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Exchange rate regimes and fiscal multipliers

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ABSTRACT

Does the fiscal multiplier depend on the exchange rate regime? To address this question, we first estimate a panel vector autoregression (VAR) model on time-series data for OECD countries. We identify the effects of unanticipated government spending shocks in countries with fixed and floating exchange rates, while controlling for anticipated changes in government spending. In a second step, we interpret the evidence through the lens of a New Keynesian small open economy model. We find that government spending multipliers are considerably larger under fixed exchange rate regimes and that the New Keynesian model provides a satisfactory account of the evidence.

1. Introduction

Does the exchange rate regime matter for the fiscal multiplier, that is, the percentage change of output triggered by an increase of government spending by 1% of GDP? Traditional analysis based on the Mundell–Fleming model suggests that the exchange rate regime has a first-order effect on the multiplier: it is predicted to be large in economies which maintain an exchange rate peg or which are part of a currency union, but to be zero in economies with a freely floating exchange rate.[1] In the latter case, the increased activity due to higher government spending puts upward pressure on interest rates, triggering capital inflows and an appreciation of the currency. This, in turn, crowds out net exports and eventually offsets the effect of increased public spending on the demand for domestic goods. Under fixed exchange rates, in contrast, monetary policy accommodates the increased demand for domestic currency to prevent the currency from appreciating. As a result, private demand rises along with public demand, while net exports remain unchanged. The multiplier exceeds unity.

Only recently a number of studies have started to explore empirically the role of the exchange rate regime for the size of the fiscal multiplier. Corsetti et al. (2012) and Ilzetzki et al. (2012) conduct analyses which contrast the effects of fiscal policy across exchange rate regimes. Both studies (CMM and IMV for short) differ in terms of econometric approach and in terms of the sample under consideration; yet two major findings are common to both studies. First, the fiscal multiplier is considerably larger under fixed exchange rate regimes—in line with the predictions of the Mundell–Fleming

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[1] Here we refer to the baseline variant of the Mundell–Fleming model as outlined in macroeconomics textbooks (see e.g. Mankiw, 2007). In what follows we do not generally distinguish between an exchange rate peg and the membership in a currency union. However, below we report empirical results for the subset of countries which are part of the euro area since 1999.

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model.[2] Second, there is little evidence for government spending to appreciate the real exchange rate and to crowd out net exports under floating exchange rates—a puzzling finding from the perspective of the Mundell–Fleming model.

Against this background the contribution of the present paper is twofold. First, we reassess the evidence regarding the role of the exchange rate regime for fiscal policy transmission. Relying on a unique data set for OECD countries, we address a major concern regarding time-series studies of the fiscal transmission mechanism: a possible misspecification of the timing of fiscal policy shocks due to anticipation effects or foresight (Ramey, 2011; Leeper et al., 2012). Specifically, and in contrast to CMM and IMV, we control explicitly for anticipated changes of government spending while estimating the effects of unanticipated government spending shocks in a panel VAR model. It turns out that – in the context of our empirical analysis – results are quite robust with respect to controlling for anticipation effects; we confirm the main findings of CMM and IMV.[3]

As a second contribution, we investigate whether the time-series evidence can be rationalized on the basis of a New Keynesian small open economy model.[4] We find that a small-scale variant of the model is able to account for the impulse response functions obtained from the panel VAR model. Specifically, while we calibrate the model to match the empirical impulse response functions obtained for countries with fixed exchange rates, we find that the model is also able to account for the VAR evidence under floating exchange rates.[5] Given the empirical success of the model, we perform experiments to inspect the fiscal transmission mechanism in greater detail. In particular, we illustrate that the difference of the multiplier across exchange rate regimes is driven by differences in the monetary policy stance, as in the Mundell–Fleming model. Yet, in contrast to the predictions of the latter, these differences play out via an adjustment of the level of private expenditure rather than through a redirection of trade flows.

Our analysis draws on earlier work by Corsetti et al. (2011) who show in detail how monetary policy determines the fiscal transmission mechanism under alternative exchange rate regimes. It is also related to a number of studies highlighting the role of real interest rates, and hence monetary policy, for the transmission of government spending shocks, including Bilbiie et al. (2008), Davig and Leeper (2011), and Coenen et al. (2012); a case of particular interest is the situation where monetary policy is constrained by the zero lower bound (see, e.g., Christiano et al., 2011; Woodford, 2011).[6]

The remainder of the paper is organized as follows. The next section discusses our empirical framework and establishes evidence on the fiscal transmission mechanism across exchange rate regimes. Section 3 outlines a New Keynesian small open economy model, performs quantitative analyses, and interprets the time-series evidence through the lens of the model. Section 4 concludes.

2. Time-series evidence

We use a panel VAR framework to provide new evidence on the fiscal transmission mechanism, contrasting the effects of government spending shocks in economies with fixed and floating exchange rate regimes. In terms of identification we draw on Blanchard and Perotti (2002) and assume that government spending is predetermined relative to the other variables included in the VAR model. At the same time, we address concerns regarding the correct timing of government spending shocks. In an influential contribution, Ramey (2011) argues that several findings obtained under the Blanchard–Perotti approach may be the result of an incorrect timing of the identified government spending shocks. For what the VAR picks up as a shock under the Blanchard–Perotti approach, so the argument goes, may in fact have been anticipated by market participants for some time. Consequently, the adjustment to the shock may well be under way, once the increase of government spending actually materializes. Estimated impulse response functions will be biased as a result.

From the perspective of a structural model, anticipation is a source of "non-fundamentalness". Non-fundamentalness (or "non-invertibility") may impair the ability of the econometrician to uncover the structural shocks from the innovations of an estimated VAR model, as discussed by Lippi and Reichlin (1994) and, more recently, by Fernández-Villaverde et al. (2007).[7] Leeper et al. (2012) focus on fiscal policy, and more specifically on tax policies, and provide a detailed analysis of the econometric implications of anticipation or "foresight". As a result of fiscal foresight, the econometrician's information

[2] In fact, both studies find a positive and significant multiplier effect under fixed exchange rates, but none under floating exchange rates. Beetsma et al. (in press) focus on the output effects of budgetary consolidations in OECD countries which they find to be more pronounced under the euro. Acconcia et al. (2011) and Nakamura and Steinsson (2011) report large estimates of regional multipliers within monetary unions, exceeding conventional estimates of multipliers considerably.

[3] As a caveat, we note that, due to data availability, we control only for anticipated government spending growth over a horizon of six months.

[4] CMM and IMV do not perform an explicit model analysis.

[5] Note that the estimated impulse responses are obtained on the basis of a minimum set of identification restrictions. We interpret these responses quantitatively through the lens of a New Keynesian business cycle model—rather than estimating this model directly on the basis of likelihood methods. This strategy accommodates concerns that standard business cycle models impose too tight a range for fiscal multipliers, see Leeper et al. (2011).

[6] Erceg and Lindé (2012a) contrast the effects of fiscal policy under a fixed exchange rate regime and under a floating exchange rate regime when monetary policy is constrained by the zero lower bound.

[7] Technically, in case of non-fundamentalness, the state-space representation of the approximate model solution cannot be inverted into an infinite-order VAR representation in the variables observed by the econometrician. In practice, VAR models are estimated on a finite number of lags. This may give rise to lag-truncation bias, an issue which we ignore in what follows, see Chari et al. (2008).