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Working Paper

An analysis of institutional change in the European Union with an application to social policy

DIW Discussion Papers, No. 282

Provided in Cooperation with:

German Institute for Economic Research (DIW Berlin)

Suggested Citation: Kolmar, Martin (2002) : An analysis of institutional change in the European Union with an application to social policy, DIW Discussion Papers, No. 282, Deutsches Institut für Wirtschaftsforschung (DIW), Berlin

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Discussion Papers

282

Martin Kolmar

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Berlin, May 2002



DIW Berlin

German Institute
for Economic Research

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ISSN 1619-4535

An Analysis of Institutional Change in the European Union with an Application to Social Policy

8. May 2002

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Abstract:

Institutional change is guided by rules. In the European Union these rules are given by Art. 250-252 of the Treaty of Amsterdam. These articles define the actors and rules that bring about changes in policies in the European Union. We analyze these articles as games in extensive form and characterize and compare the equilibria of these games. This analysis identifies the decisive actors the conditions under which it comes to institutional change within the European Union. In addition we analyze the tendencies for centralization inherent in these decision procedures as well as their ability to come up with solutions that are a good compromise between all actors.

Keywords: endogenous institutional change, law and economics

¹ I acknowledge the hospitality of DIW Berlin and Brown University. Special thanks are due to Friedrich Breyer and Gerd Wagner. The research has been supported by the German Research Foundation. Send mail to: University of Konstanz, Department of Economics, Box D 136, D-78457 Konstanz, email: Martin.Kolmar@uni-konstanz.de

1 Introduction

There is an ongoing discussion in the literature on public economics about the consequences of market integration on national fiscal and social policies like the provision of national public goods. The literature on tax competition focuses on the consequences of decentralized decision making on the efficiency of political equilibria, whereas the literature on fiscal federalism focuses on the optimal allocation of political responsibilities between centralized and decentralized authorities. (See for example Bordignon, Manasse, and Tabellini (1999), Breyer and Kolmar (2001), Bucovetsky, Marchand, and Pestieau(1999), Crémer and Pestieau (1996), Lockwood (1999), and Raff and Wilson (1997). It can be concluded that for a large number of cases political equilibria can be expected to be inefficient because the combination of integrated markets on the one hand and decentralized political responsibilities on the other hand induces externalities between the members of the integrated market.

A second look at this literature, however, reveals that the driving force for the inefficiencies must be some institutional friction or a form of transaction costs. Since Coase (1960) it has long been recognized that the existence of externalities is caused by ill-specified property rights or, more generally, ill defined institutions. In other words, externalities occur only if the possibilities of agents to bargain up to the Pareto frontier is restricted. To be more specific, the inefficiency of the political equilibrium in a tax-competition game builds on the implicit assumption that countries are restricted in their ability to bargain which, in effect, refers to imperfectly designed supra-national institutions. Different to allocation problems between agents within a country the supra-national rules shaping incentives of national actors are most likely imperfect, resulting in a situation of partial anarchy (Anderson and Marcouiller 1997 and Garfinkel and Skaperdas 1997).

There are three approaches from which the design of supra-national institutions can be analyzed.

1. First by the identification of second-best optimal organization structures given transaction costs or asymmetric information. This “mechanism design” approach has been applied for example by Bordignon, Manasse, and Tabellini (1999) and Lockwood (1999) in order to address questions like the optimal degree of centralization of political responsibilities in the presence of asymmetric information. The aim of this approach is to characterize optimal institutions in the presence of transaction costs.

2. Second by the analysis of models incorporating political decision procedures as a means to explain restrictions to the bargaining process (see for example Alesina and Spolaore 1997, Hindriks 1999). These models use median voter models to determine the the outcome of a political game between countries or regions.
3. Third by the analysis of existing supra-national institutions. The first two approaches rely on an implicit assumption. The first approach presupposes that all relevant restrictions are incorporated in the model in order to make the characterization of institutional structures meaningful. However, why are the institutions that we observe systematically different from, for example Groves mechanisms that are the usual solution of the analysis of situations with asymmetric information? The second approach is able to explain long-term inefficiencies. However, it is ex ante unclear that the median voter model focuses on the right restrictions of the bargaining process. Real-world bargaining that should lead to institutional change in the presence of international externalities is guided by real-world institutions, restricting attention to median-voter models, while gathering interesting aspects of the problem, somehow throws out the baby with the bathtub because the incentives provided by real-world institutions can be analyzed in detail using standard tools of economics.

We will adopt this perspective in this paper and call the institutions that define the legal framework for bargaining and institutional change meta-institutions in the following. Different to the mechanism-design approach these meta-institutions are assumed to be exogenous explaining institutional change at the underlying level.

In the European Union the meta-institutions are defined in Art. 250-252 of the Treaty of Amsterdam. (Art. 189a-c Treaty of Maastricht). These articles define procedures according to which decisions are made. For example in the field of social policy, decisions were made according to Art. 252 (former Art. 189) before the treaty of Amsterdam has been ratified. After its ratification Art 252 has been replaced by Art. 251.

The aim of this paper is to systematically analyze the above mentioned decision making procedures in order to get a better understanding about the strategic incentives induced and the limitations for allocations to be implemented b the means of meta institutions. In order to do so we assume that the decision making procedures can be adequately represented by a game in extensive form. We can then determine the equilibrium strategies of these games.

There is an extensive debate about the political incentives induced by Art. 250-252 in the political science literature. Tsebelis (1994) pioneered this literature. He developed a spacial model of political preferences in order to explain the role of actors on the european level. A critique and extension of this work can be found in Moser (1996, 1997). Steunenberg (1994, 1997) also analyzed the incentive structures induced by Art. 250-252 by the use of a spacial model of political preferences. A main focus of this literature has been on the relative majorities within the European Parliament and the Council of Ministers required for a decision. Especially Art. 251,252 define incentives schemes where procedures for preference aggregation within these agencies may change along the process of decision (from qualified majority to unanimity, for example).

The advantage of these approaches of being very detailed with respect to the decision mechanisms within each actor (the European Commission, the European Parliament, and the Council of Ministers) implies the disadvantage that these models have to be very simple with respect to game structure induced by the procedures as such. As we will show in this paper, a detailed and explicit analysis of the game structure helps gaining further insight into the incentives provided by the different procedures. In order to allow for this additional degree of freedom, however, we have to be more restrictive with respect to the procedure of preference aggregation within one of the decisive actors. We assume that different decision rules to aggregate preferences have no influence on the ordering of alternatives for each of these actors. In summary, we assume that the preference ordering of, for example, the European Parliament is the same irrespective of whether it is the outcome of a qualified majority or of an unanimity procedure. This is without doubt a strong assumption. However, we think this assumption can be justified because it allows us to generate insights into the game structure that would otherwise be unable to attain.

The paper proceeds as follows. In Section 2 we interpret the decision procedures as games in extensive form and characterize the equilibrium strategies. In Section 3 we apply our findings to the case of a strategy space that contains three elements and discuss the findings with respect to the possibility to internalize international externalities. Section 4 concludes.

2 Rational behavior of agents under Art. 250-252

In this section we will analyze the way rational actors will decide in the decision procedures defined in Art. 250-252. The aim is to find a simple characterization of the resulting equilibrium strategies. Formally, Art. 250-252 can be analyzed as games in extensive form where we look for

the set of subgame-perfect equilibria. In order to determine the equilibrium strategies of such a game it will be solved by backward induction. The advantage of such an analysis is that it allows to systematically reduce complexity of the procedures defined in the articles and to get insight into the strategic incentives of all the actors involved in the procedures defined in the articles.

Some simplifying assumptions are necessary to generate constructive results. First, Art. 250-252 specify different quorums for the aggregation of preferences of the relevant actors to some decision. The simple and qualified majority rules and the unanimity rule can be found as collective decision rules. In order to avoid the problems associated with these differences we assume that the outcome of the aggregation process of preferences within an institution is not influenced by the quorum required. Second, we assume that all actors act rationally in the sense that they perfectly understand the extensive form of the game and the influence of their decisions on its outcome. They choose their most preferred alternative. This is common knowledge among all actors of the game.

We use the following notation to analyze the strategic incentives of all three procedures:

1. We define all relevant actors (players) i , their strategies $P_i \in \mathbf{P}_i$ at each decision stage, and the order of their moves.
2. We define a choice function $u_i(\cdot): \mathbf{P}_i \rightarrow R$ with the following interpretation: if $u_i(\hat{P}) \geq u_i(P) \forall P \in \mathbf{P}_i$ at some stage, player i chooses strategy \hat{P} at this stage. If there are several optimal strategies at this stage, we assume for convenience that the player chooses the one that maximizes the payoff of the other players. Thus, a choice function is a shortcut for the underlying aggregation of individual preferences to a collective decision of the institution called "player i ."

In Art. 252 it is specified that some actors have to be consulted in the process of decision making. These actors cannot change the outcome of the game and are therefore irrelevant from a rational-choice perspective. The strategies of other players, however, have an influence on the outcome of the game. In order to distinguish between these two groups of players it turns out to be helpful to distinguish between real and formal authority of an actor (Aghion and Tirole 1997):

- an actor has *formal authority* if there is at least one stage of the game in extensive form where this player can make a choice,

- an actor has *real authority* if he has formal authority and his choice of action can have an influence on the outcome of the game.

This distinction immediately shows that one implication of our assumption of rationality is that our analysis can concentrate on players and moves of these players that can have an influence on the outcome of the game, thus who have real authority. The actors with real authority are for Art. 251,252 the European Commission, the European Parliament (*EP*) and the Council of Ministers, and for Art. 250 the European Commission (*EC*) (*EP*) and the Council of Ministers (*CM*).

We denote by P_{EC} , P_{EP} , and P_{CM} the preferred alternatives from the set of relevant alternatives of the European Commission, the European Parliament, and the Council of Ministers respectively. P_{sq} denotes the status quo policy.

2.1 Decision making under Art. 250

Art 250 defines a simple game between the *EC* and the *CM*. It is summarized in Figure 1. The *EC* makes a proposal that can either be approved or rejected by the *CM*. As a result, the *CM* will approve any proposal at stage 2 for which $u^{CM}(P) \geq u^{CM}(P_{sq})$ is fulfilled. This strategy defines a participation constraint of the *CM* that constrains the maximization problem of the *EC* at stage 1.

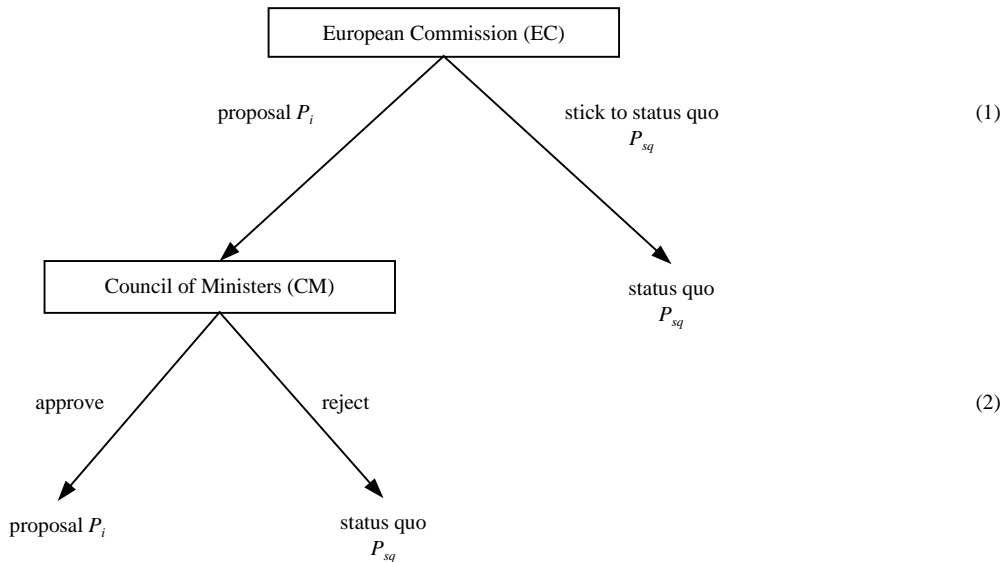


Figure 1: Decision making under Art. 250

It will choose the alternative that maximizes its utility under the restriction that it will not be rejected by the *CM*. We summarize in Result 1.

Result 1: The equilibrium strategy of the game defined by Art 250 is characterized by the following maximization problem:

$$P = \arg \max_P u^{EC}(P) \quad s.t. \quad u^{CM}(P) \geq u^{CM}(P_{sq}).$$

2.2 Decision making under Art. 251

Art. 251 defines a complex game in extensive form that is represented by Figure 2. The *EC* can make a proposal P_i that the *EP* can either accept or modify to proposal P_{ia} . If it is accepted, the *CM* can either approve or refuse P_i . In both cases the game ends with either the proposal P_i or the status quo P_{sq} . If it is amended, the *CM* can either accept the amendment (P_{ia} is carried out) or give its position P_{iap} to the *EP*. In the latter case, the *EP* can either approve (P_{iap} is carried out) or reject (P_{sq} is carried out) the position or add further amendments P_{iapa} . In the latter case it is the *EC* that can either approve or reject the amendments. In either case it is the *CM* that has to decide. However, if P_{iapa} is accepted by the *EC*, the decision rule is qualified majority, whereas else it is unanimity. If the proposal is accepted, P_{iapa} is carried out. Else a mediation committee that consists of an equal number of members of both, *EP* and *CM*, can make a new proposal P_{iapap} . If it does not, P_{sq} will not be changed. If it does, both, *EP* and *CM* have to accept it. If it is not accepted by at least one of these parties, the status quo P_{sq} remains in place. Otherwise, P_{iapap} will be approved.

In order to determine the equilibrium strategies of this game we will solve it by backward induction. The equilibrium outcome of this game crucially depends on the set of permissible amendments of the original *EC* proposal. We will analyze two different scenarios:

1. The set of admissible amendments is large. We approximate this case by the assumption that *CM* and *EP* can freely choose from the whole set of alternatives at each stage of the game.
2. The set of admissible amendments is small. We approximate this case by the assumption that every actor can either choose P_{EC} or the status quo at each stage of the game.

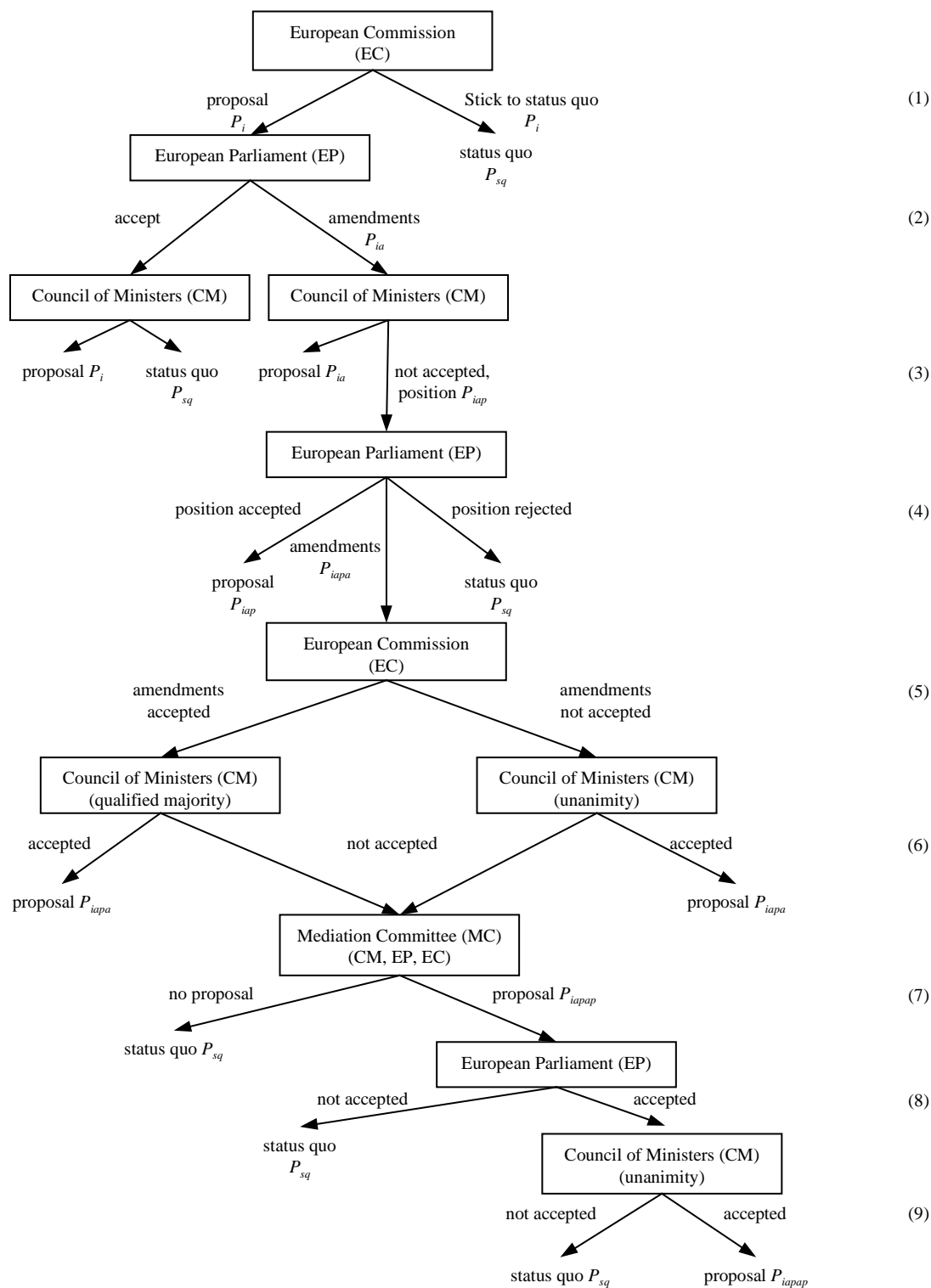


Figure 2: Decision making under Art. 251

1. As it is indicated in Figure 2, the game defined by Art. 251 has nine stages. In order to reduce complexity first note that the move of the *EC* at stage (5) is without material consequences for the rest of the game. Both strategies lead to the same continuation of the game. This result stems from the assumption that preferences of the actors can be specified without recourse to the specific voting rule. Hence, the position of the *EC* remains unchanged.

At stage 9 the *CM* can block any policy that would give it a utility level below the status quo. The same holds true for the *EP* at stage 8. Thus, only policies for which $u^{EP}(P) - u^{EP}(P_{sq}) \geq 0$, $u^{CM}(P) - u^{CM}(P_{sq}) \geq 0$ is fulfilled can pass stages 8 and 9 of the game.

Next the decision rule of the Mediation Committee at stage (7) has to be specified. As we have already mentioned it is composed out of an equal number of members of the *EP* and the *CM*. Its task is to find a compromise between both agents. It is therefore reasonable to assume that the determination of the outcome of these negotiations can be determined by some bargaining game. Given the continuation of the game at stages 8 and 9, the gains from an agreement are $u^{EP}(P) - u^{EP}(P_{sq})$, $u^{CM}(P) - u^{CM}(P_{sq})$ respectively. We can therefore define a bargaining function f and the outcome of the bargaining as

$$P_{iapap} = \arg \max_{P \in P} f(u^{EP}(P) - u^{EP}(P_{sq}), u^{CM}(P) - u^{CM}(P_{sq})).$$

Anticipating this outcome of the mediation process, the *CM* will accept P_{iapa} at stage (6) only if its utility is larger than its utility for P_{iapap} .

As we have already argued, stage (5) is without relevance for the outcome of the game. We can therefore turn to the analysis of stage (4). At this stage, the *EP* can either accept P_{iap} defined by the *CM* at stage 3 or define its own amendment P_{iapa} . *CM*'s utility with P_{iapa} cannot be lower than with P_{iapap} . Hence, the *EP* solves

$$\max_P u^{EP}(P) \quad s.t. \quad u^{CM}(P) \geq u^{CM}(P_{iapap}).$$

At stage 3, the *CM* is in a similar position. It can either accept the amendment made by the *EP* at stage (2) or formulate its own position P_{iap} . This can only be successful if it guarantees the *EP* a

utility level of at least $u^{EP}(P_{iapap})$ because otherwise it will formulate an amendment at stage (4) that will lead to the Mediation Committee at stage (7). Hence, CM solves

$$\max_P u^{CM}(P) \quad s.t. \quad u^{EP}(P) \geq u^{EP}(P_{iapap})$$

at stage (3).

By the same token, nothing changes for the possible amendments of the EP at stage 2. Whatever strategy it may choose, the CM can at least guarantee itself a level of utility of $u^{CM}(P_{iapap})$. Hence, the solution of the subgame beginning at stage (2) is determined by the outcome of the bargaining game at stage (7).

The EC will anticipate this outcome when formulating its proposal at stage (1). This implies that it will only formulate a proposal if $u^{EC}(P_{iapap}) \geq u^{EC}(P_{sq})$. We are now in a position to characterize the equilibrium of the game:

Proposition 2.a: If the set of possible amendments is large, the equilibrium of the game defined by Art. 251 is given by

$$P = \begin{cases} \arg \max_P f(u^{EP}(P) - u^{EP}(P_{sq}), u^{CM}(P) - u^{CM}(P_{sq})), & \text{if } u^{EC}(P_{iapap}) \geq u^{EC}(P_{sq}) \\ P_{sq}, & \text{else} \end{cases}$$

Please note that the EC will propose the strategy characterized in Proposition 2 at stage (1) and the game ends at stage (3) after it has been accepted by both, the EP and the CM .

2. If the set of possible amendments is small the calculation of the equilibrium strategy is straightforward. Both, the EP and the CM can either stick to the initial EC proposal or reject it. Because both agents can make a move at a stage where they can veto any proposal that is worse than the status quo the EC will maximize its utility under the participation constraints of the EP and the CM .

Result 2.b: If the set of admissible amendments is small, the equilibrium strategy of the game defined by Art 251 is characterized by the following maximization problem:

$$P = \arg \max_P u^{EC}(P) \quad s.t. \quad u^{CM}(P) \geq u^{CM}(P_{sq})$$

$$\wedge \quad u^{EP}(P) \geq u^{EP}(P_{sq}).$$

2.3 Decision making under Art. 252

Art. 252 also defines a game in extensive form of similar complexity to the one given by Art. 251. It is represented in Figure 3. The *EC* can start the game by making a proposal P_{EC} or sticking to the status quo P_{sq} . If a proposal is made, the *EP* can either approve or reject the proposal or propose amendments. If the *EP* adopts or rejects the proposal, the *CM* can adopt or reject the proposal. In both cases, an adoption leads to the realization of the *EC*'s proposal whereas a rejection leads to the status quo. If the *EP* makes an amendment, the *EC* can either make a modified proposal, P_{CM} , or withdraw the initial proposal. In the latter case, the status quo is realized. If the *EC* makes a modified proposal, the *CM* can either approve this proposal, and it is finally realized. Or it can approve the *EC*'s initial proposal and this is finally realized. As a third strategy it can make its own amendments P_{CM} and this policy is finally realized. Last, it can reject any of the *EC* proposals and the status quo is realized.

In order to analyze the equilibrium strategies of this game first note that it makes no difference whether the *EP* adopts or rejects the proposal made by the *EC* at stage (2). For both strategies the *CM* has the same strategies with the same resulting payoffs. Thus, if *EP* would not have the opportunity to propose amendments to the *EC* proposal, it would not have any real authority. Whether it in fact has any real authority resulting from this possibility will be analyzed later.

As for the analysis of Art. 251 it makes a crucial difference for the determination of the equilibrium strategies whether the set of admissible amendments is large or small. We will start with the analysis of a large set of admissible amendments.

1. Because the *CM* can make its own amendment P_{CM} at stage (5), it will choose its preferred alternative out of the set of policies. It will therefore choose $P_{CM} = \arg \max_P u^{CM}(P)$.

Hence, the *EC* will make a modified proposal at stage (4) if and only if $u^{EC}(P_{CM}) \geq u^{EC}(P_{sq})$.

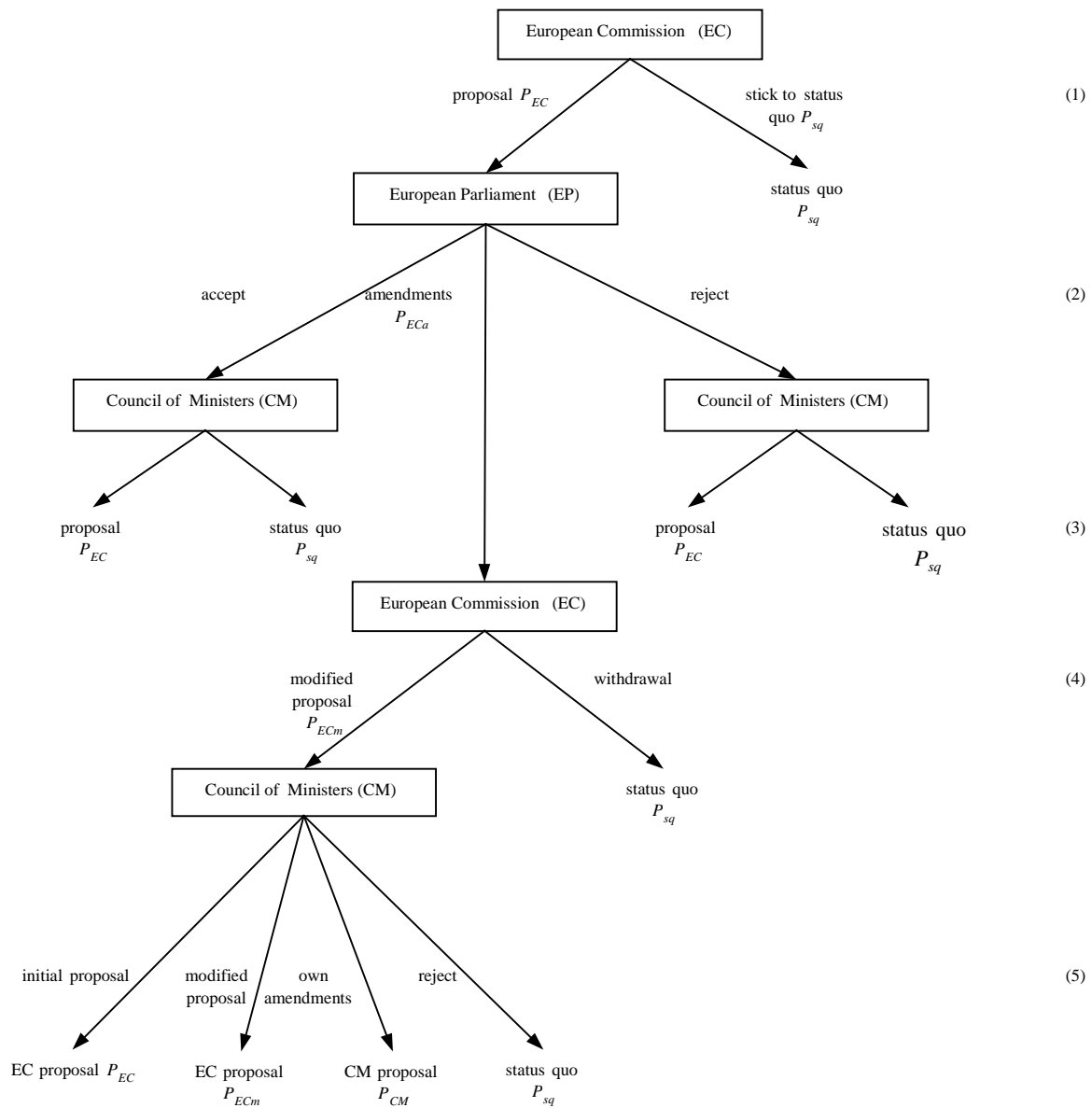


Figure 3: Decision making under Art. 252

At stage (3) the *CM* can either approve or reject the initial *EC* proposal. It will approve if and only if $u^{CM}(P_{EC}) \geq u^{CM}(P_{sq})$. What is the optimal strategy of the *EP* at stage (2)? If it approves or rejects the initial *EC* proposal alternative P_{EC} or P_{sq} will be realized depending on the decision of the *CM* at stage (3). If it adds amendments it will be alternative P_{CM} or P_{sq} depending on the *EC* strategy at stage (4) that is realized. Hence, in general the *EP* has real authority: as

soon as the EC proposal undercuts a certain utility level of the *EP* and the *CM*, it can switch to the status quo or the optimal *CM* proposal. We have to distinguish between the following cases:

- I. $u^{EC}(P_{CM}) > u^{EC}(P_{sq})$, the *EC* will modify the initial proposal at stage (4).
1. $u^{EP}(P_{CM}) \geq u^{EP}(P_{sq}) \wedge u^{CM}(P_{sq}) > u^{CM}(P_{EC})$: the *EP* will make an amendment at stage (2), P_{CM} will be realized.
 2. $u^{EP}(P_{CM}) \geq u^{EP}(P_{EC}) \wedge u^{CM}(P_{sq}) \leq u^{CM}(P_{EC})$: the *EP* will make an amendment at stage (2), P_{CM} will be realized.
 3. $u^{EP}(P_{CM}) < u^{EP}(P_{sq}) \wedge u^{CM}(P_{sq}) > u^{CM}(P_{EC})$: the *EP* will not make an amendment at stage (2), P_{sq} will be realized.
 4. $u^{EP}(P_{EC}) > u^{EP}(P_{CM}) \wedge u^{CM}(P_{EC}) \geq u^{CM}(P_{sq})$: the *EP* will not make an amendment at stage (2), P_{EC} will be realized.
- II. $u^{EC}(P_{CM}) < u^{EC}(P_{sq})$, the *EC* will not modify the initial proposal at stage (4).
1. $u^{EP}(P_{sq}) > u^{EP}(P_{EC}) \wedge u^{CM}(P_{EC}) \geq u^{CM}(P_{sq})$: the *EP* will make an amendment at stage (2), P_{sq} will be realized.
 2. $u^{EP}(P_{EC}) \geq u^{EP}(P_{sq}) \wedge u^{CM}(P_{EC}) \geq u^{CM}(P_{sq})$: the *EP* will not make an amendment at stage (2), P_{EC} will be realized.
 3. $u^{CM}(P_{sq}) > u^{CM}(P_{EC})$: the strategy of the *EP* is irrelevant for the outcome of the game, P_{sq} will be realized.

Anticipating the strategies of subgames 2-5 the *EC* can always make the proposal P_{CM} in cases I.1 and I.2 and proposal P_{EC} in cases I.4 and II.3. We can summarize with the following result:

Result 3.a: If the set of admissible amendments is large, the equilibrium strategies of the game defined by Art 189c can be derived by the following maximization problem:

1. If $[u_{EC}(P_{CM}) \geq u_{EC}(P_{sq})] \wedge [[[u_{EP}(P_{CM}) \geq u_{EP}(P_{sq})] \wedge [u_{CM}(P_{sq}) > u_{CM}(P_{EC})]] \vee [[u_{EP}(P_{CM}) \geq u_{EP}(P_{EC})] \wedge [u_{CM}(P_{sq}) \leq u_{CM}(P_{EC})]]]] \Rightarrow P = \arg \max_P u_{CM}(P)$.
2. If $[u_{CM}(P_{EC}) \geq u_{CM}(P_{sq})] \wedge [[[u_{EC}(P_{CM}) \geq u_{EC}(P_{sq})] \wedge [u_{EP}(P_{EC}) \geq u_{EP}(P_{CM})]] \vee [[u_{EC}(P_{sq}) > u_{EC}(P_{CM})] \wedge [u_{EP}(P_{EC}) \geq u_{EP}(P_{sq})]]]] \Rightarrow P = \arg \max_P u_{EC}(P)$.
3. In all other cases, P_{sq} will be realized.

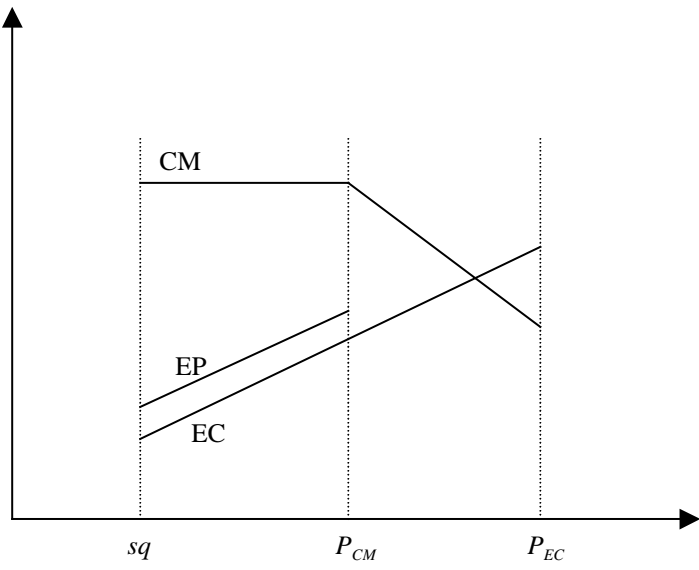


Figure 4.a

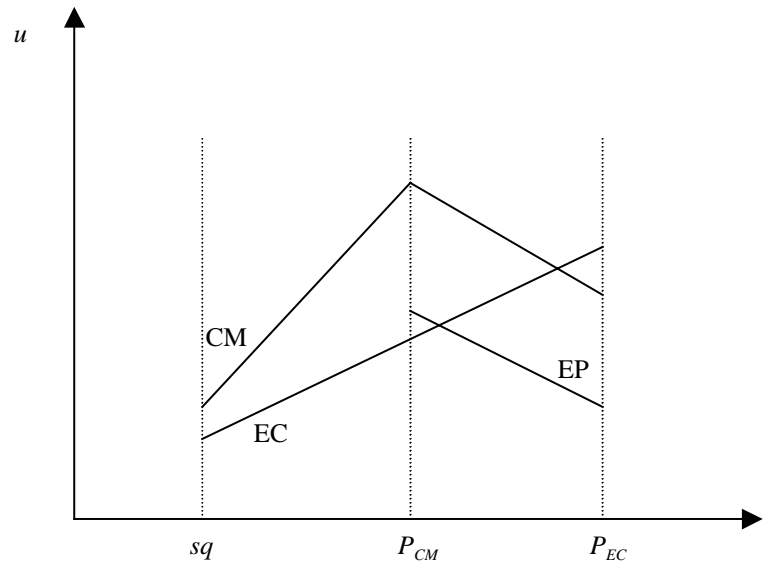


Figure 4.b

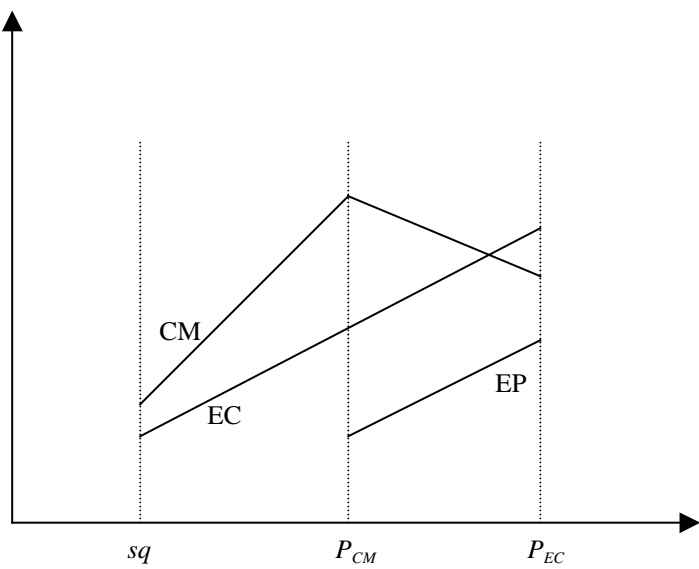


Figure 4.c

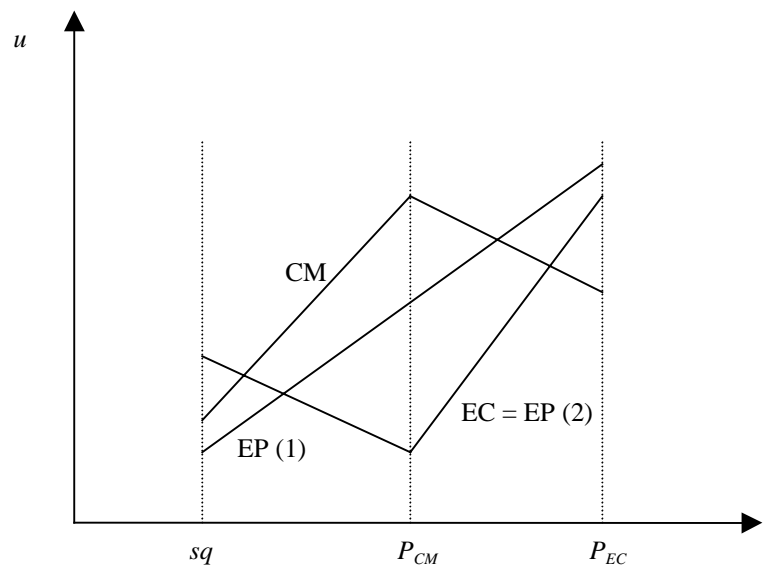


Figure 4.d

Result 3.a defines conditions for the structure of preferences of the agents that have to be fulfilled in order to change the status quo. First of all it can be concluded that the EP, despite its real authority, is never in a position to actually succeed with its preferred alternative. Condition 1 can be interpreted as an overall preference similarity. The preference structure necessary for P_{CM} to be realized in equilibrium is illustrated in Figures 4.a,b. All agents prefer the best policy of the CM compared to the status quo. In addition to this, the EP prefers P_{CM} over P_{EP} . This is the crucial difference to condition 2.1 that is represented in Figure 4.c: the preferences of both, EC and CM, coincide, however, the EP prefers P_{EP} over P_{CM} . This difference gives a good intuition for the real authority of the EP: in cases where EC and CM agree that P_{sq} is worse than both, P_{CM} and P_{EP} , it is the EP that becomes decisive for the policy to be realized in equilibrium. Figure 4.d represents condition 2.2. In this situation there is a fundamental conflict of interest between EC and CM concerning P_{CM} and the EP prefers P_{EC} to P_{sq} . There are two possibilities for this scenario indicated by EP (1) and EP (2) in the figure.

2. For the case of a small set of admissible amendments it follows immediately that the EP has no real authority in the decision process. If $P_{EC} = P_{CM}$, CM has to choose P_{EC} or P_{sq} at stage (5). Thus, the set of strategies is identical for CM for all strategies of EP at stage (2).

Result 3.b: If the set of admissible amendments is small, the equilibrium of the game defined by Art 189c can be characterized by the following maximization problem

$$P = \arg \max_P u^{EC}(P) \quad s.t. \quad u^{CM}(P) \geq u^{CM}(P_{sq}).$$

A comparison of Result 3.b and Result 1 reveals that there is no material difference between the decision procedures defined by Art. 250 and Art. 252 as long as the set of admissible amendments is small. The European Parliament has only formal but no real authority and it is still the European Commission that can maximize its interests (under the participation constraint of the CM).

3 Application

The theoretical analysis of the decision procedures defined by Art. 250-252 may give answers to at least three important questions. We will first analyze differences of the three procedures defined in Art. 250-252 with respect to the expected tendency towards the centralization of political responsibilities. Second we will figure out the importance of the different agencies, EC, EP, and

CM , in the different processes. Third we will analyze the outcomes with respect to the deviations from the most preferred alternatives of the agencies. This gives an idea about the ability of the different procedures to implement compromises with a minimum degree of conflict between the agencies.

In order to do so we will analyze an example with a policy space containing three elements. The three alternatives $P = \{c, p, d\}$ are vicarious for “centralization,” “partial centralization,” and “decentralization,” where we identify decentralization with the status-quo alternative. This policy space approximates the current discussion in a number of policy fields where the discuss is whether political responsibilities remain at the national level (decentralization), which corresponds to the status quo before market integration, or whether they should be centralized to some degree. With this interpretation partial centralization corresponds to a situation where political responsibilities remain decentralized but are centrally coordinated. By the same token centralization corresponds to a situation where the political responsibility itself shifts from the national to the European level.

In order to be more specific we will discuss the interpretation of the different alternatives by the use of the example of social policy. In the context of social policy, decentralization corresponds to a situation where the design and structure of social standards like health-care, unemployment, old-age insurance or security standards is within the responsibility of national authorities. Furthermore, the design of national policies is in no way restricted by a supranational contract. Partial centralization corresponds to a situation where this national responsibility is sauntered by supranational contracts, for example minimum standards that any national authority has to respect in the design of its programs. These minimum standards are the central policy measure in the field of social policy within the European Union. A policy of centralization would correspond to a situation where national social policies are replaced by a single European system.

In order to answer the above-mentioned questions we have to further specify the concepts of “tendency for centralization,” “importance of agency,” and “degree of deviation from preferences.” First we generate equilibrium outcomes by fixing the preference ordering of the European Commission and look for every permutation of preference orderings of the European Parliament and the Council of Ministers. For every tupel of preference orderings we then determine the equilibrium outcomes of the different procedures. This is done using the results from the last section.

Fixing the preference ordering of the EC has both, a convenience and an empirical aspect. The fixation restricts the number of permutations to $(3 \cdot 2 \cdot 1)(3 \cdot 2 \cdot 1) = 36$. Empirically the specification of a preference ordering seems to be most robust for the European Commission. It is a bureaucracy that is not restricted by re-election constraints of the population of the European Union. Hence, political-economic arguments would suggest that it will try to maximize influence and responsibility. This implies that the *EC* prefers a policy of centralization to a policy of partial centralization to a policy of decentralization. This is what we assume throughout this section. However, the political preferences of the *EP* and the *CM* are more ambiguous. This is why we allow for every possible permutation of preferences for these agencies.

1. **Tendency for centralization.** There are two ways to determine the expected tendency for centralization. One can first try to figure out the most plausible preference orderings of the different agencies and then look for the equilibrium outcomes of the games. Second one can define a measure for the degree of centralization by counting the number of permutations of preference orderings for which centralization, partial centralization, or decentralization turns out to be the equilibrium outcome. We will go both ways in the following.
1. **Importance of agencies.** Given the equilibrium outcomes of the procedures for all permutations of preference orderings we can compare the outcomes with the most-preferred outcomes of the *EC*, *EP*, and *CM*. We will look for the agency whose most preferred alternative is chosen most frequently. This agency will be called *most decisive*.
2. **Degree of deviation.** The outcome of the different games can differ with respect to the degree of deviation from the agencies' preferences. We use the following measure for this degree: if the equilibrium outcome corresponds to the most preferred alternative of an agency we add 0 to the measure, if it corresponds to the second-most preferred alternative, we add 1, and if it corresponds to the worst alternative, we add 2. Hence, the measure is distributed on $[0,6]$, where 0 corresponds to a situation where all agencies agree on the preferred policy and this policy is chosen in equilibrium, and 6 corresponds to a situation where all agencies have the same ordering of policies and the worst alternative is chosen in equilibrium.

Table 1.a at the end of the paper summarizes all 36 possible combinations of preferences. Every row contains one possible preference combination. They are enumerated from 1 to 36. Columns 2-4, 5-7, and 8-10 contain all possible preference orderings of the *EC* (columns 2-4), the *CM*

(columns 5-7), and the *EP* (columns 8-10). Permutation 10 for example corresponds to a situation where the *CM* prefers decentralization over partial centralization over centralization and the *EP* centralization over decentralization over partial centralization.

Table 1.b summarizes the equilibrium outcomes of Art. 250-250 for the underlying preference structures. For both, Art. 251 and Art. 252 we discriminate between the amendment and the no-amendment case. We know from Proposition 2.a that decision making under Art. 251 depends on the structure of the bargaining game of the mediation committee if amendments are possible. In most cases this leads to a definite solution of the game. However, this is not true for permutations 6 and 31. In both cases, the *EP* and the *CM* agree that *d* is worst. Hence, they would approve both, *c* and *p* at stages 8 and 9. However, they disagree about the ordering of *c* and *p*. Hence, the outcome of the bargaining game depends on its specific structure. In order not to impose any such structure we allow for both alternatives being chosen. This explains tuple $\{c,p\}$.

The last three lines count the number of permutations for which centralization, partial centralization, and decentralization turn out to be the equilibrium outcomes. We compare the no-amendment case first. As we already know from Propositions 1 and 3.b, decision making under Art. 250 and Art. 252 leads to identical results if the set of possible amendments is empty. Both procedure imply a tendency towards centralization: *c* is chosen in 18 out of 36 cases. On the other hand, Art. 251 creates opposite incentives: there is a strong tendency towards the status quo policy *d*. The comparison between Art. 250 and Art. 251 remains stable if the set of possible amendments is large. However, the centralization bias of Art. 252 is reversed: in 19 out of 36 cases it is the decentralized alternative that is realized. Hence, Art. 252 has an intermediate status. It can furthermore be noted that both, Art. 250 as well as Art. 252 imply an intermediate degree of polarization between centralization and decentralization.

Result 4: Art. 250 induces the strongest tendency towards centralization whereas Art. 251 induces the strongest tendency towards decentralization. Art. 252 induces intermediate incentives, depending on the set of possible amendments.

Table 1.c summarizes the deviations of the equilibrium outcomes from the preferences of the agencies. The last three lines aggregate these measures. In the first of these lines one finds the aggregate number of deviations, whereas in the second line there is the average deviation. The last line is the sum of all three average deviations.

A comparison of individual average deviations reveals that it is the European Commission that has to face the largest deviation of its preferences from the political outcome. Especially for Art. 250 this may sound surprising because it is the *EC* that has the power to make the first proposal. The result can be explained by the restricted policy space together with the choice of the status-quo alternative. The smaller the set of policies, the more restrictive becomes the participation constraints of the *CM* and/or the *EP*. In addition to this, the *EC*'s preferences are directly opposed to the status-quo alternative. Both effects imply that the number of cases where the EC can enforce political changes is severely limited.

It is the *CM* that has to accept the smallest deviations of outcomes from preferences for both, Art. 250 as well as Art. 252 independent of the set of possible amendments. The strong position of the *CM* stems from its veto power that becomes especially powerful if the number of alternatives is small.

It comes as no surprise that it is the *EP* that has to accept the worst compromise if decisions are made by the use of Art. 250 and 252 without amendments because of its lack of real authority. By the same token it is the *EC* that has to accept the largest deviation under Art. 252 with amendments.

Result 5: Irrespective of the procedure applied it is the *CM* that is most decisive in enabling policies, whereas *EC* and *EP* have to face larger expected deviations of the equilibrium outcome from their actual preferences. The *EP* faces the least compromise under Art. 251, whereas the position of the *EC* is strongest under Art. 250.

Finally we look at aggregate deviations. It is Art. 250 that minimizes and Art. 252 that maximizes the aggregate deviation of outcomes from the agencies' preferences. The strong decentralization bias of Art. 251 can therefore be explained as a bias towards the status quo. Hence, even in cases when there might be potential gains from centralization, they can only be realized in a limited number of cases.

Result 6: Art. 250 implies the smallest aggregate deviation of preferences from equilibrium outcomes, whereas Art. 251 implies the largest.

4 Conclusions

Institutional design matters in the European Union. It has been the purpose of this paper to analyze the impact of the institutional design on the outcome of a decision process by the means of Art. 250-252 of the Treaty of Amsterdam. The purpose has been to analyze the strategic incentives induced by these procedures and to gain insight into the differences in the dynamics of political change. To be more specific we analyzed the tendency towards changes of the status quo, the importance of the different agencies involved in the decision procedure, and the degree of compromise that can be reached by the procedures.

We can summarize the properties of the decision procedures with respect to all the criteria. Art. 251 is the decision procedure with the largest tendency towards the status quo. It balances the power of the actors with real authority in a way that makes political change difficult to achieve. At the same time it is the worst article when it comes to the aggregate degree of compromise. It seems to be the right decision procedure if only Pareto-improvements shall be implemented. At the same time it is the procedure with the best protection of the interests of the European Parliament.

Art. 250 is the decision procedure with the largest dynamic for change. At the same time it minimizes the aggregate compromise between the actors. It is the decision procedure which is most favorable for the European Commission.

Art. 252 gives the Council of Ministers a major role in the game. This decision procedure has an almost equally good performance with respect to aggregate compromise. It plays an in-between role between both other procedures.

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permutation	EC			CM			EP		
	best	middle	worst	best	middle	worst	best	middle	worst
1	c	p	d	c	p	d	c	p	d
2	c	p	d	c	d	p	c	p	d
3	c	p	d	d	c	p	c	p	d
4	c	p	d	d	p	c	c	p	d
5	c	p	d	p	d	c	c	p	d
6	c	p	d	p	c	d	c	p	d
7	c	p	d	c	p	d	c	d	p
8	c	p	d	c	d	p	c	d	p
9	c	p	d	d	c	p	c	d	p
10	c	p	d	d	p	c	c	d	p
11	c	p	d	p	d	c	c	d	p
12	c	p	d	p	c	d	c	d	p
13	c	p	d	c	p	d	d	c	p
14	c	p	d	c	d	p	d	c	p
15	c	p	d	d	c	p	d	c	p
16	c	p	d	d	p	c	d	c	p
17	c	p	d	p	d	c	d	c	p
18	c	p	d	p	c	d	d	c	p
19	c	p	d	c	p	d	d	p	c
20	c	p	d	c	d	p	d	p	c
21	c	p	d	d	c	p	d	p	c
22	c	p	d	d	p	c	d	p	c
23	c	p	d	p	d	c	d	p	c
24	c	p	d	p	c	d	d	p	c
25	c	p	d	c	p	d	p	d	c
26	c	p	d	c	d	p	p	d	c
27	c	p	d	d	c	p	p	d	c
28	c	p	d	d	p	c	p	d	c
29	c	p	d	p	d	c	p	d	c
30	c	p	d	p	c	d	p	d	c
31	c	p	d	c	p	d	p	c	d
32	c	p	d	c	d	p	p	c	d
33	c	p	d	d	c	p	p	c	d
34	c	p	d	d	p	c	p	c	d
35	c	p	d	p	d	c	p	c	d
36	c	p	d	p	c	d	p	c	d

Table 1.a: Permutations of preference orderings for EC, CM, and EP.

permutation	250	251		252	
		no amendment	amendment	no amendment	amendment
1	c	c	c	c	c
2	c	c	c	c	c
3	d	d	d	d	d
4	d	d	d	d	d
5	p	p	p	p	p
6	c	c	{c,p}	c	c
7	c	c	c	c	c
8	c	c	c	c	c
9	d	d	d	d	d
10	d	d	d	d	d
11	p	p	{c,p}	p	d
12	c	c	c	c	d
13	c	d	d	c	c
14	c	d	d	c	c
15	d	d	d	d	d
16	d	d	d	d	d
17	p	d	d	p	d
18	c	d	d	c	c
19	c	d	d	c	d
20	c	d	d	c	d
21	d	d	d	d	d
22	d	d	d	d	d
23	p	d	d	p	d
24	c	d	d	c	d
25	c	p	p	c	c
26	c	p	p	c	c
27	d	d	d	d	d
28	d	d	d	d	d
29	p	p	p	p	p
30	c	p	p	c	p
31	c	p	{c,p}	c	c
32	c	p	c	c	c
33	d	d	d	d	d
34	d	d	d	d	d
35	p	p	p	p	p
36	c	p	p	c	p
#c:	18	6	{9,6}	18	12
#p:	6	10	{7,10}	6	5
#d:	12	20	{20,20}	12	19

Table 1.b: Equilibrium outcomes

permut.	250			251			am			252			am		
	EC	CM	EP	no EC	CM	EP	EC	CM	EP	no EC	CM	EP	EC	CM	EP
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2
4	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2
5	1	0	1	1	0	1	1	0	1	1	0	1	1	0	1
6	0	1	1	0	1	1	{0,1}	{1,0}	{1,1}	0	1	1	0	1	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	2	0	1	2	0	1	2	0	1	2	0	1	2	0	1
10	2	0	1	2	0	1	2	0	1	2	0	1	2	0	1
11	1	0	2	1	0	2	{0,1}	{2,0}	{0,2}	1	0	2	2	1	1
12	0	1	0	0	1	0	0	1	0	0	1	0	2	2	1
13	0	0	1	2	2	0	2	2	0	0	0	1	0	0	1
14	0	0	1	2	1	0	2	1	0	0	0	1	0	0	1
15	2	0	0	2	0	0	2	0	0	2	0	0	2	0	0
16	2	0	0	2	0	0	2	0	0	2	0	0	2	0	0
17	1	0	2	2	1	0	2	1	0	1	0	2	2	1	0
18	0	1	1	2	2	0	2	2	0	0	1	1	0	1	2
19	0	0	2	2	2	0	2	2	0	0	0	2	2	2	0
20	0	0	2	2	1	0	2	1	0	0	0	2	2	1	0
21	2	0	0	2	0	0	2	0	0	2	0	0	2	0	0
22	2	0	0	2	0	0	2	0	0	2	0	0	2	0	0
23	1	0	1	2	1	0	2	1	0	1	0	1	2	1	0
24	0	1	2	2	2	0	2	2	0	0	1	2	2	2	0
25	0	0	2	1	1	0	1	1	0	0	0	2	0	0	2
26	0	0	2	1	2	0	1	2	0	0	0	2	0	0	2
27	2	0	1	2	0	1	2	1	0	2	0	1	2	0	1
28	2	0	1	2	0	1	2	0	1	2	0	1	2	0	1
29	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0
30	0	1	2	1	0	0	1	0	0	0	1	2	1	0	0
31	0	0	1	1	1	0	{0,1}	{0,1}	{1,0}	0	0	1	0	0	1
32	0	0	1	1	2	0	0	0	1	0	0	1	0	0	1
33	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2
34	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2
35	1	0	0	1	0	0	1	0	0	1	0	0	1	0	0
36	0	1	1	1	0	0	1	0	0	0	1	1	1	0	0
dev.:	30	6	35	50	20	16	{47,50}	{20,18}	{15,18}	30	6	35	43	12	25
av. dev.:	0.83	0.16	0.97	1.39	0.55	0.44	{1.3,1.39}	{0.55,0.5}	{0.41,0.5}	0.83	0.16	0.97	1.19	0.33	0.69
aggreg.:	1.96			2.38			{2.26,2.39}			1.96			2.22		

Table 1.c: Deviations of equilibrium from preferences.