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THE IMPACT OF COUNCIL VOTING RULES ON EU DECISION-MAKING

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ABSTRACT: This paper deals with the design of voting rules in the EU Council. Both internal and external impact of the voting rules are examined. Internal impact affects the distribution of power among the member states and external impact affects power relations between the main decision-making bodies in the EU. One of the main lessons of the analysis is that voting rules matter. This clearly explains why the design of Council voting rules has required so much bargaining and cumbersome marathon negotiations. The internal decision-making rules in the Council have substantial impact on both the national distribution of power in the Council and inter-institutional power between the EU's decision-making bodies.

JEL codes: C70, D71, H77

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1 Introduction

The Council of Ministers (CM) has traditionally considered the main decision-making body of the European Union (EU). CM represents the national views and interests within the EU whereas the other two bodies involved with EU legislation, namely the European Parliament (EP) and the Commission (EC), represent EU citizens' and general EU interests, respectively. The EC's power stems from its role as the agenda-setter or the initiator of EU legislation and its executive function. It can also create new legislation using the so-called administrative route in trade and competition policies.[1]. The EP has a legislative function like the CM. In recent years EP has gained some power but despite the recent claims that the expanding use of the co-decision procedure has significantly increased EP's power at the expense of CM's power (e.g. Tsebelis and Garrett (2000)) it is still far less powerful than CM (Napel and Widgrén (2006)).

In this paper, we concentrate on CM but we evaluate the impact of CM voting rules in broader context. More specifically, we analyse the internal and external impact of CM voting rules on the internal distribution of power in CM and on the inter-institutional distribution of power between the three main decision-making bodies of the EU. Moreover, we investigate the impact of future enlargements under various voting schemes in CM. The inter-governmental nature of CM has made the design of its internal decision-making rules a central issue that raises passions and reforming the CM voting rules has lead to tough negotiations among the governments in the recent past.

In academic literature, CM decision-making has inspired both a great number of applied studies and methodological debate. Quantitative applications that evaluate CM's internal decision-making rules are usually applying standard measures of voting power of cooperative coalitional form games, i.e. the Banzhaf (BI) or Shapley-Shubik index (SSI) [2]. These studies consider CM in isolation from other EU decision-making bodies. They started to mushroom in the early 1990s and are mostly inspired by EU enlargements and institutional reforms in which, indeed, CM has been the key institution.

Here, the internal power distribution in CM is evaluated using classical power indices of cooperative coalitional form games. With an exception of Greece membership in 1981 CM voting rules have been under debate in every enlargement and, in particular, CM voting rule reform was set as pre-condition for the eastern enlargement in 2004 and 2007. Standard power indices disregard strategic aspects of decision making and voters' preferences. There are some attempts to add preferences in coalitional form games setup. One alternative is probabilistic. If there are good grounds to expect that some countries are consistently more willing to accept Commission proposals in integration-disintegration scale, say, than some other countries that can be modelled by giving each country a different acceptance rate for proposals. Another alternative that is used in the literature is to dividing member states into two groups: integrationist and anti-integrationist (see Kauppi and Widgrén (2004), Widgren (1995) and Kirman and Widgrén (1995) for applications). Another alternative

[1]This is discussed more in dept e.g. in Baldwin, Berglöf, Giavazzi, and Widgrén (2001)

[2]For examples see e. g.Widgren (1994), Laruelle and Widgrén (1998), Felsenthal and Machover (2001), Felsenthal and Machover (2004), Leech (2002), Baldwin and Widgren (2004)

assumes specific spatial preferences. One tool for this kind of analysis is the Shapley-Owen power index. The index is due to Owen (1972) and Shapley (1977) who explicitly use spatial preferences. For a recent application to the EU see Passarelli and Barr (2007).

When CM's inter-action with the other two bodies is considered the inter-institutional analysis is usually carried out using a spatial voting games framework. This also involves EU's decision-making procedures. In spatial analysis, the focus is either on inter-institutional equilibrium analysis of the EU procedures (see e. g. Steunenberg (1994), Tsebelis (1994) or, for an extensive survey, Steunenberg and Selck (2006) and references therein). [3]

In sum, the above examples demonstrate that probabilistic[4] cooperative approach fits with purely aprioristic intra-institutional analysis and a spatial non-cooperative approach to equilibrium analysis either at inter- or intra-institutional level. Moreover, some randomisation scheme is necessary to evaluate a priori power. This implies that if one wants to assess a priori power at inter-institutional level one needs to integrate cooperative and non-cooperative approaches. Indeed, the most recent line of research concerning power relations in the EU is based on the so-called unified approach, which does that. The approach evaluates, especially, the distribution of power at inter-institutional and intra-institutional level simultaneously. Here, the first attempt is Steunenberg, Schmidtchen, and Koboldt (1999) who define power as the expected utility (using spatial preferences) that an actor obtains in the procedure when preferences are randomised. A more recent attempt is based on the *strategic measure of power* (SMP) that was introduced in Napel and Widgrén (2004) and applied in inter-institutional analysis of EU codecision in Napel and Widgrén (2006). The latter is based on an equilibrium analysis of procedural spatial voting games. Power is defined as an actor's marginal contribution to the equilibrium outcome, i.e. how big an outcome shift would result from an actor's marginal preference shift. This gives the so-called ex-post power which is turned into ex-ante power by randomising preferences.

In this paper, we have three research questions that apply the methods described above. The common nominator is intra-CM decision making. The rules that we consider are the Nice rules as in the Treaty of Nice and the rules as in the in the Lisbon Treaty (henceforth LT) that was reached in June 2007. First, and most straightforwardly, we investigate how different intra-CM voting rules affect the distribution of power within CM. Here we mainly apply the SSI.[5] Let us refer to this as the intra-CM effect. We also assess what the prospects of future enlargements under considered voting rules are. Here we apply standard power measures but the issue of interest is to compare power distributions under

[3] An example of a study on inter-institutional power in spatial context is Steunenberg, Schmidtchen, and Koboldt (1999).

[4] Note that more classical approach in cooperative games is axiomatic. In this paper we adopt the probabilistic approach.

[5] Most studies that evaluate the distribution of power in CM apply BI which based on simpler voting assumptions than SSI. Actually BI assumes no information on voting behaviour. An often-heard and plausible justification for this choice is that BI fits to constitutional analysis and institutional design. In this paper, our objective is not institutional design but rather the impact of given rules. The SSI fit to this better. It assumes that voters' probabilities of accepting a random proposal are correlated (see subsection 4.1).

different rules and compositions of the EU. Second, we evaluate how different intra-CM voting rules affect inter-institutional balance of power in the EU. The main emphasis of the analysis is on the relationship between CM and EP. Here we apply spatial voting analysis and the unified approach in particular. Let us refer to this as the inter-institutional effect.

The remainder of the paper is organized as follows: Section 2 first introduces intra-CM decision-making. As it forms the core of our analysis some basic facts are needed. Section 3, then, describes the co-decision procedure and our assumptions on inter-institutional or CM-EP relations and introduces a simple model which aims to capture the crucial aspects of the procedure. These sections also introduce the equilibrium outcome of the model that is then applied to intra-CM investigation. Section 4 introduces the tools that we apply in our analysis. Section 5 deals with the results of our assessment in two parts: for intra-CM and inter-institutional analysis, respectively. Finally section 6 makes some concluding remarks.

2 Internal Decision-Making Rules in CM

Let us briefly summarise CM's decision-making procedures. CM has always applied weighted voting unless, in some cases, when unanimous consent of member states is required. In weighted voting, each member state is assigned with a specific number of votes that has traditionally increased logarithmically by population (see Widgren (1994)). The Treaty of Rome weighted voting scheme in CM was practically unchanged until the Treaty of Nice that came into force in November 2004.[6] The Nice agreement introduced re-weighting scheme that reallocated voting rights from the smallest to the biggest nations. The majority quota has traditionally been approximately 71 per cent of votes.[7] The Nice rules maintain this *qualified majority voting* (QMV) framework, but add two extra criteria concerning the number of yes-votes and the share of EU population they represent. Specifically, the vote threshold was increased to 73.9 percent, i.e. 255/345 votes. Moreover, acceptance of a simple majority of Member States (14 members) and countries representing 62 percent of the EU population are required for a proposal to pass. The second and third requirements have, however, only a negligible effect on the possible winning coalitions (see e. g. Baldwin et al. (2001) or Felsenthal and Machover (2001)). The numbers of votes and member states' populations in EU27 are shown in table 1.

[6]When the UK, Denmark and Ireland entered in 1973 the original votes of the founding member states were multiplied by 2.5 with an exception of Luxembourg whose number of votes was multiplied by 2. This was to make the difference between new small member states Denmark and Ireland that are clearly bigger than Luxembourg but smaller than Belgium or the Netherlands who had one and two votes in the original system respectively. The new system gave 10 votes for the three biggest member states, five votes for the medium sized the Netherlands and Belgium and two votes for Luxembourg. Among the new entrants the UK got 10 votes, Denmark and Ireland three votes each. After the 1 May 2004 enlargement the votes of new entrants were intrapolated on the basis of the old scheme but this transitory weighting was in use only till 31 October 2004.

[7]In practice, CM usually tries to find unanimous compromises but still one can argue that bargaining that leads to a compromise involves voting weights as member states capacities. This *shadow voting* argument leads us to concentrate on QMV.

Table 1: The Council Votes in EU27 under the Treaty of Nice Rules

Member state	Population in 100,000s	Nice weight
Belgium	10396.4	12
Bulgaria	7801.3	10
Czech Republic	10211.5	12
Denmark	5397.6	7
Germany	82531.7	29
Estonia	1350.6	4
Greece	11041.1	12
Spain	42345.3	27
France	61684.7	29
Ireland	4027.5	7
Italy	57888.2	29
Cyprus	730.4	4
Latvia	2319.2	4
Lithuania	3445.9	7
Luxembourg	451.6	4
Hungary	10116.7	12
Malta	399.9	3
Netherlands	16258.0	13
Austria	8114.0	10
Poland	38190.6	27
Portugal	10474.7	12
Romania	21711.3	14
Slovenia	1996.4	4
Slovakia	5380.1	7
Finland	5219.7	7
Sweden	8975.7	10
United Kingdom	59651.5	29
Total	488111.6	345
QMV	n.a	255

The determination of voting weights in CM looks seemingly simple and automatic (see Table 1) but, in practice, it is far from that. In this regard there are three striking features. First, new entrants' voting rights have always been negotiated as a part of their accession treaties and, second, as the system - both before and after Nice - puts member states into clusters, all countries within one cluster having the same number of votes, the assignment of groups to the new entrants have always been a tough question in membership negotiations. A third striking aspect is that the current system, still in power when the first wave of enlargement took place, has not been updated to reflect changes in member states relative sizes. The determination of voting weights is based on clustering of member states. France and Germany belong to the same cluster despite their more than 20 millions difference in populations and the same used to hold for the Netherlands and Belgium with their six million population difference. The Nice rules devoted one more vote to the Netherlands compared to Belgium but did not correct the population difference between Germany and France. In short, eastern enlargement was used to reform the old voting scheme without regarding the shortcomings of the system.[8]

To make CM voting rules more transparent the *Constitutional Treaty* (CT), that was agreed inter-governmentally in June 2004, made a fundamental revision to CM voting rules. Specifically, the Constitutional Treaty (2004) made a switch from weighted voting into a dual majority system spiced with additional requirements. In fact, the Constitutional Treaty introduced a system of four simultaneous majority rules: A winning coalition must represent at least 55 percent of EU members and 65 percent of the EU population. Moreover, during the final negotiations two last-minute Summit compromises [9] were inserted. They are the requirement that at least 15 members vote 'yes' to pass proposals and that at least four countries are required to block decisions. They both have an impact in EU27 as 15 members is 55.6 percent of the membership but in computations the effect turned out to be very small. French and Dutch referenda, however, rejected the Constitutional Treaty. In 2007, it was restructured and renamed. Political agreement on the Lisbon Treaty (LT) was reached in June 2007. The agreement maintains CM voting rules as in LT but postpones the date when they come into force till 2014, even 2017 if at least one member state requires that.

3 The Codecision Procedure

[10]

The European Union's codecision procedure was introduced in the Treaty of Maastricht that came into force in late 1993. The current version of the procedure is due to the Treaty of Amsterdam and has been used since 1999. Currently, the codecision procedure is the most important and most often used decision-making procedure in the EU. Therefore, we

[8] See Kauppi and Widgren (2007) for discussion about related aspects.

[9] The *keys* in EU jargon.

[10] This section draws heavily on Napel and Widgrén (2006)

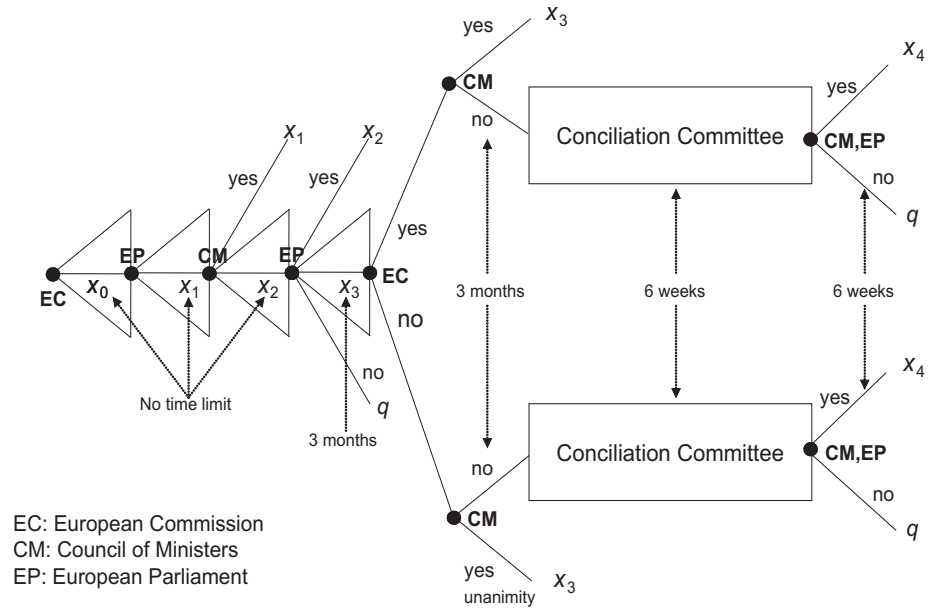

Figure 1: Stylized codecision game tree (Source: Napel and Widgrén (2006))

illustrate inter-institutional interaction using this procedure. [11]

The codecision procedure is initiated by a policy proposal of the European Commission. Then the procedure involves up to three readings of proposed legislation by EP and CM. First, EP can approve this proposal or replace it with an amended version of its own. Then, CM either approves the proposal on the table or initiates a second stage of decision-making by making amendments. This new proposal – CM's 'common position' in EU parlance – is either approved by EP or, again, amended. If in the latter case CM does not accept EP's proposal,[12] the *Conciliation Committee* represents the final chance to seek a shift from the status quo. The Committee is composed of all 27 members of CM and an equal size delegation of members of EP (MEPs). The committee is co-chaired by an EP Vice-President and the Minister holding the Council Presidency without any fixed negotiation protocol. EC's role in the committee is only to draft proposals requested by CM and EP. If CM and EP agree on a compromise, it is submitted to CM and EP for acceptance in a third reading in which CM and EP use their typical qualified and simple majority rules, respectively. In this paper, we adopt extensive form game model Napel and Widgrén (2006) for the procedure (see figure 1). The bargaining outcome that EP, CM, and also the EC expect to result from invoking the Conciliation Committee plays a crucial role at earlier stages of the procedure. Using backward induction it is straightforward to conclude that it is indeed *the* determinant of any codecision agreement if all players act strategically. Accepted new legislation will usually come into effect at some date in the

[11] Another important procedure is called the consultation procedure, which is an interplay between CM and EC.

[12] The Commission – by a negative opinion on EP's proposal – can require CM to accept unanimously.

medium-term future. Therefore, it is plausible to assume that neither EP nor CM has a pronounced preference for agreeing on a policy change a few weeks sooner rather than later. The codecision outcome can then be identified with the policy which CM and EP expect to agree on in Conciliation (either a new policy or the status quo, in which case a Commission with rational expectations need not even initiate the procedure). Therefore, our quantitative analysis of EP's and CM's influence on codecision outcomes can actually be confined to the Conciliation stage.

We use the *symmetric Nash bargaining solution* to predict the Conciliation agreement as we see no reasons to consider either EP or CM a more impatient or skilled bargainer. Using backward induction, we can solve for the codecision outcome. For the benchmark case of a unidimensional policy space and utility that linearly decreases with distance the symmetric Nash bargain corresponds to agreement on the ideal point which is closer to the status quo whenever there are gains from trade, i. e.

$$sign(q-\pi) = sign(q-\mu) \Longrightarrow x^*(\pi,\mu) = \begin{cases} \pi; & \rho(\pi,q) \leq \rho(\mu,q) \\ \mu; & \rho(\pi,q) > \rho(\mu,q). \end{cases}$$

At the inter-institutional level we assume that CM, EP and EC[13] agree on their respective bargaining positions using their respective voting rules. The European Parliament needs to approve any Conciliation compromise by simple majority. Entering negotiations with CM about some policy change to the right of the status quo q, some of the potential positions of the EP delegation are such that a majority of MEPs would find it beneficial to intervene and select a different delegation. More concretely, denote the ordered ideal points of all MEPs by $\pi_{(1)} \leq \pi_{(2)} \leq \ldots \leq \pi_{(785)}$ and consider a provisional bargaining position π with $q < \pi < \pi_{(393)}$. Parliamentarians with ideal points $\pi_{(392)}, \ldots, \pi_{(785)}$ then have the necessary majority and common interest to instead select some delegation with $\pi \geq \pi_{(392)}$ as EP's position for Conciliation negotiations. Similarly, parliamentarians with ideal points $\pi_{(1)}, \ldots, \pi_{(393)}$ would block a position $\pi > \pi_{(393)}$. One can hence restrict EP's ideal point in negotiations about policies $x > q$ to $\pi \in [\pi_{(392)}, \pi_{(393)}]$. According to the strategic bargaining model of the previous section it is the institution whose ideal point is closer to the status quo which is determining the Conciliation agreement. With this in mind we take the influence-maximizing $\pi = \pi_{(392)}$ to be EP's position in negotiations about $x > q$ and refer to the corresponding MEP as EP's *pivotal player*. By analogous reasoning, we identify EP with position $\pi = \pi_{(393)}$ for policies $x < q$.[14]

One characterization of the SSI refers to actors' permutations that are equally likely. When weighted voting in CM is assumed one cannot determine CM's pivotal player by looking only at a fixed order statistic $\mu_{(i)}$. Rather, one needs to aggregate voting weights of the players in the right order. Small countries, on the one hand, exert power in relatively small coalitions (with the help of relatively big countries) and big countries, on the other

[13]Note that a simple majority of member states or MEPs can request the Commission to make proposals on EU legislation. Hence it does not exert gate-keeping power of not proposing legal acts that it dislikes.

[14]Conciliation does not involve the Commission. Using backwards induction argument the Commission is, in fact, a dummy player having zero power.

hand, exert power in relatively big coalitions containing a relatively big number of small countries. This phenomenon makes it unclear, how well the SSI and SMP correspond. One thus finds the endogenous *pivotal position* p which then allows to use $\mu_{(p)}$ as a reasonable proxy for CM's position. Since we are assuming weighted voting in CM throughout the paper we denote this position with ny μ for short.

4 Evaluation Methods for the Impact of CM's Internal Voting Rules

4.1 The Shapley-Shubik Index

A commonly used measure for actors' voting power is the *Shapley-Shubik index* (SSI) Shapley and Shubik (1954). It can be seen as a special case of a broader concept the *Shapley value* Shapley (1953) in cooperative coalitional form games. SSI is restricted to so-called simple games that are usually used to model voting games. In simple voting games, winning and losing coalitions have different worth (usually one and zero, respectively). Thus, all winning coalitions have the same worth and all losing coalitions have the same worth.

The SSI is based on the broad idea that an actor that can break a winning coalition into losing, or vice versa, exerts power. These actors are critical in the sense that they may help a coalition to achieve its goals. Suppose that this help is rewarded by a price, which ends up as power. Despite of their abstractness there is some recent evidence that power indices are able to capture actors' power and that they can be used to predict decision outcomes in a meaningful way (e.g. Kauppi and Widgren (2007)).

More formally, let N be a set of n member states in the Council and let $S \subset N$ denote any coalition of member states having s members. A voting game in the Council can be characterized by a set function $v(S)$ taking on value 1 when a coalition S forms a qualified majority and zero otherwise. In this simple setting, the Shapley-Shubik index ϕ_i of a member state i can be written

$$\phi_i = \sum_{S \subseteq N, i \in S} \frac{(s-1)!(n-s)!}{n!}[v(S) - v(S \setminus i)], \tag{1}$$

where $i = 1, ..., n$. The first term in the sum gives the probability of country i being in a pivotal position in coalition S and the latter term counts those pivotal positions where country i is able to swing a winning coalition into losing, i.e. S is winning and the removal of i from it makes it losing.

Thus, SSI implies that the relative shares of the players' swing positions predict how powerful they are.[15]

In the classical voting power literature that is concerned with institutional design, either the Banzhaf Index is more often applied than the SSI. An often heard reasoning behind

this choice stems from the *veil of ignorance* argument. The Banzhaf Index considers all possible coalitions of actors equally likely, i.e. all coalitions have have equal weight in power calculations. This ignores among other things actors' preferences, which can be considered as clear benefit if one is only considering the design of voting rules. The SSI does not assume any particular preferences either but it gives equal weights to different coalition sizes from one to n if n gives the number of actors and, moreover, all coalitions that are of equal size, say $m \leq n$, have equal weights. One can argue that this requires more specific information than the assumptions behind the Banzhaf Index. However, the SSI has a very close link to strategic aspects of power (see the next subsection below), which can be seen as its strength.

There are several ways to approach and interpret the SSI. The most traditional way is axiomatic (see e.g. Dubey and Shapley (1979) and Laruelle and Valenciano (2002)). The main criticism towards this approach refers to its abstract nature. Axioms may give plausible conditions for the outcome prediction but they do not describe the decision-making game. Second way to approach the SSI is due to Owen (1972) and Straffin (1977). It is probabilistic and based on the idea that the voters face a random proposal and that the actors pick their acceptance rates p_i from a common uniform distribution. The PBM assumes that each actor picks the acceptance rate from identical independent uniform distributions. In both cases, the mean acceptance rate is $\frac{1}{2}$. Denote the common rate by $p_i = t \ \forall i$ which is then assumed to have uniform distribution $t \sim U(0,1)$. Note that this does not mean that all voters have the same acceptance rate in a single vote, only a common distribution of the acceptance rates. The underlying acceptance rate assumption of the PBM implies that $p_i = \frac{1}{2} \ \forall i$. The choice of the uniform distribution can be justified by arguing that, in fact, the emphasis of the classical power indices is not in materializations of single votes but rather in voting rules. Another question arises from the relatively abstract nature of the power indices. They are both based on the idea that, in a randomly chosen issue, actors' acceptance rates for a proposal are uniformly distributed. The uniform distribution assumption implies that the variety of analysed issues must be big enough and that the actors have no systematic biases towards being either eager or reluctant to accept proposals. The assumption also indicates that power indices are, indeed, very long term concepts.

Power indices are often critisised as they disregard preferences and since uniform distribution is seen too general. On good grounds, one can have doubts on this assumption's plausibility. Ex post, one can always attempt to measure preferences in some meaningful

[15] Another power measure is the so-called Penrose-Banzhaf measure. It can be written as

$$\frac{\partial f(x_1, \ldots, x_n)}{\partial x_i} = \sum_{S \in \mathcal{M}_i} (\frac{1}{2})^{n-1} = \beta_i. \tag{2}$$

It can be interpreted as player $i's$ probability of having a *swing* in a *vulnerable coalition*, i.e. in a coalition that can be turned from winning into losing by at least one of its members. PBM, like SSI, does not sum up to unity. Therefore to assess relative power or the distribution of power the PBM is often normalized and then referred to as the (normalised) Banzhaf index (NBI).

way and apply some other than uniform distribution. For ex ante analysis or institutional design there is, however, very little or no use of this kind of approach. Moreover, as a long run approximation uniform distribution may also have its merits. Indeed, Kauppi and Widgrén (2004) and Kauppi and Widgren (2007) demonstrate, using an annual data-set of EU budget receipts in 1975-2003, that the SSI alone explains member states shares of EU budget receipts relatively well and by adding a dummy variable for Franco-German cooperation there is a one-to-one correspondence between budget receipts and power measured by the SSI. Moreover, Kauppi and Widgrén (2008) show that the SSI's explanatory power is at its best in the so-called compulsory Treaty based expenditure that covers mainly common agricultural policy.[16] In non-compulsory spending that covers mainly structural spending, it is somewhat weaker due to the EP's role. Since the SSI seems to have its merits in explaining CM decision-making we have chosen it as a tool of evaluating the intra-CM distribution of power.

Another often heard criticism against power indices stems from their disability to take decision-making procedures into account. Power indices are based on unlimited coalition formation and binding pre-play agreements. In the case of the EU, power indices do not consider the legislative processes, like non-cooperative procedural models do. Recent empirical evidence concerning the EU suggests, however, that simple cooperative models have better predictive power on legislative outcomes than detailed procedural models that aim to capture the sequence of actors' moves and find the equilibrium outcome. In Thomson, Stokman, Achen, and König (2006), several game-theoretic models were tested against the interview data on preferences and issue salience in 162 controversial issues in EU legislation. In this DEU study, it turned out that the best prediction fits for outcomes were rather cooperative than non-cooperative solutions (see Achen (2006a) and Achen (2006b)). Among the models that were tested against the interview data, the compromise model[17] performed the best. Compromise model and cooperative models in general put their major emphasis on pre-play bargaining or the first stage of legislative process whereas, on the other hand, procedural non-cooperative models emphasize the legal framework (the second stage of legislative process) and de-emphasize the pre-play bargaining. The results of the DEU study showed that the latter type of models performed worse (see Achen (2006a) and Achen (2006b)).

It is worth noting that the compromise model is actually a very close approximation to the Nash bargaining solution (Achen (2006b)) that justifies the use of it here. However, when one evaluates inter-institutional relations both the first and second stage of legislative process must be considered. This, in fact leads to what we call the unified approach that is a mixture of non-cooperative and cooperative games elements. In particular, if one evaluates the distribution of power between the decision-making bodies in the EU the analysis contains two phases, first, the equilibrium analysis using non-cooperative procedural spatial voting model and, second, a priori analysis by randomising preferences. The

[16]Note that compulsory expenditure is decided solely by CM.

[17]The predicted outcome in compromise model is simply a weighted mean of actors' ideal policy positions, weights being power (the SSI) and salience (obtained using the interview data).

method that we apply is described in the following (see Napel and Widgrén (2004)).

4.2 The Strategic Measure of Power

When there are more than one decision making institutions involved or when one is investigating the interaction between several institutions the classical power index approach faces problems as it assumes that players are voting or moving simultaneously, which is rarely the case in decision making procedures. As mentioned above, the non-cooperative approach serves as an alternative for investigating decision-making institutions. In the literature, the criticism raised against the co-operative approach is two-fold. First, the cooperative approach cannot take strategic inter-institutional or procedural aspects of EU decision-making into account and, second, it does not explicitly consider players' preferences but rather attempt to model voting behavior more directly for instance using axioms or acceptance probabilities. The latter drawback is not, however, necessarily severe in the design of constitutional rules. It can also be seen as a reason to support an abstract cooperative approach but the former has to be taken more seriously even in constitutional analysis.

The criticism raised against classical power indices above does not mean, however, that the core of the traditional power index approach, namely a player's marginal contribution to the outcome, is useless. For this reason, Napel and Widgrén (2004) propose to extend the above analysis from the simple coalition framework of a priori power measurement and the very basic voting game to a more general framework. First, take a player's marginal contribution as the best available indicator of his potential or ability to make a difference, i. e. his *a posteriori power*. Second, if this is of normative interest or a necessity for lack of precise data, calculate a priori power as expected a posteriori power. Expectation can be formed with respect to several different aspects of a posteriori power such as actions, preferences, or procedure.

In this unified approach, impact is relative to a what-if scenario or what Napel and Widgrén (2004) call the shadow outcome. The shadow outcome is the group's decision which would have resulted if the player whose power is under consideration had chosen differently than he a posteriori did, e. g. if he had stayed out of coalition S when he a posteriori belongs to it. Assume spatial preferences. Then each player has an ideal policy position on a unit interval, say. In this paper, we assume that a unit interval represents a policy space, i.e. the set of possible policy outcomes in one issue, and a set of mutually independent unit intervals in several issues.

To illustrate this in more detail, let $\Lambda = (\lambda_1, \ldots, \lambda_n)$ be the collection of n players' ideal policy positions on unit interval. In a policy space $[0, 1]$, the opportunities even for only marginal changes of preference are manifold. A given ideal point λ_i can locally be shifted to $\lambda_i + h$ where h is an arbitrary small shift either to the left or right.

Let x^* be the equilibriun outcome in codecision procedure as described above. One can now define

$$D_i(\Lambda) = \frac{\partial x^*(\lambda_i, \lambda_{-i})}{\partial \lambda_i}. \tag{3}$$

as a reasonable measure of player i's ex post power. More specifically, let γ, μ, π represent the ideal aggregate policy positions of EC, CM and EP respectively. Due to respective internal decision-making rules γ is the ideal policy position of the median Commissioner,μ is the ideal policy position of the pivotal minister (assuming QMV) in CM and π is the ideal policy of the median MEP. Using the ex post power above we can define a corresponding ex ante measure as

$$\xi_i = \int D_i(\gamma, \mu, \pi) dP. \tag{4}$$

Using a suitable probability distribution of players' ideal policy positions. Napel and Widgrén (2004) refer to this index to as *Strategic measure of power* (SMP).

5 Internal and External Impact of CM Rules

5.1 Internal Effect on CM Distribution of Power

Let us first assess the intra-CM impact of two different Council voting rules that are relevant. We concentrate on the Nice rules that are currently in use and the Lisbon rules that refer to a dual majority scheme whereby 55 per cent of membership representing 65 per cent of EU population is required to pass proposals as agreed in June 2007. According to the inter-governmental agreement, the Nice rules are in force at least till 2014 and there is an option to have the Nice rules in use until 2017.

Figure 2 compares the power distributions, on the one hand, between the Nice and LT rules and, on the other hand, between the Nice and LT rules and hypothetical compromise rule, respectively. The compromise rule is inspired by the proposal of Polish government in 2007. There, the passage of a proposal requires a support of 55 percent of member states, like in the LT rules, representing 65 percent of the EU population computed using the square-roots of member states population figures instead of actual populations. We call that compromise the SQR65&55 rule.[18] The upper panel shows the differences in terms of SSIs and the lower panel in terms of NBIs. When the LT and Nice rules are considered (solid curves) comparison of the the upper and lower panels reveals that the shapes of the differences are very similar. The difference between the Lisbon and Nice rules follows a U-shaped pattern demonstrating that the middle-sized countries lose the most when the Nice rules are replaced by the LT rules in 2014 or 2017, Romania being an exception. Although the shapes of LT-Nice curves are similar there are two significant differences. First, NBI suggests that the smallest countries would gain power under LT compared to Nice whereas SSI gives them practically zero differences. Second, the magnitudes of big countries' power gains are considerably higher when SSI is used for the evaluation. This can be explained by the underlying voting models behind the indices. SSI gives more weight to coalitions having relatively small number of members than NBI that puts most weight to coalitions

[18]See discussion in Gros, D., Kurpas, S. and Widgrén, M: Weighting votes in the Council: Towards a Warsaw Compromise?, CEPS Commentary, 20 June 2007, www.ceps.be.

Table 2: The SSIs in the EU-27 under the Treaty of Nice rules and the Lisbon rules, %

Country	Treaty of Nice	Lisbon Treaty
Germany	8.74	16.29
United Kingdom	8.70	10.88
France	8.72	10.82
Italy	8.69	10.56
Spain	8.02	7.05
Netherlands	3.67	3.20
Greece	3.40	2.35
Belgium	3.40	2.30
Portugal	3.40	2.27
Sweden	2.81	2.08
Austria	2.81	1.97
Denmark	1.95	1.52
Finland	1.95	1.49
Ireland	1.95	1.27
Luxembourg	1.10	0.75
EU15	69.31	74.81
Poland	7.99	6.92
Romania	3.98	4.35
The Czech Republic	3.40	2.32
Hungary	3.40	2.29
Bulgaria	2.81	1.99
Slovak Republic	1.95	1.52
Lithuania	1.95	1.27
Latvia	1.10	1.07
Slovenia	1.10	1.00
Estonia	1.10	0.91
Cyprus	1.10	0.80
Malta	0.82	0.75
New Member States	29.31	26.80
Total	100.00	100.00

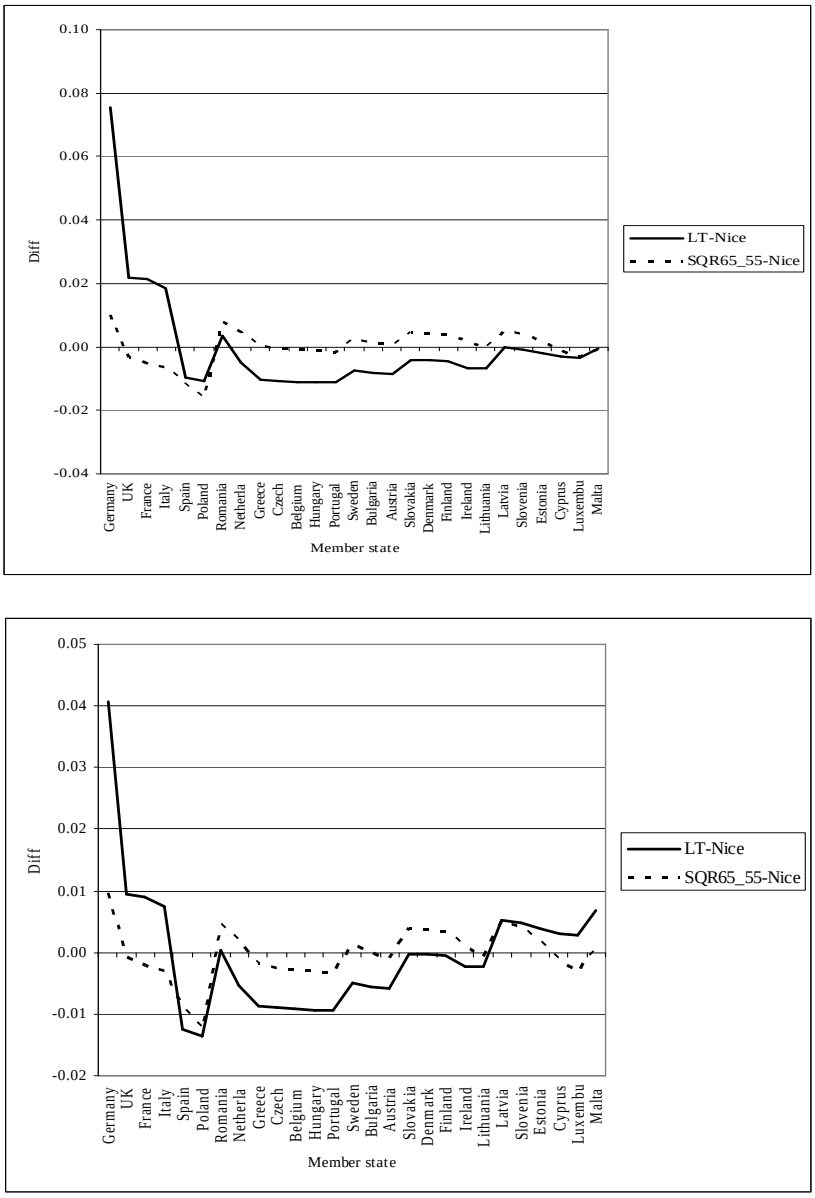

Figure 2: The Difference between Shapley-Shubik (upper panel) and Normalised Banzhaf Indices (lower panel) in the Nice and LT rules and in Nice and LT and SQR65&55 Rules in EU27

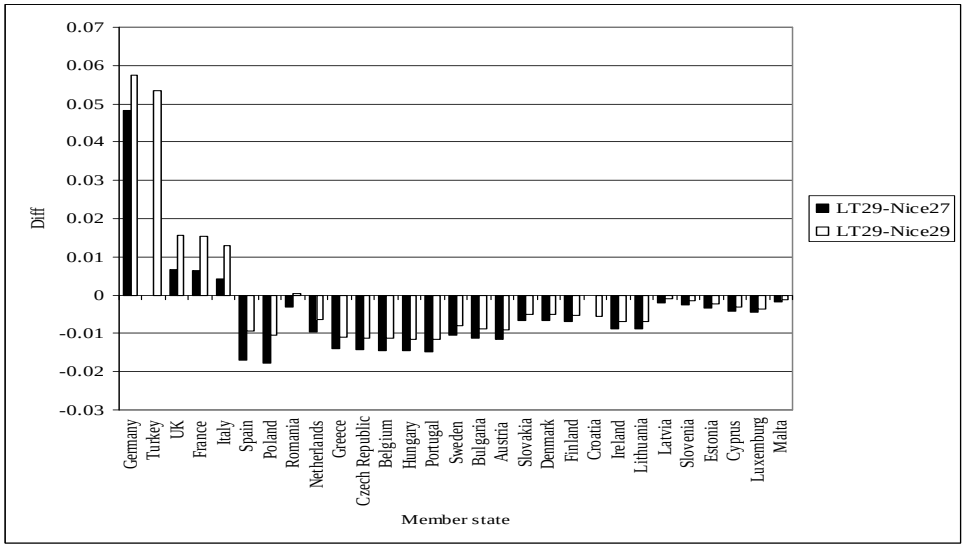

Figure 3: The Difference between Shapley-Shubik in the Nice and LT Rules and in EU27 and EU29

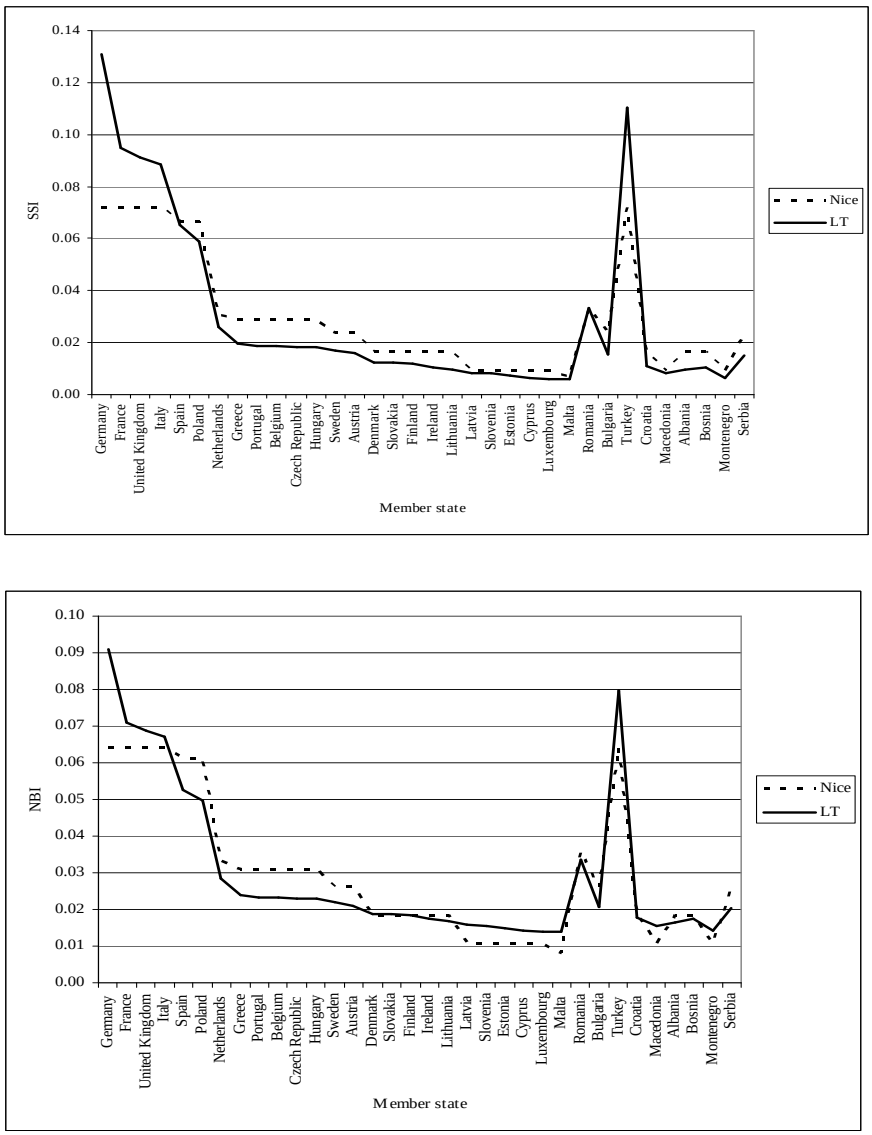

Figure 4: Shapley-Shubik (upper panel) and Normalised Banzhaf Indices (lower panel) in the EU34

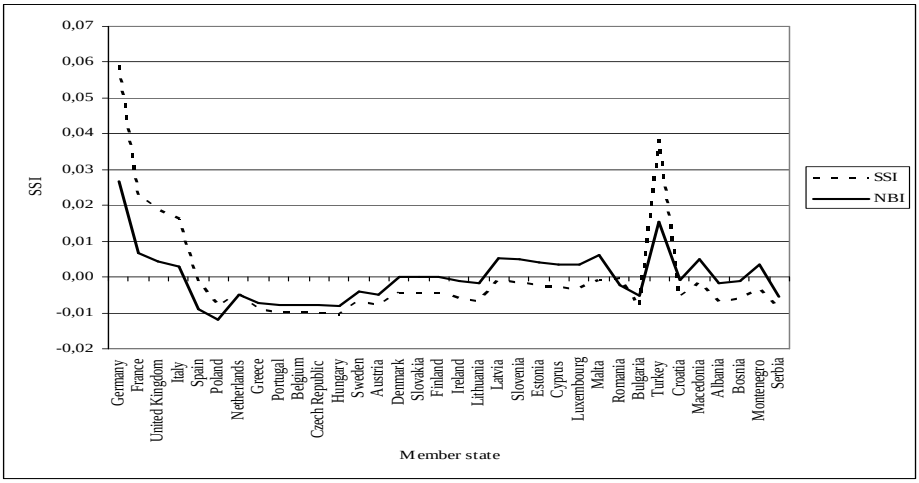

Figure 5: Shapley-Shubik and Normalised Banzhaf Indices in the EU34, differences between the CT and Nice rules

having close to $n/2$ voters. Since big countries are more likely to be at pivotal position in coalitions having relatively small number of members than the small ones SSI gives them more power.

When the SQR65&55 and Nice rules are compared (dashed curves) figure 2 suggests that the magnitude of the difference is much lower than in comparison between the Nice and LT rules. Moreover, there is no systematic pattern as in the differences between the Nice and LT rules. In sum, both indices suggest that the compromise solution (SQR65&55) would practically restore the distribution of power to the Nice distribution. The major impact of the SQR65&55 rule is that it would significantly improve CM's ability to act. That is often measured by the so-called *passage probability* which simply computes the percentage of majority coalitions to all coalitions using the Banzhaf assumption on voting, i.e. all coalitions are equally likely. It evaluates how often a randomly chosen coalition is winning. Of course, the passage probability values as such are meaningless since the proposals that are voted on are not random. However, the comparison of two passage probability values gives meaningful information about how CM's ability to act changes when the rules are changed. In EU27, the passage probability value is 2.0 per cent. The respective figures for LT and SQR65&55 rules are 17.1 and 10.0 per cent. The LT rules would, thus, significantly improve decision-making efficiency in the CM The potential drawback of the switch from the Nice to LT rules is, however, a significant redistribution of power. That is likely to postpone the switch till 2017 or even put the whole shift to jeopardy. On the other hand, the shift from the Nice rules to SQR65&55 rules would also improve decision-making efficiency considerably without affecting the distribution of power as much. It is worth noting, however, that by adopting the SQR65&55 rule instead of the LT rule the power gains of the biggest countries would be cut.

Figure 3 compares the SSIs under the LT and Nice rules in EU29 (white bars) and between the LT rules in EU29 and Nice rules in EU27 (black bars). The former comparison is straightforward but the latter one gives the overall power gains and losses resulting from the change in voting rules and the enlargement. The difference between the bars gives the enlargement effect for each member state. The enlargement effect is quite naturally negative in all cases.[19] Interestingly, however, the power gains of the biggest countries due to the Treaty change are substantially bigger than the losses due to Turkey's and Croatia's entry. The medium-sized countries face the biggest losses both from the Treaty change and enlargement. The smallest countries loose from the Treaty change but the enlargement does not further change the picture. In sum, figure 3 demonstrates that by changing the rules before an enlargement incumbent countries are able to affect the effects of the enlargement.[20]

Figures 4 and 5 show the SSIs and NBIs for the EU34, which is the current EU27

[19]Note, however, that it is possible that a country gains when a decision-making body expands. An example from the EU is Luxembourg that had zero power in EU6 but gained power in EU9. This phenomenon is called the paradox of new voters. It occurs, however, relatively rarely.

[20]In the EU, the financial framework introduced as a part of Agenda2000 defined the upper limits for budget receipts. That had a substantial impact on the central and eastern European countries' receipts. The Treaty of Nice change the rules before the enlargement and decreased the new member states' influence.

plus Croatia, Turkey, Macedonia, Albania, Bosnia, Montenegro and Serbia as new member states. Comparison of the Nice and CT rules demonstrates the same pattern as before. First, the big countries are clearly winning from the LT rules and, second, the SSI shows once again bigger differences between the two rules, especially in the case of the biggest member states. Although the figures follow the same pattern the gains and losses are roughly doubled in terms of the SSI compared to the NBI. To conclude, there is a substantial difference between the voting rules in CM that are in the Treaty of Nice and the Lisbon Treaty. It is not who loses and who gains, it is the magnitude of power gains and losses.

Which index is then more appropriate? They both give roughly the same message but the magnitude is different. The SSI puts much more weight to the big countries and also the small country gains, which creates a true u-curve. A common wisdom is that NBI is more appropriate for institution design as it completely disregards preferences and takes all coalitions equally likely. In this paper, we are not interested in institution design as such but rather the consequences and, therefore, the SSI values are the ones that should be looked at. First, the SSI is more appropriate when one evaluates bargaining committees whereas NBI is more appropriate when the committee makes only take-it-or-leave-it decisions (see Laruelle and Valenciano (2008). As the Council is certainly closer to a bargaining committee than to a take-it-or-leave-it committee and, therefore, we have chosen the SSI as the main tool. Moreover, the SSI has non-cooperative foundations and is, therefore, more reliable.

5.2 External Effect on Inter-Institutional Power

Let us next turn to inter-institutional relationship between the main decision-making bodies of the EU. There are two questions of interest here. First, what is the distribution of power between CM and EP in codecision procedure and, second, how the procedure affects the power measures and the distribution of power in CM.

The two first columns of table 3 show SMPs in codecision under the Nice and LT rules respectively. The two next columns normalise SMPs in CM. The purpose of this normalisation is to analyse CM in isolation using a strategic power approach. What one might expect is that we get the SSI but as the two right-most columns demonstrate that is not true. The two last columns give the relative difference between the SSI and normalised SMP (NSMP) in CM. The latter can be interpreted as the probability of being pivotal in CM given that we take stategic considerations and spatial preferences into account. The absolute differences between NSMP and SSI are not big [21] but there are considerable relative differences especially for small countries. The figures in two last columns also demonstrate that the relative differences between the SSI and NSMP differ according to the procedure and the size of the country. Under the Nice rules, NSMP tends to give higher figures to the biggest nations whereas the reverse holds for the LT rules. In both cases the relationship is monotonic: the bigger a country is the more NSMP exceeds SSI under the

[21] Note that the SSI values are not given here. They are shown in table 2 above

Table 3: Strategic power in the EU27 under the Nice and Constitutional Treaty rules and the intra-CM difference to SSI in codecision procedure

Member state	SMP Nice	SMP LT	NSMP Nice	NSMP LT	(NSMP - SSI)/ SSI, % Nice	NSMP - SSI)/ SSI, % LT
Belgium	0.0181	0.0129	0.0345	0.0232	-1.69	-0.26
Bulgaria	0.0151	0.0104	0.0287	0.0187	-2.12	0.20
Czech Republic	0.0181	0.0127	0.0345	0.02282	-1.69	-0.22
Denmark	0.0105	0.0084	0.0200	0.0150	-2.67	0.80
Germany	0.0448	0.0888	0.0852	0.1589	2.45	-0.23
Estonia	0.0059	0.0048	0.0113	0.0086	-3.31	3.88
Greece	0.0181	0.0135	0.0345	0.0242	-1.69	-0.31
Spain	0.0415	0.0426	0.0788	0.0763	1.64	-0.28
France	0.0448	0.0635	0.0851	0.1136	2.33	-0.40
Ireland	0.0105	0.0073	0.0200	0.0131	-2.67	1.37
Italy	0.0447	0.0589	0.0850	0.1054	2.20	-0.53
Cyprus	0.0059	0.0043	0.0113	0.0077	-3.31	4.78
Latvia	0.0059	0.0056	0.0113	0.0101	-3.31	2.82
Lithuania	0.0105	0.0066	0.0200	0.0118	-2.67	1.90
Luxembourg	0.0059	0.0040	0.0113	0.0072	-3.38	5.27
Hungary	0.0181	0.0126	0.0345	0.0225	-1.69	-0.18
Malta	0.0044	0.0039	0.0084	0.0071	-4.01	5.37
Netherlands	0.0196	0.0183	0.0373	0.0327	-1.59	-0.77
Austria	0.0151	0.0109	0.0287	0.0196	-2.12	0.12
Poland	0.0414	0.0374	0.0787	0.0669	1.46	-0.08
Portugal	0.0181	0.0130	0.0345	0.0233	-1.69	-0.28
Romania	0.0212	0.0233	0.0403	0.0417	-1.26	-0.62
Slovenia	0.0059	0.0053	0.0113	0.0096	-3.31	3.10
Slovakia	0.0105	0.0083	0.0200	0.0149	-2.67	0.82
Finland	0.0105	0.0082	0.0200	0.0147	-2.67	0.89
Sweden	0.0151	0.0116	0.0287	0.0208	-2.12	-0.04
United Kingdom	0.0447	0.0607	0.0850	0.1086	2.23	-0.48
Council aggregate	0.5265	0.5591	1.0000	1.0000	0.00	0.00
European Parliament	0.0214	0.1307	n.a.	n.a.	n.a.	n.a.

Nice rules and the more it falls below under the LT rules.

Let us next turn to assess claims that the gradual extension of the codecision procedure to more of the EU's policy areas has moved EU decision making towards a balanced bicameral system. The codecision procedure is clearly that of the EU's legislative procedures in which EP's influence is greatest. Still, it is very small. The last two rows of two first columns demonstrate that the arguments that EP and CM are equal co-deciders are simply wrong. Under the Nice rules EP is almost powerless and under the IGA rules, despite of relatively large gain compared to the Nice rules, still much less powerful than CM. The use of QMV gives an advantage to CM since it is much more difficult to get acceptance from CM than from EP that applies simple majority. Noteworthy, however, EP is more powerful than any single member state under the LT rules, which is not the case under the Nice rules. Also, the comparison of EP's figures demonstrate that EP obtains considerable power gains from LT rules compared to the Nice rules. But this does not mean that codecision works like a balanced bicameral system. If this is the goal the internal decision-making rules, i.e. the majority quotas, in EP and CM should be approximately the same.

It is worth noting that the SMPs do not sum up to unity. The overall sum is 0.55 under the Nice rules and 0.69 under the LT rules respectively. The difference between one and the sum of SMPs can be interpreted as a measure of status quo bias. Note that the SMP, like the SSI, measure constructive power. In the case of SSI, status quo bias is ruled out.[22] In SMP context, a sufficient condition to this is to fix the status quo to 0 when unit interval describes the policy space. In the computations of table 5.2, the status quo is, however, randomised and it follows a uniform distribution on $[0, 1]$. This makes possible that status quo prevails and that none of the actors exerts constructive (strategic) power.[23]

Let us next have a closer look at the impact of status quo bias and strategic aspects on EP's and member states' power. Figure 6 makes a comparison between 'status quo bias free' SSI and non-normalised SMP figures. The curves in the figure show the relative loss of power that is due to strategic interaction and status quo bias, i.e. $(SSI - SMP)/SSI$. The figure demonstrates an interesting difference between the Nice and LT rules. Under the former the relative losses are almost constant with an exception of EP that loses the most. This is another way to express the result of Napel and Widgrén (2006): higher quota clearly benefits CM when strategic aspects and the possibility of status quo bias are considered.

The picture is completely different in codecision procedure. A common feature is that EP loses the most but otherwise the losses decrease monotonically in the size of the country. The smallest countries even gain when strategic aspects are taken into account. Note that

[22] In an axiomatic approach, the efficiency axiom guarantees that.

[23] Napel and Widgrén (2006) simulate the impact of CM's majority threshold on EP's and CM's SMP. They find that EP's SMP decreases monotonically whereas CM's SMP follows an inversely U-shaped pattern with respect to its majority quota. Hence, CM faces a trade-off in terms of its own majority quota. There is a majority quota (roughly 65 per cent in EU27) that maximises its SMP. Lower quotas than that give EP more advantageous position and at higher quotas status quo bias has a negative impact on CM's constructive power.

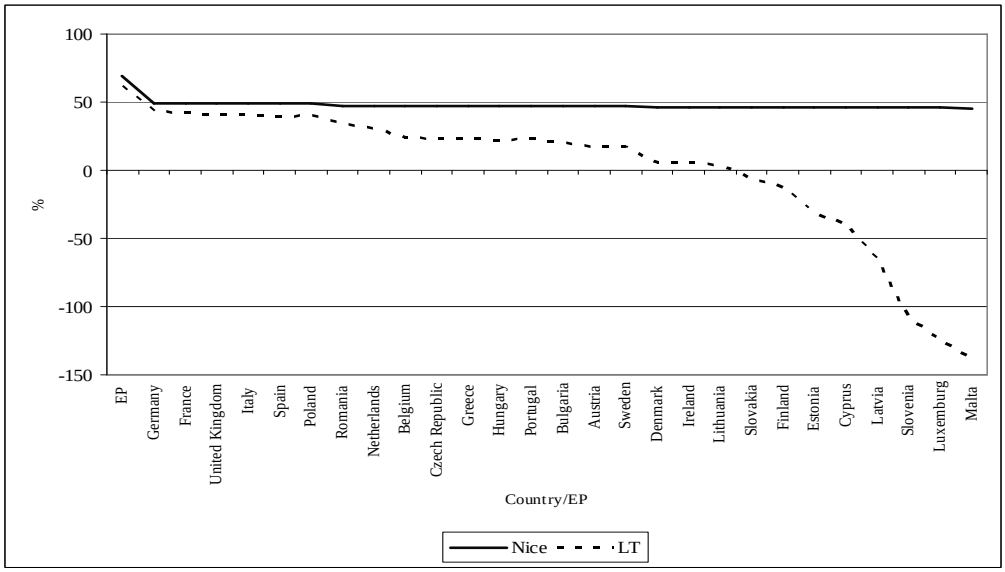

Figure 6: Relative losses of power due to the status quo bias and strategic interaction

the status quo bias is smaller under LT rules and under the Nice rules. That also gives the intuition why small countries gain or loose less than the big countries. Because it is mainly the big countries that are able to exert destructive power, i.e. to block decisions, decrease in status quo bias improves small countries' position since their overall power is based constructive, not destructive, power.

6 Concluding Remarks

In this paper, we have dealt with the internal and external impact of voting rules in the EU Council. The results of the paper demonstrate that voting rules in CM matter both internally and externally. Even in simple non-strategic environment small changes in voting rules may have unexpected implications for the distribution of power among the actors. Despite of its abstract nature power index analysis gives a good advice of these implications.

In terms of national distribution of power in CM, the impact of a shift from one weighted voting system to another is much more predictable that the impact of a shift from a weighted voting to a dual majority system. The Nice reform is a typical example of the former. That might also be a partial explanation why member states were so reluctant to adopt a dual majority rules in Amsterdan (1997) and Nice (2000) instead of a reweighting scheme. Only after realising the drawbacks of the Nice rules dual majority rules were considered seriously as the main alternative. Despite of the political agreement on the Constitutional Treaty and later the Lisbon Treaty the future of adopting a dual majority scheme is still open demonstrating additional obstacles in shifting to a dual majority scheme. It is worth noting, however, that weighted voting rules in which the determination of member states' voting weights is not transparent, like in the Nice rules, create much harder pressure for renegotiation than dual majority rules that allocate the voting rights in transparent fashion and can be updated automatically using Eurostat population statistics.

Dual majority rules, like the LT rules, are also challenging since number-of-member-states and population criteria that form the base of such rules give less a priori advice than voting weights for expected consequences. Throughout analysis is essentially important in the EU where member states populations vary a lot between Germany and tiny Malta. Moreover, balancing the thresholds of number-of-member-states and population criteria is not a question that has a simple unique answer.

The design of CM voting rules becomes even more crucial when they are evaluated in strategic inter-institutional environment and also the other main decision-making bodies are considered. As the paper shows, CM voting rules have considerable impact on EP's power and capability to influence policy outcomes. As a general rule of thumb, we conclude that the higher the majority threshold in CM the less EP is able to wield influence on EU decisions. Dual majority rules are by their nature more federalistic than weighted voting schemes. The dual majority rules that are seriously considered since the work of European Convention (2002-2003) shift power from CM to EP, hence adoption of for example the Lisbon rules would indicate a shift from inter-governmentalism towards supranationalism.

In sum, one of the main lessons of the analysis is clearly to explain why the design of Council voting rules has required so much bargaining and cumbersome marathon negotiations. This holds both at intra-CM level and inter-institutional level.

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