A simple framework for international monetary policy analysis

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Received 16 November 2001; received in revised form 27 February 2002; accepted 28 February 2002

Abstract

We study the international monetary policy design problem within an optimizing two-country sticky price model, where each country faces a short run tradeoff between output and inflation. The model is sufficiently tractable to solve analytically. We find that in the Nash equilibrium, the policy problem for each central bank is isomorphic to the one it would face if it were a closed economy. Gains from cooperation arise, however, that stem from the impact of foreign economic activity on the domestic marginal cost of production. While under Nash central banks need only adjust the interest rate in response to domestic inflation, under cooperation they should respond to foreign inflation as well. In either scenario, flexible exchange rates are desirable. © 2002 Published by Elsevier Science B.V.

\textit{JEL classification:} E5; F3

\textit{Keywords:} International monetary policy; Nash equilibrium; Co-operation; Marginal cost

1. Introduction

The existence of a short run tradeoff between output and inflation is a central obstacle to the smooth management of monetary policy. In the open economy, of course, there are additional complications: Not only must a central bank take
account of the exchange rate in this situation, but potentially also the feedback responses of foreign central banks to its policy actions.

In this paper we revisit these classic issues by developing a simple two-country model that is useful for international policy analysis. Consistent with a voluminous recent literature, our framework is optimization-based and is sufficiently tractable to admit an analytical solution. In most of this work (particularly the work that is purely analytical), nominal price setting is done on a period by period basis, leading to highly unrealistic dynamics. We use instead the staggered price setting model that has become the workhorse of monetary policy analysis in the closed economy, and augment it by allowing for a short run tradeoff in a way that does not sacrifice tractability. Thus, we are able to investigate qualitatively the implications of international considerations for monetary policy management without having to abstract from the central problem that the tradeoff poses.

Our framework is essentially a two-country version of the small open economy model we developed in Clarida et al. (CGG) (2001), which is in turn based on Gali and Monacelli (1999). In this paper we showed that under certain conditions the monetary policy problem is isomorphic to the problem of the closed economy studied in CGG (1999). In this setting, accordingly, the qualitative insights for monetary policy management are very similar to what arises for the closed economy. International considerations, though, may have quantitative implications, as openness does affect the model parameters and thus the coefficients of the optimal feedback policy. In addition, openness gives rise to an important distinction between consumer price index (c.p.i.) inflation and domestic inflation. To the extent there is perfect exchange rate pass-through, we find that the central bank should target domestic inflation and allow the exchange rate to float, despite the impact of the resulting exchange rate variability on the c.p.i.

In the two-country setting we study here, the monetary policy problem is sensitive to the nature of the strategic interaction between central banks. In the absence of cooperation (the “Nash” case), our earlier “isomorphism” result is preserved. Each country confronts a policy problem that is qualitatively the same as the one a closed economy would face. The two-country framework, though, allows us to characterize the equilibrium exchange rate and illustrate concretely how short run tradeoff considerations enhance the desirability of flexible exchange rates.

The strict isomorphism result, however, breaks down when we allow for the possibility of international monetary coordination. There are potentially gains from cooperation within our framework, though they are somewhat different in nature than stressed in the traditional literature, as they are supply side. In particular, the domestic marginal cost of production and the domestic potential output depend on the terms of trade, which in turn depends on foreign economic activity. By

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1 Some examples of this recent literature include: Obstfeld and Rogoff (2000a, b), Corsetti and Pesenti (2001a), Kollman (2001), Devereux and Engel (2001), Lane (2001), and Chari et al. (2000).

2 A recent exception is Benigno and Benigno (2001) who have concurrently emphasized some similar themes as in our paper, though the details of the two approaches differ considerably. We introduce a short run tradeoff by allowing for staggered price setting in conjunction with a certain type of labor market friction, as we discuss in the next section.
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