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The fiscal theory of the price level in a world of low interest rates☆

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ABSTRACT

A central equation for the fiscal theory of the price level (FTPL) is the government budget constraint (or "government valuation equation"), which equates the real value of government debt to the present value of fiscal surpluses. In the past decade, the governments of most developed economies have paid very low interest rates, and there are many other periods in the past in which this has been the case. In this paper, we revisit the implications of the FTPL in a world where the rate of return on government debt may be below the growth rate of the economy, considering different sources for the low returns: dynamic inefficiency, the liquidity premium of government debt, or its favorable risk profile.

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1. Introduction

Models of monetary economies are plagued by the presence of multiple equilibria, which weakens the ability to make tight predictions.[1] To select among them, it has become common to appeal to what Leeper (1991) defined as "active monetary policies." However, these rules imply *local* determinacy, but not global uniqueness, and are therefore not universally accepted as an equilibrium selection criterion.[2]

An alternative approach to price-level determinacy follows what Leeper (1991) defined "active fiscal policies," in which the requirement that government debt follows a stable trajectory is used to select an equilibrium. In particular, since Sims (1994) and Woodford (1994), this approach is known as the "fiscal theory of the price level" (FTPL from now on). According to the FTPL, price-level determinacy follows when the present value of government (primary) surpluses does not

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[1] This issue is addressed in any graduate textbook in macroeconomics; see e.g. Sargent (1987), Woodford (2003), or Ljungqvist and Sargent (2012). Woodford (1994) contains an exhaustive description of the nature of equilibrium multiplicity for a cash-in-advance economy under money-supply and interest-rate rules.

[2] See Cochrane (2011) for a particularly stinging critique of active rules as a device to achieve uniqueness.

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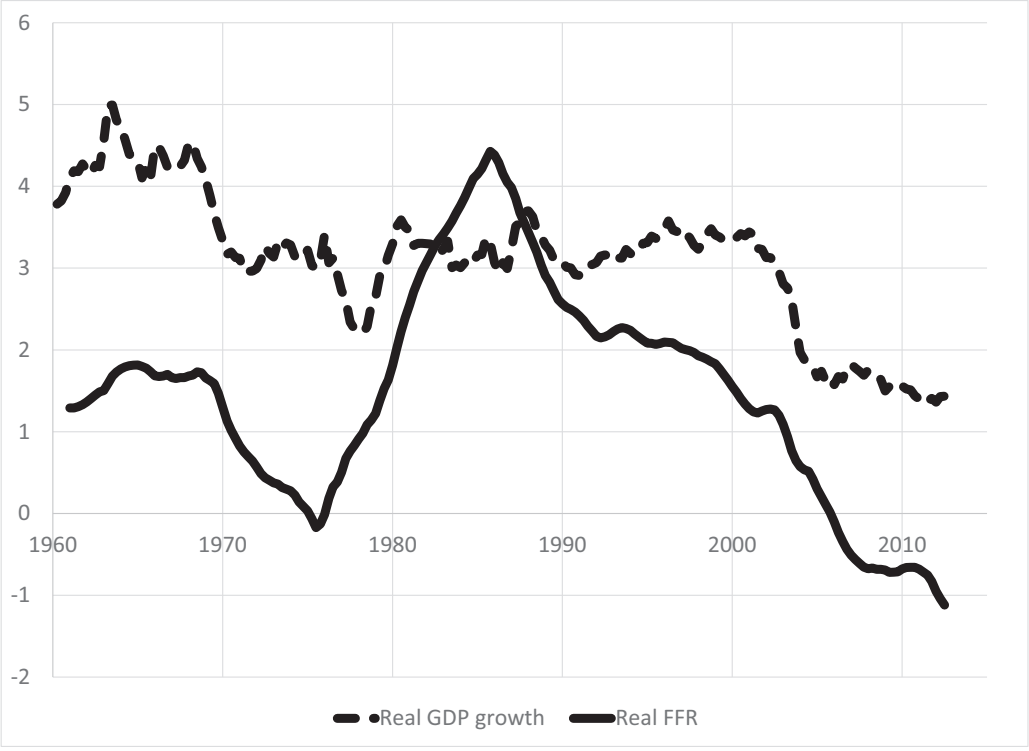

Fig. 1. Annualized real GDP growth rate and real Fed funds rate. Two-sided 41-quarter moving average. Source: Authors' calculations based on data from OECD/Haver. (Yi and Zhang (2017) show that all of the G7 countries experience a similar pattern. We follow their choice in computing a moving average to smooth short-run fluctuations, since our interest is in the long-run trend. We use CPI inflation over the previous 12 months (converted to a monthly measure) as a proxy for inflation expectations in computing the monthly real Fed funds rate.)

react to the price level in a way that ensures government budget balance; rather, government debt is a promise to deliver "dollars" (either purely a unit of account, or the underlying currency which by assumption can be freely printed by the government), and the value of a dollar adjusts in equilibrium so that the present value of surpluses matches the real value of debt.

Whether the FTPL is a valid selection criterion has been controversial.[3] In particular, when the aggregate price level and the government tax plans are inconsistent with each other, will there be market forces that lead to a price adjustment, or will the government have to adjust taxes? Bassetto (2002) analyzed the issue in a game-theoretic environment, where the price level arises explicitly from the actions of the agents in the economy and their interaction; in this more complete description of the economic environment, the FTPL remains valid when surpluses are always positive, but it requires adoption of more sophisticated strategies when the desired equilibrium path involves periods of net government borrowing. Intuitively, a government which does not run primary deficits can always deliver currency to its creditors and let them find its equilibrium price, but this changes when the treasury needs new loans to finance itself.

This distinction is particularly important in the context of the current paper, because we find that, across a variety of models, low interest rates are compatible with a stable and positive path for debt only when the government runs primary deficits, at least on average, which is precisely the environment in which the theory is on weakest ground.

In this paper, we sidestep the controversy and assume that the government can indeed commit to a sequence of real taxes, independent of the realization of the price level, but we reassess whether the uniqueness result of the FTPL continues to hold in economies in which the interest rate on government debt is persistently below the growth rate of the economy. This question is motivated by the long decline in real interest rates on government debt from the high values of the 1980s and early 1990s. As an example, Fig. 1 plots the experience of the United States and shows that real interest rates below the growth rate of the economy might well be the norm rather than the exception. When interest rates fall short of the growth rate of the economy, the infinite sum involved in computing the present value of primary surpluses may diverge. What are the implications of the FTPL when the present value of surpluses may be infinite?

The possibility that low interest rates may affect the interaction between fiscal and monetary policy was discussed by Darby (1984) in the context of Sargent and Wallace's 1981 unpleasant monetarist arithmetic. However, as emphasized by

[3] Examples of criticisms appear in Buiter (2002), Kocherlakota and Phelan (1999), and Niepelt (2004).

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