Coalition Building and Consensus in International Negotiations

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Abstract

In contrast to most other international organizations that allow decisions to be adopted by qualified majority, the European Union (EU) has means at its disposal to enforce the domestic implementation of such agreements. Yet despite lacking a serious compliance problem, member states still adopt most EU policies by consensus. To address this puzzle, I develop a computational model of coalition building in international negotiations. The model demonstrates that consensual decisions can emerge as the unintended by-product of government representatives’ desire to form a blocking minority. A case study of negotiations in the Council of the EU illustrates the plausibility of the model’s assumptions and resulting coalition building dynamics. In addition, a quantitative test demonstrates that the model’s predictions correspond closely to the observed consensus rates. The theoretical analysis suggests a nonlinear relationship in which small changes in the voting threshold may lead to unexpectedly large changes in winning coalition size.
Coalition Building and Consensus in International Negotiations

Decision-making rules in international governmental organizations often require the consent of all member states to adopt policies (Buzan 1981; Steinberg 2002). Even where such unanimous agreement is not formally required, decisions are regularly taken by consensus. Some international bodies allow for policies to be adopted by qualified majority vote, yet explicit voting is relatively rare (Kahler 1992; Woods 1999). International organizations usually depend on the good will of their members to implement agreed policies. They lack mechanisms for enforcing compliance. Unsatisfied member states, which were outvoted at the decision-making stage, can simply refuse to implement the adopted policy. From a functional perspective, majority-rule decision-making is useful in that it leads to gains in decision-making efficiency and to reductions in the propensity for gridlock. However, these evaluation criteria only matter when the resulting policies are actually put into force. Thus, the preponderance of consensus decision-making in international organizations is often explained by the need to ensure the implementation of the adopted policies by member states (Maggi and Morelli 2006; Rittberger and Zangl 2006).

If this functional explanation for consensus decision-making was correct, then we would not only expect to see consensus decision-making where enforcement powers of international organizations are weak, but also majority decision-making where enforcement powers of international organizations are strong. In the latter situation, presumably no need exists to accommodate the dissenting minority to ensure compliance. However, the European Union (EU) clearly contradicts this expectation. The EU and its member states form an integrated legal order (Stone Sweet and Brunell 1998). In the case of conflict between European and national law, the former takes precedence. The compliance with and implementation of European law is monitored by the European Commission, and the European Court of Justice (ECJ) can impose sanctions to enforce it. Most remarkably, national courts rely on European law, and the advice of the ECJ on how to interpret it, when deciding about domestic law suits. Therefore, the EU’s enforcement problem is minute compared to the problem faced by most other international organizations. Yet, despite the reduced risk of non-compliance, consensus decision-making is still the norm rather than the exception in the Council of the European Union. The Council is the main legislative body of the EU and consists of representatives of member states; usually the government ministers
responsible for the policy area under discussion. Although ministers can rely on the Commission and the ECJ to enforce policies adopted by qualified majority, most Council decisions are still made by consensus (Hagemann and De Clerck-Sachsse 2007; Hayes-Renshaw, Van Aken, and Wallace 2006; Heisenberg 2005; Mattila 2009; Mattila and Lane 2001). If governments decide by consensus even in cases where subsequent compliance with the adopted policies is not an issue, alternative explanations for consensus decision-making in international organizations are called for.

Whereas the functionalist explanation stresses intentional decision-making and rationalist foresight, I argue that consensus emerges more or less coincidentally from the coalition-building process itself. If the rules of an organization allow for majority decision-making, then member states have an incentive to coordinate their behaviour and their negotiation positions with other like-minded states. Otherwise member states run the risk of becoming marginalized and their positions ignored in the negotiation process. Negotiations in international organizations are usually complex, involving a multitude of issues and actors. In light of such complexity, boundedly rational negotiators are likely to follow simple heuristics to guide their behaviour. A plausible heuristic for government representatives is to band together with negotiators from other states with similar positions until their coalition is large enough to formally block a decision. Forming a blocking minority ensures that the member state’s views cannot be ignored. At the same, joining states that have negotiation positions close to its own limits the policy concessions a state has to make. Successively joining up with states or coalitions of states in this manner, member states form larger and larger coalitions until they reach the necessary numbers to form a blocking minority. If, at the end of this process, all member states are organized in blocking minority coalitions, then no policy can be adopted without unanimous consent. Thus, consensus is merely an unintended by-product of the coalition building behaviour of blocking minority seeking negotiators.

In the remainder of this paper, I develop a computational model to formalize this argument and explore its empirical plausibility and theoretical implications. Although I focus on the Council of the EU as an empirical reference case, the theory should be applicable to multilateral negotiations in other international and indeed national settings as well. In the next section, I present data on consensus decision-making in the Council of the EU and discuss

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2 The Council of the EU is also known as the Council of Ministers. In practice, the Council consists of several formations, each being responsible for policy-making in a certain policy sector. The work of ministers is supported and prepared by hundreds of committees composed of national officials and diplomats (Häge 2008a, 15-38, 2008c). The Lisbon Treaty extended the powers of the European Parliament as an equal co-legislator considerably, but some areas are still the exclusive domain of the Council.
several candidate explanations developed specifically for this particular phenomenon, ranging from cultural norms to rationalist log-rolling and the effect of legislative procedures. Following the discussion of available data and theories, I present a brief case study of Council decision-making as a motivating example. The case description illustrates the coalition-building dynamics to be reproduced by the computational model. It also serves to demonstrate the plausibility of the assumptions made about member states’ behaviour. Subsequently, I describe how the salient characteristics of coalition-building in the Council are implemented in an agent-based computational model. The model’s dynamics are illustrated through the description of an example run. Next, the model’s predictions of the aggregate consensus rate for different membership sizes are compared to the observed consensus rates in the Council of the EU. Despite the model being extremely simple, its predictions accord very well with the empirical data. The model is not only able to reproduce the qualitative features of the data, that the rate of consensus decisions is relatively high and that the rate is insensitive to changes in the number of member states, but it also yields rather accurate quantitative predictions.

Given these encouraging results, the last part of the analysis consists of a computational experiment to further investigate the effect of the voting threshold and the effect of the number of member states on the size of the winning coalition. The analysis indicates that the size of the winning coalition increases as a power function of the voting threshold. The model predicts somewhat oversized coalitions even if decisions are to be taken by simple majority. Increases in the voting threshold lead initially to disproportionally stronger increases in the winning coalition size. However, the growth soon levels off and winning coalition size reaches its maximum of 100% at a voting threshold of about 70%, after which it remains constant. The initial level of the expected winning coalition size and the shape of the prediction curve below a voting threshold of 70% vary somewhat across different membership sizes. However, all prediction curves reach their maximum at a voting threshold of about 70%, regardless of membership size, and remain constant for higher values. The conditional effect of membership size is weak and partly a mechanistic result of the formal voting threshold translating into a comparatively larger effective voting threshold when the number of member states is small. Yet the strong nonlinear relationship between the voting threshold and winning coalition size indicates that rather small changes in the institutional rules might have unexpectedly profound effects on the practice of decision-making. In the conclusion, I discuss the possible implications of these results for the current enlargement plans of the EU and for the already agreed changes of the voting rule that will come into
force in 2014. While further enlargements are unlikely to affect consensus decision-making in the Council, the planned reduction of the voting threshold from 74% to 65% is expected to result in a marked decline in consensus decision-making.

**Legislative Decision-Making in the Council of the EU**

The constitutional rules of the EU allow the Council to adopt legislative decisions by a qualified majority of member states’ votes, but explicit voting in general, and negative votes or abstentions in particular, are relatively rare (Hagemann and De Clerck-Sachsse 2007; Hayes-Renshaw, Van Aken, and Wallace 2006; Heisenberg 2005; Mattila 2009; Mattila and Lane 2001). The voting weights of individual member states are roughly proportional to population size. Despite successive enlargements and re-definitions of individual voting weights, the qualified majority threshold has remained remarkably constant over time, varying only between 71% and 74% (Hayes-Renshaw, Van Aken, and Wallace 2006, 180-181). Figure 1 presents data on the proportion of legislative Council acts adopted by consensus between 1994 and 2006 (Hagemann and De Clerck-Sachsse 2007, 13; Heisenberg 2005, 72). The time period covers three different membership sizes. In 1994, the EU consisted of 12 member states. Sweden, Finland, and Austria joined on 1 January 1995, increasing the number of member states to 15. Eight formerly communist countries from Central and Eastern Europe and two Mediterranean island states became members on 1 May 2004, further raising the number of member states to 25. Over this period of time, on average 82% of all legislative acts enacted during a particular year were adopted by consensus. Based on common sense, we would expect to see less consensus decisions after increases in membership size, given that more member states need to be accommodated to reach unanimous agreement. Yet the observed rate of consensus decisions clearly contradicts this expectation. Indeed, the data seem to suggest a slightly increasing rather than decreasing tendency in the consensus rate over time. In line with this impression, a regression analysis of the consensus rate against time indicates a moderate positive slope of the regression line (coefficient: 0.7; confidence interval: -0.4, 1.7). However, this effect is statistically

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3 Note that, under the qualified majority voting rule, abstentions have the same effect as negative votes.
4 Significant exceptions to this rule exist: for example, the reunification of Germany has not resulted in a larger voting weight, although its population size grew by almost 30%. In contrast, Spain received a disproportionally large voting weight when member states reformed the EU’s constitutional rules as part of the Nice Treaty in 2003. Being roughly of equal size as Spain, Poland also benefitted from this arrangement when it joined the EU in 2004. The Treaty of Lisbon stipulates that, taking effect in 2014, voting weights will be calculated in direct proportion to the population sizes of countries.
indistinguishable from zero. Thus, the rate of consensus decisions is not affected by changes in membership size in either way.

**FIGURE 1** Consensus Decision-Making in the Council of the EU, 1994-2006

The figure plots the percentage of consensual legislative decisions of the Council per year from 1994 to 2006. The fitted line indicates predicted values from a bivariate linear regression analysis. The prediction equation of the regression analysis, the adjusted $R^2$, and the $p$-value of the $F$-test are shown in the figure. The two vertical dotted lines indicate the enlargements of the EU in 1995 and 2004. The data for the years from 1994 to 2002 are taken from Table 1a of Heisenberg (2005, 72); the data for the years from 2003 to 2006 are taken from Table 3 of Hagemann and De Clerck-Sachsse (2007, 13).

Consensus decision-making in the Council has long been a puzzle. On the one hand, the voting rule in the Council and its scope of applicability is regularly one of the most contested issues at intergovernmental conferences convened to negotiate changes to the EU’s constitutional framework (Cameron 2004; Moberg 2002). Governments obviously consider the voting rule in the Council to be important enough to haggle about it. On the other hand, most available evidence seems to indicate that the voting rule does not play much of a role in day-to-day decision-making in the Council. Several theories have been advanced to account specifically for the lack of voting in the Council. First, the institutionalist explanation stresses the foresight of the Commission and its powers as agenda-setter in EU decision-making. A peculiar feature of the EU is that the Commission has the exclusive right to initiate legislation. Anticipating the positions of member states, the Commission might only introduce a proposal when a sufficient majority of member states exists to support the new policy (Häge 2008b; König and Junge 2009). This theory could explain the general absence
of large opposing coalitions in Council decision-making. The Commission anticipates the possible rejection of its proposal and refrains from introducing the proposal in the first place.

Although this argument might be able to account for why we see few rejected Commission proposals, it is less successful in explaining the relatively low number of negative votes on proposals that are actually adopted. Taking the preferences of governments into account, the Commission should be able to formulate a proposal that is just about acceptable to a minimum winning coalition of member states. Oversized winning coalitions or even unanimous support for a proposal should be rare. In the institutionalist perspective, oversized winning coalitions are only expected to occur if the disagreement between member states about the precise formulation of the new policy is small compared to their shared negative assessment of the existing status quo (Mattila and Lane 2001, 37). In short, according to the institutionalist perspective, consensus decisions reflect a true consensus among member states about the direction and the extent of policy change. While the occurrence of such situations cannot be ruled out, the lack of disagreement amongst member states is unlikely to be so common as to account for the very high rate of decisions taken by consensus.

The second type of explanation stresses the possibility of log-rolling between member states (Carruba and Volden 2001; König and Junge 2009; Mattila and Lane 2001, 46). If member states vary in the salience they attribute to different policy issues, then opportunities for vote-trading exist. For example, issue 1 might be extremely important to member state A, while issue 2 is important to member state B. Then member state A can trade its consent on issue 2 for member state B’s consent on issue 1. Oversized coalitions can result as a side-effect of such vote trades. The third explanation stresses internalized norms and rules of behaviour to account for the absence of voting in the Council (Heisenberg 2005; Lewis 2000, 2005). Following this cultural argument, negotiators developed a consensus reflex as a result of years of Council negotiations under the so-called Luxembourg compromise (Aus 2008). The Luxembourg compromise stipulated that unanimous agreement had to be reached, even in areas where qualified majority voting was formally allowed, if a member state felt that the decision affected important national interests. New entrants to Council negotiations are supposedly quickly initiated to and internalize this culture of compromise. Thus, according to this perspective, the lack of voting is due to internalized consensus norms.

The existing explanations for consensus decision-making suffer from two problems. First, their micro-foundations are questionable. The institutional and logrolling explanations make assumptions about actors and the institutional environment in which they operate that
ignore salient features of the Council structure and of actual decision-making processes. In contrast to the assumptions relied on in institutionalist and logrolling accounts, actors do not have complete information about each others’ issue salience and policy preferences. Council negotiations do also not follow a set protocol governed by formal institutional rules, nor are there regular opportunities to link negotiations on one proposal with negotiations on another in a different policy sector. At the same time, government representatives are also unlikely to be programmed rule-followers as proposed by the cultural explanation. Government representatives vote sometimes and it is more fruitful to investigate the conditions under which they vote than to postulate that a reflex compels them to seek consensus all the time in all circumstances.

The second problem concerns the macro-predictions of those theories. In particular, none of them is consistent with the observation that the consensus rate remains largely constant despite a considerable increase in the number of member states. According to the institutionalist perspective, more member states are likely to introduce more heterogeneous preferences. The increased disagreement should result in more negative votes and therefore a lower consensus rate. Similarly, the demands of vote trading on the cognitive abilities of negotiators increase exponentially with the number of member states. Vote trading amongst 25 member states is disproportionally harder and hence disproportionally less likely to be successful than vote trading amongst 15 member states. The expected outcome is again a decrease in the consensus rate. Finally, informal norms are more difficult to sustain in larger groups and newcomers are less likely to be socialized into those norms when they enter the group in large numbers. Thus, at least the enlargement from 15 to 25 member states in 2004 should have affected the consensus culture in a negative way, resulting in a lower rate of consensus decisions. As Figure 1 clearly shows, these expectations are not borne out by the data. The computational model developed in the remainder of the paper is able to reproduce this aggregate pattern without reliance on overtly implausible assumptions about the behaviour of individual negotiators.

**Real-World Coalition Building: A Motivating Example**

The model of coalition building developed here aims to capture salient features of empirically observed behaviour of member states in Council negotiations. Comparative case studies clearly show very different coalition building dynamics under different voting rules (Häge 2008a, 109-238). Under unanimity rule, the negotiation process resembles a search by the Presidency for the lowest common denominator solution acceptable to all member states.
Member states hardly change their negotiation positions, even if they are isolated. Under qualified majority voting, the Presidency plays the role of a facilitator and mediator. Member states’ negotiation positions change regularly as they form larger and larger coalitions over time. If individual countries or small groups of countries are not willing to make concessions on salient issues, they are sidelined and have little impact on the final negotiation outcome.

Figure 2 illustrates the coalition dynamics under qualified majority voting. Each panel presents a snapshot of member state positions on two salient issues during the negotiations on the Council’s common position on the batteries directive. The horizontal axis indicates positions on the extent of and transition period for a ban on cadmium in batteries for power tools. The vertical axis indicates member states’ positions on the size of battery collection targets and the deadline for reaching them. The size of the plot symbols is proportional to the combined voting weights of the member states holding that negotiation position. The voting weights for individual states range from 3 for small countries like Ireland or Denmark to 10 for large countries like France or Germany. The arrows indicate changes in member state positions between snapshots. In general, negotiations in the Council occur on three different organizational levels. At the beginning of the negotiations, the details of the dossier are discussed by the relevant working party. Working parties consist of lower-level diplomats or national officials from the relevant ministries of member states. If the working party cannot reach complete agreement, its chair refers the dossier to one of the formations of the Committee of Permanent Representatives (Coreper), which consists of the ambassadors of the member states or their deputies. Finally, ministers discuss only the most contentious issues, which could neither be resolved by the working party nor Coreper.


6 Information on member state positions was derived from various internal Council documents. All documents are available from the public register of Council documents (http://www.consilium.europa.eu/showPage.aspx?id=1279&lang=en). Four interviews with Commission, Council, and member state officials in May and June 2007 yielded additional insights into the negotiation process.

7 Luxembourg has the smallest voting weight of 2, but it did not take part in these negotiations.
The Commission submitted its proposal for the batteries directive in November 2003\textsuperscript{8}, but negotiations in the Council did not start before June 2004. During one of its last meetings under the Irish presidency, the environment committee as the responsible Council working party had a first reading of the proposal\textsuperscript{9}. The committee is composed of officials from national environment ministries and deals with all matters related to the environment. The Dutch government, who took over the Council presidency in July 2004, made the proposal a


The environment committee discussed the proposal at seven occasions in July, October, and November, before asking the Committee of Permanent Representatives for further guidance. Subsequently, the proposal shuttled back and forth four times between the environment committee and Coreper. Neither the officials in the environment committee, nor the deputy ambassadors in Coreper were able to reach an agreement. Eventually, Environment ministers struck a compromise at their meeting on 20 December 2004.

The top left panel of Figure 2 shows the positions of member states on 21 October, after the environment committee had discussed the proposal and its policy implications in detail. With the exception of France, all member states agreed that a general ban on cadmium in batteries was a more practical solution than the closed-loop collection and recycling system proposed by the Commission. Conflict centred on a possible exception for batteries in handheld power-tools. The proponents of such an exception, mostly member states with a significant battery producing industry, argued that no alternative technology was yet available for such applications. The opponents of an exception disagreed with this assessment. Fearing the loss of hundreds of jobs in a large domestic battery factory, France rejected any form of ban outright (this position is coded as -7 on the horizontal axis of the panels in Figure 2). Germany, Portugal, and the United Kingdom agreed to a ban in general, but demanded an exemption for handheld power-tools (coded as -4). Spain, Ireland, and Italy also asked for an exemption, but found it acceptable to review the exemption after a certain period of time (coded as -1). Initially, Greece could accept a complete ban as long as the directive allowed for an extended transition period (coded as +1). The remaining countries called for a complete ban after a short transition period of just four years (coded as +7). The second major disagreement revolved around the size of the binding collection targets. Many countries favoured a collection target of 60% of sold batteries to be reached after 10 years (coded as +2 on the vertical axis of the panels in Figure 2). However, Portugal, Italy, Greece, and the United Kingdom asked for a lower, “more realistic” target of 40% (coded as -6). All of these countries had less developed collection and recycling systems. In contrast, Denmark,

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11 Greece had not stated a position yet at that time. To be able to plot Greece’s position, I assumed that its position at that point in time was the same as the position that it announced later.
one of the forerunners in terms of environmental standards, demanded a collection target that was “more ambitious” than 60% (coded as +6).

The top right panel shows the state of play of negotiations at the start of the first Coreper meeting\textsuperscript{14}. Up to this point in time, all movement in member states’ positions had occurred along the horizontal dimension. Spain joined the large pro-cadmium ban group and Portugal moderated its position from demanding an unrestricted exemption to demanding an exemption with a review after a certain amount of time. The first Coreper meeting on 24 November was devoted to a discussion of possible solutions for cadmium ban issue. The second Coreper meeting on 1 December considered the collection targets and the remaining, less controversial issues. The arrows in the top right panel indicate the changes in negotiation positions that occurred during and between those meetings and the third Coreper meeting on 8 December. Along the vertical dimension, Denmark toned down its collection target stance and joined the 60% coalition. Regarding the horizontal dimension, the group of member states favouring a complete ban after a four year transition period now conceded the inclusion of a review clause to allow for a possible extension of the exemption (coded as +4). Greece joined Germany and the United Kingdom in demanding a temporally unlimited exemption. As a compromise, the Dutch presidency proposed and joined the position of Italy, Ireland, and Portugal, offering an unlimited exemption for cordless power-tools with a review to include it in the ban after four years.

The lower left panel indicates the positions of member states before the third meeting of Coreper on 8 December\textsuperscript{15}. The following discussions in the environment committee and Coreper consolidated the positions of member states. France, Germany, Greece, and the United Kingdom supported the Dutch presidency proposal of a partial cadmium ban with a review of the exemption after four years. In terms of collection targets, Greece, Italy, Portugal, and the United Kingdom moderated their position somewhat by offering a target of 35% after seven years (coded as -2). The lower right panel shows the initial positions of member states when environment ministers continued negotiations at their Council meeting on 20 December. The panel clearly indicates three distinct, almost equally sized coalitions. The first coalition favours high environmental standards on both dimensions and mainly consists of northern member states with highly developed collection and recycling systems. The second coalition favours low environmental standards on both dimensions and consists


of southern member states and the United Kingdom, all with less developed collection and recycling systems. The third coalition of mainly centrist states takes a more ambiguous position. On the one hand, these states side with the northern coalition by favouring high collection targets. On the other hand, they align with the southern coalition by demanding an exemption for cordless power tools from the cadmium ban, with a review of the exemption after four years. As 26 votes are sufficient to block a decision, at this stage, the agreement of all three coalitions was required to adopt a decision. Therefore, the classic compromise outcome negotiated by ministers is not very surprising. In the end, member states agreed on an exemption of cordless power tools from the ban with a review of the exemption after four years. To make this solution acceptable to the proponents of a more encompassing ban, the Council’s common position explicitly stated that the review should be conducted “with a view to the prohibition of cadmium in batteries”\(^{16}\). Only Belgium and Ireland could not support this compromise and abstained from a vote. Belgium considered the partial cadmium ban not strict enough, while Ireland objected to the “closed” nature of the review of the exemption. The collection target was eventually set to 45% after 10 years, a value located between the 40% and 60% originally demanded by the two groups of countries. Although the final outcome was closer to the position of the southern group of member states than to the northern group, Italy and Greece still considered these collection targets to be too high and abstained from the vote\(^{17}\).

The case points to several salient features of Council decision-making. First, the presidency of the Council plays a crucial role in facilitating the negotiation process by sounding out positions and offering compromise proposals. Second, the positions of member states tend to become somewhat more moderate during the course of negotiations. Finally, member states merge into larger and larger coalitions with more clearly defined positions as the negotiation process progresses. While all these aspects are worth consideration, the following model focuses on the last feature, the coalition building process. The role of the Council presidency and the concessions made by member states might be important for explaining the final negotiation outcome and the influence of individual member states. However, the coalition formation process is more relevant for explaining consensus decision-making. Starting with often ill-defined and idiosyncratic negotiation positions, member states

\(^{16}\) Council (2005): Draft minutes of the 2632\(^{nd}\) meeting of the Council of the European Union (Environment), held in Brussels on 20 December 2004. 25 February 2005, 16275/04 Rev. 1.

\(^{17}\) Council (2005): Draft minutes of the 2632\(^{nd}\) meeting of the Council of the European Union (Environment), held in Brussels on 20 December 2004. 25 February 2005, 16275/04 Cor. 1; Council (2005): Draft minutes of the 2632\(^{nd}\) meeting of the Council of the European Union (Environment), held in Brussels on 20 December 2004. 25 February 2005, 16275/04 Cor. 2.
adapt their positions over time to form larger and larger groups. As a result of this process, groups of countries with similar negotiation positions form, each of them large enough to formally block a majority decision. Although it did not prevent negative votes in this particular case, the need to take the positions of all groups into account when negotiating a compromise will often be sufficient to ensure unanimous support.

A Computational Model of Coalition Building Dynamics

The agent-based computational model is designed to resemble the general dynamics of real-world coalition building as described above\textsuperscript{18}. At its core lies a simple but plausible assumption about individuals’ behaviour. Existing theories of consensus decision-making in the Council either assume that negotiators are naïve norm-followers or that they are hyper-rational actors with unlimited information, foresight, and computational abilities. A view of negotiators as boundedly rational actors is more realistic. Unlike norm-followers, boundedly rational actors are still goal-oriented individuals. Yet in a complex environment full of uncertainty, boundedly rational actors rely on simply heuristics rather than complicated assessments of different strategies to pursue their goals. Negotiators will find it hard to identify a generally acceptable policy outcome in a multidimensional policy space when the number of member states is large, let alone calculate favourable vote exchanges between various pairs of countries with different salience levels to generate a satisfactory logroll. However, negotiators are usually well able to identify the current positions of other negotiators and the voting weights of the member states they represent. The voting weights of member states are public information and negotiators regularly announce their current position in meetings on various levels of the Council. Negotiators also know that a decision will not be made under qualified majority voting without their consent if they are able to muster a blocking minority. Given the complexity of multilateral multi-issue negotiations, pursuing the formation of a blocking minority is a simple but effective way for negotiators to ensure that their views are reflected in the final negotiation outcome.

The assumption of negotiators as blocking minority seekers is not only theoretically plausible; it also receives considerable direct and indirect empirical support. In terms of indirect support, the importance of blocking minorities in Council decision-making is underlined by the Commission’s efforts to break up such coalitions by changing states’ preferences and fall-back options (Schmidt 2000). Also, lobby groups that aim to prevent

\textsuperscript{18} The model is implemented in Netlogo 4.1 (Wilensky 1999) and is available for download from INSERT ADDRESS.
European regulation in a certain policy area focus their efforts on supporting and stabilizing blocking minorities (Neuman, Bitton, and Glantz 2002). Finally, Council presidencies use their scheduling prerogatives to buy time to build blocking coalitions (Tallberg 2010). Regarding the more direct support, interviews with national representatives indicate that they continuously assess whether a blocking minority exists when they negotiate in the Council (Novak 2010, 86). They also consider coalition-building to be one of their most important negotiation tactics (Dür and Mateo 2010). This impression is also supported by insider accounts of practitioners. Westlake and Galloway (2004, 224), who have been working in the Council secretariat for several years, explain that under qualified majority voting delegations need to construct blocking minorities to extract concessions from their negotiation partners.

The goal of the computational model is to explore the macro-consequences, especially with respect to the observed level of voting, resulting from the micro-behaviour of individual negotiators motivated by the desire to form a blocking minority. The model has only two tuneable variables, the number of member states and the voting threshold. This simplicity is necessary for understanding how the model generates its output. When computational models serve as theoretical tools rather than forecasting instruments, their complexity needs to be limited. Otherwise they become just as unintelligible as the real world processes and phenomena they are supposed to explain. From a more substantive point of view, the number of member states, the voting threshold, and their interaction are important variables for enlargement policy and institutional design, not only in the case of the EU, but for multilateral organizations in general. The model also ignores differences in voting weights and assumes that all member states have the same voting power. Again, this is in line with the goals of simplicity and generality. Differential voting weights would make the model more complex. Furthermore, they would restrict the model’s applicability not only to negotiations in the Council of the EU, but because voting weights have been subject to change, also to a very specific period of time. Incorporating differential voting weights into the model might be necessary and useful for exploring hypotheses about the influence of individual actors and for making realistic predictions about substantive negotiation outcomes, but the basic and general effects of membership size and voting rule would be harder to delineate.

In the model, member states’ ideal points are represented in a two dimensional policy space. To make sure that simulation results do not depend on specific preference constellations, the coordinates for governments’ ideal points are randomly drawn from a uniform distribution at the beginning of the simulation run. The initial negotiation position corresponds to the ideal point of the government. Each government representative then
determines how large the coalition is to which the representative belongs. Technically, the representative counts the number of other governments occupying the same position. If the coalition is large enough to block a decision, the representative sticks to the current negotiation position. If the coalition is not large enough to block a decision, the representative compares the size of the current coalition to the size of the closest neighbouring coalition. If several coalitions are equally far away from the representative’s coalition, the size of the current coalition is compared to the size of the largest of those coalitions. If the neighbouring coalition identified through this procedure is smaller than the current coalition, the representative does not change positions. If the neighbouring coalition is as large as or larger than the current coalition, then the representative joins the neighbouring coalition. Each government representative decides about adapting his or her negotiation position in turn. The order of moves of governments is determined randomly in each round of the simulation run. The negotiators’ knowledge about their own and others’ negotiation positions and coalition status is updated after each individual move. Thus, government representatives are modelled as moving consecutively rather than concurrently. This modelling strategy corresponds to real world dynamics, in which negotiations take place in continuous time and negotiators do not all change their negotiation positions simultaneously.

The simulation run can end in two ways. First, the simulation run ends if all member states are part of a blocking minority. If all member states are part of blocking coalitions, a Council decision can only be reached by accommodating all views. Thus, this outcome represents a broad compromise of all member states; in other words, it represents a consensus decision. Second, the simulation run ends if one of the coalitions is large enough to adopt a Council decision by qualified majority vote. Obviously, this outcome represents the case of a contested decision. Note that the simulation ends only at the end of the current negotiation round, after each negotiator had its turn. Each round can be thought of as a meeting of the relevant Council body, in which a formal decision is only made after each negotiator had the opportunity to state its position. While negotiators take into account what their counterparts have said before them, they still get the opportunity to adjust their position even if the stated

19 In principle, the formation of a blocking minority could also result in a rejection of the proposal. In reality, Commission proposals are hardly ever rejected in their entirety. Empirical data indicate that 95% of all proposals are eventually adopted (König, Luetgert, and Dannwolf 2006, 563). A selection effect seems to operate here, in that the Commission refrains from submitting unpopular proposals in anticipation of their rejection by the Council (Häge 2008b; König and Junge 2009).
positions of previous speakers already indicate a winning majority. The model assumes that the presidency allows all representatives to express their opinions before calling for a vote\textsuperscript{20}.

Figure 3 presents the dynamics of a typical simulation run with 15 member states and a qualified majority voting threshold of 72\%\textsuperscript{21}. These settings most closely mirror the situation in the batteries directive case discussed above. I ran the simulation 1,000 times; each time with a different, randomly generated initial preference configuration. The plotted run is typical in the sense that it is characterized by typical values on a number of variables calculated from those simulations. The run exemplifies the median number of rounds until run completion, the median number of coalitions at the end of the run, and the median number of member states in the largest coalition at the end of the run. Finally, conditional on these characteristics, the run exhibits the average distance between member states’ negotiation positions at the start of the simulation. The top left panel of Figure 3 gives the initial positions of government representatives. The other panels show snapshots of the state of coalition building after each full round of adaptations. The arrows indicate movements of government positions between the snapshots; accompanying numbers show the sequences of those moves. The size of the marker symbol is equivalent to the size of the coalition and the number of member states occupying a certain position is given inside the circle. The top left panel of Figure 3 shows the distribution of ideal points of member state governments. By assumption, the ideal points are equivalent to governments’ initial negotiation positions. At least in the case of Council negotiations, these initial positions will be hard to observe systematically, as the documentary record often only starts once member states have formed somewhat consolidated coalitions. The snapshot in the top right panel of Figure 3 more closely resembles the real-world configurations of negotiation positions as shown in Figure 2. After the first round of adaptations, coalitions of varying sizes have already formed. The lower left and lower right panel of Figure 3 show how these coalitions merge until each member state is part of a blocking minority.

\textsuperscript{20} Note that this assumption does not contradict the rational goal-orientation of representatives. The decision-making process is somewhat less efficient under this assumption, but the substantive decision-making outcome is the same as if a vote was immediately called after a minimum winning coalition has been reached.

\textsuperscript{21} The actual voting threshold in the EU with 15 member states was 71.3\%. However, the effective voting threshold is 11 out of 15 member states regardless of whether the formal voting threshold is 71\% or 72\%. 
The figure shows the coalition building dynamics of a typical model run for a membership size of 15 states and a voting threshold of 72%. The model run is typical in that it exhibits the median values for the number of rounds until run completion, for the number of coalitions at the end of the run, for the number of member states in the largest coalition at the end of the run, and conditional on these characteristics, for the average distance between member states’ initial positions. The upper left panel shows the initial positions of member states. Subsequent changes and their sequence are indicated by arrows and associated numbers. The upper right, lower left, and lower right panels show the positions of member states after 1, 2, and 3 rounds of adaptations, respectively. The diameter of the plot symbols is proportional to the size of the coalitions and the number inside the circles indicates the number of member states occupying this position.

The example run illustrates a crucial feature of the computational model: the simulation does not stop when two or more blocking coalitions are large enough to muster the required majority to adopt a decision by vote. The simulation only stops when all member states are part of a blocking coalition or when one coalition grows large enough to adopt a decision by a vote of its own members. This assumption is important for generating a high consensus rate. The lower panels in Figure 3 illustrate the implications of this assumption. The lower left panel depicts two large blocking coalitions with six member states each and a smaller coalition consisting of three member states. If the two blocking coalitions agreed on a compromise, they could easily outvote the small three-member coalition. However, the model
does not foresee this possibility. Instead, the model assumes that the coalition building continues until all member states are part of a blocking minority. Consequently, the small three-member coalition is still able to join one of the larger coalitions; only then does the simulation stop.

At first sight, the assumption that blocking coalitions ‘wait’ for the remaining states to become members of a blocking coalition before they negotiate a compromise amongst themselves seems to be inconsistent with the rational goal-orientation of actors. However, if the final compromise negotiated between blocking coalitions is at least somewhat affected by the coalition’s respective sizes, drawing out the negotiation process to allow ‘lonely’ member states to join one’s coalition is a rational strategy and does not require recourse to consensus norms for an explanation. In the lower left panel of Figure 3, the members of the blocking coalition closest to the small three-member coalition have a clear incentive to prolong the negotiation process in order for the members of the small coalition to join them. Striking a bargain requires the consent of all negotiation parties, thus the refusal of one blocking coalition is sufficient to extend the negotiation process. As depicted in the lower right panel, the delay in accepting a compromise has increased the coalition from six to nine member states. The larger coalition size promises more leverage for extracting concessions from the other blocking coalition. As the focus of this study is on coalition formation and voting, the determination of the substantive negotiation outcome is not explicitly modelled. However, existing empirical research indicates that models based on weighted averages of member states’ policy positions perform best in predicting actual decision-making outcomes in the Council (Achen 2006; Schneider, Steunenberg, and Widgrén 2006). Thus, the assumption that larger coalitions are better able to tilt the negotiation outcome in their favour is empirically supported. If negotiators are aware of this advantage, they have every reason to delay an agreement until their coalition has reached the largest possible size.

**An Empirical Evaluation of Aggregate Model Output**

The previous section described the setup of the computational model and the rules according to which actors are supposed to behave. The illustrative simulation run showed the similarities of the resulting model dynamics with real-world coalition building processes. Thus, the micro-behavioural rules provide an empirically plausible causal mechanism. This section assesses to what extent these micro-behavioural rules are also able to generate the

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22 The weights include power, often measured in the form of voting weights, and sometimes issue salience.
empirically observed rate of consensus decision-making at the macro-level. Any plausible model should be able to reproduce the two qualitative features of the aggregate voting data presented in Figure 1. First, the model should generate a generally high consensus rate: given the wide variation in consensus rates around the mean of 82%, a predicted rate between 74% and 90% would surely be acceptable. Second, the model’s prediction should be relatively insensitive to the number of member states. Thus, the predicted consensus rate should not change considerably with variations in membership size.

Figure 4 demonstrates that the predictions of the computational model satisfy both of these requirements. The figure plots the observed yearly consensus rates between 1994 and 2006, the time averages of those rates for each membership size, as well as the predicted rates generated by the computational model for each membership size. Each predicted rate is the proportion of consensus outcomes generated by 1,000 simulated negotiation processes with different, randomly generated initial policy positions and a constant voting threshold of 72%. The simulated results of the computational model are compared to the simulated results of a random null-model. The null-model predictions are generated by a random coin-flip process. Whether or not a ‘negotiation process’ ends in a vote or in consensus is determined randomly, with each outcome having an equal probability of 0.5. The consensus rate of the null-model is determined by repeating this process 1,000 times and calculating the proportion of consensus decisions. Comparing the null-model predictions with the predictions of the computational model, a measure of the proportional reduction in error (PRE) analogous to the familiar $R^2$ measure in linear regression analysis can be calculated. The main difference of this PRE-measure to $R^2$ is that it uses the prediction of the null-model rather than the mean of the observed data as the baseline for calculating the reduction in error. The predictions of the computational model are generated without taking into account any empirical information about the observed consensus rates. Hence, using the mean of the actually observed consensus rates as a baseline for comparisons with the purely theoretical predictions of the computational model would be inappropriate.

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23 Figure 1 presents the same data in the form of a time-series. Unfortunately, no voting records are available for the period prior to 1994.

24 The actual percentage voting threshold applied in the Council varied slightly during the observed time period. However, these small changes in the formal voting threshold do not affect the effective voting threshold in terms of the number of member states required to form a winning coalition.
The figure compares the observed consensus rate with the rate expected based on simulation results (Computational Model) and with the rate expected by chance (Null-Model). The proportional reduction in error is calculated as $\text{PRE} = \frac{\text{SSE}_{null} - \text{SSE}_{model}}{\text{SSE}_{null}}$, where SSE stands for sum of squared errors. The voting threshold was set to 72% across all membership sizes. For each membership size, the figure shows the mean consensus rate and 95% confidence intervals of 1,000 simulation runs. The corresponding results for the null-model were produced by generating 1,000 observations for each membership size and assigning the type of decision (consensus vs. vote) randomly with equal probability.

The predicted consensus rates of the computational model are remarkably close to the observed consensus rates. During the nine years in which the EU consisted of 15 member states, the consensus rate varied between 74% and 97%. The computational model predicts a consensus rate of 85%, very similar to the observed time-average of 82%. Compared to the prediction of the null model of 50%, the prediction of the computational model reduces the prediction error by 95%. During the three years in which the EU consisted of 25 member states, the consensus rate varied between 78% and 91%. Again, the computational model’s predicted consensus rate of 82% is very close to the mean of the actually observed, yearly consensus rates of 86%. Compared to the null-model prediction of 49%, the prediction of the computational model reduces the prediction error by 96%. Only the computational model’s prediction for 12 member states is relatively far off from the observed data. The only available data point for 12 member states indicates a consensus rate of 75% in the year 1994, while the computational model predicts a consensus rate of 90%. Given the generally high variability of the consensus rate over time, the source for this lack of correspondence is not
clear. The model might do a worse job in predicting the consensus rate when the number of member states is rather small, or the observed year might have had an unusually low consensus rate. Either way, even this worst prediction decreases the prediction error of the null-model by 66%.

The Predicted Effects of Voting Threshold and Membership Size

The strong correspondence of the simulated coalition building dynamics and consensus rates with their real world equivalents warrant a further examination of the computational model. This section presents the results of a computational experiment. The goal of the experiment is to identify the consequences of the voting threshold and the membership size on consensus decision-making. The dependent variable is the size of the winning coalition as a percentage of member states, measured at the end of the simulation run. Note that this percentage is related to but is not the same as the consensus rate considered earlier. The consensus rate gives the percentage of Council decisions taken by consensus; that is the percentage of Council decisions in which the winning coalition size is 100%. While the consensus rate is based on a dichotomous coding of Council decisions as either consensual or not consensual, the winning coalition size is based on a continuous measurement of the number of member states being part of the winning coalition. By systematically varying the voting threshold and the number of member states, the independent and interactive effects of these two independent variables on the size of the winning coalition can be discerned. Still, we have to keep in mind that computational experiments only generate theoretical predictions; they say nothing about the empirical validity of those predictions. Despite their reliance on experimental design and statistical tools for data analysis, computational experiments are more akin to comparative statics analysis in formal modelling than real-world experiments with human subjects. The following analysis ‘derives’ hypotheses by running the computational model under various parameter settings and examining differences in the generated model output. Through controlled comparisons, any change in the winning coalition size can then be attributed to a change in value of one of the independent variables.

Only two variables are systematically varied in the experiment: the number of member states and the voting threshold. The number of member states is varied from 6 to 30. In 1957, six states founded the European Economic Community, the predecessor organisation of the EU. At the time of writing, the membership of the EU consists of 27 states, with accession
negotiations being conducted with 3 further states: Croatia, Macedonia, and Turkey. Thus, the experimental range of the variable membership size resembles the actually observed range of the number of past, current, and potential future member states of the EU. The voting threshold is varied from 51% to 90%. The second lowest threshold is 55%. The values for the remaining higher thresholds increase in intervals of five percent. The lower bound of 51% might require some explanation. The theory proposed here is about coalition building under majority voting rule. Majority voting implies that the lower bound of possible voting threshold values needs to be larger than 50%. In principle, any infinitesimal amount above 50% would be sufficient for establishing a majority. In practice, however, such details do not make a difference. Because the maximum number of member states considered in the study is relatively small, the effective voting threshold, as given by the number of member states required to adopt an act, is invariant to small changes in the formal voting threshold, as given by the percentage of votes.

For each combination of values of the independent variables, the simulation is run 1,000 times. For a given membership size, the use of an identical list of 1,000 random seeds to initiate the simulation ensures that the initial distribution of member states’ ideal points is exactly the same for all voting thresholds. When keeping the number of member states constant, any difference in the outcomes of the simulation runs can therefore be attributed to the variation in the voting threshold. When we vary the number of member states, the distribution of member states’ initial preferences cannot be the same, regardless of whether or not we keep the voting threshold constant. However, the large number of replications with randomly distributed ideal points ensures that the distribution of initial preferences of member states do not systematically affect the simulation results. When keeping the voting threshold constant, the only systematically varied simulation feature is the number of member states. Again, any systematic differences in the results of the simulation can therefore be attributed to changes in membership size.

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26 A voting threshold of 100% is not considered in the simulation because the results would be trivial. Under unanimity rule, each individual member state constitutes a blocking minority and therefore does not engage in coalition building. Threshold values between 90% and 100% are also less interesting, as they do not occur in most real-world decision-making systems.
27 For example, a majority vote in a group of 30 member states requires the consent of at least 16 member states, regardless of whether the formal voting threshold is 50.1% or 54%.
FIGURE 5  Winning Coalition Size over Voting Threshold by Membership Size

This figure summarizes the simulation results. Each panel presents the results for a different membership size. Box plots within a panel indicate the distribution of winning coalition size for a given voting threshold. Each individual box-plot is based on $N = 1,000$ simulation runs with randomly generated preference configurations.

The conditional box plots in Figure 5 give a first impression of the effect of the voting threshold on the winning coalition size for different membership sizes. Each individual panel shows the differences in winning coalition size resulting from changes in the voting threshold, keeping the membership size constant. The median lines of the box plots indicate that changes in the formal voting threshold above 70% have little effect on the typical winning coalition size. However, changes in the voting threshold below 70% lead to rapid declines in the median winning coalition size. This pattern is largely the same across all membership sizes. Thus, changes in membership size do not seem to have any consistent or independent effect on winning coalition size. Yet the higher median values when the voting threshold is below 70%, as depicted in the three panels in the top row, suggest an interactive effect between voting threshold and membership size. In the lower range of values of the
voting threshold, decreases in membership size tend to increase winning coalition size somewhat.

**FIGURE 6** Effect of Voting Threshold on Winning Coalition Size by Membership Size

This figure shows the nonlinear relationship between voting threshold and winning coalition size for different membership sizes. The data points indicate the conditional medians of the simulated winning coalition sizes for different values of the voting threshold. The black curve represents the predicted median value and the gray area represents the predicted interquartile range, both estimated by nonlinear quantile regression (Koenker 2010). Each regression analysis is based on \( N = 9,000 \). The gray line shows the effective voting threshold as a function of the formal voting threshold. The bottom left panel compares the prediction curves across different membership sizes.
Figure 6 further summarizes the simulated data and describes the relationship between voting threshold and winning coalition size. The figure presents the results of a nonlinear quantile regression analysis (Koenker 2010; Koenker and Park 1996). The data points in the panels represent the conditional medians of the simulated winning coalition sizes for different values of the voting threshold. The black curve indicates the nonlinear median fit. In contrast to least squares regression, which minimizes the sum of squared distances between the predicted and the observed values of the dependent variable to estimate the variable’s conditional mean, median regression minimizes the sum of absolute distances between the predicted and the observed values to estimate the variable’s conditional median (Hao and Naiman 2007, 34; Koenker and Hallock 2001). The median is a better measure of central tendency than the mean when the values of the dependent variable are asymmetrically distributed. Unlike the mean, the median is also insensitive to outliers on the dependent variable. Figure 5 shows that the conditional distributions of winning coalition size are often strongly skewed and include outliers. Thus, median regression is a more appropriate technique to identify the typical value of winning coalition size for a certain voting threshold than mean regression.

Median regression is only a special case of quantile regression. In general, any conditional quantile of a distribution can be estimated by minimizing the weighted sum of absolute distances between predicted and observed values (Hao and Naiman 2007, 33). For any quantile $p$, distances to observations above the fitted line are weighted by $p$ and distances to observations below the fitted line are weighted by $(p - 1)$. In the special case of median regression where $p = (1 - p) = 0.5$, all absolute distances receive the same weight. For estimating the conditional value of the $75^{th}$ percentile, the distances to observations above the fitted line are weighted by 0.75, while the distances to observations below the fitted line are weighted by 0.25. The converse is true when estimating the conditional value of the $25^{th}$ percentile. Estimates of conditional quantiles other than the median provide information about the effect of the independent variable on the shape rather than the location of the dependent variable’s distribution (Hao and Naiman 2007, 33). The shaded areas in Figure 6 represent the predicted inter-quartile ranges of the conditional distributions. They clearly indicate the changing variability of winning coalition size across values of the voting threshold. For low voting thresholds, winning coalition size varies over almost the entire

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28 To fit the nonlinear median regression curve, I relied on the quantile regression package quantreg (Koenker 2009) in R (R Development Core Team 2009). I used Stata 11 (StataCorp 2009) to generate the plots and to perform all other statistical calculations. The replication data set, Stata do-files, and R-scripts are available at INSERT ADDRESS.
theoretically possible range of values, but this variability decreases rapidly with increases in
the voting threshold.

The determination of the functional form of the relationship between voting threshold
and winning coalition size is based on both empirical and conceptual considerations. First of
all, Figure 5 clearly indicates a non-linear relationship between voting threshold and winning
coalition size. In addition, the definition of the two variables implies that the functional form
of their relationship has to obey certain conceptual constraints. As Taagepera (2008, 29) puts
it succinctly: “Predictive models must not predict absurdities”. In this case, the winning
coalition size must be 100% whenever the formal voting threshold requires the agreement of
all member states. After normalizing the values of the two variables to a range between 0 and
1, modelling their relationship as a power function of the form $y = x^b$ ensures that the
winning coalition size is equal to 1 whenever the formal voting threshold is equal to 1
(Taagepera 2008, 98). In this equation, $y$ stands for the normalized winning coalition size
variable, $x$ for the normalized voting threshold variable, and $b$ for the parameter to be
estimated from the data. The standard power function curve increases rapidly for low values
of $x$ and then slowly levels off as $x$ approaches 1. However, the median lines in the box plots
of Figure 5 indicate a relatively slow increase in winning coalition size for low values of the
voting threshold followed by a rapid levelling off at higher values. This functional form can
be generated by using the complements of the normalized variables in the power function
(Taagepera 2009, 128). The new functional form becomes $(1 - y) = (1 - x)^b$, which can
be reformulated to $y = 1 - (1 - x)^b$.

A remaining disadvantage of this function is that it forces the curve to go through the
origin. Note that the origin of the coordinate system of the two normalized variables
corresponds to the intersection of the 50% values of the untransformed variables. If the
number of member states is low, the effective voting threshold is much larger than the formal
voting threshold. For example, in the case of six member states and a formal voting threshold
of 51%, the effective voting threshold is 4 out of 6 member states, which is equivalent to 66%
of member states. If the formal voting threshold translates into an effective voting threshold
of 66%, then the winning coalition size must necessarily comprise at least 66% of member
states. Therefore, the curve passing through the origin, which corresponds to a winning
coalition size of 50%, is logically impossible. In the panels in Figure 6, the effective voting
threshold is shown by the gray line taking the form of a step-function. As a comparison
across panels shows, the effective voting threshold tends to be much larger than the formal
voting threshold for small numbers of member states and approaches the formal voting threshold as the number of member states increases. Thus, when the number of member states is small, winning coalitions might appear more oversized than they actually are. To account for the impossibility of a non-zero intercept, the constant \( a \) can be added to the right-hand side of the equation. Weighting the original part of the right-hand side of the equation by the complement of the constant term ensures that the predicted \( y \)-values continue to obey the upper bound of 1. Thus, the predicted median and quartile curves in Figure 6 take the following functional form:

\[
y = a + (1 - a)[1 - (1 - x)^b]
\]

Although this equation appears complex, the number of parameters to be estimated from the data is the same as the number of parameters to be estimated in the more familiar case of a bivariate linear regression analysis. Figure 6 demonstrates that this power function describes the relationship between voting threshold and median winning coalition size rather well\(^29\). As expected, the non-zero intercepts of the curves indicate that the winning coalitions are somewhat oversized, even when the formal voting threshold requires only a simple majority. Because the difference between the effective and the formal voting threshold is larger when the number of member states is smaller, the intercept of the curve tends to be larger as well when the number of member states is smaller. The predicted winning coalition size increases relatively quickly with increases in the voting threshold until it reaches its conceptual maximum of 100%. This limit is usually reached at around a voting threshold of 70%, regardless of membership size, and remains constant for higher values of the voting threshold. The panel at the bottom left of the figure indicates that the curves estimated for different membership sizes are very similar, indicating a relatively small effect of changes in the number of members states, and that those changes only affect winning coalition size when the voting threshold is relatively low.

For illustrative purposes, the effects of future changes in the EU’s membership size and voting threshold on the predicted winning coalition size can be considered. For the current EU with 27 member states and a 74% voting threshold, the model predicts a median winning coalition size of 100%. In other words, the model predicts that most decisions are taken by consensus. This prediction corresponds well with the empirical record. Keeping the voting threshold constant, a further enlargement of the EU by the current three accession candidates is not expected to change the typical winning coalition size. In contrast, keeping the

\(^{29}\) For plotting the prediction curves, the predicted values based on the normalized variables were rescaled to the original percentage values.
membership constant, a decrease in the voting threshold to 65% is expected to decrease the predicted winning coalition size to 98%. According to the Treaty of Lisbon, such a change will be implemented in 2014\textsuperscript{30}. At first sight, this reduction does not seem very remarkable. However, the predicted winning coalition size refers to the median of the conditional distribution. A median winning coalition size lower than 100% implies a substantial reduction in consensus decision-making as it means that more than 50% of all Council decisions will be taken through a vote.

Conclusion

Consensus decision-making is widespread in international organizations. When international organizations lack the ability and competences to monitor and enforce the implementation of policy decisions in member states, consensus decision-making may help to reduce the incentives for member states to renegade on international agreements (Maggi and Morelli 2006; Rittberger and Zangl 2006). However, this functional explanation cannot account for the prevalence of consensus decisions in the European Union. The Council of the EU takes the overwhelming majority of decisions by consensus, even though supranational institutions like the Commission and the European Court of Justice have effective means at their disposal to monitor the correct and timely implementation of EU policies and to sanction non-compliance. Next to the possibility of a genuine lack of disagreement between member states (Mattila and Lane 2001), consensus norms (Heisenberg 2005; Lewis 2000) and logrolling (Carruba and Volden 2001; König and Junge 2009) have been proposed as explanations for this exceptional phenomenon. The norm argument implies that negotiators regularly forego policy benefits that could be gained by outvoting recalcitrant negotiation partners just because “it is the right thing to do”. However, how this consensus norm developed and how it is sustained is not clear. Neither are the conditions under which the norm will be obeyed or violated. In contrast, the logrolling argument relies on perfectly informed actors with immense computational capabilities. Negotiators do not only need to know each others’ genuine preferences but also the salience they attach to different issue dimensions in a high-dimensional policy space. Moreover, they need to be able to identify mutually beneficial vote trades between multitudes of actors in this high-dimensional space. Whether real-world negotiators have the information and cognitive capabilities to form such logrolls is at least questionable.

\textsuperscript{30} The 65\% threshold refers to the population size of the supporting member states. The new rules will also require that the supporting coalition consists of at least 55\% of all member states. Taking the 55\% threshold as the relevant voting threshold, the predicted median winning coalition size is expected to fall further to just 82\%. 
This paper presents a computational model for consensus decision-making in international organizations that relies on arguably more realistic behavioural assumptions. Negotiators are modelled as adaptive blocking-minority seekers, rather than unreflective norm-followers or hyper-rational utility-maximizers. Relying purely on current information about member states’ publicly stated negotiation positions, negotiators join larger and larger groups of other member states with similar policy positions until they are part of a group that is able to block a qualified majority decision. The negotiation process can end in one of two ways: First, one of the coalitions musters the number of member states required to adopt a decision by qualified majority vote. In this case, the winning coalition will adopt the final policy through a vote. Second, if all member states are part of a blocking minority before a winning coalition forms, a Council decision can only be reached by the consent of all blocking coalitions. In this case, the final compromise will be adopted by consensus. An important feature of the model is that members of existing blocking coalitions wait until all other member states have joined one of the blocking coalitions before they agree on a compromise, even if the existing blocking coalitions have enough votes available to adopt a compromise. Note that this behaviour is in line with the boundedly rational goal-orientation of negotiators and does not require recourse to internalized consensus norms. As coalition size increases, the leverage in negotiations increases as well. Thus, at least one of the existing blocking coalitions has an incentive to delay an agreement until further member states have joined the coalition; and member states that are not members of a blocking coalition yet have an incentive to join existing blocking coalitions with similar negotiation positions because that will result in a final policy outcome closer to their own negotiation position.

As illustrated through a case study of the adoption of the Council’s common position on the batteries directive, the computational model generates coalition building dynamics that resemble those in real-world cases. Thus, the model presents an empirically plausible causal mechanism for the generation of consensus decisions. Furthermore, the model’s aggregate quantitative predictions for the rate of consensus decisions also correspond well with the empirical data. Comparing the quantitative predictions of the computational model with those of a chance null-model where consensus and voting outcomes are generated randomly with equal probability, the computational model’s predictions reduce the prediction error by 66% to 96%. Importantly, the computational model is able to reproduce the qualitative finding of a

31 The possibility that one of the blocking minorities might be fundamentally opposed to any decision is not considered in the model. As discussed earlier, the empirical record shows that initiated proposals hardly fail.
largely constant consensus rate despite large increases in membership size during the observation period.

The predictive success of the model increases confidence in its usefulness and justified further investigations into its properties. A computational comparative statics analysis of the effects of membership size and voting threshold on the typical winning coalition size provided some interesting insights. First, the non-effect of changes in membership size was largely confirmed. Once the voting threshold is above 70\%, most decisions are expected to be taken by consensus, regardless of membership size. For voting thresholds below 70\%, increases of membership size tend to have a negative effect on winning coalition size, but this effect is rather small and inconsistent\(^{32}\) compared to the effect of changes in the voting threshold. Second, the voting threshold affects the winning coalition size in a nonlinear way. More precisely, the typical winning coalition size is a power function of the voting threshold. The non-zero intercept of the power function implies that winning coalitions are expected to be oversized even if a simple majority of member states is sufficient to adopt legislation. Starting at an intercept value of about 60\% when the voting threshold is 51\%, the curve rapidly increases until the winning coalition size reaches 100\% at a voting threshold of about 70\%. The winning coalition size remains stable at 100\% for higher voting thresholds.

The computational comparative statics analysis points to interesting implications for EU enlargement policy and institutional design. The analysis makes sense of the lack of changes in consensus decision-making after the ‘big bang’ enlargement in 2004, which resulted in the accession of ten new member states. A high voting threshold of 70\% or larger allows member states to form a blocking minority before others have formed a winning majority. The more the voting threshold approaches the simple majority requirement of 51\%, the harder it becomes to form a blocking minority and the easier it becomes to form a winning majority. This relationship holds regardless of the number of member states. Thus, with a voting threshold above 70\%, enlargements did not affect consensus decision-making in the past and are not expected to affect it in the future. In contrast, a substantial reduction of the current voting threshold might fundamentally alter the nature of Council decision-making. In fact, the simulation results yield the expectation that voting becomes the rule rather than the exception when the voting threshold is reduced to below 70\%. The Treaty of Lisbon foresees a reduction of the voting threshold to 65\% of member states’ population in 2014. To be sure, the new voting rules include a number of additional safeguards, like the requirement

\(^{32}\) The relationship shows a negative trend, but it does not decrease monotonically.
that a winning majority must also consist of at least 55% of the member states and that a blocking minority must consist of at least 4 member states. These additional requirements are likely to reduce the effect of the reduction of the general voting threshold somewhat. Nevertheless, if the model captures the essentials of coalition building in international negotiations, the envisaged reduction of the voting threshold will result in a disproportionately large reduction in the number of Council decisions adopted by consensus.
References


