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Institutionalisation of International Negotiation Systems

The research project “Institutionalisation of International Negotiation Systems” provides the framework for my current research. It is an interdisciplinary project combining law, political sociology and economics situated at the Mannheim Centre for European Social Research (MZES) and the Centre for European Economic Research (ZEW). My contribution to the project will be a contract-theoretical analysis of international negotiation systems¹ with a special focus on the situation in the European Union. An international negotiation system can be seen as an agreement between local authorities or states specifying how future joint decisions will be taken. When the agreement about the (decision) system is taken, not all information relevant for taking a specific decision might be available. Basically, the decision system assigns a result to later available information. The questions in this context are then twofold: How does the optimal (ex post efficient²) mechanism in a specific contract-theoretical environment look like? Do some existing negotiation systems replicate the optimal (ex post efficient) mechanism?

In particular, my current research deals with information aggregation in, respectively through, political processes. Besides examining the general problem of how decentralised information can be aggregated efficiently, I am analysing this problem for the European System of Central Banks (ESCB). Questions of particular interest are:

- Why do we need national central banks given that there is the European Monetary Union and as its main institution the European Central Bank?
- How should voting in the decision making body of the ECB, the council of governors, be organised with respect to the distribution of votes, the rules of decision taking and the efficiency of results?

¹ Voting procedures as well as more complicated negotiation systems can be interpreted as an incentive mechanism and contract theory is the systematic analysis of the accessibility of certain results in different informational environments.

These aspects are the more important the closer any EU-enlargement, because on this occasion a discussion about structure and organisation of the ESCB, the ECB and its council will become unavoidable to guarantee future functioning.

The existing literature on decision making in this context focuses either on voting outcomes in the ECB council comparing alternative distributions of power over monetary policy decisions³, on the implications of different policy objectives of the common central bank⁴ or on equilibrium incentive contracts in a multi-principal agency framework⁵.

Instead, I am using the following set-up: Suppose national central banks possess information about (regional) shocks the ECB has no access to. The only intention of national central banks in using the common monetary policy is to accommodate the macroeconomic shocks in the own country. However, due to demand spill-over effects, shocks in one country may affect the desired policy in the other participating countries. It is then likely that national central bankers have some piece of private information about their national macroeconomic conditions. If spill-overs are large, then the other central bankers' information is important for the own desired policy. How should the decision function of the ECB (inflation as a function of announced shocks) be designed in order to maximise the sum of (expected) utilities in this setting? If there are no spill-overs and side-payments to national central banks are allowed it is always possible to obtain (Bayesian) incentive-compatibility using an expected externality mechanism⁶. On the other hand, if spill-overs are present and monetary transfers are excluded a priori, it is not obvious if and how incentive-compatibility could be implemented.

² The assignment of a decision to private information is *ex post efficient*, if for every distribution of private information the decision is efficient.

³ Von Hagen/Süppel (1994): Central bank constitutions for federal monetary unions. *EER* 38, 774-782.

⁴ Grüner (1999): On the role of conflicting national interests in the ECB Council. *CEPR Discussion Paper* 2192, or Gros/Hefeker (2000): One size must fit all – national divergences in a monetary union. *CEPS Working Document* 149.

⁵ Dixit/Jensen (2000): Equilibrium contracts for the central bank of a monetary union, *CES Working Paper* 400.

⁶ See Mas-Colell, Whinston and Green (1995): *Microeconomic Theory*. Oxford University Press, pp. 885, and D'Aspremont/Gérard-Varet (1979): Incentives and incomplete information, *Journal of Public Economics* 11, 25-45, or Arrow (1979): The property rights doctrine and demand revelation under incomplete information. In *Economics and Human Welfare*, edited by M. Boskin. New York: Academic Press.

More generally, consider a specific class of collective decision problems, where each of these problems has the following properties: In order to take a common decision, all agents obtain a piece of private information about their most desired policy. However, no individual is perfectly informed about what the privately optimal policy would be. This imperfection is due to spill-over effects between desired policies. Decision problems are characterised by one single parameter which measures the extent to which private information affects all individuals. In this setting consider a particular class of mechanisms, the so-called k -mechanisms. These mechanisms do not condition monetary transfers on the n agents' announcements, in fact all monetary transfers are ruled out a priori. Each agent is asked to make an announcement about his private information. The $k/2$ highest and $k/2$ lowest announcements are neglected. The decision is then the average of the remaining $n-k$ announcements. Mechanisms are distinguished through the number of announcements k which are neglected. Note that this class of mechanisms includes as special cases $k=n-1$ which implements the median of all announced policies and $k=0$ which implements the mean.

The main result is that the number of individuals who should be excluded depends upon the extent to which spill-overs affect the economy. With little spill-overs the median mechanism dominates the mean mechanism, with strong spill-overs it is optimal to let all agents participate. For the decision process in a common central bank like the ECB this means that the larger the common component between the member states, i.e. the more national macroeconomic shocks affect all members of the union, the more members should participate in decision making.

Besides voting in the ECB council, there are numerous other applications of this result. Any setting in which the individually preferred decision does not only depend on the agents' own private information but as well on the signals of the others fits into this framework. In particular, one can think of the Common Foreign and Security Policy of the European Union as an application, but the model extends naturally to such areas as industrial organisation, labour economics and organisation design.