



# Fiscal stabilization vs. passivity

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## HIGHLIGHTS

- Appropriate fiscal backing is essential for monetary policy.
- Appropriate backing requires passive fiscal behavior.
- Do the fiscal rules countries adopted deliver passive fiscal behavior?

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## ABSTRACT

Fiscal policies that stabilize debt may not provide the fiscal backing necessary for monetary policy to successfully target inflation. Appropriate backing is provided by passive fiscal behavior. Understanding the distinction between stabilizing and passive fiscal policies is central to the design of fiscal rules.

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## 1. Introduction

Fiscal frameworks and associated fiscal rules are being designed with two objectives in mind: ensuring fiscal sustainability and providing some degree of countercyclical policy. The thinking behind this design is that with fiscal sustainability ensured, an independent central bank can pursue inflation targeting without fear that fiscal considerations will undermine its efforts to control inflation. [Portes and Wren-Lewis \(2014\)](#) thoughtfully discuss the considerations that underlie the fiscal rules countries are adopting.

The institutional design of independent central banks aims to insulate the central bank from the kinds of fiscal pressures that advanced economies have not experienced since the hyperinflations in Austria, Germany, Hungary, and Poland after World War I. Confronted with debts denominated in units of goods – gold or foreign currency – those countries resorted to printing fiat currency to generate real revenues—seigniorage ([Sargent, 1986](#)). Memories of the spectacular failure of those policies continue to condition

how macroeconomists frame monetary–fiscal policy interactions and continue to guide macroeconomic policy design.

Governments today, particularly in advanced economies but also in many emerging economies, do not primarily issue debt denominated in units of goods. Instead, the vast majority of government debt is nominal: government bonds are predominantly promises of payments in domestic currency—units of fiat money. The presence of nominal government debt introduces fresh channels for fiscal inflation that carry broad implications for monetary–fiscal interactions, implications that fundamentally alter the nature of price-level determination.

Designers of fiscal rules seem to believe that by ensuring fiscal sustainability, the rules will permit monetary policy to achieve its flexible inflation targeting objectives. This perspective misapprehends the nature of price level determination. Fiscal sustainability may or may not be consistent with *passive* fiscal behavior.<sup>1</sup> It is passive fiscal behavior that provides the fiscal backing

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<sup>1</sup> [Leeper \(1991\)](#) defines “active” and “passive” policy behavior. Essentially, an active policy authority is free to pursue its objective, whatever it might be, while a passive authority is constrained by private behavior and the behavior of the active authority to support the active authority’s actions.

necessary for the central bank to control inflation. For example, a contractionary open-market sale of government bonds raises nominal interest rates, including yields on government bonds. If the higher debt service is permitted to flow into more rapid growth in nominal debt with no prospect of eventually higher taxes – or primary surpluses, more generally – then bond holders will perceive that their wealth has increased and seek to convert that wealth into purchases of goods. This higher aggregate demand will ultimately raise the price level.<sup>2</sup> For the monetary contraction to reduce inflation, higher debt service must portend higher taxes that eliminate the wealth effect from the monetary action.

Remarkably, the distinction between stabilizing and passive fiscal policy behavior does not appear in the monetary–fiscal policy interactions literature.

This note draws on Patinkin's (1974, p. 16) observation that analyses that followed from Keynes (1936) tend to concentrate on "...the substitution effects, to the exclusion of the possible wealth– or real-balance–effect". This observation is equally true of the class of new Keynesian models now in wide use by central banks and academics to study monetary policy (for example, Woodford, 2003). This note uses a simplified version of those models to illustrate that conventional effects of exogenous monetary policy actions require fiscal policy to neutralize monetary policy's wealth effects. That is, conventional monetary effects in dynamic models require passive fiscal behavior. Fiscal policy must not only be sustainable, it must also provide the right kind of fiscal backing for monetary policy to operate as the inflation targeting framework intends.

## 2. A simple model

Consider an infinitely-lived representative consumer who receives a constant endowment of goods each period in the amount  $y$  and derives utility only from consumption. The equilibrium real interest rate is constant at  $r = (1/\beta) - 1$  where  $0 < \beta < 1$  is the consumer's discount factor. The consumer makes a consumption–saving decision that produces the simple Fisher relation

$$\frac{1}{R_t} = \beta E_t \frac{1}{\pi_{t+1}} \quad (1)$$

where  $R_t$  is both the gross one-period nominal interest rate on nominal bonds bought at  $t$  and pay off in  $t + 1$  and the monetary policy instrument, and  $\pi_{t+1}$  is the gross rate of inflation between  $t$  and  $t + 1$ . To derive (1) we imposed equilibrium in the goods market,  $c_t = y - g$ , which assumes the government purchases a constant quantity of goods each period.

Monetary policy follows an interest rate rule that responds to inflation

$$\frac{1}{R_t} - \frac{1}{R^*} = \alpha \left( \frac{1}{\pi_t} - \frac{1}{\pi^*} \right) \quad (2)$$

where  $\pi^*$  is the inflation target and  $R^* = \pi^*/\beta$  is the nominal interest rate consistent with the inflation target. We assume  $\alpha \geq 0$ . Monetary policy is *active* when  $\alpha > \beta$  and *passive* otherwise.

Fiscal policy levies lump-sum taxes of  $\tau_t$  and sets purchases to be constant,  $g > 0$ . Government issues one-period nominal bonds,  $B_t$ , that satisfy the flow constraint

$$\frac{B_t}{P_t} + \tau_t = g + \frac{R_{t-1}B_{t-1}}{P_t} \quad (3)$$

where  $P_t$  is the aggregate price level.

A commonly-used fiscal rule can illustrate the distinction between stabilizing and passive fiscal behavior. Posit that tax deviations from steady state are proportional to deviations of real debt from steady state

$$\tau_t - \tau^* = \gamma \left( \frac{B_{t-1}}{P_{t-1}} - b^* \right) \quad (4)$$

where  $\tau_t$  is tax revenues,  $B_{t-1}$  is nominal debt outstanding at the beginning of  $t$ ,  $P_{t-1}$  is the price level in period  $t - 1$ , and  $\tau^*$  and  $b^*$  are steady state levels of revenues and real government debt. Assume that  $\gamma \geq 0$ .

## 3. Stabilizing and passive fiscal behavior

Combining (4) with (3) and defining real debt as  $b_t \equiv B_t/P_t$  yields

$$b_t + (\tau^* - g) + \gamma(b_{t-1} - b^*) = \frac{R_{t-1}}{\pi_t} b_{t-1}.$$

Taking expectations conditional on information at  $t - 1$ , imposing the Fisher relation, (1), and simplifying gives the expected evolution of real debt<sup>3</sup>

$$E_{t-1}(b_t - b^*) = (\beta^{-1} - \gamma)(b_{t-1} - b^*) \quad (5)$$

which implies that for  $T \geq t$

$$E_t(b_T - b^*) = (\beta^{-1} - \gamma)^{T-t}(b_t - b^*). \quad (6)$$

One of the household's necessary and sufficient conditions for optimality is the transversality condition

$$\lim_{T \rightarrow \infty} \beta^{T-t} E_t b_T = 0. \quad (7)$$

Evidently, the fiscal parameter  $\gamma$  figures prominently in ensuring this condition is satisfied. In fact, satisfaction of the transversality condition is how Bohn (1998) defines "sustainable" fiscal policy. It is clear from inspection of the debt evolution, (6), that  $\gamma > 0$  ensures that the real value of debt is expected to grow at a rate less than  $1/\beta$  so that (7) is satisfied.

With the tax rule in (4), when  $\gamma > r = \beta^{-1} - 1$ , this tax rule accomplishes two things. First, when taxes are proportional to debt by a constant of proportionality that exceeds the real interest rate, the revenue increase is sufficient both to cover the additional real debt service from higher debt and to retire some of the newly issued debt each period. That response ensures that debt is stable, eventually returning to steady state. Importantly, this first accomplishment entails stabilizing real government debt.

The second thing the tax rule in (4) accomplishes involves the response of taxes to changes in the price level,  $P_{t-1}$ . The contractionary monetary policy example illustrates that for monetary policy to control inflation, fiscal policy must neutralize the wealth effects that monetary actions produce. When  $\gamma > 0$ , tax rule (4) makes future taxes move inversely with the price level, so when a monetary contraction reduces inflation, the rule produces a higher path for tax revenues. To word this differently, passive fiscal policy delivers the fiscal backing necessary for monetary actions to affect inflation in the usual ways. That backing must take the form that fiscal contraction supports monetary contractions that reduce the price level. If those higher future taxes are not forthcoming, the monetary contraction must eventually raise the price level.

<sup>2</sup> Sims (2011) calls this "stepping on a rake:" a higher nominal interest rate initially reduces inflation, but raises inflation once the wealth effect dominates. Cochrane (2016) explores the mechanism in detail. Wallace (1981) recognized the centrality of fiscal backing for monetary policy impacts.

<sup>3</sup> The derivation uses the fact that in steady state  $\tau^* - g = (\beta^{-1} - \gamma)b^*$ .

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