Strategic A Priori Power in the European Union's Codecision Procedure Recalculated for EU28*

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Abstract

In this paper, we evaluate the distribution of power within the Council of Ministers (CM) in the EU's most used legislative procedure, the *codecision procedure* or *ordinary legislative procedure*. Although our main emphasis is on the power distribution inside CM, we do *not* make the assessment in isolation from the European Parliament (EP) because it 'co-decides' on the respective policy outcomes. We investigate a procedural non-cooperative model of codecision, in which members of CM and EP act strategically. CM and EP are thus evaluated as integrated parts of EU decision making. We relate our findings to studies that disregard the effects of inter-institutional interaction on the intra-institutional distribution of power. Previous analysis of the inter-institutional balance of power between CM and EP is extended by explicitly accounting for weighted voting.

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1 Introduction

The question of national influence on legislation adopted by the European Union (EU) is of interest and importance to politicians, the general public, and academics alike. It has inspired a great number of applied studies and vigorous methodological debate. The applications have highly concentrated on the intra-institutional distribution of power in the EU's Council of Ministers, which is the EU's main decision-making body, using mathematical measures of voting power that have roots in cooperative game theory.[1] These studies started to mushroom in the early 1990s, and have often been inspired by EU enlargements and institutional reforms where, indeed, the Council was the key institution. A quite separate line of research has focused on inter-institutional power analysis, assuming spatial preferences and investigating non-cooperative voting games (see, e.g., Steunenberg 1994, Tsebelis 1994 or, for an extensive survey, Steunenberg and Selck 2006).

The cooperative index-based approach has been heavily criticized by political scientists who analyze EU decision making via spatial voting games because it does not take procedures and strategic aspects into account (see, e.g., Garrett and Tsebelis 1999). However, in the spatial voting games literature, the analysis of intra-institutional power relations, and especially the distribution of power in the Council, is still in its infancy. There, it has mostly been ignored that the Council applies a (rather complex) weighted voting rule.

In this paper, we apply the unified framework for power analysis introduced in Napel and Widgrén (2004). The framework generalizes the measurement ideas underlying, e.g., the Penrose-Banzhaf or Shapley-Shubik indices to non-cooperative voting models and procedure-based strategic interaction. Thus the major limitations of traditional indices that have been pointed out by Garrett and Tsebelis (amongst many others) are overcome. The framework allows to evaluate the distribution of power at the inter-institutional and intra-institutional levels simultaneously.

We compute the distribution of power inside the Council of Ministers for a priori unknown, one-dimensional spatial preferences. A key feature, which distinguishes our intra-Council power analysis from the existing studies that we are aware of, is that we consider an actual decision procedure, namely the so-called *codecision procedure*.[2] The procedure implies that pivotality of an individual member inside the Council, which is picked up by conventional power indices, does *not* automatically translate into power to affect the collective decision. The reason is that the codecision procedure also involves the European Commission and the European Parliament; and the latter may be the truly critical player on a given issue. The individual chances of being pivotal or critical for a *decision* (rather than only for the Council's opinion on some matter), which voting power analysis ulti-

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

[2] Napel and Widgrén (2011) investigated the EU's *consultation procedure*. It was introduced already in the Treaty of Rome in 1957 and for a long time remained the only way to take decisions in what is now the European Union. After the Lisbon Treaty has come into force, this procedure plays a much smaller role – mainly for competition law – than it used to. However, its relative simplicity provides an ideal framework for investigating the effects of inter-institutional interaction on voting power.

mately is about, are affected differently for different Council members by the Parliament's presence. This means that the standard indices considered in previous investigations can give a distorted view of the actual distribution of a priori power amongst the members of the Council of Ministers.

The codecision procedure has already been investigated by Napel and Widgrén (2006) in some detail. The focus there, however, was put on the *inter*-institutional balance of power. The critical determinant of the relative influence of the Council vs. the Parliament on codecision outcomes turned out to be the respective decision quotas. So, in order to simplify the analysis, we concentrated on the supermajority aspect of Council voting rules, and ignored the asymmetries in voting weight. The present paper obviously has to give up this simplification because it deals with the distribution of power inside the Council, and the weight distribution is essential for that. As a welcome side-benefit of studying weighted voting in the Council, we obtain a better assessment of the inter-institutional distribution of power than in Napel and Widgrén (2006).

The numerical differences to our earlier assessment of the power relation between Council and Parliament, and similarly to assessments of the intra-Council power distribution by standard indices, actually turn out to be relatively small. This is good news, but it should not be mistaken as an excuse for continuing with the past disregard of procedures and strategies in voting power analysis. In particular, we identify two biases of standard power measures: they count intra-institutional pivot positions for which the considered institution is outcome-irrelevant because, first, the outcome is determined by other institution(s) (here: EP) or, second, the status quo prevails because the involved institutions block each other. It may be just a coincidence that the opposite biases induced by these two types of miscountings happen to approximately cancel for most EU member states in the case of codecision under the Nice or Lisbon qualified majority rules. A change of the procedure or of these voting rules (e.g., after an enlargement beyond EU28) could easily render one of the biases dominant, and then result in much bigger deviations between non-strategic and strategic a priori power.

The remainder of the paper is organized as follows: we introduce intra-Council decision making after some preliminaries in Section 2. As they are our main target of assessment, some basic facts about it and the codecision procedure are needed. We then construct a simple game-theoretic model of the codecision procedure, which captures strategic inter-institutional interaction. We discuss the equilibrium outcomes predicted by this model, which are then used for the power analysis that is presented in Section 3. Its results are reported in Section 4 and, finally, we conclude in Section 5.

2 The Codecision Procedure

2.1 Preliminaries

In the following, we will consider the one-dimensional convex Euclidean policy space $X = [0, 1] \subset \mathbb{R}$. The legislative *status quo* regarding the (a priori random) issue which is up for

a decision is denoted by $q \in X$. The considered political actors are all assumed to have *single-peaked preferences* regarding this issue. They are characterized by an individual *bliss point* or *ideal point* $\lambda \in X$: the smaller the distance $d(\lambda, x)$, the higher the agent values a policy $x \in X$. We suppose that not only do the 766 members of EP[3] and the 28 national government representatives in CM have such preferences, but that there are representatives of EP and CM who possess aggregated spatial preferences of the same kind (possibly with $\lambda = q$ if the institution cannot reach an internal consensus). It is then possible to predict the codecision outcome regarding the considered issue by specifying, first, how EP's and CM's respective internal decision rules translate preferences of individual members into the institutions' ideal points and, second, how these institutions interact in order to reach a joint decision.

Note that we here follow the – somewhat legalistic – game-theoretic analysis by Napel and Widgrén (2006), which argued that the European Commission is a formally powerless player in the codecision game. The reason is that – at least when transaction costs are zero – EP and CM can jointly enact *any* policy on which they agree in the so-called Conciliation Committee, without scope for a Commission veto. This implies that we can disregard the preferences of the Commission in the analysis. We will denote the ideal point that characterizes aggregate preferences of EP by π and that of CM by μ. Both are determined for a given issue by the respective pivotal player inside these decision-making bodies. The ordered individual ideal points of the members of the Council of Ministers will be denoted by $\mu_{(1)} \leq \ldots \leq \mu_{(28)}$; those of individual members of EP by $\pi_{(1)} \leq \ldots \leq \pi_{(766)}$.

2.2 Intra-Council Decision Making

The weighted voting system which is used for decision making in the Council was practically unchanged from the Treaty of Rome in 1957 until the Treaty of Nice in 2001. The Nice rules came into force on November 1, 2004 (at first in a somewhat modified transitional form), and basically maintained the old qualified majority voting (QMV) framework. However, it added two extra criteria, the so-called *safety-nets*, concerning the number of 'yes'-votes and the share of the total EU population which they represent. Specifically, the EU28 QMV requirement consists of three criteria: 260 out of 352 votes (73.9%), a simple majority of member states (15 out of 28) and 62% of the total EU population. The second and third requirements only have a negligible effect on possible winning coalitions (see, e.g., Baldwin et al. 2001, or Felsenthal and Machover 2001), and affect the quantitative results presented in Section 3 only at the 5^{th} or 6^{th} decimal place. The Nice voting weights are presented in Table 1 below.

The Lisbon Treaty's major revision to intra-Council voting rules is the switch from weighted voting to a dual majority system with an additional requirement for blocking coalitions. A winning coalition must represent a majority of at least 55% of EU member states and of 65% of the total EU population. Moreover, the Lisbon Treaty prescribes that

[3]We extended the number of members from currently 754 to 766, based on the assumption that Croatia's 12 observers to EP will become actual members when Croatia joins the EU in July 2013.

'no' votes of at least four countries are needed in order to block proposals. However, the effect of this blocking clause is very small in any power computations.

Note that despite the fact that the Lisbon Treaty has already been in force since 1 December 2009, the new decision rule is not applied until November 2014. Furthermore, there will be a transition period from 1 November 2014 until 31 March 2017 during which any country can request the use of the old Nice Treaty rules. It seems plausible to assume that any country that is part of a coalition which is unsuccessful under the Lisbon rules (failing either to block or to pass legislation) but would be successful under the Nice rules will demand the use of the latter. So the former will probably not be used until April 2017.

As a benchmark for our analysis below, Table 1 also contains the intra-Council distribution of power in EU28 under the Nice and Lisbon Treaty voting rules according to the *Shapley-Shubik power index (SSI)* (Shapley 1953; Shapley and Shubik 1954). This index is closest in spirit to the strategic analysis pursued below, and in particular closer than the other main power index, the *Penrose-Banzhaf power index* (Penrose 1946; Banzhaf 1965). We will focus on the SSI and thus give traditional power analysis its 'best shot' in the later comparisons.[4] Many qualitative observations, e.g., that the Lisbon rules make the biggest four countries, and Romania and Malta more powerful than they were under the Nice rules, actually do not depend on which relative power measure is used.

2.3 The Codecision Procedure

The European Union's *codecision procedure* was introduced by the Maastricht Treaty, and initially applied to only 15 areas of Community activity. Its current version came into force in May 1999, introduced by the Treaty of Amsterdam. Its scope was already increased considerably under the Treaty of Amsterdam (May 1999) and the Treaty of Nice (February 2003). Under the Treaty of Lisbon, the codecision procedure entered a new era. It is now officially called the EU's *ordinary legislative procedure*. Moreover, its domain of application has been increased from 44 areas of Community activity under the Nice Treaty to 85 under the Lisbon Treaty. It applies to all previously covered areas such as environment, employment, social policies, education and consumer protection and to a number of new important areas such as agriculture, freedom, security, justice, common commercial policy and intellectual property.[5] The procedure is illustrated in Figure 1. It is laid down in Art. 294 of the *Treaty on the Functioning of the European Union (TFEU)* and involves up to three readings of proposed legislation by EP and CM. It is initiated by a proposal of the European Commission, who can, however, be prompted by CM or EP to 'open the gates' (see Art. 225 and Art. 241 TFEU).[6] 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

[4]Corresponding values of the (absolute) Penrose-Banzhaf power index (PBI) are also included in Table 1 but are not explored in our comparative analysis.

[5]In some of these areas, EP had previously no say or only a right of consultation.

[6]Under the Treaty of Lisbon, proposals can – at least in specific cases – also be submitted on the initiative of a group of member states, on a recommendation by the European Central Bank, or at the request of the Court of Justice (see Art. 294(15) TFEU).

Table 1: 2012 population data, Nice weights, and power in EU28 under the Nice and Lisbon Treaty rules evaluated by the Shapley-Shubik and Penrose-Banzhaf indices

Member state	Population in 1,000s	Nice weight	SSI (Nice)	SSI (Lisbon)	PBI (Nice)	PBI (Lisbon)
Germany	81843.8	29	0.08580	0.14641	0.03039	0.17062
France	65397.9	29	0.08541	0.11089	0.03039	0.13826
United Kingdom	62989.6	29	0.08523	0.10616	0.03039	0.13380
Italy	60850.8	29	0.08518	0.10215	0.03039	0.13001
Spain	46196.3	27	0.07890	0.07542	0.02901	0.10259
Poland	38208.6	27	0.07841	0.06379	0.02901	0.08548
Romania	21355.8	14	0.03915	0.03969	0.01671	0.06506
Netherlands	16730.3	13	0.03613	0.03236	0.01562	0.05703
Greece	11290.8	12	0.03325	0.02418	0.01444	0.04786
Belgium	11041.3	12	0.03325	0.02379	0.01444	0.04744
Portugal	10541.8	12	0.03325	0.02306	0.01444	0.04660
Czech Republic	10504.2	12	0.03325	0.02301	0.01444	0.04653
Hungary	9962.0	12	0.03325	0.02222	0.01444	0.04562
Sweden	9482.9	10	0.02748	0.02154	0.01214	0.04482
Austria	8443.0	10	0.02748	0.02002	0.01214	0.04307
Bulgaria	7327.2	10	0.02748	0.01841	0.01214	0.04120
Denmark	5580.5	7	0.01908	0.01590	0.00857	0.03825
Slovakia	5404.3	7	0.01908	0.01567	0.00857	0.03795
Finland	5401.3	7	0.01908	0.01566	0.00857	0.03794
Ireland	4495.4	7	0.01908	0.01438	0.00857	0.03642
Croatia	4412.1	7	0.01908	0.01426	0.00857	0.03628
Lithuania	3199.8	7	0.01907	0.01254	0.00857	0.03422
Slovenia	2055.5	4	0.01094	0.01093	0.00491	0.03229
Latvia	2042.4	4	0.01094	0.01091	0.00491	0.03226
Estonia	1339.7	4	0.01092	0.00994	0.00491	0.03107
Cyprus	862.0	4	0.01092	0.00927	0.00491	0.03026
Luxembourg	524.9	4	0.01092	0.00879	0.00491	0.02969
Malta	420.1	3	0.00800	0.00865	0.00370	0.02951

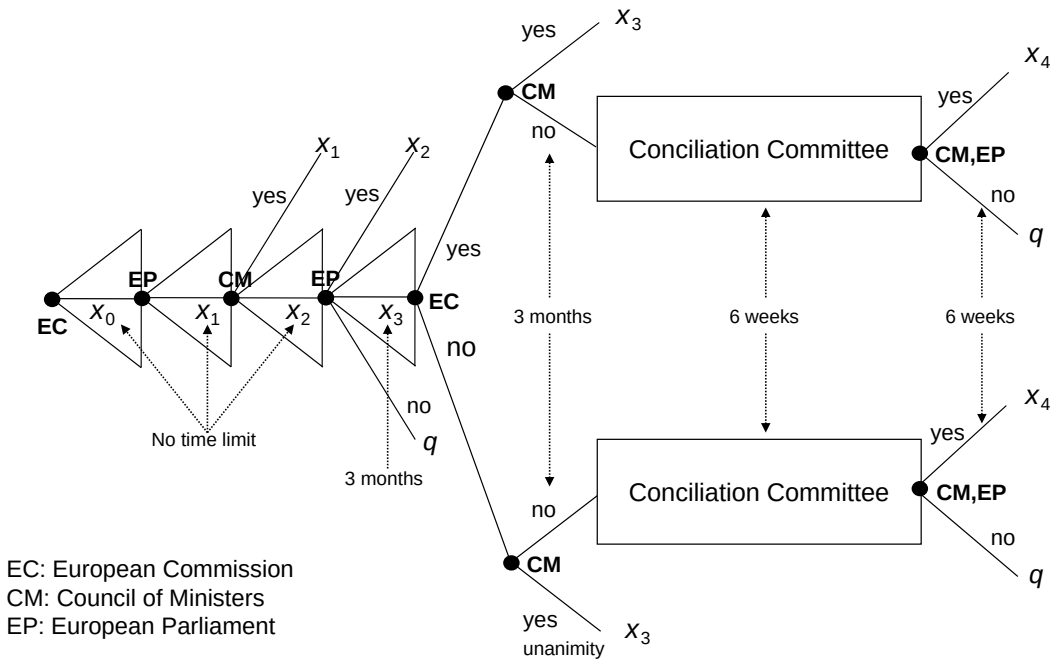

Figure 1: Stylized codecision game tree (Source: Napel and Widgrén 2006)

initiates a second stage of decision making by making amendments. This new proposal is either approved by EP or, again, amended. If in the latter case CM does not accept EP's proposal,[7] the *Conciliation Committee* represents a final chance to replace the status quo by a policy to its left or right. The Committee is composed of all 28 members of CM and an equally sized 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. The Commission's formal role in the committee is only to facilitate agreement and to draft proposals requested by CM and EP. This is the key reason why the game-theoretic analysis of Napel and Widgrén (2006) did not consider it as a formally powerful player. If the CM and EP delegates agree on a compromise, it is submitted to CM and EP for acceptance in a third reading, in which both institutions use their standard qualified and simple majority voting rules, respectively. Note that the codecision procedure as such has not been changed by the Treaty of Lisbon. The only difference is that CM now decides by qualified majority in all policy domains that are covered by codecision. Under the Nice Treaty, there were some areas of Community activity for which CM had to decide by unanimity.

The bargaining outcome that EP and CM expect to result from invoking the Conciliation Committee plays a crucial strategic role at earlier stages of the procedure. Assuming complete information about preferences and using backward induction, one can conclude that it is indeed *the* determinant of any codecision agreement if all agents are strategic.

[7]The Commission – by a negative opinion on EP's proposal – can require CM to accept unanimously (see Art. 294(9) TFEU).

Accepted new legislation will usually come into effect at some date in the medium-term future. It is therefore reasonable 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). Therefore, quantitative analysis of EP's and CM's influence on codecision outcomes can be confined to the Conciliation stage.

We see neither empirical nor theoretical reasons to consider either EP or CM a more impatient or skilled bargainer. So we will use the *symmetric Nash bargaining solution* to predict the Conciliation agreement and thus, using backward induction, the codecision outcome. For our unidimensional policy space $X = [0, 1]$ and the benchmark case of utility that linearly decreases with distance, the symmetric Nash bargain corresponds to agreement on the institutional aggregate ideal point which is closer to the status quo whenever there are gains from trade, i.e., if both EP and CM want to move away from the status quo in the same direction (see Napel and Widgrén 2006 for a detailed derivation). Formally, we have

$$sign(q-\pi) = sign(q-\mu) \implies x^*(\pi,\mu) = \begin{cases} \pi; & d(\pi,q) \leq d(\mu,q) \\ \mu; & d(\pi,q) > d(\mu,q). \end{cases} \tag{1}$$

The Council's preferences, captured by its ideal point μ, are determined internally according to the Nice or Lisbon voting rules, which we discussed above. Looking at the Nice rules, let $w(\mu_{(i)})$ denote the number of votes (i.e., the voting weight) of the minister who has ideal point $\mu_{(i)}$, and $p(\mu_{(i)})$ the size of the population that he represents.[8] If CM considers a replacement of the status quo q by a policy to its left, the countries holding the left-most positions $\mu_{(1)}$, $\mu_{(2)}$, etc. will be the most enthusiastic about this. The critical CM member is the country that first brings about the required qualified majority as less and less enthusiastic supporters of a change are added to the coalition which endorses the new policy. We refer to this critical member as CM's *right pivot* R, and to its ideal point as CM's *right pivot position* μ_R. Under the Nice voting rules, the right pivot can be written as

$$R^{Nice} = \min\left\{ r \in \{15, ..., 28\} : \sum_{i=1}^{r} w(\mu_{(i)}) \geq 260 \wedge \sum_{i=1}^{r} p(\mu_{(i)}) \geq 0.62 P^{EU} \right\}, \tag{2}$$

where P^{EU} refers to the EU's total population; we denote its ideal policy by $\mu_R^{Nice} \equiv \mu_{(R^{Nice})}$. This bliss point – reflecting the position of the government that is critical inside CM when coalition formation starts from the left-most position – is taken to be CM's aggregate position if the interaction with the European Parliament concerns a replacement of q by a policy to its left. It is the policy alternative that internally beats the status quo if that is sufficiently far to the right, and also beats any other status quo-beating policy.

[8] This already uses the fact that if countries' ideal points result from independent draws from a continuous probability distribution on X, such as the uniform one considered below, then there is almost surely only a single country with position $\mu_{(i)}$. So $w(\mu_{(i)})$ and $p(\mu_{(i)})$ will be well-defined with probability one.

Similarly, we have

$$L^{Nice} = \max\Big\{l \in \{1,...,14\}\colon \sum_{i=l}^{28} w(\mu_{(i)}) \geq 260 \wedge \sum_{i=l}^{28} p(\mu_{(i)}) \geq 0.62P^{EU}\Big\}, \tag{3}$$

and $\mu_L^{Nice} \equiv \mu_{(L^{Nice})}$, reflecting the position of the government that is critical inside CM when coalition formation starts from the right-most position. It will be CM's aggregate position when a replacement of q by a policy to its right is contemplated.

Analogously, the Lisbon Treaty's voting rules lead to μ_R^{Lisbon} and μ_L^{Lisbon}, defined by

$$R^{Lisbon} = \min\Big\{\min\big\{r \in \{16,...,28\}\colon \sum_{i=1}^{r} p(\mu_{(i)}) \geq 0.65P^{EU}\big\}, 25\Big\} \tag{4}$$

and

$$L^{Lisbon} = \max\Big\{\max\big\{l \in \{1,...,13\}\colon \sum_{i=l}^{28} p(\mu_{(i)}) \geq 0.65P^{EU}\big\}, 4\Big\}. \tag{5}$$

They are the position variables which need to be considered regarding whether the double majority requirement inside CM (incl. the 4-blockers clause), which is prescribed by the Lisbon Treaty, is satisfied by some policy alternative. Note that, under either Treaty, *no* policy $x \in X$ would be supported by the required majority in CM if $\mu_L^j < q < \mu_R^j$.

Concerning the European Parliament, its 766 members need to approve any Conciliation compromise by simple majority. Entering negotiations with CM about some policy to the right of the status quo q, most 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, consider the ordered MEP ideal points $\pi_{(1)} \leq \pi_{(2)} \leq \ldots \leq \pi_{(766)}$ and a provisional bargaining position π with $q < \pi < \pi_{(383)}$. Parliamentarians with ideal points $\pi_{(383)}, \ldots, \pi_{(766)}$ then have the necessary majority and common interest to instead select some delegation with $\pi \geq \pi_{(383)}$ as EP's position for Conciliation negotiations. Similarly, MEPs with ideal points $\pi_{(1)}, \ldots, \pi_{(384)}$ would block a position $\pi > \pi_{(384)}$. One can hence restrict EP's ideal point in negotiations about policies $x > q$ to $\pi \in [\pi_{(383)}, \pi_{(384)}]$. Recall that according to the Nash bargaining solution, it is the institution whose ideal point is closer to the status quo which is determining the Conciliation agreement. With this, and anecdotal evidence on EP's interest in being perceived as a powerful institution in the EU, in mind, we take the influence-maximizing ideal point $\pi = \pi_{(383)}$ 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 $\pi = \pi_{(384)}$ for policies $x < q$.[9]

Note that, in principle, the internal position of EP need not coincide with the position taken by its delegation to the Conciliation Committee. In general, there could be gains from strategically picking a delegation whose interests diverge from the pivotal voter's (see,

[9]Quite often in the spatial voting literature, EP is treated as a unitary actor. However, this simplification is not needed for the purposes of this paper. See Napel and Widgrén (2006) for robustness checks regarding the modeling of EP.

e.g., Segendorff 1998). However, under the above assumptions this cannot be advantageous: by equation (1), any Conciliation agreement replacing the status quo amounts to the ideal point of either EP's or CM's delegation. Picking an EP delegation with a position to the left or right of its 'true' ideal point π thus has either no effect (CM's position is closer to status quo) or actually hurts EP's pivot. Namely, it may induce agreement on the distorted position π' instead of π when this would have been the outcome in the unmanipulated case, or it prevents agreement on the position of CM when that is actually closer to π than π' and hence preferable by EP's pivot.

It can be checked that negotiations in the Conciliation Committee can, for given preferences of MEPs and members of CM, never be simultaneously about policies $x > q$ *and* policies $x' < q$: if both institutions support, say, moving to the right of the status quo, i.e., both $\pi_{(383)}$ and $\mu_{(L)}$ lie to the right of q, then there is necessarily insufficient support for any $x < q$ because $\pi_{(384)} \geq \pi_{(383)}$ and $\mu_{(R)} \geq \mu_{(L)}$ must also lie to the right of q. This allows us to take μ as the well-defined ideal point of CM regarding any issue for which EP and CM want to move away from the status quo in the same direction, i.e., whenever both have an interest in reaching a deal. Note that μ is a function of countries' individual unordered ideal points $\mu_1, \ldots, \mu_{28}$ – which give rise to the ordered ideal points $\mu_{(1)} \leq \ldots \leq \mu_{(28)}$ – and the voting rule (either Nice or Lisbon).

3 Power Analysis

In order to obtain quantitative statements regarding the expected influence of individual Council members or the EP on EU decisions, we apply the framework proposed by Napel and Widgrén (2004) for the analysis of power in collective decision making.[10] It defines a player's *a priori power* in a given decision procedure and for a given probabilistic distribution of all relevant players' preferences as the *expected change to the equilibrium collective decision which would be brought about by a change in this player's preferences.* Alternatively, one could also make probabilistic assumptions about players' *actions*, rather than preferences which induce actions. Traditional power indices take this 'short-cut' but thus lose the ability to transparently account for strategic interaction.

The framework links power analysis to the question: which impact would a marginal shift of a given player's ideal policy (caused, e.g., by a lobbyist, who evaluates all players' power before targeting any particular one) have on the collective decision? This approach to power measurement via a *sensitivity analysis* of collective decisions generalizes the weighted counting of players' pivot positions which is the basis of conventional power indices.

Before one can make statements about a priori power, one first needs to explicate and evaluate a posteriori power for a given preference profile. We will do so by considering the effect of a *marginal* shift of ideal points π or $\mu_1, \ldots, \mu_{28}$ to the left or right on the anticipated policy outcome. This effect is captured by the (partial) derivatives of the predicted outcome shown in equation (1) above. So the *a posteriori power* of EP, i.e., that

[10] That framework builds on – and very considerably generalizes – ideas which were first put forward by Widgrén and Napel (2002, reprinted in this volume).

for a *given* realization of status quo q and ideal points $\pi_1, \ldots, \pi_{766}$ and $\mu_1, \ldots, \mu_{28}$, is

$$\frac{\partial x^*(\pi, \mu, q)}{\partial \pi} = \begin{cases} 1 & \text{if } q < \pi < \mu \text{ or } \mu < \pi < q, \\ 0 & \text{otherwise.} \end{cases} \tag{6}$$

This formalizes that any (small) change of the player's ideal point with smaller status quo distance translates into a same-size shift of the agreed policy, provided there is agreement about changing the status quo at all.

What we are really interested in, however, is the *a priori power* of actors such as EP, namely, the influence not on a single issue but on average for many issues or – taking the 'veil of ignorance'-perspective of constitutional design – *in expectation*. In particular, our *strategic measure of power (SMP)*, derived from Napel and Widgrén (2004), is the expected impact that any marginal shift of EP's ideal policy π would have on the codecision outcome,

$$\xi_\pi = \Pr(\tilde{q} < \tilde{\pi} < \tilde{\mu}) + \Pr(\tilde{\mu} < \tilde{\pi} < \tilde{q}), \tag{7}$$

where $\tilde{q}$, $\tilde{\pi}$, and $\tilde{\mu}$ denote the random variables corresponding to status quo and institutional ideal points, and where a plausible a priori probability distribution of these random variables is assumed. For constitutional analysis, it is in our view most natural to assume that the individual ideal points of MEPs as well as of Council members are independently, identically, and – in line with the *principle of insufficient reason*, which is also invoked regarding player orderings or 'for'-or-'against' preferences by the Shapley-Shubik and Penrose-Banzhaf indices – *uniformly* distributed on the policy space X (here, the unit interval $[0, 1]$).[11] All our computations will hence be based on the a priori assumption of independent and uniformly distributed individual ideal points, as well as an independent and uniformly distributed status quo q. Numerical results on EP's SMP, ξ_π, will be reported in the next section.

For an individual member k of CM, we obtain

$$\frac{\partial x^*(\pi, \mu(\mu_1, \ldots, \mu_{28}), q)}{\partial \mu_k} = \begin{cases} 1 & \text{if } (q < \mu < \pi \text{ or } \pi < \mu < q) \text{ and } \mu = \mu_k, \\ 0 & \text{otherwise} \end{cases} \tag{8}$$

as k's a posteriori power on a given issue, and

$$\xi_{\mu_k} = \left[\Pr(\tilde{q} < \tilde{\mu} < \tilde{\pi} \mid \tilde{\mu} = \tilde{\mu}_k) + \Pr(\tilde{\pi} < \tilde{\mu} < \tilde{q} \mid \tilde{\mu} = \tilde{\mu}_k) \right] \cdot \Pr(\tilde{\mu} = \tilde{\mu}_k) \tag{9}$$

as k's SMP, averaging over a large number of issues with independent and $[0, 1]$-uniformly distributed individual ideal points and status quo.

Asymmetric voting weights in CM imply that conditioning on distinct events $\{\tilde{\mu} = \tilde{\mu}_i\}$ indeed affects the probability of event $\{\tilde{q} < \tilde{\mu} < \tilde{\pi}\}$. In particular, large countries with high voting weight are pivotal relatively more often in coalitions that already include many others – who have, on average, smaller weight – and, therefore, their associated spatial

[11] Assuming that all ideal points are mutually independent and uniformly distributed on $X = [0, 1]$ implies that $\tilde{\pi}$ is beta-distributed with parameters 383 and 384. The distribution of $\tilde{\mu}$ is considerably more complicated because of weighted voting.

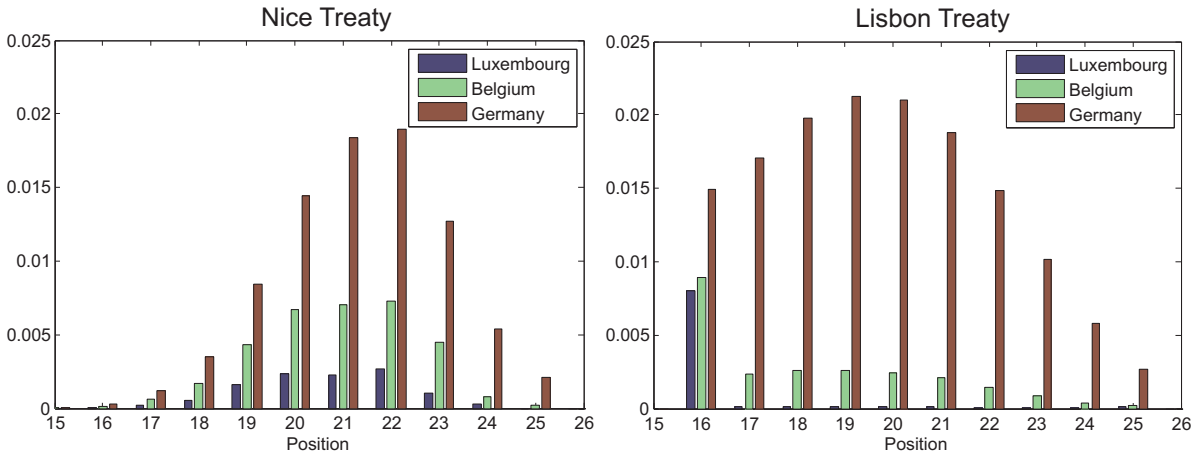

Figure 2: Probability of being pivotal at a given position

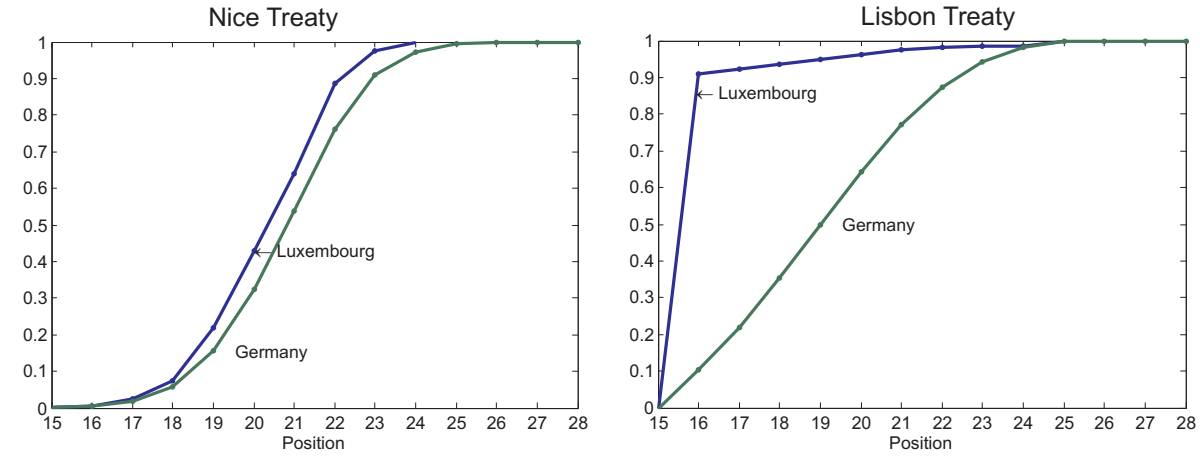

Figure 3: Conditional cumulative probability of being pivotal at a given position

positions when being pivotal tend to be located more towards the extremes (e.g., quite far to the right if coalition-formation starts from the left). Figure 2 shows the probabilities

$$\Pr\left(\tilde{R}^j = i \ \wedge \ (\tilde{R}^j) = k\right)$$

of exemplary large, medium-sized, and small countries k being pivotal under the voting rules $j \in \{Nice, Lisbon\}$ at a particular rank position i when coalition-formation starts from the left, i.e., the chances to bring about the required qualified majority as the i-th member of a coalition that already includes $i-1$ members (with decreasing enthusiasm about changing the status quo towards the left).

Note that the Lisbon Treaty visibly shifts these distributions of pivotal positions to the left. More swings, thus, take place in smaller coalitions. This holds especially for smaller countries. The explanation is two-fold. First, for small countries the membership criterion is a much more important source of influence than the population criterion. That explains why Belgium and Luxembourg have most of their pivotal positions at $i = 16$, which is

exactly the effective Lisbon membership threshold. Second, for big countries like Germany the population criterion contributes more to power. The criterion involves a threshold of slightly more than 315 million citizens. The rank distribution of Germany's pivotal positions has its mode at rank 19, which in expected terms corresponds to 345 millions (using the average population per country). With its population of nearly 82 millions, Germany is easily able to swing winning coalitions which pass the population threshold into losing ones.

Figure 3 illustrates the corresponding *conditional* pivotal position distributions (in cumulative terms) for a small and a large country, Luxembourg and Germany. Already under the Nice rules, Germany has its (a priori random) right pivot positions more to the right than Luxembourg; it is pivotal at a rank position that is larger than that of Luxembourg in the sense of first-order stochastic dominance. This becomes much more pronounced under the Lisbon rules, because their focus on population sizes makes Germany an even 'larger' player, relatively speaking, than it was under the Nice rules – meaning that a random coalition of fixed size $i-1$ is typically farther away from passing the voting thresholds than under the Nice rules; so that a greater coalition size $i-1$ is compatible with becoming a winning coalition only after Germany joins. In summary, small countries exert power in coalitions with relatively few members (which are relatively big countries), and big countries exert power in coalitions containing a relatively high number of small countries.

4 Results

Table 2 reports the SMP values of individual Council members and the EP for EU28. It also shows, as a measure of *relative* power inside CM, the *normalized SMP values (NSMP)*, and the relative differences between the SSI values (cf. Table 1) and the intra-CM power assessment implied by the NSMP.

First, it is an important observation that the relative differences between the SSI and NSMP values are not substantial. The maximal deviation is 3.8% (for Malta, under the Nice rules). In general, the relative differences, either positive or negative, are bigger for small countries under the Nice rules and for medium-sized countries under the Lisbon rules. This may seem natural on the one hand since their SSI values are smaller; on the other hand this is mainly linked to the two types of situations which cause SSI and NSMP to diverge: some of a country's swing positions that enter the SSI are not counted by the SMP because either (a) EP rather CM is pivotal for a particular preference configuration, or (b) EP and CM cannot agree on a replacement of the status quo by a policy to its left or right.

Second, compared to our earlier findings, the inter-institutional distribution of power between EP and CM is practically unaffected by taking the true voting weight distribution in CM into account. At the aggregate inter-institutional level, the effect of intra-institutional voting weights is very small (in contrast to the intra-institutional quota), as already argued in Napel and Widgrén (2006). In particular, the difference between 0.528 vs. 0.020 reported as CM's and EP's respective SMP value here, and 0.590 vs. 0.023 re-

Table 2: Strategic power in EU28 under Nice and Lisbon Treaty rules and the intra-CM difference to SSI in the codecision procedure (EP as 766 MEPs)

Member state	SMP (Nice)	SMP (Lisbon)	NSMP (Nice)	NSMP (Lisbon)	(SSI – NSMP)/ SSI % (Nice)	(SSI – NSMP)/ SSI % (Lisbon)
Germany	0.04416	0.08283	0.08357	0.14522	2.60192	0.81434
France	0.04405	0.06284	0.08337	0.11017	2.38701	0.64894
United Kingdom	0.04401	0.06024	0.08329	0.10561	2.27898	0.51831
Italy	0.04400	0.05801	0.08326	0.10169	2.25532	0.45188
Spain	0.04094	0.04274	0.07747	0.07493	1.81234	0.64801
Poland	0.04080	0.03600	0.07722	0.06311	1.52140	1.05703
Romania	0.02094	0.02284	0.03963	0.04003	-1.23165	-0.86731
Netherlands	0.01937	0.01868	0.03665	0.03274	-1.44866	-1.19387
Greece	0.01786	0.01398	0.03381	0.02450	-1.68660	-1.31526
Belgium	0.01786	0.01375	0.03381	0.02411	-1.68660	-1.36007
Portugal	0.01786	0.01333	0.03381	0.02337	-1.68660	-1.35066
Czech Republic	0.01786	0.01330	0.03381	0.02332	-1.68660	-1.34791
Hungary	0.01786	0.01284	0.03381	0.02252	-1.68660	-1.32828
Sweden	0.01483	0.01245	0.02807	0.02182	-2.14917	-1.28365
Austria	0.01483	0.01157	0.02807	0.02028	-2.14917	-1.27598
Bulgaria	0.01483	0.01063	0.02807	0.01864	-2.14917	-1.25370
Denmark	0.01037	0.00917	0.01962	0.01608	-2.80732	-1.12676
Slovakia	0.01037	0.00903	0.01962	0.01583	-2.80732	-1.07545
Finland	0.01037	0.00903	0.01962	0.01583	-2.80732	-1.07456
Ireland	0.01037	0.00828	0.01962	0.01452	-2.80732	-0.97894
Croatia	0.01037	0.00821	0.01962	0.01440	-2.80732	-0.97046
Lithuania	0.01036	0.00721	0.01961	0.01264	-2.84373	-0.75601
Slovenia	0.00595	0.00627	0.01126	0.01099	-2.98311	-0.53928
Latvia	0.00595	0.00626	0.01126	0.01097	-2.98311	-0.53128
Estonia	0.00595	0.00569	0.01126	0.00997	-3.05496	-0.27216
Cyprus	0.00595	0.00529	0.01126	0.00928	-3.05496	-0.09668
Luxembourg	0.00595	0.00501	0.01126	0.00879	-3.05496	0.01110
Malta	0.00439	0.00493	0.00830	0.00864	-3.77756	0.07958
Council aggregate	0.52842	0.57042	1.00000	1.00000	0.00000	0.00000
European Parliament	0.01990	0.11542	n.a.	n.a.	n.a.	n.a.

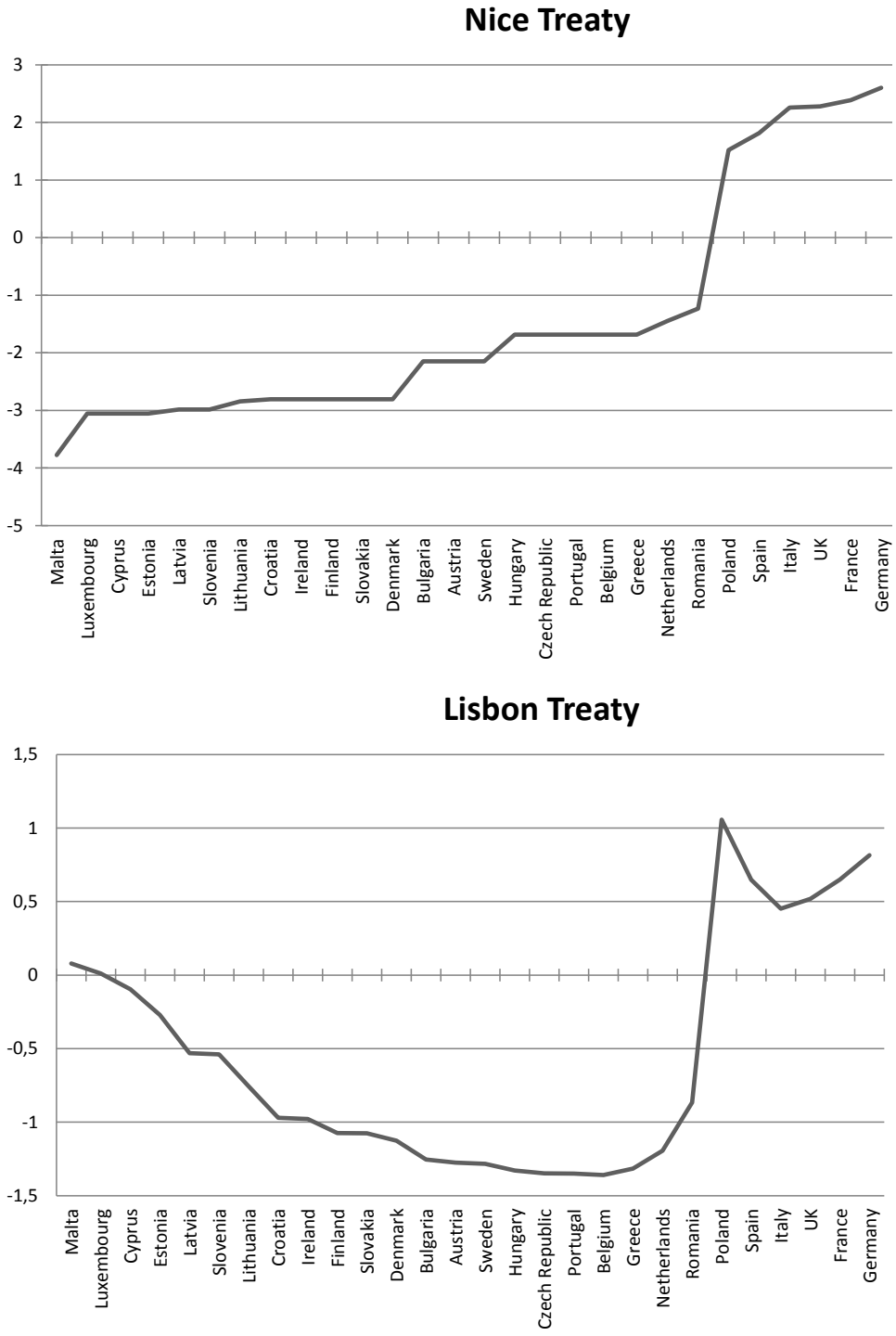

Figure 4: Relative differences (%) between the SSI and NSMP under Nice and Lisbon rules

ported in Napel and Widgrén (2006) is mainly due to the increase of CM's quota from about 72.2% of total weight for EU25 to 73.9% for EU28: a higher quota decreases the probability that a replacement of q can be agreed on by CM and EP; this reduces CM's expected influence on the outcome by more than EP.

Third, the patterns of deviations between SSI and NSMP under the Lisbon and Nice Treaties differ regarding their monotonicity properties. Under the Nice rules, the SSI underestimates the relative power of all countries that are smaller than Poland. The top panel of Figure 4 shows monotonically increasing percentages.[12] The bottom panel illustrates non-monotonic deviations under the Lisbon rules: the SSI underestimates the relative power of most countries that are smaller than Poland but not that of the very smallest ones, Luxembourg and Malta.[13]

How the pattern of the relative differences between SSI and NSMP values depends on the voting rules relates to the two types of 'miscountings', (a) and (b), of pivot positions by the SSI described above. Under the Lisbon rules, small countries' pivotal positions are more concentrated in the relative middle of X, since they mostly matter due to the membership criterion (see Figures 2 and 3 above). EP's position π is a priori highly concentrated in the middle of X, too. This means that it will be relatively often the case that EP's ideal point π is closer to the status quo q than is CM's (= the small country's) ideal point μ. Many of a small country's pivot positions hence do not translate into actual influence on collective decisions. Because of their comparatively more central conditional pivot position distribution, small countries lose relatively more of their intra-CM swings in this way than do large countries, i.e., the effect of (a) is more pronounced for them than for large countries.

However, having a more extreme conditional distribution of one's pivot positions, as large countries do, also comes with a disadvantage, namely a greater probability that the random status quo q is situated between π and μ. That means that EP and CM cannot agree on a replacement of the status quo, and that the corresponding purely intra-CM pivot position does not translate into influence on the collective decision either. Large countries lose relatively more of their intra-CM swing positions, which are counted by the SSI, in this way, i.e., the effect of (b) is more pronounced for them than for small countries. Whether effect (a) or (b) dominates, and hence whether small or large countries' relative power is overstated by the SSI, depends on *how much* more to the extremes of X the pivot positions of large countries are located on average.

The higher decision quota under the Nice rules makes it more likely that EP and CM do not see mutual gains from striking a deal than under the Lisbon rules; so the magnitude of effect (b) relative to (a) is greater under the Nice Treaty. It turns out that (b) dominates

[12]Note that underestimations require corresponding overestimations by the definition of *relative* power.

[13]The pattern of the Lisbon deviations is qualitatively different from its EU27 analogue in Napel and Widgrén (2009). The explanation seems to be that the Lisbon rule's 55%-requirement amounted to an effective member quota of about 55.56% for EU27 (15 out of 27 members), while the latter is around 57.14% for EU28 (16 out of 28 members). This implicit quota rise somewhat increases the effect of (b), reduces the net effect of (a) and (b), and renders the Lisbon deviations more similar to the Nice deviations for EU28.

(a) under the Nice rules, i.e., large CM members lose a greater share of their swings due to strategic interaction with EP than small members; hence the SSI understates the latter's true strategic power. For the Lisbon rules, the lower quota reduced the importance of (b) sufficiently to let (a) become dominant in EU27. But this is no longer the case for EU28 (see fn. 13). So the resulting signs of the deviations are more similar to the Nice rules for EU28. The remaining differences are linked to the fact that pivotality is driven essentially only by the weight criterion under the Nice rules, while it is driven by both the weight and membership criteria for the Lisbon rules.

5 Concluding Remarks

In this paper, we have studied the intra-institutional distribution of power in the Council of Ministers assuming spatial preferences and strategic interaction with the EP according to the EU's codecision or ordinary legislative procedure for EU28. We have first derived the equilibrium outcome of the procedure considering arbitrary but fixed spatial preferences, and have then randomized these preferences in order to conduct a priori power analysis with constitutional relevance. To our knowledge, this study is the first to consider weighted voting in a power analysis of EU28 which is based on a procedural voting model.

The paper allows three main conclusions: first, the numerical differences to our earlier assessment of the power relation between Council and Parliament turn out to be quite small. Disregarding intra-institutional voting weights in the study of inter-institutional power relations delivers a pretty good first approximation. As already found in Napel and Widgrén (2006), the distribution of power between EP and CM is very uneven: CM is by an order of magnitude more influential on codecision outcomes than EP a priori. From an a priori perspective, big individual member states like Germany are under the Nice rules more powerful than the European Parliament. The Lisbon Treaty rules, however, improve EP's power position considerably.

Secondly, the relative differences between the standard Shapley-Shubik index and our normalized measure of strategic power are not very big. This should, however, not be an excuse for continuing to disregard procedures and strategies in future analysis of intra-institutional power. There are clear differences between strategic power across different procedures which are not picked up by standard indices. For example, the individual power differences between the codecision procedure and the EU's *consultation procedure* are large; they significantly exceed the differences between the Nice vs. Lisbon intra-CM voting rule results reported here. Classical power measures should only serve as a first approximation. Of course, they can also be applied safely to situations where there is *no* inter-institutional interaction, or where agenda setting and amendment procedures are irrelevant. But neither is the case for the European Union.

Finally, as a methodological corollary to the second conclusion, we find that the criticism of Garrett and Tsebelis has its justification, but proves to be far less important numerically than conceptually. While our strategic measure of power is, figuratively, a quite distant cousin of the SSI – and corrects certain problems of traditional indices by

explicitly modeling procedures and strategic interaction – it turns out that, at least in the context of the EU's codecision procedure, SMP and SSI are very close.[14]

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