This paper is published in a slightly modified version in *Social Choice and Welfare*
(http://dx.doi.org/10.1007/s00355-015-0910-7)

Codecision in Context: Implications for the Balance of Power in the EU

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Abstract

The paper analyzes the European Union's codecision procedure as a bargaining game between the Council of the European Union and the European Parliament. The relative influence of these institutions on legislative decision-making in the EU is assessed under a priori preference assumptions. In contrast to previous studies, we do not consider the codecision procedure in isolation but include several aspects of the EU's wider institutional framework. The finding that the Council is more influential than the Parliament due to its more conservative internal decision rule is robust to adding 'context' to the basic model, but the imbalance is considerably attenuated.

Keywords: Legislative procedures, European Union codecision, bargaining, spatial voting, power measurement

JEL codes: C70, D72, D78

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1 Introduction

With the Lisbon Treaty's entry into force, codecision has become the 'ordinary legislative procedure' for decision-making in the European Union (EU). As a step towards a better democratic functioning of the EU, it was introduced in the Treaty of Maastricht in 1993. Its primary objective was to strengthen the role of the directly elected European Parliament (EP). The Treaties of Amsterdam (1999), Nice (2003) and Lisbon (2009) subsequently amended the procedure and extended its scope.[1] The commonly drawn conclusion among EU observers is that the Parliament and the Council of the European Union (CEU) are now legislators on an equal footing. According to the EP's own description (European Parliament 2012, p. 5) the "ordinary legislative procedure is based on the principle of parity between the [...] European Parliament, representing the people of the Union, and the Council, representing the governments of Member States."

The codecision procedure has inspired a number of theoretical and empirical studies which aimed to answer the question of who has how much influence on EU legislation. Bargaining theory suggests that factors such as agents' evaluation of the status quo, or their patience and attitude towards risk determine the outcome of negotiations.[2] While the importance of these aspects seems uncontroversial in general, applied models on negotiations between the EP and the Council differ widely with respect to the game form used to describe the codecision procedure. As a result, theoretical findings vary from a genuine, balanced two-chamber system (Crombez 1997, 2000; Garrett and Tsebelis 2000; Moser 1996, 1997; Scully 1997) to a pronounced asymmetry in favor of the Council (Steunenberg and Dimitrova 2003; Napel and Widgrén 2006).[3]

In this study, we explore how robust predictions about the relative power of the two 'co-legislators' are when several important but so far neglected elements of the EU's institutional framework are taken into account. We do so from a constitutional perspective which considers only biases stemming from the institutional structure rather than, say, from today's preferences or individual personalities. It turns out that an a priori bias in favor of the Council still persists when more institutional context is modeled. We take the widely-cited model of Napel and Widgrén (2006, henceforth N&W) as our reference point. In our view, their work succeeds well in providing a picture of the codecision procedure taken in isolation. Yet, looking at the wider institutional situation in which codecision is embedded, we suggest several modifications of their assumptions. Specifically, we consider

[1] The codecision procedure applied to only 15 areas of community activity in its Maastricht version. This number increased in the Treaties of Amsterdam, Nice and Lisbon to now more than 80 areas of Community activity. The procedural rules in place today are essentially those laid down in the Treaty of Amsterdam, the only difference being that the Council now decides by qualified majority in all policy domains, including those which before required unanimity.

[2] Empirical studies, e.g., König et al. (2007), generally confirm these theoretical claims.

[3] See Crombez and Vangerven (2014) for an extensive survey.

(i) the fact that members of the Council are representatives of national governments which came off as winners in national general elections, (ii) the fact that citizens generally exhibit heterogeneity across member states rather than being all independent and identical in their preference distribution, and (iii) the observation that negotiations between the EP and the Council are characterized by mutual concessions. We then quantify how power is distributed both between the EP and the Council and inside the Council for a priori random, one-dimensional spatial preferences.

The remainder of the paper is organized as follows. In the next section we describe existing theoretical models of the codecision procedure and discuss how conflicting predictions about the distribution of power come about. We present the N&W model of legislative politics in the EU in more detail in Section 3. Section 4 then proposes three modifications to that model. Section 5 presents the results from the quantitative analysis of these modifications. Section 6 concludes.

2 EU codecision: rules and models

The 'ordinary legislative procedure' as laid down in Article 294 of the Treaty on the Functioning of the European Union (TFEU) requires consensus to be reached between the EP and the Council through alternating amendments, based on a Commission proposal.[4] It consists of up to three readings with the possibility to conclude at any reading if the EP and the Council reach an overall agreement in the form of a joint text. If they cannot agree during the first two readings, a compromise is sought by means of a Conciliation Committee – the third and final phase of codecision. The Committee is made up of 28 delegates representing the members of the Council and an equal number of EP delegates.[5] The Commission has no formal say in the negotiations, but fulfills a mediating and facilitating role. In case of successful conciliation, the Committee's final joint text is voted upon under closed rule, i.e., neither institution can amend the proposal. A simple majority of the votes cast in the EP and a qualified majority in the Council are required for approval; otherwise (or if no joint text has been produced) the proposal fails and the legal status quo prevails.

[4]The Commission has no formal gate-keeping power since the Parliament and the Council may – under Art. 225 and Art. 241 TFEU, respectively – request the Commission to submit an appropriate proposal. Moreover, in specific cases proposals can 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).

[5]Despite being of equal size, delegations are potentially not symmetric because the Council is fully represented in the sense that each of its members is involved in the negotiation, whereas the Parliament's delegates are agents whose interests may or may not be completely aligned to those of their principal (see Franchino and Mariotto 2013). Empirically, Rasmussen (2008) finds that the Parliament's conciliation delegation is representative of the chamber as whole.

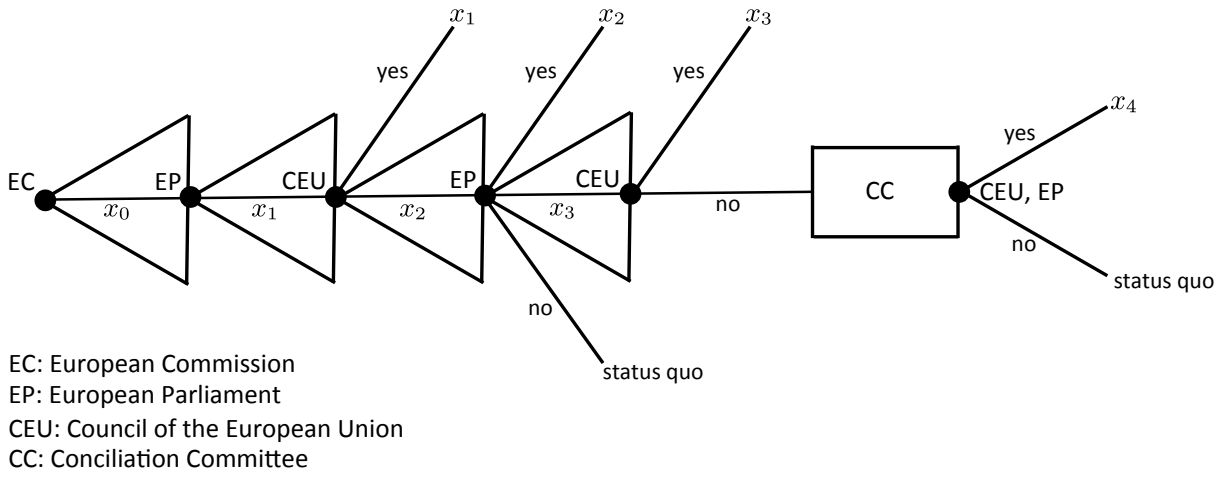

Figure 1 Stylized codecision game tree

The standard approach to modelling EU decision-making under codecision is to represent alternative policies as points in a policy space and to assume that political actors have Euclidean preferences over these points. The procedure is most naturally formalized by a finite extensive form game (see Figure 1). It follows from backward induction logic that codecision outcomes are determined by the anticipated outcomes of the last stage, i.e., the Conciliation Committee. The Commission is – at least formally – no substantial player because in the Conciliation Committee, the EP and the Council can jointly enact any policy on which they agree, without scope for a Commission veto. Which equilibrium policies are predicted then depends on assumptions about the location of the status quo, players' preferences and (im-)patience, and the theorist's conception of the bargaining process between Council and Parliament.

There already exist various theoretical, mostly qualitative models of the codecision procedure – amongst others by Crombez (1997, 2000), Steunenberg and Dimitrova (2003) and Garrett and Tsebelis (2000).[6] Crombez (1997, 2000) uses a spatial model to analyze the effects of the Treaties of Maastricht and Amsterdam on the equilibrium policy and the corresponding powers of the EP, the Council and the Commission. He argues that under the Maastricht version of codecision, the EP and the Council are genuine co-legislators because both need to approve Commission proposals. The striking difference between the two versions of the procedure is that under the Treaty of Maastricht, the Council can revert to the original proposal of the Commission at the end of the procedure. This is no longer possible under the Treaty of Amsterdam, which has the Conciliation Committee as the

[6]Another strand of applied studies has focused on the intra-institutional distribution of power in the Council, using measures of voting power which originate in cooperative game theory. For example, Le Breton et al. (2012) use the nucleolus to analyze past and current decision rules in the Council. Felsenthal and Machover (1998) and Laruelle and Valenciano (2008) provide good overviews.

final stage. The members of the Council thus compare the proposal of the EP to the status quo and no longer to the Commission's initial proposal. The author concludes, first, that agenda setting power now resides with both the EP and the Council, and second, that the Commission becomes powerless under the Amsterdam procedure "because its proposal no longer provides a reversion policy in case the Conciliation Committee fails to agree to a joint text" (Crombez 2000, p. 53). He suggests that the EP's preferences are similar to those of the Commission, which leads him to the conclusion that the Amsterdam version may have decreased the EP's power relative to the Maastricht version.

Focusing on the Amsterdam version, Steunenberg and Dimitrova (2003) assume Euclidean preferences for all players and model the Conciliation Committee as an ultimatum bargaining game with the Council as the agenda setter. In their model, the Council President drafts a bill in the first stage which is put to a vote in the Council in the second stage. Conditional on agreement, the common Council proposal is then submitted to the Parliament, which can only veto but not amend the proposal. Taking into account that a strategic Council President will only propose a bill that is preferred by a qualified majority of the Council members, the equilibrium policy derived via backward induction is the initial proposal of the Presidency. Subsequently, they estimate the power of the EP, the Council and the Commission by applying the concept of Steunenberg et al. (1999), which is based on expected distances. Steunenberg and Dimitrova's results suggest that both the Council members and the Parliament prefer the codecision procedure over the assent, consultation and cooperation procedures of the EU. Not surprisingly, they also ascribe greater power to the Council.

Garrett and Tsebelis (2000) use a one-dimensional spatial model of the legislative procedure to predict the codecision outcome for the Treaties of Maastricht and Amsterdam using a seven-member Council and treating the EP as a unitary actor. They highlight the dominance of agenda setting over veto power and argue that it is always advantageous to be the agenda setter if there are gains from trade. Similar to Crombez (2000) they point out that, under the Maastricht version and after the Conciliation Committee has broken down, the Council can make a 'take-it-or-leave-it' proposal to the EP which can only be vetoed by an absolute majority of the EP. The Council is thus an unconstrained agenda setter "because it could essentially propose to the Parliament any variation of its common position that it wanted" (Garrett and Tsebelis 2000, p. 23). In contrast, under the Amsterdam version, the Conciliation Committee is the final stage and agenda setting now resides with both the EP and the Council. Garrett and Tsebelis (2000) see an institutional advantage for neither the EP nor the Council.

N&W assume spatial preferences for individual members of the EP, the Council and their respective representatives. Treating the codecision procedure as a non-cooperative game as in Figure 1 and assuming that all political actors reason strategically, the bargaining outcome of the codecision game can be determined by using backward induction:

the outcome of the codecision game depends only on the outcome which the EP and the Council expect to result from engaging the Conciliation Committee. Assuming further that the time duration of the procedure does not significantly affect its outcomes, i.e., neither negotiator cares about reaching agreement a few weeks sooner or later, N&W use the Nash bargaining solution (Nash 1950) as a prediction for the codecision outcome. They find that the EP and the Council do not agree on some policy 'in the middle', but that, with a unidimensional policy space and linear utility, the more conservative institution gets exactly its ideal point (see N&W, Prop. 1). Which institution is closer to the status quo and thus enjoys greater influence on codecision outcomes turns out to be determined by the respective intra-institutional decision quotas, i.e., qualified majority applied in the Council and simple majority in the EP. Applying the 'power as outcome sensitivity' framework (see Napel and Widgrén 2004) to quantify the influence of the two institutions, the authors conclude that the Council is considerably more influential than the EP.

3 Basic model

Following N&W and Mayer et al. (2013), we present the basic theoretical model of negotiations in the Conciliation Committee as the last and strategically decisive stage of the codecision procedure.

We consider a convex *unidimensional* policy space $X \subseteq \mathbb{R}$, i.e., an interval of alternatives. Let $q \in X$ denote the *status quo* regarding the issue in question. All political actors, i.e., the currently 751 members of the EP and the 28 members of the Council, are assumed to have *single-peaked preferences*. For an individual i with ideal point $\lambda_i \in X$ preferences are represented by the utility function $u_i(x) = -|\lambda_i - x|$, i.e., utility falls linearly in distance between λ_i and policy $x \in X$. The ordered individual ideal points of the members of the EP (MEPs) will be denoted by $\pi_{(1)} \leq \cdots \leq \pi_{(751)}$; those of individual members of the Council by $\mu_{(1)} \leq \cdots \leq \mu_{(28)}$.

From the perspective of classical bargaining theory, finding a Conciliation compromise between the EP and the Council amounts to selecting a particular point (u^*_{EP}, u^*_{CEU}) in the utility possibility set $\mathcal{U}$. The latter is constructed by mapping each possible policy $x \in X$ to a utility pair $\big(u_{EP}(x), u_{CEU}(x)\big)$. Suppose that the delegations of the EP and the Council enter negotiations with each other with respective bargaining positions π and μ. Whenever there are 'gains from trade', i.e., $\text{sign}(q - \pi) = \text{sign}(q - \mu)$, rational players can be expected to agree on a policy that is Pareto-efficient; the subset of such policies forms the *Pareto set* connecting π and μ. If the EP and the Council have opposite positions relative to the status quo, they fail to agree and the status quo will persist. In utility space, the status quo corresponds to the *disagreement point* $d = \big(u_{EP}(q), u_{CEU}(q)\big)$.

In principle, various models from non-cooperative game theory and concepts from co-

operative game theory could be applied to the bilateral bargaining situation $(\mathcal{U}, d)$. Section 4.1 below will explore the implications of employing the Kalai-Smorodinsky solution.

Before conciliation begins, the respective bargaining positions π and μ have to be agreed on under the respective institution's internal decision-making rules. MEPs decide on any Conciliation compromise by simple majority rule, which – at least in theory – renders the median MEP pivotal. We will hence assume that the ideal point of the EP's representatives can be restricted to $\pi = \pi_{(376)}$.[7]

Agreement on the Council's ideal point μ is internally governed by either the Nice or Lisbon voting rules.[8] Note that despite the fact that the Lisbon Treaty has already been in force since 1 December 2009, the new decision rule can only be brought to bear since November 2014. Moreover, there is a transition period until 31 March 2017 during which the old Nice rules can still be used upon request of any member state. If the Council considers replacing the status quo q by a policy to its left, the countries which hold the left-most positions $\mu_{(1)}, \mu_{(2)}$, etc. will be the most enthusiastic about this. The critical Council member is then the country that first brings about the required qualified majority as less and less enthusiastic supporters of change are added to the coalition which endorses the new policy. For policies $x < q$, we refer to this critical member as the Council's *right pivot* R^{Nice} and R^{Lisbon}, respectively. Analogously, we identify the *left pivot* L^{Nice}, respectively L^{Lisbon}, for polices $x > q$.

In EU28, the Nice and Lisbon rules yield

$$R^{Nice} = \min\Big\{r \in \{15, ..., 28\} \colon \sum_{i=1}^{r} w(\mu_{(i)}) \geq 260 \wedge \sum_{i=1}^{r} p(\mu_{(i)}) \geq 0.62 P^{EU28}\Big\}, \qquad (1)$$

$$L^{Nice} = \max\Big\{l \in \{1, ..., 14\} \colon \sum_{i=l}^{28} w(\mu_{(i)}) \geq 260 \wedge \sum_{i=l}^{28} p(\mu_{(i)}) \geq 0.62 P^{EU28}\Big\}, \qquad (2)$$

$$R^{Lisbon} = \min\Big\{\min\big\{r \in \{16, ..., 28\} \colon \sum_{i=1}^{r} p(\mu_{(i)}) \geq 0.65 P^{EU28}\big\}, 25\Big\} \qquad (3)$$

[7] This abstracts away from agency problems and other reasons for why the preferences of the EP delegation might not be congruent or at least sensitive to the EP's median voter.

[8] The Nice decision rule is a triple majority requirement. In addition to traditional weighted voting with a quota of roughly 73.9 % (i.e., 260 out of 352 votes), a qualified majority must consist of at least a simple majority of member states (i.e., 15 out of 28) and must represent at least 62 % of the total EU population. Under the Treaty of Lisbon, the old system of weighted voting is replaced by a dual majority system. A qualified majority must now consist of at least 55 % of member states (i.e., 16 out of 28) and must represent at least 65 % of total EU population. Additionally, a blocking minority must include at least four Council members.

and

$$L^{Lisbon} = \max\Big\{ \max\big\{l \in \{1,...,13\}\colon \sum_{i=l}^{28} p(\mu_{(i)}) \geq 0.65 P^{EU28}\big\}, 4\Big\}, \tag{4}$$

where P^{EU28} refers to EU28's total population, $w(\mu_{(i)})$ denotes the voting weight of the Council member with ideal point $\mu_{(i)}$ and $p(\mu_{(i)})$ the population size he represents $\big($see Table 1, columns (1) and (2)$\big)$. We assume that the corresponding ideal points define the Council's aggregate position when contemplating a replacement of q by a policy to its left or right, respectively. They are denoted by μ_R^{Nice} respectively μ_R^{Lisbon} for the Council's *right pivot position*, and by μ_L^{Nice} respectively μ_L^{Lisbon} for the Council's *left pivot position*.

4 Adding context: three modifications

4.1 Kalai-Smorodinsky solution

Without any empirical or theoretical reasons to consider either the EP or the Council a more patient or skilled bargainer, it is natural to use a symmetric bargaining solution in order to model the outcome of negotiations in the Conciliation Committee. Economic as well as political applications of formal bargaining theory focus almost exclusively on the Nash bargaining solution. A frequently cited reason is that the Nash solution enjoys non-cooperative support via Rubinstein's (1982) alternating offers bargaining game (see Binmore 1987). But there are other negotiation procedures whose equilibrium outcomes correspond to different bargaining solutions. Moreover, these non-cooperative 'foundations' are often only valid in the limit, where players' incentives to reach an agreement in finite time vanish. Thus, in the absence of detailed information about how the negotiations unfold, non-cooperative implementation does not provide a sound basis to discriminate between different bargaining solutions.

Especially with regard to free-form bargaining situations like the Conciliation Committee, a good reason to favor a particular bargaining solution is the appeal and the descriptive plausibility of its axiomatic characterization. The Nash solution is determined by the rather controversial property of independence of irrelevant alternatives (along with efficiency, symmetry and invariance to equivalent payoff representations). While this axiom may be plausible if bargaining is about rational arbitration, it is less acceptable as a description of how agents actually bargain.[9] From that perspective, solution concepts

[9]For illustration, consider the bargaining problem defined by $\mathcal{U} = \{u_{\text{EP}}(x), u_{\text{CEU}}(x)\colon 0 \leq x \leq 1\}$, $\pi = 0.4$, $\mu = 0.6$ and $q = 0$. Now suppose that, e.g., due to a judicial decision, the bargaining set is restricted to $\mathcal{U}' = \{u_{\text{EP}}(x), u_{\text{CEU}}(x)\colon 0 \leq x \leq 0.5\}$. Independence of irrelevant alternatives implies that the Nash solution is $u^N = \big(u^N_{\text{EP}}(x), u^N_{\text{CEU}}(x)\big) = (0, -0.2)$ in both problems since $u^N \in \mathcal{U}' \subset \mathcal{U}$. So despite the fact that the Council sees its most preferred alternative disappear, and the EP does not, the Nash solution is unchanged. Also see Dubra (2001).

Table 1 2014 population, Nice weights, EP seats, and power in basic scenario under the Nice and Lisbon Treaty rules for EU28 members

Member state	Population (1)	Nice weight (2)	EP seats (3)	SMP Nice ($\times 10^{-2}$) (4)	SMP Lisbon ($\times 10^{-2}$) (5)
Germany	80 780 000	29	96	4.42	8.16
France	65 856 609	29	74	4.41	6.34
United Kingdom	64 308 261	29	73	4.40	6.17
Italy	60 782 668	29	73	4.40	5.80
Spain	46 507 760	27	54	4.09	4.29
Poland	38 495 659	27	51	4.08	3.62
Romania	19 942 642	14	32	2.09	2.18
Netherlands	16 829 289	13	26	1.94	1.89
Belgium	11 203 992	12	21	1.79	1.40
Greece	10 992 589	12	21	1.79	1.38
Czech Republic	10 512 419	12	21	1.79	1.34
Portugal	10 427 301	12	21	1.79	1.33
Hungary	9 879 000	12	21	1.79	1.29
Sweden	9 644 864	10	20	1.48	1.27
Austria	8 507 786	10	18	1.48	1.17
Bulgaria	7 245 677	10	17	1.48	1.06
Denmark	5 627 235	7	13	1.04	0.93
Finland	5 451 270	7	13	1.04	0.91
Slovakia	5 415 949	7	13	1.04	0.91
Ireland	4 604 029	7	11	1.04	0.84
Croatia	4 246 700	7	11	1.04	0.81
Lithuania	2 943 472	7	11	1.04	0.70
Slovenia	2 061 085	4	8	0.60	0.63
Latvia	2 001 468	4	8	0.60	0.63
Estonia	1 315 819	4	6	0.60	0.57
Cyprus	858 000	4	6	0.59	0.53
Luxembourg	549 680	4	6	0.59	0.51
Malta	425 384	3	6	0.44	0.49
CEU aggregate				52.87	57.15
EP				1.97	11.45

which satisfy certain monotonicity properties appear to be more desirable. The predominant concept here is the Kalai-Smorodinsky (1975) solution. It is also deemed an attractive option in the specific context of decision-making in the EU (see, e.g., Achen 2006, p. 100; Schneider et al. 2010).

We call the maximum feasible utility that player i can achieve in the bargaining problem i's *aspiration level* $a_i(\cdot)$; it corresponds to an agreement where i extracts all the surplus, given that the other player receives at least his payoff from disagreement.[10] Typically, the so-called *utopian point* u^* whose coordinates correspond to the aspirations of both players will not be feasible. The Kalai-Smorodinsky solution suggests that both players cut back from u^* proportionally in a way that preserves the ratio of their aspirations. More precisely, the Kalai-Smorodinsky solution is defined by

$$\xi^{KS}(\mathcal{U}, d) = d + \bar{\lambda}(u^* - d),$$

where $\bar{\lambda} = \max\{\lambda \in \mathbb{R} : d + \lambda(u^* - d) \in \mathcal{U}\}$.

The feature of mutual concessions by both parties with respect to their utopian point seems to reflect actual codecision negotiations well. For example, Tsebelis et al. (2001) analyze the process of 'give and take' between the EP and the Council under the Maastricht version of codecision (see Section 2), tracking legislative proposals through the different stages of the amendment process. Elgström and Smith (2000, p. 676) note that EU negotiations are "influenced by an informal principle of *juste retour*, i.e., that all members are supposed to gain something from an ongoing round of negotiation." Arguably, decision-makers have learnt to see codecision "as an interlinked, continuous procedure where it is essential and normal that there be intensive contacts throughout the procedure from before first reading onwards" (Shackleton and Raunio 2003, p. 173), resulting in a more cooperative mode of negotiation. Given these observations, our first modification to the baseline model suggests to consider the Kalai-Smorodinsky solution instead of Nash's bargaining solution.

Without loss of generality and for illustrational purposes we assume in the following that $\text{sign}(q - \pi) = \text{sign}(q - \mu)$, i.e., gains from trade, and $|\pi - q| \leq |\mu - q|$, i.e., the EP's ideal point π is closer to q than the Council's ideal point μ. It immediately follows that $u^*_{\text{EP}} = 0$ and

$$u^*_{\text{CEU}} = \begin{cases} 0 & \text{if } |\pi - q| \geq |\pi - \mu| \\ -\big(|\pi - \mu| - |\pi - q|\big) & \text{otherwise.} \end{cases}$$

This is illustrated in Figure 2. As soon as π is located between q and μ, $u^*_{\text{EP}} = 0$

[10] The Kalai-Smorodinsky solution is defined by the following individual monotonicity axiom in lieu of Nash's independence of irrelevant alternatives: if player j's aspiration levels $a_j(\mathcal{U})$ and $a_j(\mathcal{U}')$ coincide in two bargaining problems $(\mathcal{U}, d)$ and $(\mathcal{U}', d')$ where the set of feasible payoffs $\mathcal{U}'$ is a subset of $\mathcal{U}$, then player i will receive at least as much utility in $(\mathcal{U}, d)$ as in $(\mathcal{U}', d')$.

because in this case the Council *always* prefers an implemented policy that is equal to π to a policy that is equal to q. Regarding u^*_{CEU}, things are slightly more complicated. If, as in the upper panel of Figure 2, π is closer to μ than to q, $u^*_{\text{CEU}} = 0$ because the EP prefers an implemented policy that is equal to μ to a policy that is equal to q. If, however, π is closer to q than to μ, as in the lower panel of Figure 2, the best the Council can get *given* that the EP receives at least its utility from disagreement is $u^*_{\text{CEU}} = -\big(|\pi - \mu| - |\pi - q|\big)$. Moving from this point, which is equal to $\pi + (\pi - q)$, even closer to μ would give the EP *less* utility than in case of disagreement.

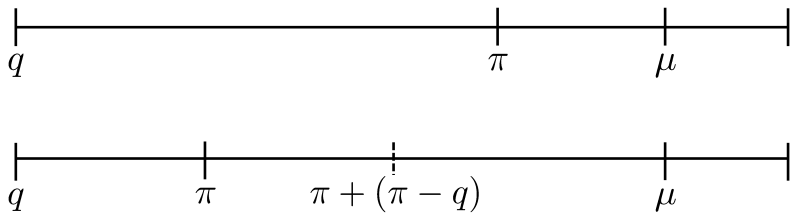

Figure 2 Ideal point configurations with $u^* = (0, 0)$ in the upper panel and $u^* = \big(0, -|\pi - \mu| - |\pi - q|\big)$ in the lower panel

Geometrically, the Kalai-Smorodinsky bargaining outcome $\xi^{KS}(\mathcal{U}, d)$ is just the intersection of $\mathcal{U}$'s Pareto frontier and the straight line connecting the disagreement point d, say $(-\pi, -\mu)$ for $q = 0$, and the utopian point u^* (see Figure 3). We obtain the following prediction for the implemented policy $x^{\text{KS}}(\pi, \mu, q)$:

Proposition 1. *Assume that preferences of the EP and the Council are represented by utility functions $u_i(x) = -|\lambda_i - x|$ for $\lambda_i, x \in X \subseteq \mathbb{R}$ where X is a non-empty interval. Whenever there are gains from trade, the Kalai-Smorodinsky solution to the bargaining problem $(\mathcal{U}, d)$ corresponds to agreement on a policy x^{KS} which is located on the Pareto frontier but nearer to the ideal point which is closer to the status quo. More specifically,*

$$\text{sign}(q-\pi) = \text{sign}(q-\mu) \Rightarrow x^{\text{KS}}(\pi, \mu, q) = \begin{cases} \pi + \frac{\mu-\pi}{1+(\mu-q)/(\pi-q)} & \text{if } |\pi - q| \leq |\mu - q| \text{ and } |\pi - q| \geq |\pi - \mu|, \\ \mu + \frac{\pi-\mu}{1+(\pi-q)/(\mu-q)} & \text{if } |\pi - q| > |\mu - q| \text{ and } |\mu - q| > |\pi - \mu|, \\ \pi + \frac{\pi-q}{3} & \text{if } |\pi - q| \leq |\mu - q| \text{ and } |\pi - q| < |\pi - \mu|, \\ \mu + \frac{\mu-q}{3} & \text{if } |\pi - q| > |\mu - q| \text{ and } |\mu - q| \leq |\pi - \mu|. \end{cases}$$

The proof is presented in the appendix. The left and right panels of Figure 3 illustrate the result for utopian points $u^* = (0, 0)$ and $u^* = \big(0, -|\pi - \mu| - |\pi - q|\big)$, respectively. In contrast to the Nash prediction of N&W, the Kalai-Smorodinsky solution gives an interior solution. Nevertheless, the agreed policy is still nearer to the ideal point of the more

conservative institution.[11] As can be seen in the right panel of Figure 3, the status quo bias is more extreme for $u^* = \big(0, -|\pi - \mu| - |\pi - q|\big)$. The bias is also more pronounced the closer d is located to the utopian point.

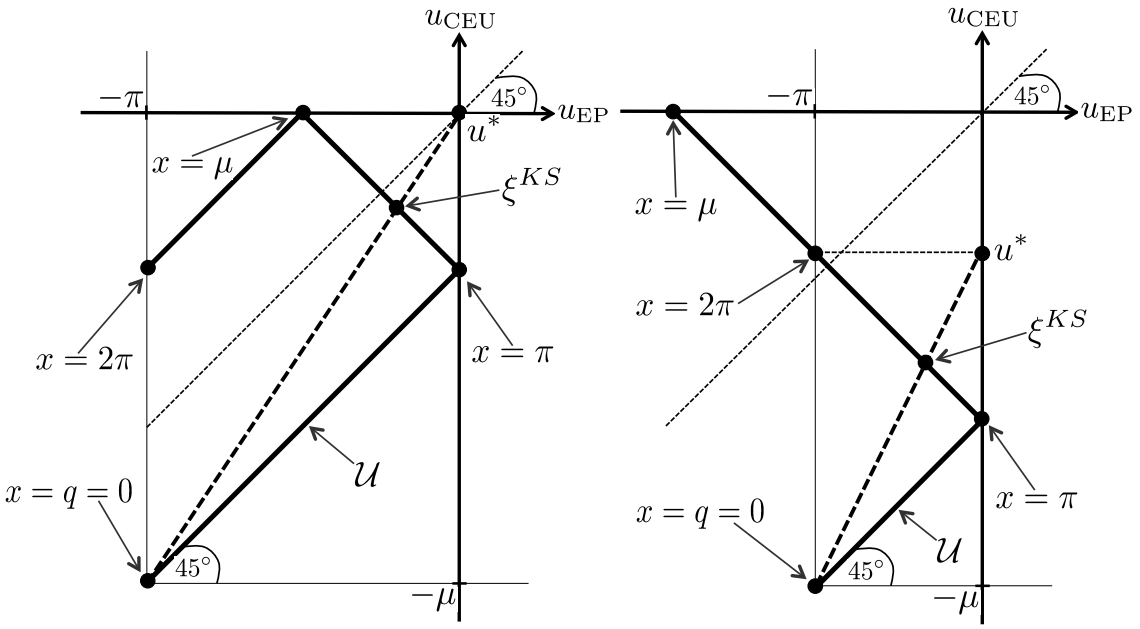

Figure 3 Kalai-Smorodinsky bargaining solution with $u^* = (0, 0)$ in the left panel and $u^* = \big(0, -|\pi - \mu| - |\pi - q|\big)$ in the right panel

We substantiate the suggestion to use the Kalai-Smorodinsky solution by a tentative empirical evaluation of how well that model predicts decision outcomes compared to the basic setting. The analysis relies on the DEUII dataset (Thomson et al. 2006, 2012) which is based on expert judgements of member states' positions in a one dimensional policy space. The dataset reports countries' preferences for 158 policy issues in EU27 as well the EP's preferences, the status quo and the policy outcome. Unfortunately, a number of issues had to be excluded when the data contained no information on either the EP's preferences, the status quo or the outcome. We calculated the Council's common ideal point and then excluded issues for which the EP and the Council had diverging interests of whether to move to the left or to the right of the status quo. For the remaining 33 issues, we identified the Nash and the Kalai-Smorodinsky predictions and computed their

[11] The result that the Kalai-Smorodinsky agreement is closer to the institution with smaller status quo distance remains valid for multidimensional policy spaces. A proof is available from the authors upon request. While the bilateral bargaining situation between the EP and the Council can still be readily analyzed, multidimensional spaces make it much harder to predict which collective positions MEPs and members of the Council will adopt in the first place. A possible approach could be to use a point solution like the Copeland winner, or to assume an exogenous ordering of dimensions on which individuals vote sequentially.

respective distance to the actual outcome. The Kalai-Smorodinsky model performed better for 19 issues, whereas the Nash solution had the edge in seven issues, and seven other issues were ties. The Wilcoxon signed-rank test on the equality of distances indicates that the Kalai-Smorodinsky model is indeed more accurate than the Nash solution (Z-statistic 1.70, p-value 0.0895).

In order to obtain quantitative statements regarding the expected influence of the EP or individual Council members on EU decisions, we apply the 'power as outcome sensitivity' approach (Napel and Widgrén 2004) to the analysis of power in collective decision-making. This framework merges traditional power index analysis with a non-cooperative game-theoretic approach. It conceives of *a posteriori* power as the sensitivity of the equilibrium outcome with respect to marginal changes in a player's behavior or preferences. The *strategic measure of power (SMP)* then evaluates *a priori* power as *expected* a posteriori power, using a probability measure with a priori credentials.

Rewriting Prop. 1, the Kalai-Smorodinsky solution predicts

$$x^{\mathrm{KS}}(\pi,\mu,q)=\begin{cases}\frac{(\pi+\mu)q-2\pi\mu}{2q-\pi-\mu} & \text{if } (q<\pi\leq\mu \text{ or } \mu<\pi<q) \text{ and } |\pi-q|\geq|\pi-\mu|,\\ \frac{(\pi+\mu)q-2\pi\mu}{2q-\pi-\mu} & \text{if } (q<\mu<\pi \text{ or } \pi\leq\mu<q) \text{ and } |\mu-q|>|\pi-\mu|,\\ \frac{4\pi-q}{3} & \text{if } (q<\pi\leq\mu \text{ or } \mu<\pi<q) \text{ and } |\pi-q|<|\pi-\mu|,\\ \frac{4\mu-q}{3} & \text{if } (q<\mu<\pi \text{ or } \pi\leq\mu<q) \text{ and } |\mu-q|\leq|\pi-\mu|,\\ q & \text{otherwise.}\end{cases}$$

as the equilibrium codecision outcome.

Taking the partial derivatives of the predicted outcome, the a posteriori power of EP for a *given* realization of status quo q and ideal points $\pi_1,...,\pi_{751}$ and $\mu_1,...,\mu_{28}$ then is

$$\frac{\partial x^{\mathrm{KS}}(\pi,\mu,q)}{\partial\pi}=\begin{cases}\frac{(q-2\mu)(2q-\pi-\mu)+(\pi+\mu)q-2\pi\mu}{(2q-\pi-\mu)^2} & \text{if } (q<\pi<\mu \text{ or } \mu<\pi<q) \text{ and } |\pi-q|>|\pi-\mu|,\\ \frac{(q-2\mu)(2q-\pi-\mu)+(\pi+\mu)q-2\pi\mu}{(2q-\pi-\mu)^2} & \text{if } (q<\mu<\pi \text{ or } \pi<\mu<q) \text{ and } |\mu-q|>|\pi-\mu|,\\ \frac{4}{3} & \text{if } (q<\pi<\mu \text{ or } \mu<\pi<q) \text{ and } |\pi-q|<|\pi-\mu|,\\ 0 & \text{otherwise.}\end{cases}$$

Similarly, for an individual member k of the Council, we obtain

$$\frac{\partial x^{\mathrm{KS}}\big(\pi,\mu(\mu_1,..\mu_{28}),q\big)}{\partial\mu_k}=\begin{cases}\frac{(q-2\pi)(2q-\pi-\mu)+(\pi+\mu)q-2\pi\mu}{(2q-\pi-\mu)^2} & \text{if } (q<\pi<\mu \text{ or } \mu<\pi<q) \text{ and } |\pi-q|>|\pi-\mu|,\\ \frac{(q-2\pi)(2q-\pi-\mu)+(\pi+\mu)q-2\pi\mu}{(2q-\pi-\mu)^2} & \text{if } (q<\mu<\pi \text{ or } \pi<\mu<q) \text{ and } |\mu-q|>|\pi-\mu|,\\ \frac{4}{3} & \text{if } (q<\pi<\mu \text{ or } \mu<\pi<q) \text{ and } |\mu-q|<|\pi-\mu|,\\ 0 & \text{otherwise,}\end{cases}$$

where $\mu = \mu_k$, i.e., member k is the Council's pivotal member.

Note, however, that we are *not* interested in a player's influence on a single issue but rather in *expected* influence. We measure this *a priori power* by computing the average of a posteriori power over a large number of uniformly distributed issues (cf. Section 5).

4.2 Representatives in the EP and in the Council

Pointing to the normative character of their analysis, N&W assume that individual decision-makers' ideal points in both the Council and the EP come from an a priori identical, uniform distribution. The Council's internal qualified majority voting with its demanding super-majority requirements then implies that the distribution of the ideal point of the Council's pivotal member $\big($see formulas (1) – (4)$\big)$ is skewed with a peak rather close to the status quo.

This neglects, however, a basic design feature of the EU: the Council represents the states and the Parliament represents the citizens. Decision-makers in the Council are representatives of national governments, who usually have the support of a majority of voters in their member state. By contrast, the EP is composed of MEPs who are organized into various transnational party groups, each consisting of multiple (and sometimes rather distantly related) national member parties from the 28 EU countries. Political competition is governed by some variant of proportional rule of which the precise forms are determined by the member states.[12] Election thresholds also vary from country to country; 14 member states now require no minimum percentage of votes for a party to obtain seats in the EP (see European Parliament 2014, p. 16 and p. 92f). Efforts to design a uniform electoral procedure, while mandated by Art. 223(1) TFEU, have as yet failed to reach consensus. National (or regional) parties control nominations to European elections and run election campaigns. As a consequence, MEPs answer to both national- and EP-level principals, giving rise to a dual agency problem that is probably one reason why policy cohesion of the EP's political groups is relatively low. Difficulty of maintaining discipline and cohesion also stems from the fact that, unlike parliamentary democracies at the national level, the EP does not need to form and sustain a EU government by means of stable majorities.[13]

The fundamentally different modes of election and mandates of MEPs and members of the Council are institutional rules, too, which should be taken into account in theoretical analysis.[14] Thus, our second modification of the N&W model is a very stylized

[12]The most common system is list proportionality with the member state as a single constituency and d'Hondt's rule for seat allocation. But manifold deviations exist, see European Parliament (2014).

[13]Yet, voting cohesion has increased across parliamentary sessions, especially for the three largest political groups (see Hix et al. 2007); there also exists an agreement between the latter to support the current European Commission.

[14]Other facts such as, for example, the number of parliamentary groups into which MEPs are organized, or the degree of cohesion within these groups, are of a more transitory nature and should in our view not

representation of these differences but yet richer than the model where all decision-makers' preferences are identically distributed.

As a first step, we include individual citizens' preferences into the model from Section 3: consider the partition $\mathfrak{C} = \{\mathcal{C}_1, \ldots, \mathcal{C}_{28}\}$ of the EU voter population into 28 *constituencies* with $n_j = |\mathcal{C}_j| > 0$ members each. We assume:

(SPA) All individual voters have spatial preferences, characterized by ideal point ν^i in policy space X.

From a normative constitutional-design point of view it is appealing to presume:

(IID) All individual ideal points are independent and identically distributed (i. i. d.).

If electoral arrangements have any role to play for how citizens' preferences are represented in the Council and the EP, then it is clear that the ideal points of Council members and of MEPs cannot be identically distributed. It is less clear though *how* the different genesis of the two legislators' preferences should be formally modeled. While certainly not ideal, our two assumptions below provide, in our view, a reasonable first approximation and thus help to assess the potential biases induced by institutional rules more properly:

(MED) The preferences of country j's representative in the Council are congruent with the country's median voter. More formally, representative j has ideal point

$$\mu_j = \text{median}\{\nu^i \colon i \in \mathcal{C}_j\}.$$

This assumption reflects that the median voter's position is crucial to the formation of a popular majority so that, in a competitive democracy, this voter's preferences can be expected to shape electoral campaigns, legislative decision-making and, eventually, the government's policy. This policy position corresponds to the electorate's *core* which can be understood as the result of sophisticated strategic interaction in the electorate and in the national legislature (see Banks and Duggan 2000). We consider (MED) to be a fair approximation, even in the light of the big variation among the actual national electoral systems in the EU member states (see McDonald et al. 2004). Note that a country's population size generally affects the distribution of its median. Specifically, if the ideal points ν^i of voters $i \in \mathcal{C}_j$ are pairwise independent and come from an arbitrary identical distribution F with positive density f on X, then its median position μ_j is asymptotically normally distributed with mean $\bar{m} = F^{-1}(0.5)$ and standard deviation

$$\sigma_j = \frac{1}{2\, f(\bar{m})\sqrt{n_j}} \tag{5}$$

be held fixed behind the 'veil of ignorance'.

(see, e.g., Arnold et al. 1992, p. 223). The variance of the position of $\mathcal{C}_j$'s representative is smaller, the greater the population size n_j.

It is even more challenging to formulate an appropriate assumption about how MEPs' positions are connected to citizens' preferences. It is beyond the scope of this paper to develop a model of endogenous entry and platform formation in the EP and to our best knowledge, no model exists so far that encompasses the observations made above.[15] In the absence of such a model, we propose to represent the institutional realities described above by:

(CRD) MEPs who are elected in country j are a clustered random draw from that country's electorate. More formally, let s_j denote the number of seats allocated to country j. If μ_j is the median voter position in $\mathcal{C}_j$, then the ideal points $\pi_1^j, \ldots, \pi_{s_j}^j$ of j's MEPs are distributed according to the symmetric triangular distribution $F(a_j, \mu_j, b_j)$ on the interval $[a_j, b_j]$ with peak location μ_j, where a_j and b_j are the lower and upper bound, respectively, of country j's policy space.

This assumption reflects, first, that as a result of proportional representation and the fragmentation of European elections into separate national contests, MEPs are ideologically very diverse and, in fact, occupy the entire range of the political spectrum (see, e.g., McElroy and Benoit 2012). Second, generally low election thresholds make it easier for new parties or even individual candidates to enter successfully, and raise the odds that radical positions get represented in the EP. Finally, the positions of MEPs from a certain country and the position of the national government as reflected by μ_j both derive from the same voters' preferences; this interdependency should not be ignored. The triangular distribution achieves this by clustering ideal points $\pi_1^j, \ldots, \pi_{s_j}^j$ around the country median. Moreover, it is widely used in 'limited knowledge' applications (see, e.g., Law and Kelton 2000, Sect. 6.11).

4.3 Heterogeneity among member states

Even for the kind of constitutional-design exercise that we are carrying out, assumption (IID) in the previous section may be unduly restrictive on the joint distribution of voter ideal points in $\mathcal{C}_1, \ldots, \mathcal{C}_{28}$. Namely, treating all individuals as homogeneous ignores that the partition $\mathfrak{C}$ may have reasons. These reasons (e.g., geographic barriers, ethnics, language,

[15] A natural starting point seems to be some variant of a citizen-candidate model in which citizens can freely form parties and seats are distributed proportionally (see, e.g., Hamlin and Hjortlund 2000). An important difficulty in modeling proportional systems in general is that elections may fail to produce a clear winner, so that the policy output depends on the legislative bargaining game occurring after the election. The link between composition of the EP and policy formation is even less clear than for national parliaments. We conjecture that, in such a model, the absence of rents from government participation – as in the EP – will give rise to a very large number of dispersed parties in equilibrium.

religion) are likely to involve or give rise to closer political connections between voters within constituencies than across them. With a view to the EU, this is rather obvious. We consider, for example, the fact that elections to the EP are conducted organizationally independently in each country, with different rules and different parties to choose from, as revealing of the preference heterogeneity across member states.

On the other hand, it is true that a constitutional analysis should ignore knowledge about specific preferences for normative reasons. This implies that all citizens should be considered *identical* a priori, i.e., every ideal point ν^i should be drawn from the same marginal probability distribution F. However, the 'veil of ignorance' perspective does not necessarily entail that citizens' preferences must also be considered as *independent* of each other.

As an alternative to the benchmark assumption (IID) that all ideal points ν^i with $i \in \bigcup_j \mathcal{C}_j$ are drawn independently from the same marginal distribution F, we therefore also explore the idea that preferences within a country are positively correlated with each other. This gives rise to a special type of heterogeneity among countries. In particular, we determine individual ideal points ν^i by a two-step random experiment: first, we draw a constituency-specific shock θ_j independently for each $j = 1, \ldots, 28$ from a distribution G with standard deviation σ_{ext}. This parameter captures the degree of *external heterogeneity* between $\mathcal{C}_1, \ldots, \mathcal{C}_{28}$ for the policy issue at hand. Parameter θ_j is taken to reflect the expected ideal point of citizens from $\mathcal{C}_j$. Each citizen $i \in \mathcal{C}_j$ is then assigned an individual ideal point ν^i from a distribution F_j which has mean θ_j and is otherwise just a shifted version of the same distribution F for each constituency $j = 1, \ldots, 28$.[16] F's standard deviation σ_{int} is a measure of the *internal heterogeneity* in any constituency. It intuitively reflects the opinion differences within any given $\mathcal{C}_j$. In summary, we account for heterogeneity among countries by assuming:

(HET) The ideal points of all citizens are identically distributed with convoluted a priori distribution $G * F$ but not independent: citizens in constituency $\mathcal{C}_j$ experience shock θ_j, which is independent of θ_k for any $k \neq j$.

The introduction of heterogeneity makes it worthwhile to include an additional institutional fact, namely the *degressive proportionality* in the EP's national composition. There is a fixed number of MEPs to be elected in each country and smaller states elect more MEPs than would be proportional to their populations. For example, Spain's population is more than one hundred times that of Malta, whereas her number of seats in the EP is only nine times that of Malta (see Table 1, column (3)). Under assumption (IID), the fact that MEPs come from different constituencies is obviously inessential; under (HET), by contrast, links are established between citizens' preferences in a given constituency,

[16] Specifically, we draw θ_j from a uniform distribution $\mathbf{U}(-a, a)$ with variance σ^2_{ext}, and then obtain $\nu^i = \theta_j + \varepsilon$ with $\varepsilon \sim \mathbf{U}(0, 1)$.

the position of the constituency's member in the Council (assumption (MED)) and the preferences of its EP delegation (assumption (CRD)).

5 Simulation results

In this section, we quantify the effects of our modifications on both the inter- and intra-institutional distribution of power in EU codecision. Our results are based on Monte-Carlo simulations.[17] In a first step, we draw 751 random numbers as the ideal points of MEPs and 28 random numbers as the ideal points of the Council members from distributions $F_1, ..., F_{28}$. In a second step, we sort the realized ideal points and determine the EP's and the Council's pivot positions according to their respective internal decision rules presented in Section 3. We are thus able to identify the policy outcome and, by repeating above procedure up to 10^9 times, to obtain numerical estimates of the SMP values of the EP, the whole Council and its individual members.

In our basic setting, which has already been considered by N&W and which we use as our reference point, we assume the distributions F_j as well as the distribution of the status quo to be a $[0, 1]$-uniform distribution. As a predictor for the bargaining outcome, we use the Nash solution. Building on this benchmark, we distinguish three scenarios which combine the modifications described in Section 4. We provide an overview in Table 2; the corresponding results are reported in Table 3. The effects of moving from our benchmark model to the different scenarios under the Nice rules and the Lisbon rules are also illustrated in Figure 4.

We report simulation results of the basic scenario in Table 1, columns (4) and (5). The SMP values confirm the finding of N&W that the Council is much more influential than the EP. For example, under the Nice rules, a shift in the Council's ideal point by a small amount $\triangle\mu$ in expectation shifts the outcome by $0.529 \cdot \triangle\mu$, whereas a shift in the EP's position is only passed through at a rate of 0.020. As N&W (p. 143) have pointed out, this remarkable asymmetry is due to the extreme status quo bias of bargaining which "translates the event '[the Council] is more conservative' into '[the Council] defines x^*' and '[the Council] has power'."

[17] We obtain an estimate of the intra-Council distribution of power in EU28 according to the *Shapley-Shubik-index* (see Shapley and Shubik 1954) as an intermediate result to the inter-institutional simulation and can also calculate it exactly by standard methods. This permits use of the former as a control variate for our SMP estimator. The variance reduction obtained in this way is up to 45 %. Remaining inaccuracies are due to the simulative nature of our results. — All results in this work were obtained using MATLAB computer programs. Source codes are available upon request.

Table 2 Overview of different scenarios

Basic scenario	Nash solution Citizens' preferences i. i. d.
Scenario I	Kalai-Smorodinsky solution Citizens' preferences i. i. d.
Scenario II	Kalai-Smorodinsky solution Citizens' preferences correlated within countries
Scenario III	Kalai-Smorodinsky solution Citizens' preferences correlated within countries EP-Council distinction

5.1 Scenario I

Scenario I continues to take the distributions F_j as well as that of the status quo to be $[0, 1]$-uniform, but applies the Kalai-Smorodinsky rather than the Nash solution to describe bargaining in the Conciliation Committee (see Section 4.1). Under the Nice decision rules and compared to our basic scenario, the Council's ex ante power increases from 0.529 to 0.597 and the EP's ex ante power from 0.020 to 0.075. Considering the Lisbon rules, the Council's ex ante power increases from 0.572 to 0.598 and the EP's ex ante power from 0.115 to 0.190.

The most important observation is that the EP now is ascribed considerable influence already under the Nice Treaty. However, the Council is still the more powerful institution. Although the ideal points of the MEPs and the Council members come from the same distribution, the Council's internal qualified majority requirement results in a more conservative distribution of its collective ideal point compared to the EP whose ideal point is determined by simple majority. The reason for why both the Council's and the EP's ex ante power increase is due to two effects. To illustrate these effects, assume gains of trade and $|\mu - q| < |\pi - q|$. First note that, in contrast to the basic scenario, even the institution with greater distance to the status quo may exert influence, namely if $|\mu - q| > |\pi - \mu|$. Regarding the second effect, we have to distinguish between (a) $|\mu - q| < |\pi - \mu|$ and (b) $|\mu - q| > |\pi - \mu|$. In case (a), only a (marginal) shift in the common position of the more conservative institution can affect the location of the agreed policy x^{KS}. However, $\partial x^{\mathrm{KS}}/\partial \mu = 4/3$ (see Section 4.1) implies that the effect on x^{KS} is always *larger* than the initial shift of the more conservative institution. Similarly, we find that in case (b), we always have $\partial x^{\mathrm{KS}}/\partial \pi + \partial x^{\mathrm{KS}}/\partial \mu > 1$. Since the only difference between Scenarios I and II is the choice of the bargaining model, the probabilities of gains of trade and of one player being more conservative than the other remain unchanged. Thus, whenever we have gains of trade, the Nash solution implies either $\partial x^{\mathrm{NB}}/\partial \pi = 1$ and $\partial x^{\mathrm{NB}}/\partial \mu = 0$ or

Table 3 Strategic power in EU28 under Scenarios I, II and III, Nice and Lisbon Treaty rules

Member state \ Scenario	SMP Nice ($\times 10^{-2}$)			SMP Lisbon ($\times 10^{-2}$)		
	I	II	III	I	II	III
Germany	5.03	5.77	5.72	8.68	9.27	9.19
France	5.02	5.78	5.78	6.73	7.21	7.20
United Kingdom	5.01	5.77	5.78	6.54	7.01	7.00
Italy	5.01	5.77	5.77	6.14	6.57	6.57
Spain	4.65	5.37	5.40	4.54	4.88	4.92
Poland	4.63	5.34	5.38	3.84	4.14	4.17
Romania	2.35	2.68	2.71	2.27	2.42	2.48
Netherlands	2.17	2.47	2.51	1.97	2.10	2.16
Belgium	2.00	2.28	2.32	1.45	1.55	1.60
Greece	2.00	2.28	2.32	1.43	1.53	1.58
Czech Republic	2.00	2.28	2.32	1.38	1.48	1.54
Portugal	2.00	2.28	2.32	1.38	1.47	1.53
Hungary	2.00	2.28	2.32	1.33	1.42	1.48
Sweden	1.66	1.88	1.91	1.31	1.40	1.46
Austria	1.66	1.88	1.92	1.20	1.29	1.34
Bulgaria	1.66	1.88	1.92	1.09	1.17	1.23
Denmark	1.16	1.31	1.34	0.95	1.02	1.08
Finland	1.16	1.31	1.33	0.93	1.01	1.06
Slovakia	1.16	1.31	1.33	0.93	1.00	1.05
Ireland	1.16	1.31	1.33	0.86	0.93	0.98
Croatia	1.16	1.31	1.33	0.83	0.89	0.95
Lithuania	1.16	1.31	1.33	0.71	0.77	0.82
Slovenia	0.67	0.75	0.77	0.64	0.69	0.74
Latvia	0.67	0.75	0.77	0.63	0.69	0.74
Estonia	0.66	0.75	0.77	0.57	0.62	0.67
Cyprus	0.66	0.75	0.77	0.53	0.58	0.63
Luxembourg	0.66	0.75	0.76	0.50	0.55	0.60
Malta	0.49	0.55	0.56	0.49	0.54	0.59
CEU aggregate	59.65	68.14	68.79	59.84	64.21	65.36
EP	7.45	15.55	18.37	19.00	25.39	26.31

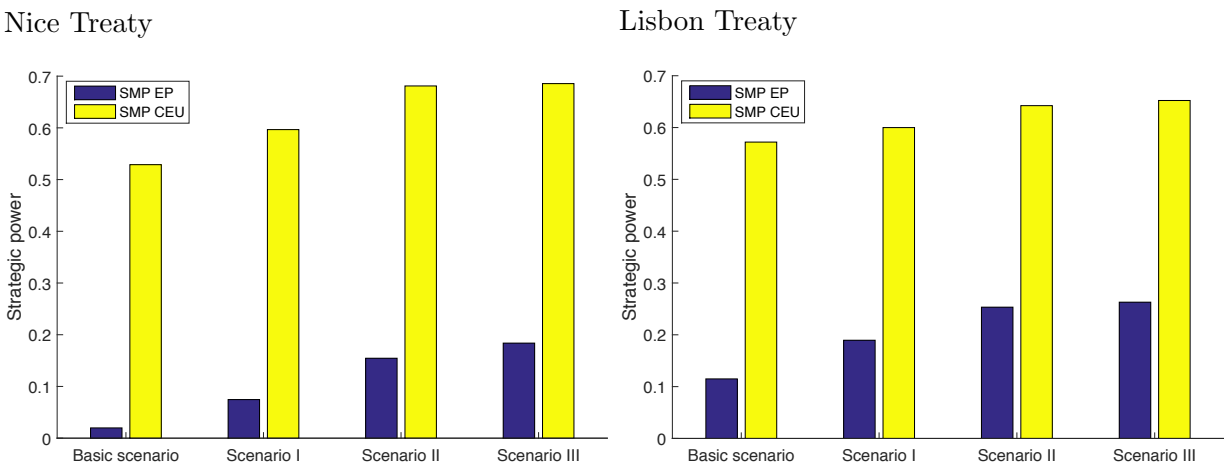

Figure 4 Inter-institutional distribution of power in EU28 under different scenarios

$\partial x^{\mathrm{NB}}/\partial\pi = 0$ and $\partial x^{\mathrm{NB}}/\partial\mu = 1$, while the Kalai-Smorodinsky solution always implies $\partial x^{\mathrm{KS}}/\partial\pi + \partial x^{\mathrm{KS}}/\partial\mu > 1$. Intuitively, the compromise culture reflected by the Kalai-Smorodinsky solution makes the outcome more sensitive to slight preference changes of either institution than the all-or-nothing Nash bargaining outcomes.

Looking at the intra-institutional distribution of power in the Council, we find that all 28 countries gain absolute power under the Nice rules. The same holds under the Lisbon rules, except for the smaller countries beginning with Lithuania, whose SMP numbers remain essentially unchanged. Moreover, it is worth mentioning that for every country the absolute gains under the Lisbon rules are smaller than those under the Nice rules.

5.2 Scenario II

Our Scenario II replaces the assumption that all citizens' preferences are i. i. d. with heterogeneity among member states (cf. Section 4.3). To incorporate assumption (HET) in our analysis, we draw a country specific shock θ_j which reflects the expected ideal point of citizens from constituency $\mathcal{C}_j$. So voters' ideal points from different countries come from different distributions F_j with mean θ_j that are shifted versions of some distribution F. We draw MEPs ideal points from shifted uniform distributions $F_1, ..., F_{28}$ and also take degressive proportionality in the EP's national composition into account, i.e., we draw 96 ideal points from Germany's uniform distribution, 74 from France's uniform distribution, etc. (cf. Table 1, column (3)). The ideal point of each Council member similarly comes from the respective shifted uniform distributions $F_1, ..., F_{28}$. The status quo in Scenarios II and III is still drawn from a uniform distribution, but now over a larger interval that captures all possible preferences in a heterogenous EU.

Taking heterogeneity among member states along with degressive proportionality into

account has a further positive effect on the SMP values of the Council and the EP under both the Nice and the Lisbon rules. Under the Nice Treaty the EP's power increases from 0.075 to 0.156 and that of the Council from 0.597 to 0.681. The effects under the Lisbon Treaty are slightly smaller. The reason for why both institutions gain by a similar magnitude lies in the probability of gains of trade which changed as a result of our modeling choices. We draw the status quo from a uniform distribution on the interval of *all* possible policy preferences but the ideal points of the Council members and of MEPs come from a uniform distribution on the respective country's shifted unit interval. Thus, both the ideal points of the Council members and the MEPs display a lower variance than the status quo, which leads to an *increased* incidence of gains of trade. In particular, the probability of gains of trade under the Nice Treaty increases from 55 % under Scenario I to 73 % under Scenario II. Similarly, we identify an increase from 69 % to 82 % under the Lisbon Treaty.

5.3 Scenario III

We now turn to Scenario III. We would claim it to be the most realistic. It incorporates all our modifications; first, the Kalai-Smorodinsky solution, second, heterogeneity among member states (along with degressive proportionality in the EP's national composition) and third, the fact that Council members represent countries' governments (MED) while MEPs represent citizens and are clustered around the respective country's median (CRD). Specifically, we draw MEPs' ideal points from (shifted) triangular distributions with the respective country's median as the peak. The ideal points of the 28 Council members are drawn from (shifted) beta distributions $F_1, ..., F_{28}$ with parameters $\big((n_j+1)/2, (n_j+1)/2\big)$. This follows from our assumption (IID) for the case of uniformly distributed voter ideal points (see Arnold et al. 1992, p. 13f).

Compared to Scenario II, both the EP and the Council gain absolute power under both Treaties but to a much smaller degree than before. While under the Nice Treaty there is basically no effect on the influence of the Council, the EP's influence increases from 0.156 to 0.184. The effects under the Lisbon Treaty are much more balanced and increase the influence of the EP from 0.254 to 0.263 and the influence of the Council from 0.642 to 654.

To explain these effects consider first the Nice Treaty. If we use the Nash solution instead of the Kalai-Smorodinsky solution here, an SMP of 0.775 for the Council and of 7.62×10^{-6} for the EP results. Intuitively, this indicates that the Council is now the more conservative institution in almost all cases where we have gains of trade. In fact, the number of cases with gains of trade in which the Council is more conservative increased by 0.054 compared to Scenario II, while the number of such cases in which the EP is more conservative dropped to nearly zero. In order to see why the EP benefits more than the Council in Scenario III, next recall that with the Kalai-Smorodinsky solution, it plays a crucial role how far the institutions' positions are apart from each other. Our assumptions

(CRD) and (MED) affect the distribution of the pivot positions π and μ, and in particular reduce their expected distance. This is most obvious when we assume that the pivotal member of the Council and the median MEP come from the same constituency; here the clustering of each country's MEP delegation around the country median clearly reduces the expected distance compared to the 'pure' heterogeneity model in Scenario II.[18]

Assuming gains of trade and taking into account that under Scenario III the Council is in almost all cases the more conservative institution, we either have (a) $|\mu - q| < |\pi - \mu|$ or (b) $|\mu - q| > |\pi - \mu|$. In case (a), *only* a marginal shift in the Council's common position has an effect on the policy outcome x^{KS}. In case (b), the CM *and* the EP can shift x^*, but a marginal change in the common position of the Council has a larger effect on x^* than a marginal change in the EP's common position. However, the smaller the distance between π and μ, the smaller the Council's advantage, whereas the influence of the EP on x^* increases. In summary, our assumptions (CRD) and (MED) have two effects. They render the Council the more conservative institution in almost all cases and they reduce the expected distance between μ and π. This leads to a higher number of (b) cases, which over-compensate the EP's loss of influence in (a) cases.

Similar reasoning applies to the Lisbon Treaty. Again, the number of cases in which the Council (the EP) is more conservative increases (decreases) when moving from Scenario II to Scenario III. This has a positive effect on both institutions, but again a larger effect on the Council. Note that the Council now benefits more strongly from the greater incidence of gains of trade because the number of cases in which it is more conservative is now nearly twice as large as under the Nice Treaty. Regarding the average distance between π and μ in case of gains of trade we find a reduction by nearly the same magnitude as before (see fn. 18). Together, this explains why the effects of Scenario III on the EP's and the Council's SMP values are much more balanced under the Lisbon Treaty than under the Nice Treaty.

Comparing Scenario III to the benchmark under the Nice rules, the EP is now attributed more than nine times as much a priori power. By contrast, the Council's power is larger by only about 30 %. Regarding the Lisbon rules, the relative effects are smaller but still favor the EP: its influence more than doubles; the Council's power increases only by about 14 %. Of course, the Council still remains the more powerful institution in Scenario III, but the asymmetry between the EU's main decision-makers is much smaller than in our basic setting (see Figure 4).

Turning to the Council's intra-institutional distribution of power, we find that the absolute power of all 28 countries has increased by roughly the same percentage, both under the Nice and Lisbon rules. In other words, values of a normalized SMP, which

[18]Specifically, in our simulations, the average distance between π and μ in case of gains of trade and the Nice Treaty (Lisbon Treaty) decreases from 0.254 (0.166) under Scenario II to 0.225 (0.144) under Scenario III.

indicate relative influence would remain essentially unchanged for all countries.

6 Conclusion

Existing models of the codecision procedure which take a constitutional perspective, i.e., which base claims on institutional rules rather than current preferences, yield competing conjectures about the inter-institutional balance of power in the EU. We followed this literature and introduced several new aspects into the bargaining game between the EP and the Council. As a first modification, we suggested that there is reason to consider the Kalai-Smorodinsky solution rather than the Nash solution as a predictor for the bargaining outcome since actual negotiations in the Conciliation Committee seem marked by mutual concessions. We then incorporated heterogeneity between different constituencies. Finally, we added the observation that MEPs represent citizens while Council members are representatives of national governments.

Our first main result is that the quantitative assessment of the players' power relation strongly depends on how much context is taken into account. The stark power divide predicted by the basic setting of N&W seems somewhat exaggerated. It is greatly moderated when moving to more context-rich models. In Scenario III, which gives in our view the so far most realistic description of the EU's wider institutional framework, the inter-institutional gap (i.e., the EP's SMP relative to the Council's SMP) has only about one seventh the original size from the basic scenario when considering the Nice rules; it is still reduced by half under the Lisbon rules. However, and this may be deemed more important, the qualitative assessment of the balance of power is remarkably robust: the EP and the Council do not co-legislate on a par. The latter remains more influential due to its more conservative internal voting rule.

Plenty of other modifications of the considered model are conceivable. For example, the motive to reach agreement is provided by the risk of breakdown of negotiations. While we treated players in the EP and the Council to be risk-neutral, one could argue that the Council is more risk-averse due to the higher visibility of national representatives compared to the EP. This would suggest applying a concave transformation to the Council's utility function, which would change bargaining outcomes in favor of the EP (see, e.g., Kihlstrom et al. 1981). Another potential source of built-in asymmetry between the Council and the EP in codecision could be the requirement that an absolute majority of MEPs is needed to amend a Council proposal in the second reading (see Hagemann and Høyland 2010). Other possible modifications for future research include the fact that – besides the EP and the Council – the Commission, national parliaments, lobbyists, rapporteurs and political parties could also be regarded as relevant players in the codecision game.

Our contribution offers a robustness check on a key theoretical result in the literature

on the power distribution in codecision. But it should also be seen as a cautionary note on a more general level. While we fully agree with N&W (p. 138) that "any systematic bias in influence must result from institutional rules rather than differences between the politicians involved", the practical problem of how to adequately reflect complex institutional realities in applied social choice analysis has no ready solution.

Appendix. Proof of Proposition 1

Proof. For $|\pi - q| = |\mu - q|$ the result is trivial. So consider gains from trade and $|\pi - q| < |\mu - q|$. This implies $u^*_{EP} = 0$. The proof is split in two parts. First consider $|\pi - q| \geq |\pi - \mu|$ such that $u^*_{\text{CEU}} = 0$. The Pareto frontier on $[-|\pi - \mu|, 0]$ can be described by

$$u_{\text{CEU}} = -|\pi - \mu| - u_{\text{EP}}$$

and the straight line connecting d and u^* by

$$u_{\text{CEU}} = \frac{|\mu - q|}{|\pi - q|} u_{\text{EP}}.$$

The Kalai-Smorodinsky bargaining solution is located where the two lines cross, i.e.,

$$\begin{aligned} -|\pi - \mu| - u_{\text{EP}} &= \frac{|\mu - q|}{|\pi - q|} u_{\text{EP}} \\ \Leftrightarrow u_{\text{EP}} &= \frac{-|\pi - \mu|}{1 + \frac{|\mu - q|}{|\pi - q|}} > -\frac{|\pi - \mu|}{2} \\ \Rightarrow u_{\text{CEU}} &= -|\pi - \mu| + \frac{|\pi - \mu|}{1 + \frac{|\mu - q|}{|\pi - q|}} < -\frac{|\pi - \mu|}{2}. \end{aligned}$$

Above inequalities can be easily obtained by recalling $|\mu - q|/|\pi - q| > 1$ from above. The result is equivalent to $x^{\text{KS}} = \pi + \frac{\mu - \pi}{1 + (\mu - q)/(\pi - q)} \in \big(\pi, \pi + \frac{1}{2}(\mu - \pi)\big)$. This completes the first part of the proof.
Now consider $|\pi - q| < |\pi - \mu|$ such that $u^*_{\text{CEU}} = -\big(|\pi - \mu| - |\pi - q|\big)$. While this has no effect on the Pareto frontier, the straight line connecting d and u^* is now given by

$$u_{\text{CEU}} = -(|\pi - \mu| - |\pi - q|) + 2u_{\text{EP}}.$$

The intersection point is then given by

$$\begin{aligned} -|\pi - \mu| - u_{\text{EP}} &= -(|\pi - \mu| - |\pi - q|) + 2u_{\text{EP}} \\ \Leftrightarrow u_{\text{EP}} &= -\frac{|\pi - q|}{3} > -\frac{|\pi - \mu|}{3} \\ \Rightarrow u_{\text{CEU}} &= -|\pi - \mu| + \frac{|\pi - q|}{3} < -\frac{2|\pi - \mu|}{3}. \end{aligned}$$

This is equivalent to $x^{\text{KS}} = \pi + \frac{\pi - q}{3} \in \big(\pi, \pi + \frac{1}{3}(\mu - \pi)\big)$ which completes the proof. ∎

Acknowledgments We thank Heiko Burret, Hartmut Egger, Sascha Kurz, Stefan Napel, Hannu Nurmi and two anonymous referees for many constructive comments. We have also benefitted from feedback on seminar presentations in Bayreuth, at the 2014 Spring Meeting of Young Economists and the 2014 Caen Summer School on Interdisciplinary Analysis of Voting Rules.

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