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Collective Decisions in the EU.

Explaining the Norm of Co-operation.

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Introduction

A research puzzle for scholars interested in decision making in the European Union is the repeated pattern of co-operation in the Council of Ministers. Research work such as roll-call analysis with regard to voting patterns in the Council of Ministers has pointed to the overriding “preference for unanimity”, including in policy sectors which use qualified majority almost exclusively (Mattila, 1998; Mattila and Lane, 2001; Hayes-Renshaw et al, 2006). Many different qualitative studies point to the accepted practices, informal rules or “culture of compromise” which seems to permeate the EU decision process and the participants involved therein (Hayes-Renshaw et al, 2006; Lewis, 1998; 2005; Heisenberg, 2005). In-depth, detailed descriptions of the EU decision process point to the extended bargaining activity at work in the EU committees surrounding the Council of Ministers. Many of these studies describe the Commission’s proposals being discussed at length in various preparatory and advisory committees. (Wessels, 1998; Westlake, Galloway et al.,2006). Moreover the Council of Ministers’ Committee of Permanent Representatives (COREPER) also provides a central forum for negotiation and amendments to the Commission’s original proposals, before the final voting stage in the Council of Ministers (Lewis, 2000).

There is much evidence to suggest that there exists a strong norm of cooperation in the EU, which seems to guide the collective EU decision process and in particular restricts the EU member states from engaging in bilateral deals with each other to the detriment of other EU member states and the Union as a whole. (Heritier, 1996 ; Richardson, 1996 ; Jonsson et al, 1998 ; Lewis, 2003; Schneider et al, 2006). However it is hard to understand why this norm persists in the EU (Sullivan and Selck, 2007). From the perspective of the EU as a whole, it makes sense but the EU is a collection of very different member states of different sizes, resources and sectoral interests. Given this situation, why do individual member states actually comply with this EU norm and moreover how does this norm operate as a mechanism of cooperation across the member states in the EU decision process? Are there conditions when we can expect to find that member states do not comply with this EU norm of co-operation?

In the present paper we argue that the norm of cooperation between member states exists and is sustainable, because the configuration of members' positions and interests gives rise to a decision situation that resembles a Prisoner's Dilemma. We thus argue that it is actually rational for individual member states to comply with the norm of cooperation, since not doing so would mean large forgone gains in the future. We make the argument precise and test its implications by making use of two current models of collective decision making, namely the Position Exchange Model (PEM) of Stokman and van Oosten (1994) and the Externalities Exchange Model of Dijkstra et al. (2008). The remainder of the paper is organized as follows. In the next section we expound our theoretical argument and derive our hypotheses. The subsequent section describes the data used to test the hypotheses, the results of which are discussed in the section after that. The paper is concluded with a discussion of the results and their implications.

Theory and Hypotheses

The ‘norm of cooperation’ described in the introduction means that actors abstain from maximizing their immediate self-interests in the EU decision making process. This implies that potentially profitable deals are not consumated, for instance out of fear of upsetting other actors not included in a particular deal. The question now arises why member states of the EU, would adhere to such a norm that runs counter to their self-interests. To answer this question we take a rational choice stance, assuming that actors in the long run do seek to maximze their self-interests. From this perspective, actors adherring to the norm of cooperation abstain from the realization of their immediate, short-term goals only in order to gain something more valuable (or to prevent even larger losses) in the future.

According to Axelrod’s well-known Cooperation Theory (Axelrod 1984) such cooperative behavior can be sustained if at least two criteria are met, namely: (i) the interaction is characterized by a prisoner’s dilemma-like (PD) payoff structure, and (ii) the interaction horizon is sufficiently long. Point (ii) means that there must be a sufficiently high probability that actors will interact repeatedly in the future. It is self-evident that this is characteristic of EU decision making processes, where every member country expects to remain a member in the forseeable future. The way in which point (i) is applicable to collective decision making is less self-evident and is the topic of this section.

A social situation has a PD-like payoff structure when individually rational behavior leads to collectively undesirable outcomes (Dawes 1980). Thus, the basic property of such situations is that if all actors pursue their self-interests *all* will be worse off compared to the situation where actors abstain from the pursuit of their self-interests. The problem however is that, given what others do, any individual actor is always better off pursuing his self-interests. Hence a *social dilemma*. In terms of the EU decision making process considered in this paper this means that an actor is always better off (at least in the short-run) pursuing his self-interests, even when all other actors adhere to the norm of cooperation.

The principal argument of Cooperation Theory (Axelrod 1984) is that cooperative behavior (i.e., actors refraining from realizing their immediate self-interests) can nonetheless be sustained, if the *shadow of the future* (i.e., the likelihood that the same actors will repeatedly interact again) is long enough. The idea is that all actors can threaten to retaliate an 'act of selfishness' of any individual actor (i.e., this actor pursuing his immediate self-interest to the detriment of the other actors) by withholding their cooperation with that particular actor (or with every actor for that matter) in future interactions. Moreover, since pursuing their short-term self-interests is itself an equilibrium strategy (i.e., it is the best thing actors can do when everybody else does it too), this threat to withhold future cooperation is credible (e.g., Fudenberg and Tirole 1991). The credibility of this threat is exactly what makes it effective: no actor will want to break the cooperative pattern since doing so will destroy cooperation forever.

And with no cooperation everybody, including the actor contemplating breaking the cooperative pattern, is worse off.

In order to apply Cooperation Theory to EU decision making we need to define exactly what it means for member states to pursue their immediate self-interests or to abstain from it. In order to do so, we introduce two models of collective decision making called the Position Exchange Model (PEM; Stokman and van Oosten 1994; Thomson et al. 2006)[2] and the Externalities Exchange Model (EEM; Dijkstra et al. 2008). We will argue that we can use the PEM as a model for the situation where every member state strictly pursues its short-term self-interests, while the EEM models the situation where all member states adhere to the norm of cooperation.

The PEM and EEM model collective decision making as decision making about controversial issues with single peaked preference functions, as most well-known models do (Black 1958; Bueno de Mesquita, Newman & Ravushka 1985; Bueno de Mesquita & Stokman 1994; Steunenberg 1994; Tsebelis & Garrett 1996, and many others). Decision making may well require simultaneous decisions on several issues. In these cases, different issues should represent independent controversial elements of the decision making situation and as a set should cover the full range of possible outcomes. The dynamics in the decision making process result from actors, with different intensity and potential, trying to realize their preferred outcome on an issue (their initial position), whereas per issue only one outcome that is binding for all actors can be chosen. In a complex

[2] For a short overview of the application of various bargaining models, including PEM, to EU decision making, see Sullivan and Selck (2007).

situation, possibly involving many actors and issues, actors will try to build a coalition as large as possible behind their initial positions or behind a position that is as close as possible to this. This informal bargaining process can be seen as proceeding formal decision making and affecting the final positions of the actors in the decision making, aiming at a collective outcome that reflects their interests as much as possible.

The PEM and EEM assume the same structure of collective decision making. It is assumed that there exists a finite set *M* of controversial issues, which can each be represented by a one-dimensional interval scale. These issues are *mutually exclusive* and *exhaustive*, i.e., an actor can take a position on one issue, irrespective of his position on other issues (mutual exclusiveness), and the issues together cover the entire collective decision problem (exhaustiveness). It is further assumed that each actor *n* from the finite set of actors *N*, takes a position, x_{nm}, on the scale of each issue *m*, representing *n*'s most preferred outcome of *m*. Furthermore, each actor *n* is assumed to have a *salience*, s_{nm}, for each issue *m*, expressing the relative importance of issue *m* to the actor *n*. Finally, each actor *n* has a *capability*, c_n, reflecting *n*'s potential to affect the final outcome of each of the issues in *M*. The actors' positions, saliences and capabilities are assumed to be common knowledge. Based on this common knowledge, all actors are supposed to have a common *expected outcome*, O_m, of each issue *m*. In both the PEM and EEM, O_m is assumed to be the weighted average of the actors' positions, with weights equal to the actors' capabilities times their saliences, as in equation (1) below:

$$O_m = \frac{\sum_n c_n s_{nm} x_{nm}}{\sum_n c_n s_{nm}} \qquad (1).$$

The basic idea of the PEM is that pairs of actors can mutually increase their utilities compared to their utilities of the expected outcome in (1) by exchanging their positions on pairs of issues. The PEM assumes that actors have single-peaked preferences: an actor's initial position on an issue represents his preferred outcome, and any deviation of the final outcome from it, is evaluated as strictly worse. In the PEM the utility of actor *n* (U_n) over the outcomes of all the issues in *M* is assumed to be:

$$U_n = -\sum_{m \in M} s_{nm} \,|\, x_{nm} - O_m \,| \qquad (2).$$

Equation (2) shows that an actor's utility is assumed to be (i) additive over all issues, and (ii) decreasing linearly in the absolute distance of the outcome from the actor's position, with the salience of the issue determining the rate of decrease.

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Figure 1

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In the PEM, two actors are able to exchange on a pair of issues only if they have positions on opposing sides of the expected outcomes on both issues. With two issues, and their expected outcomes, we can partition the set of actors into four groups, *A*, *B*, *C*, and *D*, as is shown in Figure 1. Members of group *A* are on the left hand side of the expected outcomes on the interval scales of both issues, those of group *D* are on the right side of both issues. Members of group *B* are on the left hand side of the expected outcome on issue 1, and on the right hand side on issue 2, with members of *C* having opposite positions. From this it immediately follows that according to the PEM members of *A* can only exchange with members of *D*, and members of *B* can only exchange with members of *C*.

Exchange between two actors is profitable only if the actors have different relative saliences for the two relevant issues. Without loss of generality, assume two actors, *i* and *j*, and two issues, 1 and 2. Assume *i* and *j* are on opposite sides of the expected outcomes of issues 1 and 2. Denote the changes in the expected outcomes on issues 1 and 2, caused by position shifts of actors *i* and *j*, as δ_1 and δ_2, respectively. Then *i* and *j* can only exchange profitably if either (3) or (4) is true.

$$\frac{s_{i1}}{s_{i2}} \leq \frac{\delta_2}{\delta_1} \leq \frac{s_{j1}}{s_{j2}} \qquad (3)$$

$$\frac{s_{i1}}{s_{i2}} \geq \frac{\delta_2}{\delta_1} \geq \frac{s_{j1}}{s_{j2}} \qquad (4)$$

Equations (3) and (4) show that exchange is only mutually profitable if the *exchange ratio* ($\frac{\delta_2}{\delta_1}$) is in between the relative saliences (see Dijkstra et al. 2008 for a proof). If (3) holds, *i* shifts his position on issue 1 in the direction of *j*, whereas *j* shifts his position on issue 2 in the direction of *i*. Issue 1 is then called the *supply issue* of *i* and the *demand issue* of *j*, whereas issue 2 is the demand issue of *i* and the supply issue of *j*. If (4) holds, issue 2 is the supply issue of *i* and issue 1 is the supply issue of *j*. The latter situation is depicted in Figure 1.

In the PEM all possible bilateral exchanges are determined for each pair of issues from *M*. For each of these exchanges, position shifts are determined such that the utility gains of the exchange partners are equal and at a maximum. The exchanges are then listed in the order of the size of the utility gains. The exchange with the highest utility gains is then executed, and all other possible exchanges involving one or both of the partners of this first exchange, and in which these partners use the same supply issues as in this first exchange, are deleted from the list. This process is then repeated with the remaining exchanges on the list, until the list is empty. Then, (1) is applied to all issues with the new actor positions, and these are the predictions of the PEM. See Stokman and Van Oosten (1994) for details.

Thus, the PEM is based on the process whereby pairs of actors engage in position exchanges when such an exchange is mutually profitable. However, equations (1) and (2) immediately show that an exchange between any pair of actors will affect the utility of all other actors. This is true because position shifts of the two exchanging actors will affect the expected outcome, according to (1). According to (2) this will affect the utility of all actors, whether or not they are a partner to the exchange. Such utility effects for actors not involved in the exchange are called *externalities*, and can be either positive or negative. In the case of positive externalities, bilateral deals cause decision outcomes to become better for other actors not involved in the deal, whereas in the case of negative externalities, decision outcomes become worse for actors not involved in the deal. Moreover, one particular bilateral deal can have positive externalities for some actors and negative externalities for others.

Once more consider Figure 1. It shows how the position exchange of actors *i* and *j* causes the expected outcome (according to equation (1)) to shift away from the positions of actors in group C on both issues. Thus, actors in this group experience negative externalities from the exchange between *i* and *j*. Actors in group B, however, experience positive externalities from this exchange, since the expected outcomes on both issues shift toward their positions. For actors in groups A and D externalities can be either positive or negative, depending on how their relative saliences compare to the exchange rate that *i* and *j* agree on (see equations (3) and (4)). See Van Assen et al. (2003) and Dijkstra et al. (2008) for more elaborate discussions of externalities in collective decision making.

What is central to the current paper is that the PEM models decision making as a process of bilateral exchanges on pairs of issues, without taking into account the positive or negative externalities for other actors. Thus, when actors in the PEM contemplate the desirability of a potential exchange, they are assumed to only consider their own utility gains from this exchange, and to disregard any effects for others. Therefore, the PEM is a plausible model for the situation in which actors seek to maximize their short-run self-interests.

In the EEM externalities are taken into account. The EEM comes in two variants, and here we briefly discuss the one in which no negative externalities are allowed for any actor. In the current paper, we simply refer to this variant as *the* EEM (Dijkstra et al., 2008).

Unlike the PEM, the EEM does not explicitly model position shifts of individual actors, but directly models the shifts in the expected outcomes of the pair of issues. In the EEM, equation (1) is computed for each issue and is taken as this issue's initially expected outcome. Then, for all possible pairs of issues, alternative outcomes are sought that constitute a Pareto efficient outcome for all actors. That is, in the EEM only outcome shifts on pairs of issues are considered that for all actors yield at least as much utility (according to equation (2)) as the initially expected outcome. In addition, the alternative outcome cannot be improved for any actor by further shifting on one or both of the issues, without decreasing the utility of another actor. Thus, in the EEM negative externalities (compared to the initially expected outcome) for any actor is prohibited, but positive externalities are allowed.

The Pareto efficient alternatives thus identified (if any) are collected in the set *P*. To single out an element from this set the EEM uses the Generalized Nash Bargaining Solution (GNBS) formulated by Chae and Heidhues (2004). Letting δ denote the pair (δ_1, δ_2) of shifts on issues 1 and 2,respectively, the GNBS is the value of δ that maximizes the weighted product of utility gains. More formally,

$$\underset{\delta \in P}{\mathrm{Max}} \prod_{n \in N} [U_n(\delta)]^{r_n} \qquad (5).$$

The EEM takes as weights the capability of the actors relative to the summed capability of all the actors. Formally, the weight assigned to actor *n*'s utility in (5), r_n, is:

$$r_n = \frac{c_n}{\sum_{i \in N} c_i} \quad (6),$$

If the set *P* is empty, the EEM identifies the initially expected outcomes according to (1) as it's solution. If *P* contains more elements, a unique solution to the maximization problem of (5) exists if the utility space is compact and convex. Dijkstra et al. (2008) show this is true for the model specification at hand. Hence the EEM model always identifies a unique solution, for any pair of issues.

With more than 2 issues involved, any issue will be part of more than one issue pair. In that case choices will have to be made concerning which outcome shifts on which pairs of issues will actually be executed by the model. To make this choice, the EEM implements the following voting procedure.

(i) Compute (1) for all issues

(ii) Compute the prediction of the EEM for all *M*(*M*-1) exchange possibilities

(iii) Actors vote for their most preferred exchange opportunity

(iv) Select from the list of (remaining) issue pairs the one with the highest weighted votes

(v) Eliminate all issue pairs from the list containing one of the two issues on which the exchange in (iv) took place

(vi) If the list is not empty after (v), go back to step (iv)

In step (iii) the EEM assumes that each actor votes for that exchange opportunity in the list that yields him the largest positive utility change. Hence the EEM excludes strategic voting. In EEM's voting procedure, an actor's vote is weighted by the capability of the actor, relative to the sum of capabilities of all actors in *N*. The exchange with the highest sum of weighted votes is executed first. Actors vote only once, at the beginning of the process. If there is a tie, one issue pair is selected at random. In the data analyzed in this paper, such ties did not occur.

With its rules of preventing negative externalities and of considering only those outcome shifts that imply Pareto efficiency compared to the initially expected outcomes, the EEM is a plausible model of the situation in which all actors adhere to the norm of cooperation. Moreover, in its consideration of outcome shifts on pairs of issues the EEM is similar to the PEM. Thus, we argue that the PEM and the EEM are two plausible implementations of the two extreme situations we want to investigate in this paper: the situation where all actors ruthlessly pursue their self-interest (PEM), and the situation where all actors adhere to the norm of cooperation (EEM).

Now that we have the PEM and the EEM available, we can make requirement (i) of Cooperation Theory, that the interaction situations have a PD-like payoff structure, more precise. First, observe that all the individual bilateral exchanges modeled by the PEM are mutually profitable for the two exchanging actors. Thus, as required by a PD payoff structure, completing the available exchanges is always the best thing an actor can do in the short run, regardless of what the other actors do (i.e., whether or not they comply with the norm of cooperation). However, when all actors follow their immediate self-interests (i.e., exchange according to the PEM) this might entail large negative externalities for all actors. The decision situation would resemble a PD payoff structure if these negative externalities would override the utility gains the actors reap from their own exchanges and possibly from positive externalities, compared to the situation where actors abstained from pursuing their short-term private interests. The latter situation (adherence to the norm of cooperation) is modeled through the EEM. Thus, a PD-like payoff structure would exist if all actors would be better off (i.e., receive higher utilities according to equation (2)) when the decision making process followed the EEM procedure than when it followed the PEM procedure. Indeed, using the same data set that we use in the current paper and comparing the outcomes predicted by the PEM to the initially expected outcome of equation (1), Arregui and Stokman (REF) find that for all proposals of the European Commission, and summed over all member states negative externalities of exchange outweigh the sum of gains from exchange and positive externalities.

In various studies discussed earlier in this paper, the research presented there signaled the existence of a norm of cooperation in EU decision making. From the framework of Cooperation Theory outlined above, we formulate the following expectations and hypotheses:

First of all, one would expect the EEM to better predict the actual outcomes than the PEM. Indeed, Dijkstra et al. (2008; Table 1) found that the EEM predictions have higher correlations with the actual outcomes than the PEM predictions.

Second, we expect the number of actors preferring the PEM predictions to the EEM predictions to be low, i.e., we expect the decision situation to have a PD payoff structure for almost all actors. Moreover, as the number of issues in the set *M* increases, the number of exchange possibilities naturally increases as well. Thus, the potential gains from exchange will generally increase in the number of issues considered. However, if negative externalities are as important as we argue they are, they should grow at a faster rate than the gains from exchange. Therefore, we hypothesize that the number of actors preferring the PEM predictions to the EEM predictions decreases as the number of issues considered increases.

Third, if the decision situation is characterized by a PD payoff structure, there should be no actors that consistently prefer the PEM predictions to the EEM predictions. Note how according to Cooperation Theory, the sustainability of cooperation hinges on the fact that actors who pursue their short-run self-interest can be punished in the future. However, if an actor consistently prefers the PEM over the EEM, punishment in this sense is not possible. To make precise predictions of how strong this threat of punishment would have to be to induce an actor to cooperate requires information about actors' discount rates (i.e., the degree to which they care about future outcomes). However, apart from the obvious difficulties of estimating discount rates for countries, we simply do not have this information available in the data set. Therefore, we formulate the weaker hypothesis that on average no actor prefers the PEM over the EEM more frequently than the other actors do. Thus, no actor is significantly less vulnerable than others to the threat of refused cooperation.

The first hypothesis was already tested in Dijkstra et al. (2008).. The second and third hypothesis will be investigated in the following sections of the paper. Note how these expectations derived from Cooperation Theory amount to specifying conditions under which we expect one model (the EEM) to do better than another (the PEM).

Data

The paper uses a large-scale EU data set collected by Thomson et al (2006). The data are comprised of 162 controversial issues, which originate from 66 European Commission proposals, and which were discussed by the Council in the period January 1999-December 2000. For both the PEM and the EEM, only proposals containing at least 2 issues are relevant, since these models conceive of decision making as a process of exchanges or outcome shifts on pairs of issues. For this research, we identified 49 suitable proposals, containing a total of 137 issues. The actors involved in the decision process include the members of the Council, which at the time included fifteen Member States, as well as the European Commission and the European Parliament (Thomson and Stokman, 2006). All these actors were treated as unitary actors for the purposes of the research. The Commission proposals were selected on the basis that they were subject to either the Consultation or Co-decision rule and varied in terms of whether Unanimity or Qualified majority was the relevant formal decision rule for the Council of Ministers.

For the selection of proposals and the collection of model-based data, 125 expert-based interviews were conducted. During these interviews, the experts were asked to identify the controversial issues within each of the Commission proposals. In this data, each proposal has at least two issues, while experts identified a maximum of six issues for any one proposal. Each issue was defined on a uni-dimensional, interval scale where the preferred policy outcome of each actor for that issue could be placed.

Each actor's preferred policy outcome is defined as the actor's position on that issue. The actors' issue positions were standardized so that positions at 0 and 100 defined as the most extreme positions favoured by any of the actors. In terms of missing data, on average 15.61 of the 17 actors took positions on each of the 162 issues, where 33 of these issues were dichotomous (i.e. only two possible positions) (Dijkstra et al, 2008).

The data set for this research includes a measure of each actor's salience for each issue. The measure of salience of an actor for an issue is the level of importance that the actor attaches to the issue. An actor's salience is ranked as a score between 0 and 100. If an actor's salience for an issue is rated at 0, this means that the issue is of no importance at all, whereas a score of a 100 implies that the issue is of the highest importance to that actor. The capability of an actor is a measure of potential resources an actor can exert during the negotiations of the issues in a proposal. In this research, the actors' capabilities were estimated using the Shapley Shubik Index (Shapley and Shubik, 1954).

Results

In this research we explore the conditions, which can explain how the norm of co-operation is so prevalent in EU decision-making. We focus on two contrasting collective decision model scenarios. First, the PEM which captures an ‘unfettered’ exchange decision mechanism and second, the EEM which presents a more ‘restricted’ collective decision mechanism taking account of the potential for negative externalities. The EU data set is the same as in the earlier research (e.g., Thomson 2006; Dijkstra et al. 2008) and is very appropriate for the current paper because it covers a wide range of EU policy sectors and is an excellent representative sample of EU Commission proposals. As in the earlier research, the models are applied to each of the Commission proposals separately and it is assumed that the collective decision negotiations are restricted to issues within each proposal, so that no exchanges are permitted to take place across issues from different proposal sets. This reflects the actual EU decision process where each of the proposals was dealt with at different points in time (Dijkstra et al. 2008).

First let us begin by providing a descriptive break-down of the data used in this decision analysis in terms of the (i) number of proposals that have 2, 3, …, 6 issues; (ii) numbers of proposals in different policy sectors; (iii) numbers of proposals under different decision procedures.

Table 1: Number of proposals having 2 -6 issues:

No of Issues	***No. of Proposals***	***Percentage***
2	24	49,0
3	16	32,7
4	5	10,2
5	3	6,1
6	1	2,0
Total	49	100,0

In Table 1 we see that nearly half (49%) of the proposals had just two issues and another approximately 32% of the proposals had no more than 3 issues. This suggests that the complexity of the EU decision proposals in this data set, as measured by the number of issues in the proposal set, is modest with just under 19% of the proposals having 4 or more issues.

In Table 2, we examine the proportion of proposals, which belong to policy sectors and which may be described as more or less “integrated”. Following Lane and Mattila’s earlier research (1998), in our research we defined Agriculture and the Internal Market as “more integrated” and all other policy sectors as “less integrated”. Lane and Mattila’s ‘roll-call of votes research’ proposes that the deeper the integration of the EU policy sector, the more difficult decision making by unanimity.

Table 2: Number of proposals in policy sectors

Level of Integration	***Frequency of proposals***	***Percent***
More (,00)	23	46,9
Less (1,00)	26	53,1
Total	49	100,0

In Table 3, while the spread of proposals is reasonably distributed across the different procedures, Consultation (CNS) and Co-decision (COD, the majority of the proposals under both these procedures use the Qualifiied Majority decision rule (QMV) compared with the Unanimity decision rule (Unam).

Table 3: Decision Rule and Procedure

Decision Rule and Procedure	***Frequency of Proposals***	***Percent***
QMV CNS	20	40,8
Unam CNS	9	18,4
QMV COD	16	32,7
Unam COD	4	8,2
Total	49	100,0

Now let us turn to the model based research results. To evaluate our expectations, we first determined the predictions of the PEM and the EEM for each issue. Subsequently, we computed for each member state the utility of the predictions of both of these models, according to equation (2) presented earlier [3]. Finally, we determined for each proposal separately which member states preferred the PEM prediction to the EEM prediction, and dubbed them ‘winners’. Thus, winners are member states that have higher utility under the PEM predictions than under the EEM predictions. Two observations are in place here. Firstly, note how for member states that are not winners (i.e., those that prefer the EEM to the PEM), the proposal has a PD-like payoff structure: although individual exchanges according to the PEM are profitable for them, they would be worse off if all actors exchanged according to the PEM. Secondly, observe how the set of winners may be different for different proposals (indeed, this is one of our hypotheses).

In this research we found that the overall mean proportion of winners is 0.41. If one assumes no missing data, this is calculated as an average of 6.56 out of 16 actors being a winner, i.e., preferring the PEM prediction to the EEM prediction. This seems to be quite a large number, and it runs counter to our expectation that the number of winners should generally be low. However as we saw earlier in Table 1, there are a reasonably high proportion of the proposals under analysis (49%) which have only 2 issues, which suggests that the tendency for higher than expected number of winners is enhanced in these specific circumstances.

[3] We computed for each member state the utility of the predictions of both of these models, according to equation (2). We did so for each proposal separately, so the symbol *M* in equation (2) refers to the set of issues belonging to a particular proposal.

Next, to evaluate our expectation, that the overall number of winners is generally low and that it is decreasing as the number of issues per proposal increases, we use standard linear regression modeling. Our dependent variable is the proportion of member states per proposal that are classified as winners. Member states having missing data on at least one of the issues in a proposal were excluded from the analysis. We calculate the independent variable as the number of issues per proposal minus 2. Since only proposals that contain at least 2 issues are included in the analysis, this variable has values from 0 to 4.

In the regression model, we find a constant coefficient of 0.472 ($t_{47} = 11.45$, $p < 001$) and an expected negative coefficient for the number of issues per proposal of -0.073 ($t_{47} = -2.25$, $p = 0.029$). As indicated by the high and significant constant we see that there are sets of issues (proposals) in which not every actor is strictly worse off in the situation where everybody exchanges according to PEM. However, the significantly negative value of the parameter for the variable counting the number of issues per proposal confirms our hypothesis that individually rational exchanges (modelled by PEM) very quickly become collectively irrational, due to negative externalities.

These regression results indicate that in a proposal containing 2 issues the proportion of winners is about 0.47. Assuming no missing data, this would mean that on average 7.55 out of 16 actors are classified as winners in proposals containing 2 issues. However, for each additional issue the proportion of winners decreases by approximately 0.07. Again assuming no missing data, this would mean that for each additional issue the number of winners decreases by 1.17.

In a second regression model we found in addition that the predictive performance of the PEM (as measured by the model's mean absolute error per proposal) gets worse as the number of issues increases. These findings show for instance, that for a proposal containing 2 issues, the mean absolute error of the PEM is 19.77. This number increases by 3.98 (20% increase) with the first additional issue. Moreover, in this second regression model, we controlled for the decision procedure (see Table 3) and type of policy sector (see Table 2). Neither of these control variables had a significant effect.

To evaluate our expectation that on average no actor is a winner more frequently than the other actors, we determined the 'winner distribution' (i.e., the count of how many times each actor is a winner across all proposals). The results of our analysis of the "winner distribution" are presented in Table 4 below. The results presented in Table 4 show that statistically all actors are a winner in 16.25 of the 49 proposals and that the winner distribution does not significantly depart from uniformity (Chi-square = 15.82, df = 15, $p = 0.3944$). This concurs with the earlier research findings of Thomson et al. (2006) which points to the instability of actor alignments in the Council of Ministers.

Table 4: Winner Distribution across all actors

Actor	Aus	Belg	Den	Com/EP	Fin	Fra	Ger	Gre	Ire	Ita	Lux	NL	Por	Sp	Swe	UK	Total
Obs.	11	12	12	16	14	24	17	16	16	15	12	21	14	18	17	25	260
Exp.	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	16.25	260

This result taken together with the Pareto inefficiency of the PEM helps explain the existence of a cooperative norm in such a decision setting, where (i) unfettered bilateral compromises (in the form of exchanges) have very large social costs, and (ii) there is no consistent group of actors that would benefit from insisting on bilateral compromise as the dominant mode of decision making. In other words, the costs that would result from bilateral agreements would be borne by all actors alike (or 'in turn'). Moreover these results imply that the shadow of the future is a real threat to these actors. The losses (from negative externalities) are generally (when everybody exchanges) larger than gains (from exchange and positive externalities), and no actor can evade future punishment, since no actor is consistently a 'winner'. In this regard, Arregui et al. (2006) have shown, using the same EU data set as in this present research, that losses due to negative externalities are indeed larger than gains, summed over all actors and all proposals. Therefore, Cooperation Theory offers a plausible explanation of the observed EU norm of cooperation.

Discussion and Conclusion

This paper addresses the research problem of why Member States' bargaining strategies seem guided by a strong norm of co-operation when engaged in collective decision making in the EU Council of Ministers. Given their very diverse sectoral and political interests, as well as contrasting resources, why do member states behave in this co-operative manner? The present research makes use of a recent and very comprehensive data set of EU policy decisions in the Council of Ministers. In this research we draw on Co-operation theory and apply the insights from the Prisoner's Dilemna Game to identify how the configuration of members' positions and interests makes it rational for individual member states to comply with the norm of cooperation, since not doing so would mean large forgone gains in the future. We apply two alternative collective decision models, PEM and EEM, to identify the conditions for 'unfettered' or 'restricted' exchange bargaining in collective decision making in the EU Council of Ministers.

The theory and research results presented in this paper suggest that the predictive power of PEM should vary inversely with the average proportion of 'winners' in the data set. More winners implies that for actors the shadow of the future becomes smaller, since there will be fewer occasions on which they will actually be in a PD payoff structure. The results presented in this paper support our hypotheses and contribute significant research insights to the analysis of the core mechanism by which co-operative bargaining strategy dominates EU decision processes in the Council of Ministers. Moreover the research presented here yields a more general hypothesis concerning the conditions determining the predictive power of the PEM and the EEM. Future forthcoming research in this field will apply this analysis to a much larger and more varied decision data set to test these general hypotheses.

Figures and Tables

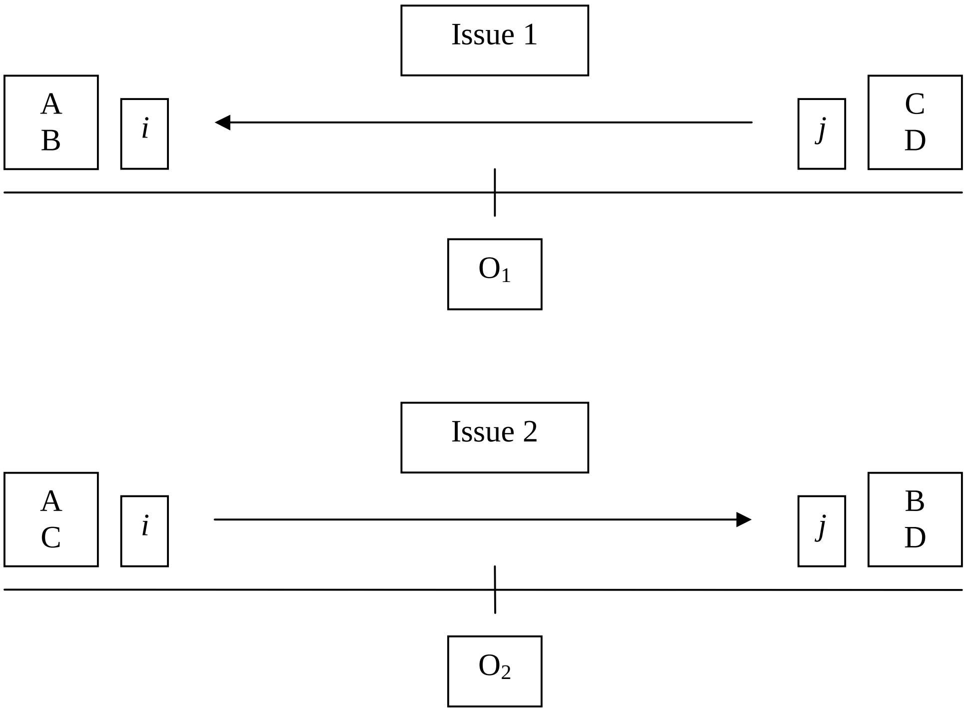

Figure 1. Exchange between actors $i \in A$ and $j \in D$ on issues 1 and 2. O_1 and O_2 indicate the expected outcomes on issues 1 and 2, respectively, before the exchange. A, B, C, and D indicate groups of actors

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