



# Understanding the dynamic effects of government spending on foreign trade

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## Abstract

Using Vector Autoregressions on U.S. time series, the present paper documents the effects of fiscal policy on foreign trade: an increase in government spending significantly depreciates the nominal exchange rate, appreciates the terms of trade and increases net exports. Exposed to the same spending shock, a New Keynesian general equilibrium model is shown to match qualitatively the response of relative prices. The response of net exports, in contrast, depends on the intra- and intertemporal elasticities of substitution and the degree of home bias in private spending. An accommodating monetary policy dampens, but does not alter the response of net exports.

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## 1. Introduction

The present paper studies the dynamic effects of a temporary increase in government spending on foreign trade. Its aim is twofold. First, it seeks to establish empirically how the exchange rate, the terms of trade and the trade balance (net exports) respond to an exogenous increase in government spending. Second, it rationalizes these responses within a stochastic general equilibrium model which features price rigidities and thus allows for a potentially important role of monetary policy.

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Based on Vector Autoregressions (VAR), empirical investigations of the dynamic effects of fiscal policy in a closed economy context have recently become more numerous. Attempts have also been made to account for this evidence using different versions of stochastic general equilibrium models, e.g. [Fatás and Mihov \(2001\)](#), [Burnside et al. \(2004\)](#) and [Galí et al. \(2005\)](#). Little evidence, however, has been put forward regarding the dynamic effects of government spending on foreign trade. Exceptions are [Kim and Roubini \(2003\)](#) and [Giuliodori and Beetsma \(2004\)](#), who do not, however, explore their empirical findings within a formal theoretical framework. [Canzoneri et al. \(2003\)](#) also provide a VAR analysis of the effects of fiscal policy on foreign trade and, although they analyze their findings within a general equilibrium model, they make the restrictive assumption that trade is always balanced.

From a policy perspective, the U.S. macroeconomic stance in the early 2000s provides a particular motivation to investigate the dynamic effects of fiscal policy on foreign trade in a loose monetary environment. It is often argued that the loose fiscal stance in the early 2000s was a major cause for the continuing deterioration of the U.S. trade balance, thus stimulating the global economy at the expense of increased global imbalances, see, e.g. [International Monetary Fund \(2004\)](#). At the same time an accommodating monetary policy stance is generally thought to increase net exports by inducing ‘expenditure switching’ towards domestically produced goods. Hence, the overall effect of the expansionary U.S. fiscal-monetary stance in the early 2000s on the U.S. trade balance appears to be unclear. Against this background, this paper takes up these issues both at an empirical and a theoretical level.

The empirical analysis is based on a VAR on U.S. time series data for the post-Bretton-Woods period. Following [Blanchard and Perotti \(2002\)](#), the baseline specification identifies government spending shocks by assuming that government spending does not contemporaneously respond to the other variables included in the VAR. The main results of the empirical analysis, which are found to be robust across various specifications, can be summarized as follows: a temporary increase in government spending depreciates the nominal exchange rate, appreciates the terms of trade and increases net exports. The latter finding may appear surprising, given that a strand of the literature has established a positive relationship between fiscal and trade deficits on the basis of single equation techniques, e.g. [Summers \(1986\)](#) and [Roubini \(1988\)](#).<sup>1</sup> More recently, however, [Gruber and Kamin \(2005\)](#) employing a similar methodology were not able to detect a significant effect of the fiscal balance on the current account. Moreover, Kim and Roubini’s VAR study also finds that fiscal expansions tend to increase the current account.

The theoretical analysis is based on a model that belongs to a recent class of stochastic general equilibrium models for open economies which also feature sticky prices, see, for example, [Benigno and Benigno \(2003\)](#), [Chari et al. \(2002\)](#) and [Galí and Monacelli \(2005\)](#). The model is formulated in discrete time and linearized around a non-stochastic steady state. In such a framework an exogenous increase in government spending generates dynamic effects comparable to those identified in the data by means of a VAR. The main results of the theoretical analysis are as follows. First, because of home bias in government spending, the terms of trade appreciate after an exogenous increase in government spending. Next, the relative size of the elasticities of

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<sup>1</sup> These findings are consistent with earlier theoretical work. In the standard one-good intertemporal model of the current account, a temporary increase in government spending lowers net exports, see [Ahmed \(1986\)](#) for a seminal study and [Kollmann \(1998\)](#) for an exploration within a two-country RBC model. In the Mundell–Fleming model with flexible exchange rates and perfect capital mobility a fiscal expansion in the home country increases domestic demand for both home and foreign goods thereby reducing net exports, see the discussion in [Svensson \(1987\)](#).

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