



Monetary policy rules and the exchange rate

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Received 12 November 2006; accepted 28 May 2007
Available online 16 June 2007

Abstract

A stochastic sticky-price general-equilibrium model is employed to explore the welfare effects of optimal monetary policy and of a range of simple targeting rules. Idiosyncratic shocks to the traded and the non-traded goods sectors may make it impossible for monetary policy to achieve an efficient sectoral resource allocation within countries and avoid inefficient relative price changes across countries. An inward-looking monetary policy is generally not optimal. Which simple, i.e. non-optimal, targeting rule best approximates the fully optimal rule depends on the elasticity of intratemporal substitution. Policies of producer price targeting, consumer price targeting and exchange rate targeting may be the best option for different values of the intratemporal substitution elasticity. Nominal income and monetary targeting generally perform worst.

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JEL classification: F41; F42; E52; E58

Keywords: Optimal monetary policy; Targeting rule; Fixed exchange rate; Welfare

1. Introduction

Is there a difference between the optimal choice of a monetary policy target in open and closed economies? Some authors argue that the policy problems in both cases are identical. The two-country models by, e.g., Obstfeld and Rogoff (2002) and Clarida et al. (2001),

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suggest that policymakers in open economies should follow an completely inward-looking monetary policy.¹ The work of, among others, [Gali and Monacelli \(2005\)](#) corroborates this result for the small open economy case. Policy adjustments in neighboring countries can be ignored when deciding about the monetary policy stance. These authors argue that producer prices should be chosen as a target for welfare-maximizing monetary policy. Targeting producer prices brings about the welfare-maximizing resource allocation because the distortions created by price stickiness are neutralized. Other authors, for example, [Corsetti and Pesenti \(2005\)](#) and [Sutherland \(2005\)](#) for two-country worlds and [Devereux et al. \(2006\)](#), [Smets and Wouters \(2002\)](#) and [Sutherland \(2006\)](#) for small open economies point out that this policy prescription is only valid under special circumstances. The presence of cost-push shocks, a limited degree of pass-through of exchange rate changes into prices and a strong expenditure switching effect owing to a high intratemporal elasticity of substitution are among the factors that require the consideration of policy changes abroad.

In this paper, we will not focus on these points but revisit the optimal choice of a monetary policy target in a two-country world by introducing a novel trade-off for the policymakers into an otherwise standard stochastic general-equilibrium model. In doing so, we are not only concerned with the optimal design of monetary policy but also analyze which simple, i.e. non-optimal, rule best supports the optimal solution. In practice, many central banks follow simple targeting rules because fully optimal rules may be infeasible to implement.

In our model, policymakers are caught between realizing the efficient resource allocation within a country and across countries. We suppose that the tradeable and the non-tradeable goods sectors of both economies are hit by idiosyncratic sectoral shocks. In this setting, a monetary response to a sectoral shock alters both the resource allocation between sectors within a country and the resource allocation across countries. Thus, inefficiencies may arise. Consider, e.g., a productivity shock in the home non-traded goods sector. Such a shock calls for a re-allocation of resources between the home traded goods and the home non-traded goods sector, but for the relative price between home and foreign tradeables to remain constant. Both goals, however, cannot be achieved simultaneously by a monetary adjustment, since a monetary adjustment in one country will affect the exchange rate and thus international relative prices. In our model, an inward-looking monetary policy is only optimal for special parameter combinations. Generally, monetary policy responds to productivity shocks and monetary policy changes abroad.

Policies such as producer price index targeting, consumer price index targeting, nominal income targeting, monetary targeting and exchange rate targeting are among the most prominent rules that have been used or are currently being used as a guide for monetary policy. The welfare ranking of these simple targeting rules in our model hinges critically on the value of the intratemporal elasticity of substitution.

[Sutherland \(2006\)](#) also points to this parameter as the key factor for the optimal choice of the monetary target in a small open economy. He argues that a high value for this elasticity leads to large fluctuations in the demand for domestically produced goods.

¹ [Benigno and Benigno \(2003\)](#) discuss the conditions under which self-oriented policies are optimal in open economies. See, e.g., [Goodfriend and King \(2001\)](#) and [Woodford \(2003\)](#) for an analysis of the monetary policy problem in closed economies.

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