Does better information about foreign shocks improve monetary policy?

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ABSTRACT

This paper examines whether better information about foreign shocks leads to welfare-improving monetary policy using a stylised two-country New Keynesian general equilibrium model. We demonstrate that when terms of trade externality exist and national central banks have the incentives to shift terms of trade in their own favour, the equilibrium under imperfect information may be welfare superior relative to an equilibrium with perfect information. In addition, the welfare gains or losses from information sharing between central banks are found to be small for empirically plausible range of parameters for risk aversion and elasticity of labour supply.

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1. Introduction

This paper attempts to address three questions about the welfare implications of better information on foreign shocks available to central banks. First, does setting a self-oriented monetary policy rule which responds to unexpected domestic shocks in a predictable manner lead to large welfare gains, even if central banks cannot observe foreign shocks and hence cannot react to them? Second, does better information about foreign shocks lead to welfare-improving monetary policy? Third, if better information does indeed lead to welfare-improving monetary policy, is this welfare gain substantial? If central banks cannot observe shocks abroad, not only are they unable to react to these, but they also face greater uncertainty over monetary policy actions of other central banks. For instance, the Home central bank would not know how the Foreign central bank will react if it cannot observe Foreign shocks – even if central banks' reaction functions are publicly known. So information sharing between

central banks about their economies could potentially produce large welfare gains especially when economies are increasingly more inter-linked.

We address these questions by introducing central banks which cannot observe foreign productivity shocks into a two-country open economy general equilibrium model of the kind developed by Obstfeld and Rogoff (2000a, 2002, hereafter OR). The assumption of imperfect information captures the reality in which central banks typically do not have the capacity or resources to follow the economic events abroad to the same extent as domestic developments. There are a number of reasons why it is realistic to assume that a central bank is better informed about the domestic economy than the international environment in which it operates. First, central banks typically receive some of the key domestic macroeconomic data confidentially before they become publicly available. Second, central banks normally devote more staff and resources to forecast domestic output and inflation than they do to assess the international macroeconomic developments. Consequently, they normally update forecasts for the domestic economy more frequently. Although there are other two-country models which incorporate a richer set of frictions and dynamics, we deliberately chose to use the simplest possible framework which retains the assumptions of country-wide productivity shocks, financial autarky, and perfect exchange rate pass-through. The choice of this 'workhorse' model allows us to derive neat analytical solutions to illustrate that better information about foreign shocks can actually lead to welfare losses – and thus make the general point that information sharing between central banks have ambiguous welfare implications.

There are three main results emerging from our analysis. First, setting a self-oriented monetary policy rule which responds to unexpected shocks in a predictable manner leads to welfare gains, even if central banks do not have perfect information about the world economy and can react to domestic shocks only. Second, it is in general ambiguous whether central banks that are better informed about foreign shocks achieve better policy. When each central bank faces strong incentives to shift terms of trade in its own favour at the expense of its trading partners, lack of information about foreign shocks could actually be beneficial. The size of the gains or losses from information sharing between central banks depends on a range of parameters which determine central banks' incentives to manipulate the terms of trade – such as the degree of risk aversion and the elasticity of labour supply. Third, for an empirically relevant range of risk aversion parameter, these welfare gains or losses from information sharing are found to be small in this set-up.

Under the assumption that central banks are perfectly informed, OR have shown that self-oriented monetary policy is 'almost optimal' and welfare gains from international monetary policy coordination are small. Our results combined with theirs imply that – under the assumptions of unit elasticity of demand, financial autarky and perfect exchange rate pass-through – self-oriented monetary policy remains 'almost optimal' even if central banks are imperfectly informed about foreign shocks: if the gains from information sharing are either negative or positive but small, *and* the gains from policy coordination under perfect information are small, then it follows that self-oriented policy under imperfect information is indeed 'almost optimal'. This corollary, however, should be taken as a qualified statement about the optimality of self-oriented monetary policy under imperfect information, since the existing literature – inter alia Sutherland (2004), Corsetti and Pesenti (2005), and Benigno and Benigno (2006) – shows that gains from monetary policy coordination can be larger when the assumptions of unit elasticity of demand, financial autarky or perfect exchange rate pass-through are violated.[1] Thus, self-oriented policy under imperfect information may not be 'almost optimal' once these additional frictions are introduced.

The rest of the paper is organized as follows. Section 2 presents the structure of a canonical variant of OR's two-country model. Section 3 solves for monetary policy rules adopted by central banks under different assumptions about their objective functions and information available to them. Section 4 analyzes the welfare implications of each of these policy rules, focusing in particular on the role of imperfect information about foreign shocks. Section 5 discusses the implications of our results and concludes.

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[1] Sutherland (2004) shows that the gains from international monetary coordination could be larger under incomplete financial markets than under financial autarky – which is assumed in OR's analysis – when the elasticity of substitution between Home and Foreign goods is greater than unity. Benigno and Benigno (2006) analyze this issue in a fully dynamic setting. Corsetti and Pesenti (2005) show that gains from international monetary coordination could depend non-linearly on the degree of exchange rate pass-through.