Journal of Macroeconomics 31 (2009) 534–546

Contents lists available at ScienceDirect

Journal of Macroeconomics

journal homepage: www.elsevier.com/locate/jmacro

How monetary policy committees impact the volatility of policy rates

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ARTICLE INFO

Article history:
Received 11 April 2008
Accepted 5 January 2009
Available online 23 January 2009

JEL classification:
D70
E43
E58
F33

Keywords:
Monetary policy committees
Decision procedures
Interest-rate
Monetary union

ABSTRACT

This paper relates the volatility of interest rates to the collective nature of monetary policymaking in monetary unions. Several decision rules are modelled, including hegemonic and democratic procedures, and also committees headed by a chairman. A ranking of decision rules in terms of the volatility of policy rates is obtained, showing that the presence of a chairman has a cooling effect. However, members of a monetary union are better off under symmetric rules (voting, averaging, bargaining), unless they themselves chair the union. The results are robust to the inclusion of heterogeneities among members of the monetary union.

1. Introduction

A key characteristic of today's central banking is that monetary policy has become a collective decision. To be specific, there are only three countries left, namely New Zealand, Norway, and Malta, and possibly Canada as Blinder (2004) points out, where monetary policy is still in the hands of a single governor. Elsewhere, committees rule. This feature of modern central banks implies that a decision has to be taken among committee members, which is likely to affect the fluctuations of policy rates, especially if monetary policy committees are heterogeneous, as Von Hagen (1999), Heinemann and Huefner (2004), or Meade and Sheets (2005) suggest.

The literature has only recently started taking stock of this evolution. A few contributions have thus studied the consequences of committees on monetary policy, and on the volatility of policy rates. This is the case of Cothren (1988), Sibert (2003), and Fatum (2006), who focus on the impact of monetary policy committees on their institution's reputation building and on the level of inflation. Gerlach-Kristen (2006) also underlines that committees are an efficient way to deal with monetary uncertainty about the economy, while Waller (2000) stresses that monetary policy committees are a way to cope with political uncertainty. Hefeker (2003), Matsen and Røisland (2005) and Gros and Hefeker (2007) investigate the welfare consequences of decision rules in a monetary union. A reference that explicitly relates the reactivity of central banks to the existence of monetary policy committees is Gerlach-Kristen (2005). However, she studies a limited set of decision rules, and does

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doi:10.1016/j.jmacro.2009.01.002

not investigate their impact on welfare. Moreover, in her model, policymakers only differ in the information they hold about the state of the economy. As a result, in that model, the monetary policy committee works like a jury, where disagreements among members only reflect differences in information, but not conflicting goals. Montoro (2007) and Riboni and Ruge-Murcia (2008) consider committees, where disagreements among members stem from governors having intrinsically different preferences. However, differences in preferences are simply assumed, and do in particular not reflect regional or sectoral heterogeneities. Gerlach-Kristen (2008) shows that, if the chairman of the policy committee is more skilled than the other members, consensus will obtain more easily and undertainty will be reduced.

The aim of the present paper is precisely to relate monetary policy's responsiveness to decision-making in monetary policy committees whose members represent different regions or sectors. In doing so, we extend the literature in several respects. First, we show how asymmetric regional shocks can affect the policy rates set by a federal monetary policy committee. Second, we analyze both a symmetric monetary union and an asymmetric monetary union, and compare monetary policy in both. Third, we most of all study a large spectrum of decision rules, some of which have not been studied so far in the literature on monetary policy. We in particular model the behavior of a monetary policy committee headed by a chairman, a realistic feature of monetary policy committees that has relatively been neglected so far, exceptions being Riboni and Ruge-Murcia (2008) and Gerlach-Kristen (2008). Finally, we consider the welfare implications of all the decision rules studied. We thus obtain a ranking of decision rules in terms of volatility of the chosen policy rate, and in terms of welfare. We show in particular that having a chairman reduces the volatility of policy rates. We finally find that asymmetries matter for the ranking of decision rules not only in terms of welfare but also in terms of the volatility of the interest rate.

To do so, the rest of this paper is organized as follows. Section 2 sets up the model on which our reasoning rests. The following section investigates the consequences of delegating monetary policy to a hegemonic decision-maker. Section 4 studies the consequences of democratic decision rules. Section 5 introduces a chairman in the working of the monetary policy committee, and studies the consequences of all the decision rules studied in the presence of asymmetries between member countries. Section 6 concludes.

2. A simple model

The model basically consists of a description of the economic structure of a monetary union[1] and a specification of policy-making bodies' preferences. In this section, we first describe these two building blocks and then compute each policy-maker's optimal interest rate as a function of each country's characteristics.

2.1. The economy

We assume that the union consists of n economies, indexed by j. The aggregate demand of an economy j is then described by the following equation:

$$y^d_{j,t} = -\alpha(i_t - \pi_{j,t}) + \gamma_{j,t} + \varepsilon_t \tag{1}$$

where $y^d_{j,t}, i_t, \pi_{j,t}$ are the aggregate demand, the interest rate and the inflation rate of this economy at time t. In addition, γ and ε, respectively designate period t's local and federal demand shocks, whereas α is a positive parameter.

On the other hand, each economy's aggregate supply is given by a Lucas-type supply function where unexpected inflation boosts output:

$$y^s_{j,t} = \beta(\pi_{j,t} - \pi^e_t) + \eta_{j,t} + \upsilon_t \tag{2}$$

$y^s_{j,t}$ and π^e_t, respectively designate aggregate supply and the expected inflation rate, while η and υ represent period t's local and federal supply shocks, respectively. Also, β is a positive parameter.

Hence, in the equilibrium, we obtain:

$$\pi_{j,t} = \frac{1}{\beta - \alpha}\left(-\alpha i_t + \beta\pi^e_t + \gamma_{j,t} - \eta_{j,t} + \varepsilon_t - \upsilon_t\right) \tag{3}$$

$$y_{j,t} = \frac{\beta}{\beta - \alpha}\left(-\alpha i_t + \alpha\pi^e_t + \gamma_{j,t} - \frac{\alpha}{\beta}\eta_{j,t} + \varepsilon_t - \frac{\alpha}{\beta}\upsilon_t\right) \tag{4}$$

We suppose $\alpha < \beta$, to rule out unrealistic behavior of inflation relatively to its determinants.

The n local economies we consider differ from each other due to the contemporaneous asymmetric shocks with which they are confronted. The shocks are all normally distributed with well-defined variances and zero means, and orthogonal to each other. We consider the federal economy to be sufficiently large for asymmetric shocks to offset each other at every period, so that:

[1] Be this monetary union a collection of productive sectors, regions, or countries. For conciseness' sake, all our interpretations will be delivered in terms of countries in the rest of the paper, though our results can be read in a regional or sectorial perspective.