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Monetary policy in a small open economy with fixed exchange rate: The case of Macedonia

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ABSTRACT

This paper empirically applies the New Keynesian model for monetary policy analysis in a small open economy with a fixed exchange rate. Official reserves are included in the interest rate rule to account for the constraint that these impose on monetary policy when the exchange rate is fixed. Also, the foreign interest rate is included in order to reflect the necessity of following the foreign monetary policy. The model is applied to Macedonian data from the period 1997 to 2011. In general, results indicate that monetary policy has been focused on domestic objectives during this period, despite the fixed currency. In addition, there seem to have been significant differences in the conduct of the monetary policy in the first and second half of this period. The response to inflation has been more aggressive in the earlier period, at a time when reserves appear less important, while the output gap is found to be important only in the latter period, possibly due to the stronger monetary policy transmission. Finally, results indicate that the monetary policy has likely moved from adaptive in the first period to rational in the second period.

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1. Introduction

In recent years, the New Keynesian framework has become the dominant framework for analyzing monetary policy. It incorporates advances of macroeconomic modeling from the real business cycle theory – the dynamic general equilibrium techniques (hence, New) into a model that explicitly

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recognizes the existence of nominal price rigidities, which gives rise to non-neutral effects of monetary policy (hence, Keynesian). The simplest model arising from this framework is the New Keynesian model (NKM). NKM consists of three equations – IS curve, which defines output; Phillips curve, which defines inflation; and interest rate rule, which defines monetary policy conduct.

A large strand of literature applies the New Keynesian framework to analyze monetary policy. An indicative list includes Clarida et al. (1998, 2000), McCallum and Nelson (1998), Ireland (2001), Smets and Wouters (2003, 2007), Lubik and Schorfheide (2004), Giordani (2004), Christiano et al. (2005), Gerdesmeier et al. (2007), and Lee (2009). However, all empirical works have been concerned with countries that target inflation either explicitly or implicitly. In this framework, monetary policy is designed to react to the deviations of inflation and output from their targets. Still, this is hardly applicable for a small open economy exposed to external supply-side shocks and targeting the nominal exchange rate. In such circumstances, the main guidance for the monetary policy conduct likely stems from the developments on the foreign exchange market, i.e. the need to maintain the chosen exchange rate parity. Hence, the central bank might be tightening when the economy goes down in order to sustain the rumors for devaluation, which is apparently not a prediction of the New Keynesian model. The present study aims to modify the New Keynesian framework for the case of a small open economy with a fixed exchange rate and to analyze to what extent the peg affects the monetary policy conduct.

In theory, economies with fixed exchange rates can still have an independent monetary policy as long as they have limited capital mobility, which can occur, for instance, due to the maintenance of some capital controls or due to underdeveloped financial markets. Nevertheless, the fixed exchange rate largely constrains monetary policy – if the level of reserves is too low, monetary authorities might be precluded from targeting inflation or output, since this might imperil the maintenance of the chosen parity. Moreover, significant differences in the interest rates in the domestic country and the country to which the exchange rate has been fixed can result in arbitrage opportunities, which can endanger the parity as well. To account for these two issues, the standard NKM is modified by including official reserves in the interest rate rule, to account for the constraint that reserves impose onto monetary policy when the exchange rate is fixed, and by including the foreign interest rate to capture the subordination of the policy when the exchange rate is fixed. The model is then applied to the case of Macedonia, for the period 1997–2011, to investigate whether our conjecture about the importance of the reserves for the monetary policy holds and whether monetary policy has been dedicated to domestic goals.

The policy implications that emerge from this study are related to the choice of the optimal exchange rate regime for small open economies and to the conduct of monetary policy in countries with fixed regimes. Namely, it is usually considered that by fixing the exchange rate, countries lose their monetary policy. This consideration has been one of the factors that have led many small open economies to choose a floating regime. Hence, the findings of this study about the actual behavior of the monetary policy in Macedonia can serve as a useful argument in this debate – finding that the monetary policy has responded to movements in inflation or economic activity would imply that it has been dedicated to domestic goals, i.e. that monetary policy can be independent, despite the peg. On the other hand, finding significant coefficients in front of the foreign interest rate and the international reserves would imply that monetary policy, though independent, has still been constrained, i.e., that optimal monetary policy should closely follow the movement of international reserves.

The organization of the paper is as follows. The next section briefly introduces the New Keynesian model and suggests a variant to accommodate the case study of a small open economy with a fixed exchange rate. In Section 3, the data and research methodology are presented. Section 4 reports results, conducts robustness checks, and discusses. Section 5 concludes.

2. Applied New Keynesian model for a small open economy with a fixed exchange rate

2.1. Brief theoretical overview

The New Keynesian Model (NKM) consists of three types of agents – households, firms and the government (the central bank). Agents maximize some objective function, subject to constraints. The

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