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The macroeconomic effects of monetary and fiscal policy in a small open economy: Does the exchange rate regime matter?

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This paper develops a small open economy model in the spirit of [Obstfeld and Rogoff \(1995\)](#). The introduction of endogenous traded sector output unlocks current account and real exchange rate effects. Within this framework where specific consideration is given to the case with fixed but adjustable parities, exchange rate devaluation generates similar qualitative effects as a money supply expansion under floating rates. Output and external effects of government spending shocks are broadly consistent with the adjusted basic non-micro founded Mundell and Fleming (MF) framework, but differ in significant ways from the baseline MF model. Contrary to the textbook MF model a government expenditure shock depreciates the nominal exchange rate and generates real effects under the fixed rate system.

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1. Introduction

In the past fifteen years theoretical work in open economy macroeconomics has undergone a dramatic transformation. Following an extended period dominated by non-micro founded Keynesian models, a novel approach introduced by [Obstfeld and Rogoff \(1995\)](#) provided the basis for a reevaluating a number of critical issues in open economy macroeconomics. The New Open Economy Macroeconomics which incorporates well laid out microeconomic foundations represents an upgrade of the Dornbusch model.¹ The core features of this framework are well documented in [Lane \(2001a,b\)](#)

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¹ [Mundell \(2001\)](#), [Obstfeld \(2001\)](#) and [Devereux \(1997\)](#) provide an interesting discussion of developments in open economy macroeconomics from the Mundell–Fleming analysis to the redux model.

and [Ganelli and Lane \(2002\)](#) and include optimizing agents, incorporation of nominal rigidities and market imperfections.²

The (NOEM) framework has been used extensively to perform two country analyses. This has allowed researchers to delve deeply into issues such as international policy coordination and spillover effects of domestic monetary and fiscal policies. Stochastic extensions of the model as developed by [Obstfeld and Rogoff \(1998\)](#), [Devereux and Engel \(1998\)](#) and [Tille \(2002\)](#) focused on a similar theme. The two country framework is most appropriate if the unit of analysis is a relatively large or two equally sized economies.³ Despite the availability of a tractable method of analyzing small open economy issues within the new framework, it has remains largely unexplored.⁴ This represents a significant void in the literature and also creates a slight disconnect between theoretical emphasis and empirical realities.

The original small open economy model, developed by [Obstfeld and Rogoff \(1995, 1996\)](#) is built on very strong assumptions. The most critical of which is the treatment of tradeable output as an endowment. The endowment framework along with logarithmic preferences and interest rates tied to the rate of time preference generates a smooth path for consumption. With zero initial foreign assets, even in the presence of one period nominal rigidity the current account balance remains permanently at zero in the aftermath of a monetary shock.⁵ Current account disequilibrium is only possible in the aftermath of a temporary productivity shock to the traded goods sector. This outcome is essential since a central component of the debate in open economy macroeconomics in the aftermath of [Mundell \(1962\)](#) contribution, has focused on the effects of monetary and fiscal policy when a country is able to delink absorption from production in a sticky price environment.

The empirical disconnect of models which excludes current account dynamics is more apparent given recent developments in emerging markets and particularly Eastern Europe. Over the past decade many emerging European economies⁶ was characterized by rapid income growth and widening current account deficits which in some cases occurred side by side with widening fiscal balances.⁷ For example the current account deficits of Greece and Ireland stood at 4.6 and 13.9 percent respectively as of end 2008, while others such as Latvia and Estonia had double digit deficits. In the aftermath of the global economic crisis a number of countries have implemented monetary and fiscal policy adjustments to stabilize the domestic economy and restore external balance. Adequate modeling of these dynamics would require models which specifically allows for evaluation of how the current account responds to policy shocks. The model developed in this paper will at a minimum provide some broad indication on the likely effect of these policy interventions.

Research on the small open economy model has for the most part adopted the endowment framework. [Hau \(2002\)](#) adopted this structure to examine the effects of openness on the volatility of the real exchange rate, while [Lane \(1997\)](#) examines the influence of trade openness on inflation. [Lane \(2001a,b\)](#) and [Cavallari \(1999\)](#) are the only known instances where this framework has been utilized to analyze current account effects of monetary shocks, while [Tervala \(2007\)](#) examines the current account effects of fiscal shocks. However these studies retained the assumption of exogenous tradeable sector output.^{8,9} [Fender and Rankin \(2002\)](#) introduced staggered wage setting and evaluated the impact of

² [Lane \(2001a,b\)](#) provides a detail description of the key issues involved in the construction of a dynamic general equilibrium open economy model in the spirit of [Obstfeld and Rogoff \(1995\)](#).

³ Another strand of the literature extends the model into a stochastic setting see for example [Obstfeld and Rogoff \(1998\)](#), [Devereux and Engel \(1998\)](#) and [Tille \(2002\)](#).

⁴ Known research which utilizes the small open economy framework includes [Lane \(1997, 1999\)](#), and [Tervala \(2007\)](#), [Fender and Rankin \(2002, 2003\)](#), [Hau \(2002\)](#), and [Cavallari \(1999\)](#).

⁵ The preference structure plays a significant role in the attainment of these results. However the objective of [Obstfeld and Rogoff \(1995\)](#) was to examine the response of the nominal exchange rate to monetary shocks and develop a model where exchange rate overshooting was possible.

⁶ Most countries in emerging Europe fit the definition of small open economies used in this paper.

⁷ See [Decressin and Stavrev \(2009\)](#).

⁸ [Hau \(2002\)](#), developed a two country version of the two sector model (with endogenous traded goods) to examine international policy coordination and spillover effects of shocks.

⁹ [Lane \(2001a,b\)](#) adopted such a strategy to analyze the impact of monetary shocks on the current account. In this formulation utility is modeled as having CRRA form in aggregate consumption, with a CES consumption index over traded and non-traded goods.

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