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Abstract

Is the politicisation of monetary policy in a currency union desirable? This paper shows that in a setting where political influence by national governments is modeled as a common agency game with rational expectations, the answer to this question crucially depends on whether the common central bank can commit to follow its policy.

Keywords
Common Agency, Political Pressures, European Monetary Union

JEL Classifications
F33, E58, D78

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1 Introduction

The European Central Bank (ECB) has been granted by the Treaties of the European Union full political independence from national governments in the exercise of its powers[1]. Along several dimensions, the ECB is more independent than any existing national central bank of the Euro area. The rationale for this institutional arrangement has been questioned several times in the past few years. Critics of the present regime consider such independence as excessive and suggest closer involvement of national governments in monetary policy formulation in Europe[2].

Is there any reason why the monetary authority of a monetary union should be isolated from the influence of national governments -and even more so than the central bank of a unitary state? What are the effects of allowing national governments to exert political pressures on the common central bank? In other words, is the politicisation of monetary policy in a monetary union desirable?

This paper addresses these issues in a setting in which monetary politics is modeled as a common agency game with rational expectations (as in Dixit and Jensen (2003), henceforth, DJ, 2003). National governments -the principals- exert political pressures on (i.e. offer incentive contracts to) the common monetary authority -the agent- before observing the realization of a shock to the economy in the attempt to influence the common monetary policy. The central bank chooses monetary policy taking into account the shock and the political pressures of national governments.

The model extends the theory of common agency with rational expectations to the case in which the agent disposes of a commitment technology. It shows that "truthful" incentive contracts must be modified to account for the rational expectations constraint, as in DJ (2003). However, the only effect of these contracts is to distort the equilibrium policy, as in the traditional common agency literature (Bernheim and Whinston, 1986, and Grossman and Helpman, 1994).

This analysis implies that the desirability of politicisation of monetary policy in a currency union depends critically on whether the monetary authority can commit to follow its policies. DJ (2003) show that, absent a commitment technology, politicisation of monetary policy in a currency union can be beneficial. Political pressures by national governments on the common central bank mitigate the time consistency problem, as they induce the monetary authority to take into account the effects of its policy on the expected inflation.[3] If the monetary authority

[1] Article 108 of the Treaty on European Union provides that "*When exercising the powers and carrying out the tasks and duties conferred upon them by this Treaty and the Statutes of the ESCBs, neither the ECB nor the national central banks, nor any member of their decision-making bodies, shall seek or take instructions from European Community institutions or bodies, from any government of a Member State. The Community institutions and bodies and the governments of the Member States must respect this principle and not seek to influence the members of the decision-making bodies of the ECB or of the national central banks in the performance of their tasks.*"

[2] See, for instance, the editorials on the Financial Times of July 4 and 5, 2005. More recently this issue emerged in the 2007 presidential election in France, where both candidates from the left and the right proposed to increase the influence of national governments on the ECB's monetary policy.

[3] The work of DJ (2003) extends to a multiple-agency setting the well known approach of Walsh (1995) concerning "optimal contracts to central bankers". However, DJ (2003) find that the lack of coordination of national governments

disposes of a commitment technology, it can in principle commit to an optimal policy rule for the monetary union. However, national governments have an incentive to exert political pressures on the common central bank, as in a monetary union the optimal commitment rule for a country generally differs from the optimal common rule. In this case, the only effect of politicisation of monetary policy is to distort the equilibrium policy to the advantage of the governments that are politically more influential and to the disadvantage of the other members of the monetary union (and at the additional expense of costly political influence).

The paper is organized as follows. Section 2 describes the basic economic framework and the optimal national and common monetary policy. Section 3 discusses the effects of political influence by national governments on the common central bank. Concluding remarks follow.

2 The economic model

The model builds on the work of DJ (2003). The economy has a population of measure one divided into N politically independent countries indexed by $i = 1, 2, ..., N$. These countries belong to a monetary union in which monetary policy is decided by a common central bank. The monetary authority chooses a policy variable x after the realization of shocks z, where z is a vector of country-specific shocks. Accordingly, the central bank's policy is a function $x(z)$. We can consider the monetary authority as directly deciding the inflation rate of the union. Individuals form rational expectations on x before the shock is realized; let $g(z)$ be the density function of z, we can write the condition for rationality as

$$x^e = E[x(z)] = \int x(z)\, g(z)\, dz. \tag{1}$$

In each country, individuals' welfare is influenced by their ex ante expectations of the central bank's ex post choice of the policy variable. Overall welfare in country i takes the general form $w^i(x, x^e, z)$. We take this as representing the objective function of the (benevolent) government of country i.[4] Payoffs depend on the actual policy x chosen ex post by the central bank, the expectation x^e of x as well as on the realization of the shock z. We should interpret these payoffs as indirect utility functions.

2.1 Optimal monetary policy in a monetary union

As a benchmark, I find first the optimal policy from country i's perspective. The complete contingent commitment policy that member country i prefers is the one that maximizes $E\left[w^i(x, x^e, z)\right]$, subject to equation 1.

in setting political pressures can lead to an anti-inflationary bias.

[4] The argument of this paper does not need opportunistic or partisan politicians, hence the assumption that each government is a national social welfare maximizer.

The first order condition to this problem is given by the following condition

$$\frac{\partial w^i}{\partial x} + E\left(\frac{\partial w^i}{\partial x^e}\right) = 0, \tag{2}$$

which implicitly defines the optimal commitment policy from the perspective of country i. Condition 2 implies that the commitment rule preferred by each member of the monetary union allows for policy responses by the common central bank to shocks for which the monetary authority has an informational advantage, but takes into account the effects on the welfare of individuals in country i of changes in x^e. In other words, the optimal commitment rule from country i's perspective trades off the benefits of surprise inflation as a response to a negative shock, with the costs of higher expected inflation.

As is well understood, a single welfare-optimizing monetary policy differs from an ideal benchmark of nation-specific optimal monetary policy.[5] Assuming that there is some exogenous commitment or reputational mechanism, the common central bank can credibly commit to its policy and simply chooses a policy rule that maximizes the expected aggregate social welfare of the monetary union:[6]

$$\max E\left[\sum_{i=1}^{N} \theta_i w^i\left(x, x^e, z\right)\right]$$

subject to the rationality constraint 1, where θ_i is the size of country i.

The commitment policy chosen by the common central bank is implicitly determined by the following first-order condition

$$\sum_{i=1}^{N} \theta_i \left[\frac{\partial w^i}{\partial x} + E\left(\frac{\partial w^i}{\partial x^e}\right)\right] = 0. \tag{3}$$

The optimal common policy allows policy responses to shocks and is a weighted average of the preferred national policies, where weights depend on the size of countries.

The difference in preferences across countries implies that the optimal commitment rule for country i (condition 2) differs from the rule preferred by other members of the monetary union and from the optimal common policy rule (condition 3). This creates incentives for national governments to exert political pressures on the monetary authority in the attempt to influence the common monetary policy. The rest of the paper investigates the effects on the equilibrium policy of the influence of politicians on the common central bank.

[5] On the costs and benefits of a monetary union see the recent works by Alesina and Barro (2002) and Corsetti (2004) and the references therein.

[6] Refer to Persson and Tabellini (2000) and Walsh (1998) for surveys of the large literature on institutions and reputation in monetary policy.

3 Political pressures and monetary policy in a monetary union

I consider a monetary constitution for a currency union that allows politicians to influence the common central bank. I model the relationship between the common central bank and national governments as a common agency game (Bernheim and Whinston, 1986, and Grossman and Helpman, 1994). The chosen policy is the Nash equilibrium of a game that involves the N national governments and the monetary authority.

The timing of the game is as follows. At the beginning of the period, politicians exert influence on the monetary authority. At a second stage, the shock is realized and the central bank chooses the policy taking into account (national) political pressures.[7]

Formally, political pressures are represented by contracts that the principals offer to the agent. These incentive schemes are binding commitments to deliver a transfer (monetary or non monetary) to the agent when the policy is chosen and should be interpreted as specifying the intensity of political pressures by governments contingent on the policy and the shock:[8]

$$t^i(x,z) = k^i(z) + c^i(x,z).$$

The central bank's objective function is of the Grossman and Helpman (1994) form and is given by

$$w^a = \eta \sum_i \theta_i w^i(x, x^e, z) + (1-\eta) \sum_i \mu_i t^i(x,z) \tag{4}$$

This function assumes that the agent cares about both the aggregate welfare of individuals living in member countries of the monetary union and about political pressures -i.e. the contracts offered by governments. We can think of $\eta \in [0,1]$ as capturing some elements of the institutional framework (the monetary constitution) of the monetary union, where $\eta = 0$ and $\eta = 1$ correspond to the case of *no* and *full political independence* respectively.

Country size θ_i directly enters the objective function of the monetary authority through social welfare. The parameter μ_i represents the direct influence on the agent of principal i which can be larger, smaller or equal to θ_i; we interpret μ_i as country-specific political (or lobbying) ability.

3.1 Equilibrium with commitment

I investigate the effects of politicisation of monetary policy when the central bank can commit to its policies. In this context, national governments exert political pressures to influence the rule that

[7] McCallum (1995) fameously noticed that governments can ex post renage on their contracts; an argument often used against politicisation of monetary policy. Here, I show that in a monetary union, national political pressures have negative effects *even if* governments do not change the contracts ex post.

[8] The choice of this separable functional form is mostly for analytical convenience, as it simplifies the agent's participation constraint (see the Appendix for details).

the common monetary authority adopts.

The common central bank chooses policy x to maximize the expected value of its objective function (equation 4) taking into account that expectations are formed rationally (condition 1) and the political pressures of national governments. The equilibrium is characterized by the following two expressions that implicitly define political pressures and the policy under commitment:[9]

$$\frac{\partial c^i}{\partial x} = \frac{\partial w^i}{\partial x} + E\left(\frac{\partial w^i}{\partial x^e}\right) \tag{5}$$

$$\sum_i \left[\theta_i + (1-\eta)\,\mu_i\right]\left[\frac{\partial w^i}{\partial x} + E\left(\frac{\partial w^i}{\partial x^e}\right)\right] = 0. \tag{6}$$

In the first of these conditions, equilibrium political pressures/transfer schedules reflect the preferences of country i in terms of the optimal commitment policy rule (see equation 2). Note that principals also take into account how a change in expectations will affect their payoff. As well discussed in DJ (2003), these contracts generalize the "truthful" (or compensating) equilibrium schedules of Grossman and Helpman (1994) by capturing the additional effect of the rational expectations constraint.

From the second condition, the equilibrium policy under commitment is a weighted average of the preferred policy rules of the principals where the weights depend on the relative size and political ability of each country. When the common central bank disposes of a commitment technology, it can reach the first best policy for the monetary union. The only role of political pressures is, therefore, to change the weights in the common agent's objective function, as in standard multiple-agency problems (Bernheim and Whinston, 1986, and Grossman and Helpman, 1994). The intuition is that (differently from DJ, 2003) all relevant decisions -political pressures and the policy rule- are taken before the realization of the shock. After the shock is realized, the common central bank decides monetary policy according to the rule which is committed to follow.

Consider the effects of allowing national political pressures on the common central bank. For $\eta = 1$, the equilibrium policy (condition 6) corresponds to the optimal policy rule for the currency union (condition 3), where the weights depend only on the size of the member states. Moreover, no resources are wasted in lobbying the common central bank. For $\eta = 0$, equation 6 shows that more influential countries (those with larger μ_i for given μ_{-i}) are able to distort the common monetary policy towards what is best for their citizens. Note that even in the special case in which $\theta_i = \mu_i \; \forall i$, allowing the politicisation of monetary policy comes at a cost. In the model this cost is captured by the contracts implicitly determined by condition 5: all governments end up wasting resources in the attempt to influence the policy rule chosen by the common central bank. In equilibrium, political pressures offset each other and are not effective, but are costly for governments. All members of

[9] The derivations are in the technical Appendix.

the union would benefit if the possibility to influence the monetary authority were removed in the first place.

4 Conclusions

This paper studies the effects of political pressures by national governments on the common central bank of a monetary union. Political influence is modeled as a common agency game with rational expectations along the lines of DJ (2003). When the common agent can commit to its policy, the multiple-agency game with rational expectations delivers the same result as in standard common agency games (Bernheim and Whinston, 1986, and Grossman and Helpman, 1994), where the only effect of transfer schemes is to distort the policy in favor of more influential principals. The model, therefore, shows that politicisation of monetary policy in a currency union is never beneficial if the monetary authority disposes of a commitment technology.

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Appendix

The game is solved backward. At the last stage, the agent maximizes the expected value of the objective function 4 taking into account that expectations are formed rationally (i.e. according to condition 1) and for given political pressures. We can write the Lagrangian of the agent maximization problem as

$$L^a = E\{w^a\} + \lambda_1 \{x^e - E(x)\}.$$

Combining the first order conditions of this problem, we find the policy rule that the agent chooses ex ante is implicitly determined by

$$\eta \sum_i \theta_i \left[\frac{\partial w^i}{\partial x} + E\left(\frac{\partial w^i}{\partial x^e} \right) \right] + (1-\eta) \sum_i \mu_i \frac{\partial t^i}{\partial x} = 0.$$

We can rearrange this last condition as follows (which will be useful later)

$$-(1-\eta)\mu_i \frac{\partial c^i}{\partial x} - \eta \sum_i \theta_i E\left(\frac{\partial w^i}{\partial x^e} \right) = \eta \sum_i \theta_i \frac{\partial w^i}{\partial x} + (1-\eta) \sum_{j \neq i} \mu_j \frac{\partial c^j}{\partial x}, \tag{A1}$$

where we used the fact that political pressures on the central bank take the form $t^i(x,z) = k^i(z) + c^i(x,z)$.

Before observing the shock, each national government chooses political pressures to maximize the expected value of welfare in country i. Formally, government i's choice variables are the functions $k^i(z)$ and $c^i(x,z)$ and the government maximizes $E\left[w^i(x,x^e,z) - t^i(x,z)\right]$ subject to several constraints. First, principals recognize that the agent will set the policy according to A1, this is kept implicit in the Lagrangian below. Second, political pressures need to satisfy a participation constraint for the agent of the form $E(w^a) \geq w_0^a$, where w_0^a is an outside opportunity utility -i.e. the level of utility that the central banker gets in the absence of political pressure by national governments. Principals also recognize that expectations will be formed rationally. We regard each principal as if it directly chooses the expectation of x subject to the rationality constraint 1.

Consider the decision problem of government i, the Lagrangian (where we omit function arguments for brevity) is

$$L_i = E\left\{w^i - \left[k^i + c^i\right]\right\} + \lambda_1^i \{x^e - E(x)\} + \lambda_2^i E\left\{ \eta \sum_i \theta_i w^i + (1-\eta) \sum_i \mu_i \left[k^i + c^i\right] - w_0^a \right\},$$

where λ_1^i and λ_2^i are the Lagrange multipliers on the rationality constraint and on the participation constraint of the common agent.

Simplify the Lagrangian noting that it depends only on the expectation $E\left[k^i(z)\right]$ and not directly on the function $k^i(z)$. From the first order condition with respect to this, we find that the Lagrange multiplier on the agent's participation constraint is $\lambda_2^i = 1/\left[(1-\eta)\mu_i\right]$. Using this we can rewrite the Lagrangian of government i as

$$L_i = E\left\{w^i\right\} + \lambda_1^i\left\{x^e - E(x)\right\} + \frac{1}{(1-\eta)\mu_i} E\left\{\eta\sum_i \theta_i w^i + (1-\eta)\sum_{j\neq i}\mu_j\left[k^j + c^j\right] - w_0^a\right\}.$$

Now consider the effect of a change of x on this Lagrangian and use condition A1 to simplify it, we get

$$dL_i = \left\{\frac{\partial w^i}{\partial x} - \lambda_1^i - \frac{\partial c^i}{\partial x} - \frac{\eta}{(1-\eta)\mu_i}\sum_i \theta_i E\left(\frac{\partial w^i}{\partial x^e}\right)\right\} g(z)\, de(z).$$

This implies that the optimal choice of government i's political pressure on the common central bank needs to satisfy

$$\frac{\partial c^i}{\partial x} = \frac{\partial w^i}{\partial x} - \lambda_1^i - \frac{\eta}{(1-\eta)\mu_i}\sum_i \theta_i E\left(\frac{\partial w^i}{\partial x^e}\right). \tag{A2}$$

Note that, we can find the Lagrange multiplier λ_1^i from the first order condition for the choice of x^e:

$$\frac{\partial L_i}{\partial x^e} = E\left(\frac{\partial w^i}{\partial x^e}\right) + \lambda_1^i + \frac{\eta}{(1-\eta)\mu_i} E\left(\sum_i \theta_i \frac{\partial w^i}{\partial x^e}\right) = 0.$$

Substituting the Lagrange multiplier λ_1^i into condition A2 and rearranging, we get condition 5 in the main text.

The equilibrium policy needs to be consistent with the maximization problem of the agent. We therefore substitute the expression that implicitly defines the optimal contract of principal i into condition A1. Moreover, we can eliminate the Lagrange multiplier λ_1^i by using the first order conditions for the choice of x^e. This leads to condition 6 in the main text.

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