Neil Wallace are among the principal developers of these new techniques. I look forward to their papers, and I count myself as one of the more willing students of their work and of other work that develops and uses the method known as rational expectations.

The policy implications generated by Sargent and Wallace often have much less appeal. In previous papers, separately or together, they have produced a number of startling propositions. Some examples include: exchange rates are undefined; issuing debt securities raises prices more than equivalent issues of money; and central bank efforts to control interest rates make the stock of money indeterminate. These implications are more important as information about their models than as statements about the world.

The central proposition of the current paper is no less startling than some of the earlier propositions. Sargent and Wallace find that, for a given real budget deficit, today's reduction in money growth to reduce current inflation produces *higher* future inflation. The authors introduce some qualifications toward the end of the paper, but some of these strengthen the proposition. For example, the monetary authority loses ability to have much effect on either the current or future rate of inflation.

**The Model**

The present paper, and many of the previous papers, apply and extend Paul Samuelson's model of an economy with two overlapping generations. See Samuelson (1958). In the authors' version, the real rate of interest, by assumption, exceeds the constant rate of growth of population and real income. The government is an institution with one function – to transfer wealth from the current to the future generation – and money is used solely for this function. There is

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no uncertainty, so the real rate of interest earned on capital must be paid on government debt. The real rate is independent of monetary policy. The authors relinquish any effect on the real rate of interest, and on social saving, from the choice of an optimal rate of inflation. Actual and anticipated inflation are equal throughout. Everyone knows the path along which the central bank will permit money to grow in the future.

These assumptions sweep away several important issues and any transitory or cyclical effects. They permit us, and the authors, to concentrate on the long-run implications of monetary and fiscal policy in a model that treats money as an asset held or used for inter-generational transfers and in an economy that is always producing and distributing permanent (or full employment) income. There are no taxes, or at least no mention of either the effects of taxes or the effects of the economy on tax collections. Despite the authors' claims, there is nothing particularly "monetarist" about most of the assumptions just discussed.

The authors seem to regard the model as "monetarist" because monetary velocity is held constant. Without this assumption, per capita real cash balances could fall with inflation or could rise or fall with real income. To my knowledge, no one – Keynesians, Marxists or eclectics – argues that velocity fluctuates wildly in an economy with the attributes described by the authors: complete certainty, constant real growth and a constant real rate of interest. It is also true that neither Friedman, nor other principal monetarists, would reject a model in which average cash balances and velocity depend on the rate of inflation or the level of real income.

In fact, the constancy of velocity is not critical. At several points, the authors note that the critical assumption of their model is that the rate of growth of population is always less than the real rate of interest. Once we relax that assumption and allow the real rate of interest to equal the growth of population, the relation between real debt per capita and the rate of inflation vanishes. It is no longer true that the more we lower inflation now, the more we raise it later.

There is nothing particularly appealing about Samuelson's assumption. Why must the real rate of interest exceed the rate of growth of output? In a series of papers on the burden of the debt, e.g., Barro (1974), Barro makes the same assumption, but omits money and reaches a conclusion that is very different from the authors; Barro finds that real debt issues are equivalent to taxes. The difference between the two results points up the sensitivity of the authors' conclusion to their assumptions. It would be helpful if the authors would point to some supportive data, or even some reason, for choosing the assumptions that drive their result.

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We can examine the model's other implications without violating the authors' assumptions, by allowing the real rate of interest,  $R(t-1)$ , to exceed the rate of growth,  $n$ , by the smallest of margins. From their equation (6) if  $R(t-1) - n$  is an arbitrarily small, positive number, we can rewrite the equation as, approximately,

$$1 - \left( \frac{1}{1+n} \right) \frac{p(t-1)}{p(t)} \cong \frac{D(t)}{N(t)} \cdot \frac{1}{h}$$

where  $D$  is the *real* value of the government's deficit,  $N$  is population and  $p$  is the price level. From the authors' equation (5), we learn that the value of  $h$ , assumed to be constant, is

$$h = \frac{H/p}{N},$$

where  $H$  is the monetary base. Substituting for  $h$ , and rearranging terms, gives

$$1 + \Pi \cong \left( \frac{H/p}{H/p-D} \right) (1+n) \quad (1)$$

where,

$$\frac{p_t}{p_{t-1}} = 1 + \Pi$$

Equation (1) shows that, given  $n$ , any real budget surplus, ( $D < 0$ ), implies that prices must fall. Any real budget deficit implies that there is inflation in every economy with growth of real output and population greater than  $-1$ .

It is not difficult to find evidence inconsistent with the model. Clearly, the authors' conclusions about inflation and the real deficit do not apply to *any* budget deficit or surplus. Many countries have a budget surplus and inflation. For example, Brazil reports a budget surplus with inflation above 100%. One can find examples of budget deficits and falling prices. During the contraction from 1929 to 1933, the U.S. budget was in deficit while prices fell. I am not sure how the authors explain these situations. Some comment on the experience from 1929 to 1933 would be of interest because there is little reason to doubt that, in that period, the real rate of interest viewed by holders of default free bonds was above the rate of growth of output.

My explanation of the non-intuitive result – that the *real* value of the deficit determines the rate of inflation – is straightforward. The rate of growth of real output is constant;

debt and real capital are perfect substitutes, and the real rate of interest is constant. Growing real deficits cannot crowd out real capital, absorb saving or lower the growth of real output. The authors have prevented, by assumption, any real effect of the real deficit on output. This leaves the only effect of a real deficit as a tax on real cash balances.

### Deficits and Inflation

Equation (1) above is a relation between the real deficit and the rate of inflation for given  $n$ . The relation is approximate because we ignore the small positive term containing the difference between the real rate and the rate of population growth. The equation shows why increases in the real deficit increase the rate of inflation.  $D$  rises;  $n$  is given and  $H/p$  is proportional to  $N$  by the authors' assumption. In fact, differentiating (1) twice shows that inflation increases with the real deficit at an increasing rate.

The original title of the paper – "The Fight Against Inflation" – suggests that the authors regard their paper as more than an exercise. Yet, they say very little about the deficit. Should a government finance long-lived weapons systems or new jails, or law courts out of current income? Should the government raise taxes or reduce spending during recessions? Should the government ignore the effect of unanticipated inflation or unanticipated disinflation on the real value of debt outstanding and, thus, on the deficit? These and other critical questions are neither asked nor answered.

Let me restate the authors' main proposition in a much less startling way. In an economy that remains on its equilibrium growth path, the size of the government sector – measured by the share of government spending relative to output – cannot grow faster, in a steady state, than real output. Any attempt by the government to increase its steady state share of real output must be financed by higher tax rates, expected and actual, or by inflation. If the government does not increase tax collections at the same rate as spending, current reductions in money growth require an increase in government interest bearing debt. Anticipated and actual future taxes increase and future interest payments rise because the real debt is larger even if the real rate of interest is fixed by the productivity of capital. The government must either tax more in the future to pay the interest, or inflate more in the future to reduce real indebtedness. Sargent and Wallace do not introduce taxes, so they conclude that efforts to reduce current inflation by reducing money growth, cannot succeed unless government spending and the deficit are reduced commensurately.

Stated this way, the proposition is neither novel nor startling. Most of us are not surprised to learn that government deficits must be financed either by present taxes, or by future taxes and inflation. If government spending rises faster than tax collections, and the saving ratio and growth of income is fixed, there are only two choices. Either the real rate of interest must rise, and private investment must fall, or the central bank must finance the deficit by creating money. Sargent and Wallace reject the continuous rise in the real rate of interest as an unacceptable solution, so they conclude that inflation must rise.

Several years ago, Karl Brunner and I (1972), showed why the growth of debt cannot exceed forever the growth of capital and real output. Progressive taxes may, for a time, keep the higher growth of government debt relative to output manageable but, sooner or later, the stability of the economy cannot be assured if fiscal authorities push the ratio of debt to money to a point at which new debt is issued to pay the interest on outstanding debt. More recently, Bennett McCallum (1981) showed that a similar result arises in models that recognize that the government budget equation constrains the government to finance spending by present or future taxes or by inflation. In the last sentence of their paper, Sargent and Wallace seem to accept this weakened form of their proposition.

The authors' discussion of policy is flawed. I believe I can speak for groups like the Shadow Open Market Committee in the U.S., the Shadow European Economic Policy Committee in Europe and the Banking Centre at City University, because I am associated in some way with each of them. The press describes each of these groups as monetarist, and I will accept that popular term for this discussion. Each of these groups has argued and urged simultaneous reductions in spending, tax rates and money growth along pre-announced paths.

My difference with Sargent and Wallace is not about the need for keeping policies consistent internally and consistent with the growth of real output. It is mainly about what happens when they are not. I believe that the *main* effect of excessive growth of real debt, given money growth, is a decline in real output – not a rise in the price level or the rate of inflation. The rise in the price level is of relatively small order. See Brunner and Meltzer (1972).

Let me turn, briefly, from the long-term path to the political context in which the policy arises. Many of those who favor simultaneous cuts in spending, tax rates and money growth make a political judgment about the advantages of this policy program. The judgment is that large deficits hold down the growth of spending and therefore taxes. This works to enhance efficiency in the use of resources by keeping more of them in private hands. The clamor about the current deficit in the U.S. on a worldwide basis, and even in the U.S. Congress, suggests this political conjecture may be correct.

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