Introduction

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Positive political economy investigates how observed differences in institutions affect political and economic outcomes in various social, economic and political systems. It also inquires how the institutions themselves change and develop in response to individual and collective beliefs, preferences and strategies. As stated by Persson and Tabellini (1990) in their book on macroeconomics and politics: "The future research agenda ought to give high priority to modeling the details of political institutions. Adding institutional content is necessary to sharpen the empirical predictions of the theory." The essays on political economy collected in this volume aim to be part of this research agenda.

The modern theory of macroeconomic policy, and of monetary policy in particular, focuses on the game-theoretic interactions between private agents and policy makers where the private sector rationally anticipates economic policy. The variety of interests at stake in the conduct of monetary and exchange rate policy renders it a fertile area for political economists. At the same time, monetary institutions are currently in a state of flux, especially in Europe. The prospect of a European Monetary Union by January 1999 has heightened the interest in the design of central banking institutions, while a renewed popularity of fixed exchange rate regimes worldwide has prompted a fresh academic interest in the choice between fixed and flexible exchange rates and in the determination of capital controls.

The CentER for Economic Research of Tilburg University organized an international conference with the title "Positive political economy: theory and evidence" on January 23–4, 1995. The conference papers which make up the chapters of this volume first address the role of central bank independence and the exchange rate system in the conduct of monetary policy. Also, the volume addresses the issue of monetary instrument selection, the cost of monetary union in Europe, the determination of capital controls, and, finally, unemployment benefits and redistributive taxation. The

vantage point of most if not all the contributions is one of political economy.

Reflecting the increasing importance of open-economy issues, two theoretical contributions (by Jürgen von Hagen, and by Dale Henderson and Ning Zhu) focus on game-theoretic facets of monetary policy in a multi-country setting. At its current stage of development, political economy as a discipline increasingly shifts its focus to empirical investigation. Correspondingly, half of the chapters in the volume have an empirical content. The empirical chapters address the determination of the degree of central bank independence, the role of central bank independence and the exchange rate system in the conduct of monetary policy, the political economy of the exchange rate system, the determination of capital controls, and, finally, the costs of monetary union in Europe. The five empirical chapters are all based on international data sets.

The main themes of this volume are, first, monetary institutions and policy and, second, exchange rate policy and other policies with redistributive implications. Reflecting these themes, the volume is organized into two separate parts. Part I features six contributions (by Susanne Lohmann; Jürgen von Hagen; Sylvester Eijffinger and Eric Schaling; Alex Cukierman, Pedro Rodriguez, and Steven Webb; Dale Henderson and Ning Zhu; and Hélène Erkel-Rousse and Jacques Mélitz) on the general topic of the conduct of monetary policy in various institutional settings and on the costs and benefits of alternative monetary arrangements. Part II consists of four contributions (by Sebastian Edwards; Gian Maria Milesi-Ferretti; Patrick Minford; and Harry Huizinga) on the political economy of exchange rate anchors, the determination of capital controls, exchange rate adjustments and manufacturing subsidies, and, finally, unemployment benefits and redistributive taxation. The chapter on unemployment benefits is the only one in the volume that does not deal with monetary phenomena.

The first chapter in part I, by *Susanne Lohmann* (University of California at Los Angeles), examines reputational versus institutional solutions to the time-consistency problem of monetary policy. She asks why the structure of monetary institutions, such as central banks, effects policy directly, and separately from policy makers' reputations for maintaining low inflation. Monetary institutions, created by policy makers, can in principle be altered or even abolished by the same policy makers. Why would institutions therefore be able to solve a credibility problem that cannot be dealt with by reputational means? This question implies that there is an "institutions don't matter" paradox. As a possible resolution to the paradox, Lohmann argues that institutional and reputational schemes differ in the implied policy responsiveness to economic shocks and in the relevant economy policy "audience" and, thus, in the costs of violating the expectations of this

audience. The chapter by Lohmann is discussed by *Manfred J.M. Neumann* (University of Bonn).

Jürgen von Hagen (University of Mannheim and Indiana University) addresses the possibility of reciprocity-based political business cycles which are political business cycles that may occur as a result of decision making by a federation-wide central bank governing board. The central bank board is made up of representatives from the federation's constituent countries. The advantage of a many-state central bank council of national representatives over single-state central banks, namely that the decisive central banker is less likely to be subject to opportunistic political business cycle incentives, is generally not as strong in a repeated game setting as in single-shot voting games. If elections in participating countries are staggered, a main question is whether the federation-wide central bank will ever come to the aid of politicians in the election-country by way of creating a high federation-wide rate of inflation. Surprisingly, von Hagen shows that this may indeed be the case if the bargaining process among the country representatives follows a social norm that in essence entails that representatives from non-election countries will vote for relatively high inflation to "help" the election country, as they know they will be similarly helped in the future. The von Hagen chapter is discussed by *Kees Koedijk* (University of Limburg and LIFE).

The contribution by *Sylvester Eijffinger* (CentER, College of Europe, and Humboldt University of Berlin) and *Eric Schaling* (Bank of England) examines the theoretical and empirical determinants of the optimal degree of central bank independence or conservativeness. Building on Rogoff (1985), they are able to obtain a more precise characterization of the optimal degree of central bank independence with the aid of a graphical technique. The theory relates the optimal degree of central bank independence to underlying structural variables, such as the natural rate of unemployment, the benefits of unanticipated inflation, society's preferences for unemployment and inflation stabilization, and the variance of productivity shocks. Employing a latent variables method in order to distinguish between actual and optimal monetary regimes, Eijffinger and Schaling test these theoretical relationships using statutory measures of central bank independence and the relevant macroeconomic indicators for a set of nineteen industrial countries. The comment on the Eijffinger and Schaling chapter is by *Lex Hoogduin* (De Nederlandsche Bank and University of Groningen).

Alex Cukierman (Tel Aviv University and CentER), *Pedro Rodriguez* and *Steven Webb* (both World Bank) investigate how monetary policy is conducted in the face of a variety of macroeconomic shocks. From an open-economy macroeconomic model, they derive the optimal monetary

reaction functions that indicate how monetary instruments (i.e., monetary aggregates or interest rates) are to be adjusted to economic disturbances under four different exchange rate system scenarios. Exchange rates can be either fixed or flexible, and countries' financial assets may or may not be perfect substitutes in private portfolios. The resulting monetary reaction functions are estimated for a pooled data set of seventeen industrial countries. The authors are specifically interested in how adjustment of monetary instruments to economic shocks depends on the degree of central bank independence and on the nature of the exchange rate system. They conclude, among other things, that wage inflation is less accommodated in countries with more independent central banks, and in countries with unilateral pegs. *Jakob de Haan* (University of Groningen) discusses their contribution.

The chapter by *Dale Henderson* (Board of Governors of the Federal Reserve System) and *Ning Zhu* (World Bank) addresses the role of economic uncertainty in the choice of monetary policy instruments in a two-country, game-theoretic setting. The monetary policy makers in each country can fix either the money supply or the nominal interest rate. This implies there is a total of four possible Nash equilibria in the game without (velocity) uncertainty. Building on work in the industrial economics area by Klemperer and Meyer (1986), the authors find that the introduction of uncertainty generally reduces the number of possible Nash equilibria to fewer than four. A conclusion is that introducing uncertainty can lead policy makers to select a unique equilibrium that corresponds to the equilibrium that yields the lowest payoff with no uncertainty. The paper by Henderson and Zhu is commented on by *Harald Uhlig* (CentER).

Hélène Erkel-Rousse and *Jacques Mélitz* (Centre de Recherche en Economie et Statistique) provide us with evidence on the costs of European monetary union resulting from the elimination of national monetary policies following monetary union. The magnitude of these costs depends on how important national monetary policies are at present in countering economic shocks, and on how well the remaining national fiscal policies can shoulder the burden of stabilizing national economies in their absence. Erkel-Rousse and Mélitz estimate a structural VAR model, based on the long-run identifying scheme pioneered by Blanchard and Quah (1989) and extended by others, for six members of the European Union (Germany, France, the United Kingdom, Italy, Spain, and The Netherlands) that allows the identification of five different types of shocks. By identifying separate shocks, they wish to see how much EU members stand to lose from surrendering their monetary policies given that fiscal policies are preserved. In summary, they find that national shocks are much less in tandem than is perhaps thought. If economic shocks are largely asymmetric, then fiscal policies are well-suited to respond to them. The macroeconomic costs of a European monetary union may, thus, be

relatively small. Their chapter is discussed by *Daniel Gros* (Centre for European Policy Studies).

Part II contains four chapters on the topics of exchange rate systems and policy, capital controls, and unemployment benefits. *Sebastian Edwards* (World Bank and University of California at Los Angeles) investigates what determines a country's choice between fixed and flexible exchange rates, and whether exchange rate fixity imposes an effective constraint on monetary policy as evidenced by the rate of inflation. Starting from a theoretical model, Edwards proceeds to test what economic and political variables affect the choice for an exchange rate anchor in a sample of seventy advanced and developing countries. In addition, empirical results are presented on the extent to which fixed exchange rates in practice have contributed to a low rate of inflation. The evidence supports the view that fixed rates help reduce the inflationary bias, especially in countries with a history of already relatively stable prices. The comment on the Edwards chapter is by *Casper de Vries* (Erasmus University, Rotterdam).

The chapter by *Gian Maria Milesi-Ferretti* (International Monetary Fund) surveys the literature on the determination of foreign exchange restrictions and capital controls. The theory yields hypotheses relating various key structural and political variables to the existence of capital controls. These hypotheses are tested with a data set consisting of sixty-one industrialized and developing countries. The evidence suggests that the degree of central bank independence and several government finance indicators can explain in part the occurrence of restrictive exchange rate policy. Also, capital controls are more likely to be imposed in poorer countries, and in countries with a larger government. Finally, external sector variables are significantly correlated with capital controls. *Lans Bovenberg* (CentER) discusses the chapter of Milesi-Ferretti.

The contribution by *Patrick Minford* (University of Liverpool) turns to the political economy of the Exchange Rate Mechanism of the European Monetary System. Minford observes that there is a tendency on the part of participating countries, other than Germany, to experience a combination of real exchange rate appreciation and extensive subsidies for manufacturing. These policies are explained in a politico-economic model of an economy consisting of a traded goods and a non-traded goods sector. In bad times, there are pressures from manufacturers in the traded goods sector to devalue the exchange rate and to provide manufacturing subsidies. The model therefore gives rise to an asymmetric policy response to bad and good times: devaluation in bad times and no revaluation in good times. This policy outcome creates inflationary expectations so that the economy experiences a real exchange rate appreciation in good times. The Minford chapter is commented on by *Jacques Sijben* (CentER).

The chapter by *Harry Huizinga* (CentER) examines the role of unemployment benefits and redistributive taxation in a model where workers' labor productivities are influenced by the general level of labor quality. In the presence of such labor quality externalities, labor market quits by relatively low-quality workers may raise the productivity of remaining workers. In this setting, unemployment benefits have important efficiency as well as redistributive implications. The political economy of such unemployment benefits, financed by a proportional labor income tax or a lump sum tax, is examined in a median voter framework. Even an employed voter generally supports positive unemployment benefits financed by a proportional labor income tax. A coalition of the unemployed and the most qualified employed workers may favor a relatively high unemployment benefit, if it is financed by a lump sum tax on all. The Huizinga chapter is discussed by *Casper van Ewijk* (University of Amsterdam).

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I

Monetary institutions and policy

1 Reputational versus institutional solutions to the time-consistency problem in monetary policy

SUSANNE LOHMANN

1 Introduction

The classic time-consistency problem results in a counterproductive inflation bias to discretionary monetary policy (Kydland and Prescott, 1977; Barro and Gordon, 1983). The standard formulation of the problem is based on the following time sequence of events: wage setters negotiate nominal wage contracts, setting wage growth equal to expected inflation; the policy maker then sets the inflation rate. Output is stimulated if the inflation rate exceeds the nominal wage growth fixed in the wage setters' contracts. However, such output stimulation comes at the price of increased inflation. The equilibrium inflation rate trades off the policy maker's output stimulation and inflation stabilization goals. Wage setters are rational and thus understand the policy maker's decision rule. Consequently, their inflation expectations do not systematically deviate from actual inflation. It follows that, in equilibrium, the policy maker cannot stimulate output, but her futile attempt to do so leads to an inflation bias. The policy maker would be better off if she could credibly commit herself to refraining from attempting to stimulate output. Since she cannot fulfill her output goal, she could then at least achieve her inflation goal.

2 The reputational solution

In an infinite-horizon repeated game setting, there exists a *reputational solution* to the time-consistency problem in monetary policy (Barro and Gordon, 1983); that is, the inflation bias can be reduced via reputational trigger-punishment strategies (Friedman, 1971).[1]

Suppose the policy maker commits herself to eliminating the inflation bias in monetary policy. The wage setters consequently negotiate a lower rate of nominal wage growth. If she defects, the wage setters punish the policy maker by setting inflationary nominal wage growth in the future. The credibility of the policy maker's commitment is then a function of her

discount factor. If the political discount factor is low, the temptation to defect dominates the future punishment of a reversion to the time-consistent equilibrium and commitment is infeasible. Conversely, if the policy maker's discount factor is high, the punishment exceeds the temptation to defect so that her monetary policy promises are credible.

3 Institutional solutions

3.1 Definition and examples

Taylor (1983) and Tabellini (1987) argue that societies alleviate the time-consistency problem by virtue of *institutional solutions*. An institution can be defined as a set of constraints that is initially the object of political choice at the "institutional design stage" but must subsequently be respected by the policy maker when setting policy at the "game stage" (Lohmann, 1992).

Scholars of monetary policy and theory have proposed a number of institutional arrangements, some of which have been implemented in practice: monetary targeting procedures, especially k-percent monetary growth rules (Friedman, 1968; McCallum, 1987; Canzoneri, 1985; Garfinkel and Oh, 1993; Flood and Isard, 1989); delegation to a conservative central banker (Rogoff, 1985; Lohmann, 1992; Waller, 1992; Eijffinger and Schaling, 1996); constitutionally guaranteed central bank independence (Neumann, 1991, 1992); fixed exchange rate regimes (Giavazzi and Giovannini, 1989; Giavazzi and Pagano, 1988; Mélitz, 1988; Cukierman, 1992; Cukierman, Kiguel, and Liviatan, 1994; Bordo and Kydland, 1995, 1996); and incentive contracts for central bankers (Persson and Tabellini, 1993; Walsh, 1995b).

3.2 Reputational versus institutional solutions

Institutional solutions to the time-consistency problem are based on the implicit assumption that the policy maker cannot credibly commit herself to a future path of monetary policy, whereas credible commitments to respect institutional constaints are feasible.[2]

One possible interpretation of this assumption is that institutional promises are *perfect commitments* that are impossible to "undo" without violating the laws of nature, whereas policy promises can be broken. However, the commitment to the central banking institutions listed above is imperfect in the sense that defections are *feasible*. (This does not exclude the possibility that policy makers may have *disincentives* to defect because of the costs imposed in the event of a defection.) In the context of central banking, credible commitments – whether policy or institutional promises

– can only arise if the shadow of the future is sufficiently strong. The feasibility of credible commitments is a function of the political discount factor, as noted above.

It follows that a policy maker can either make credible commitments, in which case there is no obvious role for institutional (rather than reputational) solutions, or she cannot make credible commitments, in which case institutions cannot solve the time-consistency problem. These two cases, which arise when the political discount factor is high or low, respectively, will now be examined in more detail.

If the policy maker cares strongly about the future, she can directly commit herself to the *ex ante* optimal monetary policy path. So why would she bother making institutional commitments, especially if these institutions have imperfections of their own?

For example, in 1978 several European countries formed the European Monetary System (EMS), thereby agreeing to limit bilateral exchange rate fluctuations within narrow margins around predetermined parities. This fixed exchange rate regime was originally set up as a cooperative system with symmetric intervention responsibilities. *De facto*, however, the Deutsche Bundesbank appears to have sterilized its exchange rate interventions to a large degree, with the acquiescence of other EMS member countries. The Deutschmark is now considered the anchor currency of the system. The inflation-averse and politically independent Bundesbank sets monetary policy at its discretion, and EMS member states are constrained to follow a low-inflation path to ensure that their currencies remain within EMS bands. The "disciplinary interpretation" of the EMS proposes that countries with traditionally high inflation rates such as France or Italy deliberately use EMS membership as a commitment device to achieve greater monetary discipline (Fratianni and von Hagen, 1992; see also Giavazzi and Giovannini, 1989; Giavazzi and Pagano, 1988; Mélitz, 1988; Cukierman, 1992).

The commitment of EMS member states to maintain EMS parities is fundamentally political in nature; that is, their promises can, as a matter of principle, be undone by political fiat. Nevertheless, devaluations and exits are costly. Not only do they raise inflation expectations, but governments that devalue or exit lose popularity and may consequently suffer electoral losses (Mélitz, 1988). A government that attempts to evade the monetary policy constraints implied by the EMS – by following an inflationary monetary policy while maintaining its EMS parities – may also trigger costly responses on the part of financial markets: destabilizing speculation, capital flight, and the like. In short, the commitment to the EMS is enforced by reputational trigger-punishment strategies, executed by wage setters, voters, and financial markets.