

## **How Should the Fed Respond to Large Fiscal Deficits?**

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## **1. Introduction**

It is not easy to predict accurately (or even approximately) the future path of Federal budget deficits, as is well-illustrated by the predictions made a few year ago that ongoing surpluses would be so large that problems would arise from the lack of short-term federal debt! Nevertheless, it does seem likely that the federal budget will record quite large deficits over the next several years.<sup>1</sup> Accordingly, it is natural to ask how the Federal Reserve's monetary policy should respond to this situation. There is no specific evidence that the Fed currently intends to respond in any particular way, although Chairman Greenspan's comments on the prospective deficits have been highly prominent. But in any case, there are repeated calls from important members of the economics profession for greater coordination of monetary and fiscal policies.

In the following discussion, I will argue that although ongoing fiscal deficits can be undesirable,<sup>2</sup> the Fed should not tailor its monetary policy in any way to prospects for such deficits. Instead, the Fed should simply be resolute in conducting monetary policy so as to achieve its (implicit) target for the inflation rate, which itself should be low enough to constitute effective price stability. Possibly some mild response to conditions pertaining to employment or output (relative to natural-rate values) should also be included in the Fed's policy rule, but this rule should not be designed to represent monetary/fiscal coordination. But before reaching that conclusion, a careful consideration of the literature on the "fiscal theory of the price level" is necessary. Accordingly, a brief review of the crucial part of that literature is included in what follows.

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<sup>1</sup> The CBO's estimate of the on-budget deficit is over 3 percent of GDP for each of the next five years.

<sup>2</sup> Of course, deficits are not always undesirable.

## **2. Central Bank Independence**

We begin by posing the basic question: given the apparent inevitability of large fiscal deficits, should the Fed stick to its low-inflation policy regime or should it “cooperate/coordinate” with the Treasury to enhance the “effectiveness” of government policy? If the latter option were to prevail, it seems almost certain that the direction of effect in the near future would be to make monetary policy more expansive, not tighter. It seems highly unlikely, that is, that the Treasury would desire for the Fed to raise interest rates to provide demand restrictiveness that is missing from the fiscal position. Instead, the desire by the Treasury would be for the Fed to “support” the fiscal situation by helping to expand demand, incomes, and therefore tax collections.

This type of cooperation is, however, exactly what central-bank independence, which virtually all thoughtful policy analysts support, is designed to guard against. Fiscal-authority desires for expansionary monetary policy in wartime or other periods of budgetary difficulty have been at the root of inflationary episodes throughout economic history. A highly relevant example is discussed in detail by Meltzer (2005), in a recent study of the origins and background of the “great inflation” of the 1970s. Meltzer finds that during the late 1960s and early 1970s the Fed, under Chairman William McChesney Martin, maintained a monetary policy stance that accommodated and fed expansionary fiscal policy, despite Martin’s disapproval, largely because of his belief that it was the Fed’s duty to seek the same outcomes as those desired by the rest of the government. Thus, according to Meltzer (2005, p. 160), “Inevitably, he compromised by surrendering some independence of action to coordinate policies.” And, in summary, “Martin’s acceptance of policy coordination with the

administration prevented the Federal Reserve from taking timely actions and contributed to more expansive policies than were consistent with price stability” (2004, p. 168).

The position that monetary policy need not be coordinated with fiscal policy is given support by an important fact regarding macroeconomic analysis. It is that the basic macro model that is used most frequently by leading analysts possesses the “Ricardian” property implying that changes in governments’ tax collections have (if financed by the sale or retirement of government bonds) no effect on aggregate demand. This is because rational individuals recognize that when current taxes are reduced (increased), the increase (decrease) in the present value of their future tax liabilities, made necessary by the tax change, just offsets its initial effect on wealth. Accordingly, monetary policy analysis can in such models be legitimately carried out without any reference to taxes. Only government purchases (usage) of goods and services matter fiscally for demand, and even these affect demand only to the extent that changes are temporary.<sup>3</sup> Consequently, standard analysis of monetary policy effect on inflation or cyclical real conditions typically ignores fiscal policy. Some analysts use a different type of model, one based on “overlapping generations,” but the effects of this analytical change are rather small.

Thus the basic point to be made regarding monetary-fiscal coordination is that it is fundamentally inconsistent with central-bank independence. This is a very simple and obvious line of argument. We need also, however, to consider a quite distinct and entirely non-obvious line of argument that is seen with some frequency in writings of leading academic analysts. This argument denies the legitimacy of ignoring taxes in analysis with the standard model, despite the facts mentioned above, for complex reasons that will take more space to discuss.

### **3. The Fiscal Theory of the Price Level**

Accordingly, we now turn to a highly technical line of inquiry that has been quite prominent in academic circles in recent years, though less so among central bankers or central-bank economists. The “fiscal theory of the price level” (FTPL) is an innovative and highly unorthodox body of analysis that was developed and introduced primarily by Leeper (1991), Sims (1994), and Woodford (1994, 1995, 2001).<sup>4</sup> Whether it represents a useful or even valid body of analysis is a more contentious matter, with dissenting views developed principally by Buitert (1999, 2002) and McCallum (1999, 2001, 2003).<sup>5</sup> The dispute has been discussed by several reviewers including Kocherlakota and Phelan (1999), Christiano and Fitzgerald (2000), and Carlstrom and Fuerst (2000), while an important theoretical contribution has been provided recently by Evans and Honkapohja (2004). Interestingly, the FTPL arguments are conducted in the context of Ricardian models, of the type mentioned above, in which fiscal policy would appear to be irrelevant for monetary policy analysis. This fact makes the entire discussion even more confusing than it would be if overlapping generations models were used.

A major stumbling block to the understanding of this literature is the absence of agreement over what the FTPL is, i.e., over what are its essential messages of potential relevance for policy makers. In my judgement it seems clear that the reason that the FTPL has attracted so much attention is that it is typically interpreted as constituting a theory that determines the value of money (the inverse of the price level) in a manner that is fundamentally different from the traditional monetarist view and, furthermore, gives different

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<sup>3</sup> Government purchases use up resources, of course, leaving less for private consumption and investment.

<sup>4</sup> Cochrane (1999) is another strong adherent, but his views are substantially different, as Woodford’s (1999) comment clearly demonstrates.

<sup>5</sup> A notable recent argument is that of Niepelt (2004).

predictions about the behavior of the price level under a substantial range of conditions that includes plausible (and empirically significant) specifications of monetary and fiscal policy behavior. In this spirit, McCallum (2003, p. 645) suggests that “the essence of the fiscalist [i.e., FTPL] position is ... a prediction that the price level will, under some [nontrivial] circumstances, behave like nominal bonds and very differently than the nominal money supply. It is that type of prediction that has made the fiscalist theory striking and prominent.” Under this view, the FTPL is much more significant than an interesting but policy-irrelevant theoretical curiosity.<sup>6</sup>

Proponents of the FTPL, by contrast, have been concerned with issues resulting from the unpleasant mathematical fact that in dynamic rational expectations (RE) models of the type used by most researchers, there is usually more than one RE solution to the model, i.e., more than one implied path of variables that could be considered as reflecting the model’s implications (or predictions) about economic outcomes. Often in standard models there are two solutions, one of which conforms to the predictions of traditional monetary analysis, and another one that differs sharply. In what follows, these two types of solutions will be referred to as “monetarist” and “fiscalist,” respectively.<sup>7</sup> In this context, emphasis by FTPL proponents has been on the possibility that some combinations of fiscal and monetary policy rules may serve to guarantee analytical “determinacy,” where determinacy means that there exists only a single solution that is dynamically stable (non-explosive). In particular, fiscalists have been concerned to argue that (i) strict exogenous control of the money supply may result in indeterminacy of the price level unless certain fiscal policies are followed and

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<sup>6</sup> The FTPL is not equivalent to the well-known position developed by Sargent and Wallace (1981), which merely assumes that when fiscal and monetary policy clash, the fiscal position dominates (for political reasons).

<sup>7</sup> This does not mean that the proponents of the FTPL would adopt the fiscalist solution in all cases; which they would adopt depends upon the active-passive specification.

that (ii) a monetary policy regime that literally “pegs” a nominal interest rate (i.e., holds it fixed through time) may result in a determinate price level.<sup>8</sup> Recently, Woodford (2003b) has stated that “the central contention” of the FTPL is “that under certain policy regimes consistency of the inflation rate with intertemporal government solvency should be an important factor in determining inflation, in addition to the specification of monetary policy.” More specifically he says “I would regard the leading example of fiscalist analysis to be the analysis given in ... [Woodford (1995)] of price-level determination under an interest-rate peg (or bond-price support program) when the real primary government budget surplus is exogenously specified. This is a limiting case of the kind of regime treated (locally) under Leeper’s analysis of passive-monetary/active-fiscal regimes” (2003b, pp. 1184-1185). In both cases, Woodford’s conclusion is based on determinacy findings. From the policy-relevant point of view, the forgoing positions suggest that the key FTPL prediction is that under a “passive-money/active-fiscal” policy regime the price level will behave in a manner that agrees with the fiscalist solution and differs from the predictions of traditional monetary economics.

To understand the policy relevance of this it is necessary to be clear about the “passive vs. active” terminology introduced by Leeper (1991). It presumes that monetary and fiscal policy are conducted by rules that in their simplest form can be written as

$$(1) \quad R_t = \mu_0 + \mu_1 \pi_t$$

and

$$(2) \quad tx_t = \tau_0 + \tau_1 b_t$$

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<sup>8</sup> For relevant statements, see Leeper (1991, pp. 131-132), Sims (1994, p. 381), and Woodford (1994, pp. 345-346; 1995, pp. 1-2).

i.e., with the central bank conducting policy via an interest rate instrument that is set in response to current inflation and with the treasury's (lump sum) real tax collections being set in response to the real stock of government bonds outstanding. To avoid perverse policy, both  $\mu_1$  and  $\tau_1$  would need to be positive, so that monetary policy is tightened when inflation is high and fiscal policy is tightened when the level of government debt is high. Under that restriction, Leeper's terminology is that monetary policy is active if  $\mu_1 > 1 + \rho$ , where  $\rho$  is the public's rate of time-preference defined such that the discount factor is  $\beta = 1/(1 + \rho)$ . (Thus  $\rho$  is closely related to the long-run average real rate of interest.) This condition is almost the same as that specified by the "Taylor principle," which states that monetary policy should respond to inflation strongly enough that the real rate of interest is raised when inflation exceeds its target value. Virtually all monetary specialists now recommend that policy should conform to the Taylor principle, so they are also implicitly suggesting that monetary policy should be "active."<sup>9</sup>

For fiscal policy Leeper's terminology is in a sense reversed, for fiscal policy is called passive if  $\rho < \tau_1 < 1 + \rho$  and active otherwise. But the range  $\rho < \tau_1 < 1 + \rho$  is exactly the range such that fiscal policy tends to retire a positive fraction of government debt each period (in the absence of government revenue provided by monetary policy)—i.e., to be stabilizing. In this case, fiscal policy would be behaving sensibly, so as to stabilize the amount of government debt outstanding—rather than letting it grow explosively (if  $\tau_1 < \rho$ ) or paying off more than the outstanding debt in one period ( $1 + \rho < \tau_1$ ). Thus we see that sensible fiscal policy is called "passive" while sensible monetary policy is called "active."

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<sup>9</sup> Traditional monetary analysis has central banks controlling money supply growth, not interest rates. This is much like having a rule of form (1) with an extremely large value of  $\mu_1$ .

Now, as briefly stated above, much of the emphasis by FTPL supporters has been on conditions necessary for “determinacy,” that is, existence of a single stable RE solution to the model economy as opposed to cases in which no solution is stable or more than one solution is stable (the latter “indeterminacy” being regarded as highly undesirable because the economy might end up in the poorer equilibrium or fluctuating erratically between the two). Recently, however, it seems to be agreed that the more important analytical condition is “learnability” of equilibrium, a property that is arguably necessary for the equilibrium to be regarded as plausible. Specifically, this is the position tacitly taken by Woodford (2003a, 2003b). Since it is also the position taken by McCallum (2003), it seems to be emerging as one on which the pro-FTPL and anti-FTPL analysts can agree. Accordingly, the results regarding learnability developed by Evans and Honkapohja (2001, 2004) are of great significance, since they have determined what values of the  $\mu_1$  and  $\tau_1$  policy parameters give rise to learnability for one or the other of the fiscalist and monetarist solutions.

For policy rules of the class (1) and (2) Evans and Honkapohja (2004) have derived learnability results for positive values of  $\mu_1$  and  $\tau_1$ , limiting themselves to these ranges because negative values would represent perverse policy responses. For the most part, the learnability criterion is consistent with Leeper’s determinacy results, so that in an active-money/passive-fiscal regime the “monetarist” solution is learnable and the “fiscalist” solution is not, whereas in an active-fiscal/passive-money regime the fiscalist solution is learnable (and the monetarist solution is not), and in a passive-money/passive-fiscal regime neither solution is learnable. In the case of the active-monetary/active-fiscal regime with  $0 < \tau_1 < \rho$  and  $\mu_1 > 1 + \rho$ , however, Evans and Honkapohja (2004) find that there is a very small set of policy parameter values for which the fiscalist solution is learnable and a much larger set for

which the monetarist solution is learnable.<sup>10</sup> In fact, the monetarist solution is learnable for all values of  $\mu_1$  greater than  $(1 + \rho)^2$  in this region. And the monetarist solution features inflation that is stable around the central-bank's target value. Thus even with the fiscal irresponsibility implied by  $0 < \tau_1 < \rho$ , a resolute central bank can have its way with regard to inflation. That is a major message of traditional monetary analysis.

There are some ways in which the Evans and Honkapohja results described above might appear to be inconsistent with traditional monetarist teachings; there is, for example, a sizeable region of policy parameter values (with both policy rules passive) in which there is no equilibrium that is learnable. But actually that finding does not refute monetarist analysis, for the latter was invariably expressed in terms of policy rules for control of the money supply, not short-term interest rates. In terms of the Leeper specification, therefore, these money supply rules would be represented by strongly active monetary policy, with extremely large values of  $\mu_1$ . Specifically, the argument developed in McCallum (1999, 2001) was concerned with whether the monetarist prediction or the FTPL prediction would be more valid if the central bank were to resolutely maintain money stock control while the fiscal authority is following a policy that is basically inconsistent with that policy. This situation would be somewhat like an active/active case of Leeper's in which the monetary policy parameter  $\mu_1$  approaches  $+\infty$  with the fiscal policy parameter  $\tau_1$  approaching zero (with private agents choosing to hold no government bonds). So, what are the Evans and Honkapohja results regarding this situation? The answer is that the monetarist solution—the prediction of traditional monetary analysis—is supported by the learning analysis, whereas

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<sup>10</sup> These are local results for a linearized version of the system; see Evans and Honkapohja (2004, pp. 20-21).

the FTPL solution receives no support.<sup>11</sup>

If one considers the case (i) emphasized by Woodford in which passive monetary policy is combined with active fiscal policy, the Evans and Honkapohja results do imply that the fiscalist, and not the monetarist, solution would be learnable. This case represents a small portion of the relevant policy parameter space, however. Furthermore, if monetary policy is made strongly active, as with a money stock policy rule, then the monetarist not the fiscalist solution would be learnable. Thus it is not necessarily the case that if fiscal policy is irresponsible, then monetary policy should also be irresponsible, as the FTPL suggests.

In any event, the main conclusion for the issue of fiscal-monetary coordination is as follows. Suppose that both monetary and fiscal policymakers are behaving sensibly, i.e., that the central bank is following an interest rate rule such as (1) with  $\mu_1 > 1 + \rho$  and the fiscal authority is setting tax rates as in (2) with  $\rho < \tau_1 < 1 + \rho$ . Then for any value of these policy parameters within the specified “sensible” region, there is a unique RE solution that is learnable and it is the monetarist solution. Thus the behavior of inflation and output is determined by the central bank’s policy rule regardless of the fiscal setting of  $\tau_1$ . Accordingly, there is no need for policy coordination; neither policy authority needs to take the behavior of the other into account in designing its own (sensible) policy rule.

#### **4. International Ramifications**

In the foregoing discussion, no attention has been given to the international aspect of monetary/fiscal issues; the fact that the United States is an open economy has been ignored. In my opinion that does not in the least change the message with respect to monetary-fiscal coordination; the best approach is for both policy agencies to tend appropriately to their own

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<sup>11</sup> See Evans and Honkapohja (2004, pp. 8-12 and 25-26).

business. It should be added, however, that my own views regarding the current international situation are not entirely sanguine. To a first approximation, fiscal deficits do not have major effects on macroeconomic variables of significance once account has been taken of the extent to which government purchases of goods and services affects the availability of these for private uses. In other words, Ricardian equivalence is a good first approximation.<sup>12</sup> But it is not a perfect approximation, and it is likely that, to some extent, fiscal deficits serve to increase trade deficits. The relevance of this is simply that the international position of the United States is becoming ever more precarious as foreign holdings of dollars (i.e., dollar assets) increase relative to U.S. holdings of foreign-currency assets. It seems very likely that the Chinese, Taiwanese, and Japanese holdings of dollars are being held for asset-market or political reasons, not because they are needed for transactions purposes. But this means that if these nations' central-bank or political leaders were to conclude that holding dollars is not serving their purposes, they could decide to sell them off quite precipitously—i.e., dump the dollars on world markets. If that were to happen, the foreign exchange value of the dollar could plummet very quickly, and in this case highly unwelcome consequences could arise for the United States and for the world economy. It would seem prudent, therefore, to take actions that tend to reduce the trade deficit. Import restrictions are inconsistent with free-trade principles and attempts to bully other nations into nominal exchange rate changes are ill-advised, as the SOMC has argued several times. The most promising way for policy to reduce the real trade deficit, on a sustained basis, is to reduce real government spending (as a fraction of GDP). Given the seriousness of the international situation, that step would seem to be of considerable importance.

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<sup>12</sup> From the international perspective, Ricardian equivalence implies that bond-financed tax changes have no effect on import-export balances.

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