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Habit formation, adjustment costs, and international transmission of fiscal policy

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A B S T R A C T

The paper studies the effects of fiscal policy in an integrated world economy. The setup is one with habit-forming endogenous rates of time preference and adjustment costs in investment. Most of the predictions of the model are in line with the recent empirical literature on fiscal policy. For instance, in response to a balanced fiscal expansion, we obtain positive long-run output multipliers, long-run increases in employment, short- and medium-run increases in wages and decreases in investment. Our results suggest that short-run government spending multipliers are smaller than tax multipliers. Most importantly, we show that the model can generate positive short- and medium-run consumption responses to a positive fiscal shock. This is relevant as negative consumption responses are considered to be one of the main challenges facing neo-classical models of fiscal policy.

1. Introduction

The ineffectiveness of conventional monetary policy instruments in dealing with the recession that started in late 2007 has once again pushed questions concerning the role and effectiveness fiscal policy to the forefront of the economic agenda. Furthermore, as evidenced by intense discussions concerning fiscal policy coordination among the G-20 countries, there is heightened awareness that the transmission of fiscal shocks across countries is a top policy issue. Thus, it is interesting to note that, unlike in the case of monetary policy, there does not seem to be an agreement among economists with regard to

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the channels of transmission or the effects of fiscal shocks. As Perotti (2008) puts it, "perfectly reasonable economists can and do disagree even on the basic effects of a shock to government spending on goods and services: neo-classical models predict that private consumption and the real wage will fall, while some neo-Keynesian models predict the opposite".

Disagreements concerning the effects of fiscal policy have given rise to a large and growing empirical literature that uses increasingly more sophisticated tools and there appears to be some stylized facts that emerge from the more careful studies. These can be summarized as follows:

- Government spending shocks have a positive effect on output, while positive tax shocks have negative effects.[1] Government spending multipliers tend to be small.[2] There is no consistent evidence that spending multipliers exceed tax multipliers (Blanchard and Perotti, 2002).
- Private consumption increases in response to an increase in government spending and decreases in response to a rise in taxes.[3]
- Increases in government spending and in taxes crowd out private investment (Alesina et al., 2002; Blanchard and Perotti, 2002; Mountford and Uhlig, 2008.)
- Long-run real interest rates rise when government spending is increased (Fatas and Mihov, 2001; Gale and Orszag, 2004; Perotti, 2005; Dai and Philippon, 2004; Favero and Giavazzi, 2007)
- Higher government spending leads to increased manufacturing wages (Fatas and Mihov, 2001; Perotti, 2008) and higher employment (Fatas and Mihov, 2001).
- Stock prices fall in response to positive government spending shocks (Afonso and Sousa, 2009).

Some of these stylized facts appear to contradict either the traditional Keynesian theory or the neo-classical approach. For instance, Blanchard and Perotti (2002) emphasize the lack of consistent evidence for government spending multipliers to exceed tax multipliers and note that "the response of investment, which decreases in response to both increases in taxes and increases in spending, is hard to reconcile with the Keynesian approach". On the other hand, the neo-classical model is commonly believed to fall short in predicting the response of consumption. As Fatas and Mihov (2001) put it, "the biggest challenge to the [RBC model] is its inability to predict the response of consumption to shocks to government expenditures".

In what follows we construct an equilibrium model that tries to address the challenges raised by the empirical literature. Our construct extends the standard setup by incorporating habit formation and endogenous rates of time preference in an open economy environment with two-large economies. The endogeneity of time preferences is consistent with the assertion of Hicks (1965), who points out that the independence of consumption levels between successive periods implied by conventional time-additive preferences is counter-intuitive and normally one should expect complementarity between them. Hicks' argument has been corroborated by empirical findings that have generated strong rejections of time-additive preferences.[4] We calibrate and simulate this model and show that it predicts, most importantly, that a balanced fiscal expansion (i) lowers output in the short-run and raises it in the medium and long-run, generating a balanced-budget multiplier of about 0.8; (ii) increases private consumption in the short- and medium-run, while reducing it in the long-run; (iii) reduces prices of equity and private investment; (iv) raises long-run real interest rates; (v) raises wages

[1] Blanchard and Perotti (2002), Perotti (2005), and Fatas and Mihov (2001). However, Giavazzi and Pagano (1990) and Alesina and Ardagna (1998) have provided evidence of negative spending multipliers during "large fiscal consolidations", while Perotti (1999) finds a similar outcome only in circumstances of "fiscal stress" (unusually high debt-to-GDP ratios).

[2] Perotti (2005) estimates them to be larger than 1 only in the US and in the pre-1980 period. Though Fatas and Mihov (2001) write that "[t]here is a strong and persistent reaction of private output to a fiscal shock", they find that the "maximum effect of an approximately 1% increase in spending is attained about two years after the shock with private output increasing by 0.3%".

[3] Blanchard and Perotti (2002), Perotti (2005, 2008), and Fatas and Mihov (2001). The "dummy variable" approach of Ramey and Shapiro (1998) and its extensions to VAR by Edelberg et al. (1999) and Burnside et al. (2004) typically find that during episodes of large, exogenous increases in defense spending private consumption falls. However, Perotti (2008) shows that once the restrictions imposed by these approaches are removed, private consumption increases in response to the fiscal shocks of the Ramey–Shapiro episodes.

[4] See Obstfeld (1990) on the relevant literature.