



Estimating the effects of coordinated fiscal actions in the euro area



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ABSTRACT

We estimate spillover effects of a fiscal shock in one member country in the euro area on outputs of the rest of the members, using a global vector autoregression (GVAR) model. We compare the effects of a domestic fiscal shock with those of a similar size area-wide shock expressed as a weighted average of the fiscal shocks across all member countries. According to our estimates, the impact of an area-wide fiscal shock on output of a member country tends to be positive and larger than that of a domestic shock. Since the cost of participating in the area-wide shock is lower than the cost of a similar size domestic shock, our finding indicates the importance of coordinated fiscal actions in the euro area.

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1. Introduction

In a speech in June 2011, Jean-Claude Trichet, the former president of the ECB, has provoked envisaging a ministry of finance at the euro area level to exert inter alia “direct surveillance of both fiscal and competitiveness policies”. In a similar vein, the IMF has emphasised the need for a “collective” fiscal response to the global economic crisis stormed in late 2008 through 2009.¹ In addition to the discussion in the policy arena, economic theory posits that in a highly integrated world, domestic fiscal actions can affect foreign economies. Domestic effects of a fiscal shift and the associated cross-border externalities are particularly pronounced in the context of a currency union where the exchange rate between member countries is fixed.

In this study, we estimate the effects of coordinated fiscal stimuli in the euro area. Specifically, we build upon the multi-country global vector autoregression (GVAR) approach developed by Pesaran et al. (2004) and Pesaran and Smith (2006) as follows:

- Estimate an augmented country-specific VAR model for every economy in the euro 12 area. Country-specific VAR models are augmented with foreign variables.

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¹ See Trichet (2011) and IMF Staff Position Note (2008, 2009).

- Estimate the spillover effects of a domestic budget balance shock on the members of the euro area by consistently combining all country-specific VAR models in one multi-country model and treating all variables as endogenous.
- Compare domestic effects with spillover effects of the area-wide fiscal shock. Following Dees et al. (2007), the area-wide fiscal shock is expressed as a weighted average of the budget deficit shocks across the euro area countries, allowing for inter-linkages between these economies.

In essence, in terms of magnitude, the area-wide shock is not larger than the domestic shock. One may think of the euro-wide shock as a shock that has the magnitude of a domestic shock, but to which each country contributes only a fraction depending on the size of the country. According to our results, the impacts on output of most members following the area-wide shock are larger than those resulting from a domestic shock. Noting that the cost of participating in the area-wide shock is lower than the cost of a similar size domestic shock, our findings indicate the importance of coordinated fiscal stimuli.

Perotti (2007, 2005) reappraises in detail arguments against the empirical results from VAR estimates of the effects of fiscal shocks. There is an ongoing debate on the identification of a structural fiscal shock that captures only discretionary fiscal actions.² However, in the context of cross-border externalities, fiscal spillovers resulting from a (large) budget deficit in one country would occur whether the cause is only discretion or a combination of discretion, automatic responses, and other effects. Therefore, we primarily rely on identifying *generalised* impulse response functions. These impulse responses, although broadly interpretable, are informative and capture overall spillover effects.

This study proceeds as follows. Section 2 provides a brief theoretical background of fiscal spillover effects. Section 3 presents our empirical methodology of modelling fiscal policy externalities in the GVAR framework and interprets the fiscal shocks. Section 4 describes the data and our empirical specifications. Section 5 displays our main findings and the robustness analysis based on various identification strategies and specifications. Finally, Section 6 concludes.

2. Theoretical background

There are three main spillover channels of an expansionary fiscal policy in one member country into the rest of the currency union, as can be demonstrated in a multi-country Mundell–Fleming model with a fixed exchange rate peg between members and perfect capital mobility. (1) Positive spillover effects through trade: a fiscal expansion stimulates domestic activities, pressuring the exchange rate to appreciate and the domestic interest rate to increase. In a currency union, however, the exchange rate between members is fixed and the interest rate is ultimately determined at the union level. Hence, domestic money under circulation increases, further stimulating domestic output. The increase in domestic output leads to an increase in imports, boosting the income of the trading partners. (2) Negative spillover effects through eventually affecting the union interest rate: The initial increase in the domestic interest rate following the fiscal expansion attracts capital flows into the domestic economy out of the rest of the union and elsewhere, putting upward pressure on the interest rates of the members of the rest of the union. The final equilibrium of the union-wide interest rate may be at a higher level than before the shock. This interest rate channel may have a contractionary effect on foreign and domestic output. (3) Spillover effects through the real exchange rate: the euro is floating with respect to the rest of the world. If the fiscal expansion in a (large) member economy causes an appreciation of the real exchange rate of the euro, as the Mundell–Fleming model predicts, the expansionary effects will be dampened due to worsening trade balances.

Although the transmission mechanism of an expansionary fiscal shock differs in micro-founded dynamic stochastic general equilibrium (DSGE) models, the standard DSGE model agrees with the Keynesian predictions of the positive response of output and the appreciation to the real exchange rate. Contrary to the Keynesian predictions, however, consumption decreases in a standard DSGE model. The forward-looking consumer in a DSGE setup is aware of the increase in the present value of household tax liabilities (negative wealth effect) due to the fiscal expansion. Monacelli and Perotti (2010) stress that consumption increases *and* the real exchange rate *depreciates* following an expansionary fiscal shock.³ Several recent theoretical DSGE studies focus on fiscal shock spillovers within an international setup or specifically in a currency union. Corsetti et al. (2010) show in a two-country DSGE model that financing a current fiscal stimulus plan with a combination of an increase in medium-run taxes and a decrease in medium-run government spending (“spending reversal”) enhances positive cross-border fiscal spillovers. Cwik and Wieland (2011) perform simulation exercises using various versions of a structural DSGE model estimated and calibrated for the euro area. They find no support for positive

² Various structural identification schemes have been suggested in the literature. Blanchard and Perotti (2002) use a SVAR framework. Ramey (2011) relies on exogenous dates of changes in government defence spending whereas Romer and Romer (2010) apply the idea for legislated tax changes. Mountford and Uhlig (2009) employ the sign restriction approach. Caldara and Kamps (2008) compare the findings obtained from those approaches. Auerbach and Gorodnichenko (2012) employ regime switching models and control for real-time predictions. All these studies provide estimates for the US economy.

³ The debate on the reaction of consumption and other variables has stimulated a number of studies to modify a standard DSGE model in order to account for the empirical finding of an increase in consumption and a depreciation of the real exchange rate. This is accomplished, for example, by allowing for habit persistence at the good level as in Ravn et al. (2006), or for future government spending to decrease in reaction to the stock of public debt as in Corsetti et al. (2012). Some models explain the increase in consumption by incorporating non-Ricardian households, as suggested in Mankiw (2000). Some empirical studies do not support the positive response of consumption. Hebous (2011) provides a survey of the theoretical and empirical literature on the dynamics of key variables following a fiscal shock.

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