How Diffusion of Power in Parliaments Affects Voter Choice

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I analyze how the diffusion of power in parliaments affects voter choice. Using a two-step research design, I first estimate an individual-level model of voter choice in 14 parliamentary democracies, allowing voters to hold preferences both for the party most similar to them ideologically and for the party that pulls policy in their direction. While in systems in which power is concentrated the two motivations converge, in consensual systems they diverge: since votes will likely be watered down by bargaining in the parliament, outcome-oriented choice in consensual systems often leads voters to endorse parties whose positions differ from their own views. In the second step, I utilize institutional measures of power diffusion in the parliament to account for the degree to which voters in different polities pursue one motivation versus the other. I demonstrate that the more power diffusion and compromise built into the political system via institutional mechanisms, the more voters compensate for the watering down of their vote by endorsing parties whose positions differ from their own views.

1 Introduction

How does institutional context affect voter choice? Students of voter behavior have long observed the effect of institutions on some aspects of voter behavior. Comparative studies of voter behavior focusing, among other aspects, on economic voting or tactical voting have incorporated institutional context into the analysis of behavior [e.g., Powell and Whitten (1993) on economic voting; Alvarez and Nagler (2000) and Cox (1997) on tactical or strategic voting]. In both of these fields, research frameworks implicitly assume that voters are concerned with outcomes, and thus, transforming votes to outcomes, institutions are a key factor affecting voter choice.

Studies of issue voting, however, employ a different framework. Under the current framework, voters compare their own positions on issues to those of each of the parties and endorse those parties whose positions are most similar to (or in the same direction as) their own views. While evidence as to the particular decision rule voters employ is mixed (e.g., Iversen 1994; Lewis and King 2000), there is agreement that the general framework of analysis is one in which voters evaluate party positions. Thus, although central to Downs's (1957) original argument, policy outcomes are rarely part of the equation in current research on issue voting.[1]

In this article I shift the object of voter choice from party positions back to policy outcomes. In doing so, I bring institutions into the analysis of issue voting. Focusing on voter evaluation of party positions, current characterizations of issue voting, I argue, focus on one of two motivations that drive voter choice. In addition to support for a party whose positions are similar to their own positions, voters may prefer parties that pull policy outcomes toward their own positions. In unitary systems in which power is concentrated, these two motivations will usually be observationally equivalent and will lead to endorsement of the same party. However, in systems in which power is fragmented, the two motivations may not always be compatible. Diffusion of power in parliament may weaken the pull each party can achieve, providing voters an incentive to ''overshoot'' and endorse parties whose positions differ from, and are often more extreme than, their own positions. Therefore, while the former motivation takes a similar shape across institutional environments, the latter translates into voter choice in different ways depending on institutional context. Other things being equal, the more diffused is power in the parliament, the more watered down is one's vote, and thus the greater the incentive for voters to endorse parties whose positions differ from their own views. In other words, in unitary systems the two motivations converge but in consensual systems they often diverge.

This article is part of a larger research agenda and builds on my earlier work (Kedar 2005). In that article, I develop a micro-foundational model of voter choice in parliamentary democracies. The model has two components representing the two motivations of voter choice, an institution-free component and an institution-dependent component. While the former is a standard evaluation of party positions in the eyes of the voter, the latter represents voter utility from policy outcomes. I test the model in four parliamentary democracies that vary in their institutional design: Canada and Britain represent majoritarian cases, and the Netherlands and Norway represent consensual cases. I conclude that voter choice in the consensual cases is to a large degree compensationally motivated—voters compensate for the watering down of their votes by endorsing parties whose positions differ from their own views—while voter choice in the majoritarian cases is motivated mostly by representational considerations—voters endorse parties that represent their views.

This article extends that study in two ways. First, I utilize a larger set of parliamentary democracies. Analyzing 14 cases, I extend the sample on both the distribution of institutional dispersion of power (the macro-level variation), and the degree of compensational vote (the micro-level variation). Second and more important, although still limited, the larger number of cases allows for a more specific analysis of institutional mechanisms that affect voter choice. In the original article, the four cases allow for no

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[1]A few exceptions are Hinich et al. (2004), Grofman (1985), and Lacy and Paolino (1998, 2002). Hinich et al. offer a mixed proximity-directional model and test it on data from the 2002 German elections; Grofman offers a model highlighting the role of the status quo in voter decision; and Lacy and Paolino's work focuses on presidential and gubernatorial elections in the United States.

more than a "you know it when you see it" statement about institutional variation. And while few would disagree that fragmented, multiparty, proportional Netherlands is different from unitary Britain, for example, the mechanisms that disperse power in the Netherlands and therefore make Dutch voters follow a decision rule different from the one followed by British voters are left unspecified. In this study, I add a second step to the analysis in which I examine how different mechanisms of power dispersion affect voter behavior analyzed in the first step.

The rest of the article is organized as follows. The next section reviews the theoretical micro model in brief. The following section illustrates predictions of the model using Monte Carlo simulations. The next section derives macro-level implications of outcome-oriented, institutionally-dependent voting. The following section presents the data, measurement, and estimation. The next two sections present the results of the micro-level followed by the macro–level analyses. The final section concludes.

2 The Micro Model: Voting to Achieve Outcomes

In his famous book, Downs (1957, pp. 36–39) offers the following logic of voter choice:

> Each citizen casts his vote for the party he believes will provide him with more benefits than any other. ... To discover which party it is, he compares the utility incomes he believes he would receive were each party in office. ... He makes his decision by comparing future performances he expects from the competing parties. But if he is rational he knows that no party will be able to do everything that it says it will do. Hence he cannot merely compare platforms; instead he must estimate in his own mind what the parties would actually do were they in office.

In this section I present in brief a model in line with the (neglected) Downsian notion of outcome-oriented behavior quoted here. An extended version of the model can be found in Kedar 2005.

2.1 *Intuition*

Imagine a moderate-left Swedish voter weighing her choice in an upcoming election and considering whether to endorse the Social Democrats, whose position is ideologically similar to hers, or the more extreme Left Party. If motivated by representational considerations, she is likely to endorse the party ideologically similar to her—the Social Democrats. If, on the other hand, she is concerned with policy outcomes, she may choose to overshoot and endorse the Left Party, realizing that her vote will be watered down by bargaining in the parliament. Given the institutional design of the Swedish system, the Left Party may be more effective in pulling policy in her direction than a party whose positions are similar to her views. More generally, in polities in which power in the Parliament is diffused, voters may prefer parties whose positions differ from their own views to parties spatially similar to them, realizing that bargaining and compromise will play an important role in converting their votes to policy. By this account, overshooting, which I refer to as *compensational voting*, is a calculated action in the face of expected dilution of one's vote by institutionalized compromise.

Nonetheless, compensational voting is not costless. Representational considerations leading voters to support the party most similar to them ideologically carry an expressive benefit; the voter is able to identify with her object of choice and feel represented by it. By endorsing a party whose positions differ from the voter's own views, the voter loses these psychological benefits. Moreover, if a voter's time horizon spans beyond the upcoming

election, viewing future success of "her" party as contingent on short-term success will depress compensational tendencies. Conversely, while carrying an expressive benefit, representational considerations pose potential policy costs. The two motivations, then, pose a trade-off. We can imagine voters carrying conflicting considerations and thus pursuing a mixed decision rule according to their respective costs. The next section formally presents these motivations.

2.2   *Assumptions*

The model is decision theoretic. This setup is reflected in both the theoretical model and the empirical analyses that follow. In addition, the model is in one dimension. Neither the theoretical results nor the empirical ones, however, hinge on it being unidimensional; an extension to multidimensional setup is immediate.

   The model relies on three assumptions regarding information that voters possess. First, I assume that voters hold positions on issues. Second, I assume that they have perceptions of parties' positions, though these perceptions need not be "correct" (Westholm 1997). Finally, I assume that voters hold beliefs about the prospects and nature of power sharing—beliefs as to whether the party winning the prime ministry will be able to govern alone or will need to bargain with others—as well as about the distribution of power among parties. In consensual polities, voters, I assume, hold a prediction (or behave as if they hold one) about the nature of the distribution of power and the coalition that is likely to emerge.

2.3   *The Compensational-Vote Model*

I define the utility of voter i ($i = 1, \ldots, n$) for party j ($j = 1, \ldots, m$) as a combination of two considerations: representational and compensational. The representational motivation is captured by the familiar proximity voting: $(v_i - p_j)^2$, where v_i is the ideal point of voter i and p_j is the position of party j. To capture the compensational motivation, I utilize a counterfactual thought experiment whereby the voter asks herself: "How would politics have looked without party j?" She then compares policy (P) to a counterfactual policy (P_{-p_j}), the policy we would have observed had party j been absent from the policy-formation process. According to the compensational logic, voters support parties that pull outcomes in their direction and penalize parties that pull outcomes away from them. In particular, in line with Downs, I model the compensational consideration as a differential between voter ideological distance from policy and her distance from the counterfactual policy: $[(v_i - P)^2 - (v_i - P_{-p_j})^2]$.

   How do voters perceive policy? One possibility is that voters have a naive under-standing of democracy by which policy outcome is a weighted average of policy positions of parties in the legislature, where each position is weighted by the impact of the party (which I specify below): $P = \sum_{j=1}^{m} s_j p_j$ where s_j is the relative impact of party j, such that $\sum_{j=1}^{m} s_j = 1$ and $s_j \in [0,1)$ $\forall j$, and $P_{-p_j} = (1/\sum_{k \neq j} s_k) \sum_{k \neq j} s_k p_k$. The bracketed term above is negative when party j pulls the outcome closer to the voter and positive when j pulls it away from the voter. The voter's utility for party j increases as P approaches the voter's bliss point and P_{-p_j} is spatially far from it. Finally, I allow for voter characteristics (w_i) to affect voter utility for each party. Adding the different components and normalizing the sum of the weights on the two issue motivations to 1, I model voter utility as:

$$U_{ij} = \theta \left\{ -\beta(v_i - p_j)^2 - (1-\beta)[(v_i - P)^2 - (v_i - P_{-p_j})^2] \right\} + w_i \delta_j, \qquad (1)$$

where a salience parameter θ, the mixing parameter $\beta \in (0,1)$ capturing the relative weight of the representational and the compensational components, and the vectors of voter-characteristic party-specific effects δ_j are unknowns.[2]

To illustrate the calculation in Eq. (1), imagine a three-party legislature with parties A, B, and C ($s_A = 1 - s_B - s_C$).[3] By substituting the three-party specification into Eq. (1), voter utility for party A can be expressed as:

$$U_{iA} = - \theta\beta(v_i - p_A)^2 - \theta(1 - \beta)(v_i - s_A p_A - s_B p_B - s_C p_C)^2$$
$$+ \theta(1 - \beta)\left(v_i - \frac{s_B}{s_B + s_C}p_B - \frac{s_C}{s_B + s_C}p_C\right)^2 + w_i\delta_A. \qquad (2)$$

Differentiating Eq. (2) with respect to p_A and setting the result to zero, we get the optimal placement of party A for voter i:[4]

$$p_A^* = v_i \frac{\beta(s_A - 1) - s_A}{\beta(s_A^2 - 1) - s_A^2} + \frac{(1 - \beta)s_A(s_B p_B + s_C p_C)}{\beta(s_A^2 - 1) - s_A^2}. \qquad (3)$$

The optimal placement depends on β, the voter's taste for compensational versus representational decision rule. When β approaches 1 (representational voting) it approaches the proximity prediction (v_i), and when voting is compensational (β approaches 0) it reduces to the mirror image of policy outcome produced by the combination of parties B and C alone with respect to the voter weighted by the impact of party A: $[v_i - (s_B p_B + s_C p_C)]/s_A$. This result is intuitive: when voting is predominantly compensational, voter utility peaks at a point moderately different from her own views. When a party is too extreme or pulls policy "too much," the benefit for the voter declines. Support of a party whose position is ideologically different from the voter's position is moderated by an endogenous feature of the model. Unlike in the directional model, where the moderation depends on the exogenously posed constraint, the region of acceptability, moderation is endogenous under the compensational vote model. Even a pure compensational voter does not employ a "the more extreme the better" logic.[5]

3 Illustration: Monte Carlo Simulations

To illustrate the decision rule implied by the model and how this rule transforms voter position to choice, I employ Monte Carlo simulations of voter choice in a four-party system. I simulate 10,000 voters whose positions are normally distributed with mean zero. I assign the four parties, A through D, relative weights of 0.15, 0.35, 0.35, and 0.15, respectively. I then vary the degree of compensational vote, party positions, and dispersion of voter positions and examine party vote shares under the different configurations. I employ three values of β: 0.4 (moderately strong compensational motivation), 0.8 (weak compensational motivation), and 0.99 (almost entirely representational motivation). I further vary the distribution of voter issue positions: $v_i \sim N(0,1)$ and $v_i \sim N(0,0.6)$. Lastly, I employ three sets of party placements. The first assigns parties A through D

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[2]Since the model describes an outcome-oriented yet naive voter, I assume that from the voter's point of view, in j's absence other parties do not relocate to fill the "vacuum," nor do their impacts change relative to one another.

[3]In this case, the counterfactual policy in A's absence is the average of B and C's positions weighted by their relative impacts: $P_{-p_A} = \frac{s_B}{s_B + s_C}p_B + \frac{s_C}{s_B + s_C}p_C$.

[4]For second-order conditions, see Kedar (2005, Appendix A).

[5]For further discussion of interpretations of the mixing parameter, β, see Kedar (2005).

positions of -2, -1, 1, and 2, respectively. The second assigns them positions of -2, -0.5, 0.5, and 2 and thereby crowds the two influential parties closer to the center. The third assigns them positions of -1.5, -0.3, 0.3, and 1.5 and hence places the four parties closer together.

To determine party vote shares, I calculate voter utility for each of the parties according to Eq. (1). I then calculate for each voter the probability of choosing each of the parties whereby $\Pr_{ij} = \exp(U_{ij})/\sum_{j=1}^{m}\exp(U_{ij})$. Finally, to get parties' vote share I add each party's predicted probabilities and divide the sum by the number of voters.

Table 1 presents the results of these simulations. The entries in each cell are the vote shares of the four parties. My analysis focuses on vote shares of parties B and C (the "centrist parties") compared to those of parties A and D (the "extreme parties"). The table demonstrates several aspects of the model predictions. First, comparing entries within each row reveals that the more compensational the vote, the more voters prefer extreme parties. This holds across configurations of voters and parties; vote shares of the two extreme parties are largest under β of 0.4, somewhat smaller under β of 0.8, and smallest in the representational case ($\beta = 0.99$). Second, this effect is greater when voter positions are relatively compact compared to party placements (see, for example, configurations [a] vs. [c] compared to [j] vs. [l]). Third, this effect is magnified when the two influential parties are squeezed at the center (see the change in vote share within the first row compared to the effect within the second row in both panels). This jibes with our intuition; when the influential parties are relatively indistinguishable from one another, the policy incentive for the moderate left (right) to prefer the extreme left (right) increases.

A comparison of vote shares in the first and second rows within each column (configuration [a] with [d], [b] with [e], and the like) suggests that the centrist parties do better when they are stretched toward the extreme ones. This is not surprising—squeezed to the center, these parties leave part of their potential market share to the extreme parties. In addition, the stronger the compensational consideration, the greater the drop in their vote share due to ideological placement. Consistent with the pattern discussed above, when the centrist parties are crowded together the motivation for moderate ideologues to endorse the extremes increases, and more so the more policy motivated they are. Similarly, comparing vote shares between the second and third rows (configurations [d] and [g], [e] and [h], and the like) reveals that the center parties, when crowded by the extreme ones, lose support, and more so when the vote is highly representational. When the vote is representational the extreme parties hovering on the sides of the centrist ones capture more of their market share. Last, and not surprisingly, comparing the two panels of the table demonstrates that across values of β and across distributions of party positions, extreme parties do better the more voters are dispersed in the ideological continuum.

4   How Institutional Mechanisms Affect Individual Choice

The model generates predictions about both voters and the interaction of voters and institutions. If voters are concerned with policy outcomes, they will not necessarily endorse those parties whose positions are most similar to their own, but instead they will compensate for postelectoral bargaining resulting in a watering down of their vote and will thus often prefer parties whose positions differ from their own. Indeed, as I discuss below, because opposition parties affect policy indirectly by placing issues on the agenda, even in a hypothetical case of pure majoritarian regime the opposition has its say to some degree.

Nonetheless, the degree of compensational motivation may vary across polities. The conversion of votes to policy outcomes varies greatly by institutional contexts;

Table 1 Monte Carlo simulations of party vote shares

Party Placements	Mixing Parameter		
	$\beta = 0.4$	$\beta = 0.8$	$\beta = 0.99$
A. $\sigma^2 = 1$			
−2,1,1,2	(a)	(b)	(c)
	A = 0.147	A = 0.126	A = 0.115
	B = 0.349	B = 0.381	B = 0.382
	C = 0.354	C = 0.373	C = 0.382
	D = 0.150	D = 0.120	D = 0.121
−2,−0.5 0.5,2	(d)	(e)	(f)
	A = 0.180	A = 0.138	A = 0.129
	B = 0.318	B = 0.357	B = 0.367
	C = 0.319	C = 0.363	C = 0.372
	D = 0.183	D = 0.142	D = 0.132
−1.5,−0.3,0.3,1.5	(g)	(h)	(i)
	A = 0.224	A = 0.196	A = 0.193
	B = 0.277	B = 0.298	B = 0.305
	C = 0.276	C = 0.300	C = 0.306
	D = 0.223	D = 0.205	D = 0.197
B. $\sigma^2 = 0.6$			
−2,1,1,2	(j)	(k)	(l)
	A = 0.135	A = 0.097	A = 0.087
	B = 0.361	B = 0.404	B = 0.415
	C = 0.366	C = 0.400	C = 0.412
	D = 0.137	D = 0.098	D = 0.086
−2,−0.5,0.5,2	(m)	(n)	(o)
	A = 0.151	A = 0.103	A = 0.088
	B = 0.344	B = 0.397	B = 0.410
	C = 0.347	C = 0.398	C = 0.414
	D = 0.157	D = 0.103	D = 0.089
−1.5,−0.3,0.3,1.5	(p)	(q)	(r)
	A = 0.200	A = 0.162	A = 0.155
	B = 0.299	B = 0.334	B = 0.346
	C = 0.299	C = 0.337	C = 0.346
	D = 0.201	D = 0.167	D = 0.153

Note. Entries in each cell are vote shares of parties A through D given varying levels of compensational vote, party placements, and distributions of voter positions. Party impacts are fixed at $s_A = s_D = 0.15$, $s_B = s_C = 0.35$. Mean voter distribution is fixed at 0. Number of simulations = 10,000.

institutionalized bargaining is common in some environments and a winner implementing her policy choice with little compromise is the norm in others. If voters vote to affect policy outcomes, the more institutionally dispersed the power, the more they will compensate for the watering down of their vote. Therefore, empirically, I expect β to decrease with institutional diffusion of power. In particular, let β^l be voter taste for compensational/representational choice in polity/election l ($l = 1 \ldots r$). The macro model then can be represented by a simple linear relationship:

$$\beta^l = Z^l \gamma + \eta^l, \tag{4}$$

where Z^l is a vector capturing institutional mechanisms of power dispersion, γ is a vector of coefficients, and η^l is a random error with zero expectation. The macro model predicts, then, that if high values of Z indicate diffusion of power, γ will be negative.

5 Empirical Analysis

To empirically analyze the effect of institutional power dispersion on voter choice, I employ a two-step design. I first estimate a micro-level model of voter choice in each of 14 polities. Second, I employ institutional mechanisms of power diffusion to explain variation in $\hat{\beta}$ estimated in the first step. This approach is particularly beneficial in this case, since the dependent variable in the estimation, vote choice, is different in each polity. Both the parties on the ballot and the number of them vary across polities, such that the menu of choices differs across macro-level units. In addition, allowing the various covariates in the different polities to have party-specific effects, the alternative approach, pooling the individual-level data across polities, would have been costly in terms of the number of parameters to be estimated, which would have easily reached the hundreds. Differences in the individual-level models across polities notwithstanding, my parameterization of the empirical model below will allow me to compare the extent to which voting is compensationally motivated across polities. An obvious caveat, however, is the relatively small number of macro-level cases; the results of the second step should be interpreted with caution.

5.1 *Data*

My analysis employs a combination of micro- and macro-level data. I utilize surveys conducted by the Comparative Study of Electoral Systems in Australia (1996), Belgium (1999), Canada (1997), Denmark (1998), Iceland (1999), Ireland (2002), the Netherlands (1998), New Zealand (1996), Portugal (2002), Spain (2000), Sweden (1998), and Switzerland (2002), as well as the British Election Study (1987) and the Norwegian Election Study (1989). I also utilize data about the results of these elections, and in particular about vote shares, distribution of seats in the parliament, and portfolio allocation in government. Finally, I employ data about formal and informal institutional features of the parliaments in these polities.

5.2 *Measurement*

The operationalization of several concepts merits a special discussion.

5.2.1 Party position

The choice of measure of party position relies on both theoretical and empirical considerations. Since voters are the focus of this study, following Westholm (1997) and Blais et al. (2001) I measure party position as perceived by individual voters (measured in the relevant survey).[6]

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[6]Westholm (1997, p. 870) writes: "Although voters may at times be mistaken about these locations, it is their personal beliefs . . . that will guide preference formation." Even if projection bias works in favor of the proximity model, including variables in the estimation that control for perceived closeness to one's endorsed party (such as union membership that is likely to make one feel close to the Labour Party, church attendance that fosters closeness to the Christian Democrats, and the like), I reduce the risk of projection bias (see also Blais et al. 2001 for a similar argument).

5.2.2 Party impact

Since voters are the focus of this study, the measure of party impact on policy is a reflection of *voter perception of* bargaining in the legislature. In the last 45 years, the neo-institutional research tradition has produced numerous insightful predictions about bargaining in parliaments and coalition formation. Although extremely important in itself, theoretical accounts of parliamentary bargaining, party impact, and intra-coalition bargaining are not within the scope of this study. While in different polities the parliamentary opposition affects policy formation via different mechanisms, in almost all systems the opposition has *some* impact via either direct effect on policy (Strøm 1990; Laver and Hunt 1992; Strøm and Leipart 1993; and Döring 1995) or an indirect one (Meguid 2002).

I employ four alternative measures of party impact. My first measure is a simple approximation of party impact that voters might entertain—seat share in the parliament. Second, since opinion polls prior to elections often report the expected popular vote, providing only partial information about plausible distribution of seats, I employ actual vote share, which, I assume, is a proxy for the average public opinion poll prior to the elections. Although all members of the legislature have some impact on policy formation, members of the opposition, it might be argued, are not as influential as their colleagues in the coalition even controlling for the number of seats held by the opposition. Averaging seat share with portfolio share, I assign seat share different weights, depending on whether a party is a member of the government or not. My third and fourth measures average seat share with portfolio share in 3:1 and 1:1 ratios, respectively, allowing the opposition to have two levels of influence over policy.

One might argue that since the opposition influences policy via various mechanisms and to different degrees across polities, different measures of party impact should be employed in different polities. Indeed, British opposition in the House of Commons has little impact on policy compared to the Dutch opposition in the House of Representatives. Employing the same measures across polities, I take a conservative empirical approach—weighing the Dutch opposition heavily and the British opposition lightly will strengthen my results. Nonetheless, I present below the four sets of results, so the reader can pick the more inclusive measures for some polities and the more exclusive ones for others.

5.2.3 Diffusion of power

The literature offers numerous measures of power sharing. Lijphart (1999) famously offers a two-dimensional conceptual map of democracy in which each of the two dimensions consists of five variables. The first dimension (executive-parties dimension) groups characteristics of executive power, party system, electoral system, and interest groups, and the second (federal-unitary dimension) groups five variables capturing the differences between federalism and unitary government.[7]

Given the motivation of this study, an appropriate measure of power dispersion should satisfy two conditions. First, while institutional diffusion of power takes various forms, the measure should focus on dispersion of power in the parliament itself. Second, the mechanism of power dispersion captured should be exogenous to voter choice. I therefore employ a subset of the measures proposed by Lijphart (along with an additional measure) and modify the timing in which they are measured when necessary. In particular, I depart

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[7]For detailed discussion of Lijphart's ten variables, see Lijphart (1999). (The discussion spans the entire book but a list of the variables can be found on pp. 3–4.

from Lijphart's strategy of averaging institutional dispersion of power throughout the postwar period (1945–1996) and instead measure it in the five elections immediately preceding the election under study for each polity. I elaborate on these measures below.

Single-Party Cabinet.[8] This indicator measures the average length of time a single-party government has been in power during the five electoral cycles that preceded the election under study. The higher the proportion of time the executive consists of only one party, the less dispersed is power in the legislature. This measure ranges from 0 in Belgium, Denmark, the Netherlands, and Switzerland to 1 in Australia, Canada and the UK.

Effective number of parliamentary parties.[9] An additional potential factor diffusing power in the parliament is the number of parties. Here, too, I employ the average effective number of parliamentary parties in the five electoral cycles preceding the election studied. This measure ranges from 2.16 in the UK to 7.65 in Belgium.

District magnitude. The number of seats in the parliament by which each district is represented is commonly considered a mechanism affecting power diffusion. I employ the (logged) average district magnitude per system. The higher the district magnitude, the more likely is power to be dispersed. The measure ranges from 0 in Australia, Britain, and Canada to 5 in the Netherlands.[10]

Control over plenary agenda. A key component in agenda setting is setting the order of the day. Döring offers a measure that captures different aspects of the degree of priority given to the government in setting the plenary agenda and controlling time on the legislature floor, ranging from an arrangement by which the government alone determines the plenary agenda (1) to an arrangement whereby the Chamber determines the agenda (7).[11] The more control the government has, the more concentrated the power, with Ireland and the UK having the minimum score of 1 and the Netherlands the maximum score of 7.

In order to learn about potential overlap among these measures, I present correlations between them in Table 2. The table reveals several patterns. Generally, the four aspects of power sharing are correlated with each other in the expected direction. Polities

Table 2 Measures of institutional power dispersion—correlations

	Single Party Government	Effective Number of Parliamentary Parties	$ln(DM_{Avg.})$	Plenary Control (Döring)
Single party government	1	−0.78	−0.60	−0.35
Effective number of parliamentary parties		1	0.44	0.33
Ln(DM$_{Avg.}$)			1	0.85
Plenary control (Döring)				1

Note. The table presents correlations across the institutional measures of parliamentary power dispersion. Low prevalence of single-party governments, large effective number of parties, large district magnitude, and high plenary control (by the chamber) indicate high levels of diffusion.

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[8]Data used to construct this measure are disaggregated data used in Lijphart's *Patterns of Democracy* and are available at 64.233.167.104/search?q=cache:P_iDHQdvuvQJ:www.tamuk.edu/geo/Urbana/Database/POD-DATA.DOC+lijphart+POD+patterns+of+democracy&hl=en&ie=UTF-8. I thank him for making his data publicly available.

[9]I thank Matt Golder for sharing his data, which allowed me to construct this measure.

[10]For figures of average district magnitude I use the DPI (Dataset on Political Institutions), compiled by the World Bank's Development Research Group. Data are available at econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/0,contentMDK:20352865~pagePK:64165401~piPK:64165026~theSitePK:469372,00.html.

[11]For discussion of those aspects, see Döring (1995, pp. 224–225).

characterized by an effective plethora of parties are less likely to have single-party governments (−0.78), as are polities with a high district magnitude (−0.60) and those in which the chamber, as opposed to the government, controls the plenary (−0.35). Consistently, high district magnitude is positively correlated with the effective number of parliamentary parties [although less strongly than one might expect (0.44)] and with an agenda controlled by the chamber (0.33). Finally, the latter two are strongly and positively correlated (0.85). Thus, although some aspects of power sharing do go together, the variation in the strength of the correlations demonstrates the value in examination of various aspects of power sharing.

5.3 *Estimating the Micro Model*

I derive a statistical model of voter choice in which β, the extent to which voting is compensational or representational, is my key parameter of interest. I first derive a likelihood function for multinomial choice within country l:

$$L \propto \prod_{i=1}^{n^l} \pi_{i1}^{ly_{i1}} \pi_{i2}^{ly_{i2}} \cdot \ldots \cdot \pi_{im^l}^{ly_{im^l}}, \quad or \quad \log L \propto \sum_{i=1}^{n^l} \sum_{j=1}^{m^l} y_{ij}^l \log \pi_{ij}^l, \tag{5}$$

where the dependent variable is vote choice, such that $y_{ij}^l = 1$ if the ith voter votes for party j ($j = 1, 2, \ldots, m^l$), and 0 otherwise, and π_{ij}^l is the probability of individual i ($i = 1, 2, \ldots, n^l$) voting for party j such that $\sum_{j=1}^{m^l} \pi_{ij}^l = 1$, and

$$\pi_{ij}^l = \frac{f(\mu_{ij}^l)}{\sum_{k=1}^{m^l} f(\mu_{ik}^l)}, \tag{6}$$

where I employ a logistic error structure such that $f(a) = \exp(a)$. The systematic component of the statistical model is in parallel with the theoretical model as it appears in Eq. (1):

$$\mu_{ij}^l = \theta^l[-\beta^l \cdot prxm_{ij}^l - (1 - \beta^l) \cdot compens_{ij}^l] + \delta_j^l z_i^l$$
$$= \theta^l\{-\beta^l(v_i^l - p_j^l)^2 - (1 - \beta^l)[(v_i^l - P^l)^2 - (v_i^l - P_{-p_j}^l)^2]\} + \delta_j^l z_i^l. \tag{7}$$

Where δ_j^l for $j = 1$ is set to zero for identification purposes. While the issue component of the model is identical across systems, the background variables vary depending on the relevant political cleavages established in previous research. Rearranging terms in Eq. (7) allows me to separately identify θ and β:

$$\mu_{ij}^l = -\theta^l[(v_i^l - P^l)^2 - (v_i^l - P_{-p_j}^l)^2] + \theta^l\beta^l[(v_i^l - P^l)^2 - (v_i^l - P_{-p_j}^l)^2 - (v_i^l - p_j^l)^2] + \delta_j^l z_i^l \tag{8}$$

where I reparameterize β such that $\beta = 1/(1 + \exp(-\alpha))$. I then maximize the likelihood function in Eq. (5) with respect to α, θ, and the vectors δ.[12]

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[12]Notice that the model does not assume that the effect of the background variables is of the same magnitude across polities.

6   Results I: Voting To Achieve Outcomes

My main quantity of interest and the focus of the discussion below is the extent to which voting is proximity driven or compensational, as captured by the parameter estimate $\hat{\beta}$.[13] Recall that higher values of β signify representational vote and lower values signify compensational vote. Table 3 focuses on the estimated β across polities. Each row presents

Table 3   Voter decision rule ($\hat{\beta}$) in 14 polities, utilizing four impact measures

Election	$\hat{\beta}$ Impact as Seats	$\hat{\beta}$ Impact as Votes	$\hat{\beta}$ Impact as 1:3 Portfolios/Seats	$\hat{\beta}$ Impact as 1:1 Portfolios/Seats	N
Australia 1996	0.507	0.393	0.548	0.602	963
	(0.027)[a]	(0.031)	(0.034)	(0.017)	
Belgium 1999	0.054	0.039	0.038	0.100	1088
	(0.025)	(0.025)	(0.031)	(0.037)	
Britain 1987	0.834	0.733	0.850	0.893	1716
	(0.034)	(0.058)	(0.043)	(0.051)	
Canada 1997	0.769	0.614	0.882	0.925	429
	(0.047)	(0.044)	(0.026)	(0.101)	
Denmark 1998	0.746	0.748	0.800	0.836	1166
	(0.052)	(0.051)	(0.045)	(0.043)	
Iceland 1999	0.483	0.478	0.471	0.544	666
	(0.042)	(0.039)	(0.063)	(0.029)	
Ireland 2002	0.522	0.460	0.561	0.621	662
	(0.067)	(0.066)	(0.061)	(0.066)	
Netherlands 1998	0.543	0.543	0.596	0.655	1152
	(0.016)	(0.016)	(0.016)	(0.034)	
New Zealand 1996	0.679	0.675	0.743	0.794	1824
	(0.034)	(0.036)	(0.035)	(0.028)	
Norway 1989	0.673	0.645	0.782	0.863	1345
	(0.050)	(0.052)	(0.020)	(0.020)	
Portugal 2002	0.737	0.660	0.753	0.802	359
	(0.095)	(0.042)	(0.083)	(0.075)	
Spain 2000	0.709	0.652	0.692	0.661	373
	(0.075)	(0.079)	(0.078)	(0.084)	
Sweden 1998	0.620	0.610	0.757	0.850	748
	(0.037)	(0.036)	(0.038)	(0.046)	
Switzerland 1999	0.573	0.553	0.606	0.650	866
	(0.021)	(0.016)	(0.029)	(0.048)	
$\bar{\bar{\beta}}$	0.604	0.557	0.649	0.700	

Note. The table presents the estimate of the mixing parameter $\hat{\beta}$ in each of the 14 polities using each of the four impact measures. Each such coefficient is one of a full model of voter choice estimated, as presented generally in Eqs. 5–7. Full model specification for each case is available electronically.

[a]Standard errors in parentheses.

$r(\hat{\beta}_{seats}, \hat{\beta}_{votes}) = 0.97, r(\hat{\beta}_{seats}, \hat{\beta}_{3:1-seats:portfolios}) = 0.98, r(\hat{\beta}_{seats}, \hat{\beta}_{1:1-seats:portfolios}) = 0.95, r(\hat{\beta}_{votes}, \hat{\beta}_{3:1-seats:portfolios}) = 0.95, r(\hat{\beta}_{votes}, \hat{\beta}_{1:1-seats:portfolios}) = 0.93, r(\hat{\beta}_{3:1-seats:portfolios}, \hat{\beta}_{1:1-seats:portfolios}) = 0.99.$

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[13]A sample of results of all coefficients, as well as model specification for all 14 cases, are available on the *Political Analysis* Web site.

the results of a different polity, and each of the four columns indicates the measure of party impact used (seat share, vote share, and two combined seat-share, portfolio-share measures). The value of the mixing coefficient varies somewhat across the four measures. The vote-share measure produces the most compensational results, the seat-share measure produces slightly less compensational results, and the two portfolio/seat measures produce the most representational results, where the simple average measure is more representational than the weighted average measure ($\hat{\beta}$ = 0.56, 0.60, 0.65, and 0.70, respectively). This is in line with the assumptions implied by each measure. Shifting the center of gravity toward the government, the seat/portfolio measures assume more concentration of power than the other two. Similarly, since almost no electoral system is *entirely* proportional, the vote-share measure assumes more dispersion of power than the seat-share measure. The point estimates are strongly correlated across measures (see details at the bottom of Table 3), suggesting that the compensational component in voter decision holds under varying assumptions about the policy formation process.

Figure 1 presents $\hat{\beta}$ produced by the seat-share measure along with 95% confidence intervals in the 14 cases. The figure further demonstrates the differences in voter strategy, with voters in Belgium (Flanders) and Iceland being the most compensational and those in Britain and Canada the most representational. As the figure shows, the estimate for Belgium is substantially smaller than that in other polities. This is not terribly surprising given the federal consociational structure of the polity and the high fragmentation of the Belgian party system (ENPP = 7.6) in which the Liberal, Socialist, Christian Democratic, and Ecologist parties in Walloonia each have a parallel party in Flanders, and a nationalized party system is wanting. In the next step I address this gap systematically.

The figure further demonstrates that the uncertainty with which each $\hat{\beta}$ is estimated is not constant across countries. In some cases (e.g., the Netherlands) there is little uncertainty as to the actual estimate, while in others (e.g., Portugal) it is estimated with a larger cloud of error. The different levels of uncertainty can largely be accounted for by varying sample size across macro units (see the last column of Table 3). I return to this latter point below. Notice, however, that the uncertainty is not correlated with the size of the point estimate itself.
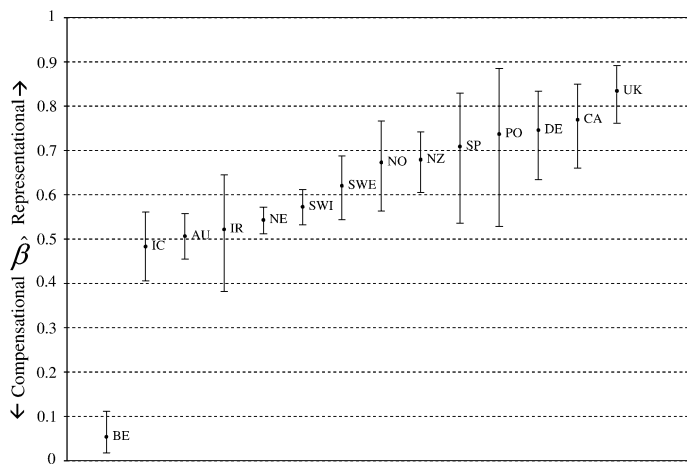

Fig. 1 Compensational/representational vote in 14 democracies. The figure presents the mixing parameter (produced by the seat-share measure) along with 95% confidence intervals in the 14 polities. Uncertainty is computed via simulation (Herron 2000; King et al. 1998).

7 Results II: How Voter Decision Rule Varies by Institutions

So far I have established that voters employ a mixed decision rule and that the relative weights of the mixture vary across polities. What explains the extent to which in some polities voters are driven by primarily representational considerations and in others by primarily compensational ones? The model predicts that voters will be more compensational (β will be smaller) the more dispersed power is in the policy formation process. Conversely, empirically large β in systems with high level of power sharing, and in particular estimated βs that are as large as or larger than β in systems with little power sharing, would lead me to infer that the data do not support my hypothesis.

This step presents two challenges. First is the small number of observations. Although the results within each polity are based on a large number of respondents, the number of macro-level units is still only 14 and in some cases even smaller. In fact, even if we knew the "true" β in each polity, we would still have only 14 macro-level data points. This constraint calls for a cautious interpretation of the macro-level results. Second, since β in Eq. (4) is not known with certainty but is instead estimated, an additional level of uncertainty should be incorporated into the analysis. Before turning to the institutional analysis itself, I note that my comparison of voter decision rule across polities relies on an assumption about the independence of voter taste for compensational or representational strategies across polities. I assume that the estimates of β in the different clusters are independent of one another, conditioning on the systematic component of each model.

To visually inspect the relationship between institutional mechanisms and voter decision rule, Fig. 2 presents scatterplots of the $\hat{\beta}$s presented in Fig. 1 on the vertical axis against each of the four measures of institutional dispersion of power described above, as well as a fifth one, a composite index, standardizing and adding the four indicators. As Achen (2005) discusses, potentially influential points merit special attention. First, given the small number of observations in the second step, the regular concerns about results being driven by a single point are amplified here. Second, since each point is not observed but is instead estimated with error, there is additional danger of these points dragging the regression line and producing misleading results. Thus the figure includes three (and where limited data are available two) OLS trendlines exploring the potential effect of Belgium as discussed above and Australia as will be discussed below.[14] The solid line, which I discuss first, is the "default" line, based on all observations.

Panel A of the figure presents the relationship between voter decision rule and the prevalence of single-party governments in the five parliamentary elections preceding the election under study. The (small) cluster of observations takes a general shape consistent with the prediction of the model: the more prevalent a single-party government, the more representational (less compensational) the vote.

Panel B presents voter decision rule and the effective number of parliamentary parties in the five previous elections. As predicted by the model, the greater the number of parties, the more compensational the vote. Similarly, the pure-institutional parallel of this measure, the (logged average) district magnitude presented in panel C, is negatively correlated with $\hat{\beta}$: the greater the district magnitude, the more compensational the vote. Panel D presents Döring's measure of control of the plenary agenda. Here, too, as predicted, a negative,

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[14]Döring's measure of control of the plenary is available only for the western European cases. Also, since the 1996 New Zealand elections were the first under the new electoral system, it is included only in the district magnitude analysis, where the 1996 (not the averaged lagged) district magnitude is calculated. For the other measures I did not employ the 1996 values of NZ out of concern for endogeneity.
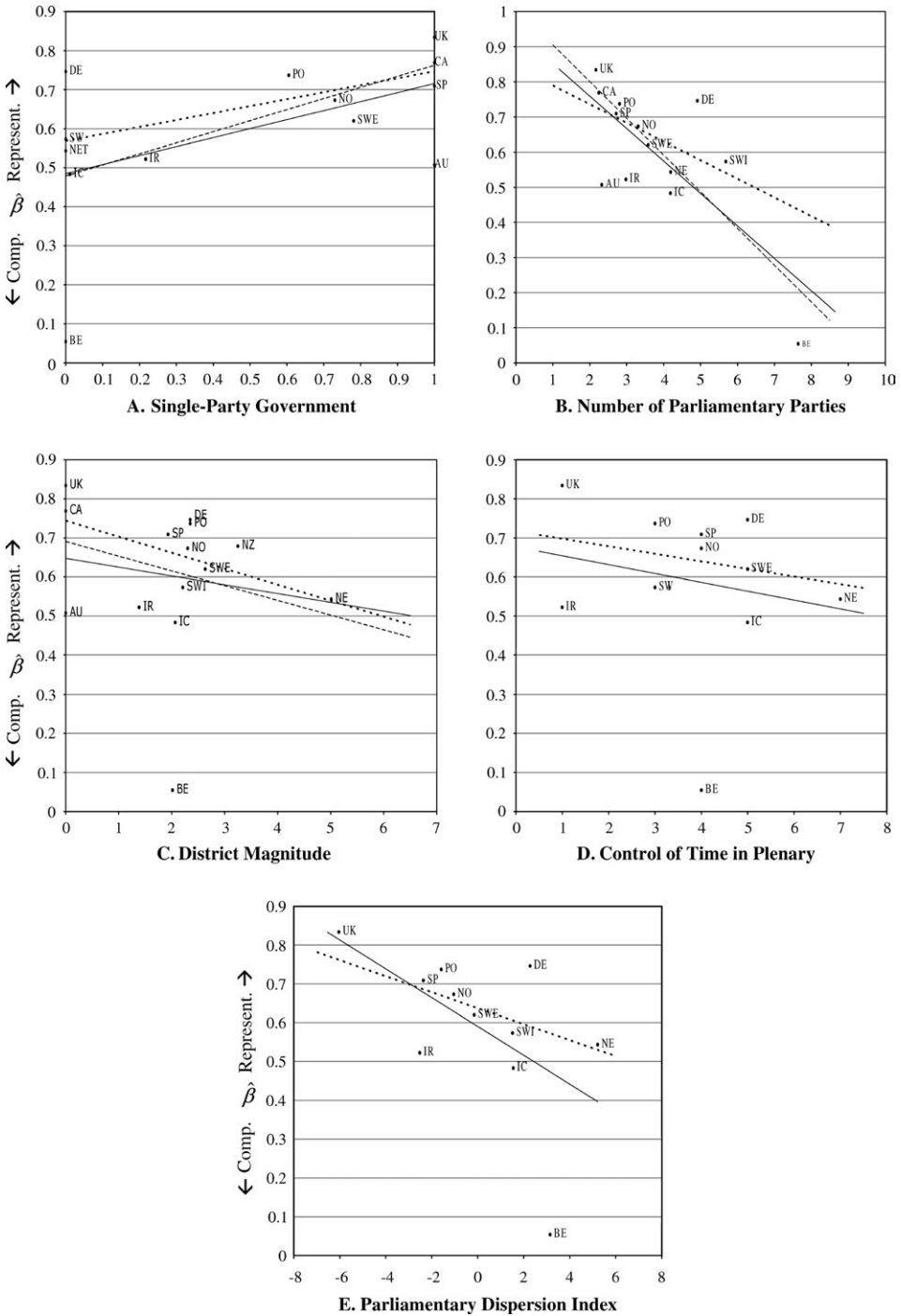
Fig. 2 Voter decision rule ($\hat{\beta}$) and institutional dispersion of power. The figure presents the mixing parameter ($\hat{\beta}$) estimated in the first step as a function of institutional measures of dispersion of power. OLS lines are included. The solid line incorporates all data points, the thin long-dashed line omits Australia, and the thick short-dashed line omits Australia and Belgium.

although not strong, relationship evolves: the more control the chamber has (and less the government) the more compensational is voter behavior.

Finally, panel E presents a combined index in which the previous four are standardized, recoded so that high levels indicate dispersion of power, and added up. The figure shows a negative relationship between the summary measure of power diffusion and $\hat{\beta}$: the more diffused the power in the parliament, the more compensational the vote.

A comparison of the three single-member district systems, Britain, Canada, and Australia, is particularly interesting. As reflected in Figs. 2A, 2B, and 2C, the Australian case is seemingly inconsistent with the general prediction as stated above. Although highly disproportional, often governed by a single party, and characterized by a small number of parties—all nearly identical to the British and Canadian cases—unlike Britain and Canada, the Australian system is also characterized by a high level of compensational voting. The Alternative Vote system used for the Australian House of Representatives may account for the difference. Australian voters rank all candidates on the ballot. After an initial count of first preferences, if none of the candidates secures a majority, the votes of the candidate with the least number of votes are reallocated according to the second preference on these ballots. This method of preference aggregation allows voters to endorse small parties even though they cast their ballots in a single-member district environment. In fact, Cox (1997, p. 92) refers to this nonexclusive electoral system as one that "mitigates concentrating tendencies of simple plurality rule."

Thus, while the initial analysis reveals a potential effect of the extreme result in Belgium on empirical grounds simply by scoring substantially lower than the rest of the cases on the dependent variable, the analysis in Fig. 2 reveals a potential effect of Australia on theoretical grounds. The figure, therefore, includes two additional trendlines. The long-dashed line summarizes the data omitting Australia from the analysis, and the short-dashed thick line omits both Australia and Belgium. As the figure shows, the relationships generally hold under the three specifications, where omitting Australia strengthens the results marginally and omitting Belgium in addition weakens them a bit in the first two panels and does not make a substantial difference in the others.

After visually inspecting the relationship between voter decision rule and institutional mechanisms, I turn to estimating it. Normally, given the uniqueness of the Australian electoral system and the way the results for Australia deviate from the general pattern of similar systems, a specific coefficient would be incorporated into the estimation and, similarly, a specific coefficient for Belgium would be included. However, given the small number of cases, I instead conduct the analysis for three different data configurations: all cases, all cases omitting Australia, and all cases omitting both Australia and Belgium. Consistent with the results in Fig. 2, I present below the extremes: the strong and the weak sets of results among the three (the former excluding Australia and the latter excluding both Australia and Belgium).

As mentioned above, the dependent variable for the second step is known with uncertainty. To account for the uncertainty in $\hat{\beta}$, I feed the sampling distribution of $\hat{\beta}$ within each polity into the second step. I start by estimating the micro model and computing the variance of $\hat{\beta}$ in each country using a simulation approach (see Herron 2000; King et al. 2000). This produces s simulated estimates of $\hat{\beta}$ in each polity ($s = 1000$ here). I then stack the simulated estimates from the s different polities such that I have s sets of r $\hat{\beta}$s. Finally, I estimate Eq. (4) using OLS for each of the s sets of $\hat{\beta}$. The overall estimate of γ is the average $\hat{\gamma}$ across the s data sets. To calculate the uncertainty in $\hat{\gamma}$, I follow the procedure described in Rubin (1987):

$$SE(\hat{\gamma})^2 = \frac{1}{s}\sum_{s=1}^{s} SE(\hat{\gamma}_s)^2 + S_{\hat{\gamma}}^2(1 + 1/s), \qquad (9)$$

where $S_{\hat{\gamma}}^2 = \sum_{s=1}^{s}(\hat{\gamma}_s - \bar{\hat{\gamma}})^2/(s - 1)$. (The correction $1 + 1/s$ is negligible when s is large as in this case.) The standard error of $\hat{\gamma}$ combines the average of the variance of $\hat{\gamma}$ across runs with the sample variance of the point estimate $\hat{\gamma}$.

Results of the estimation are presented in Table 4. Each column presents a simple regression that corresponds with a panel of Fig. 2. Each cell in the table includes four entries. The first is the simulated LS omitting Australia alone. The second, for comparison, is the OLS model for the same set of observations. Similarly, the third is the simulated LS omitting both Australia and Belgium, and the fourth is the corresponding OLS, for comparison. A few things emerge from the table; all should be considered with caution given the small n. First, the signs of all measures are in the predicted direction. Single-party government is positively correlated with $\hat{\beta}$. Similarly, the effective number of parliamentary parties and district magnitude are negatively correlated with $\hat{\beta}$, as are opposition control over plenary agenda and the composite index of power diffusion. Second, a comparison of the two estimation approaches reveals great similarity in the coefficients themselves and a systematic difference in their estimated standard errors. OLS results underestimate standard errors across the five model specifications and the two case specifications. While the OLS results reach standard levels of statistical significance for indicators (a), (b), and (e) for the first case specification and for (a), (c), and (e) in the second, the simulated approach reaches statistical significance for the same indicators for the first case specification (albeit with larger standard errors), but only for the first and fifth indicators for the second case specification.[15] Finally, although all the relationships are stable, once taking estimation uncertainty into consideration, the Belgian case strengthens the relationships, and in particular those with single-party government and the number of parties. This is consistent with the OLS results provided in the table and presented in Fig. 2, whereby the difference in the estimation between the two case specifications is greater for these two indicators.

These results shed light on contextual effects on voter choice. The conversion of votes to policy—a path set by institutions—accounts for variation in the decision rule that guides voters across polities. Mechanisms that affect the degree of compromise and bargaining in policy formation, such as the number of parties in government and the number of parties in parliament, can be traced in voter decision rule. In fact, voter choice reflects these mechanisms.

8 Conclusion

This study is aimed at analyzing the institutional mechanisms that factor into voter choice in parliamentary elections. While issue voting is generally analyzed as if it takes place in an institution-free environment, this study suggests that in doing so political scientists carry the risk of missing an important part of the picture. In some contexts voter evaluation of party positions can get us far in understanding voter choice, yet in many others policy considerations prevail. The two considerations I analyze, representation and policy outcomes, go hand in hand in majoritarian systems where the policy implemented is the

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[15]I also ran a multivariate analysis with the four indicators. The effect of the number of parliamentary parties reaches statistical significance for the set of all cases as well as for the group once Australia is omitted, but not in the absence of Belgium. I thank Bob Erikson for suggesting this analysis.

Table 4. Institutional mechanisms and voter decision rule

	Predicted Sign	Model (a)	Model (b)	Model (c)	Model (d)	Model (e)
Single-party government (lagged)		(1) 0.281 (0.124)				
		(2) 0.284 (0.115)				
	+	—				
		(3) 0.177 (0.085)				
		(4) 0.178 (0.062)				
Number of parliamentary parties (lagged)			−0.104 (0.027)			
			−0.105 (0.024)			
	−		—			
			−0.052 (0.035)			
			−0.053 (0.029)			
District magnitude				−0.038 (0.047)		
				−0.038 (0.045)		
	−			—		
				−0.041 (0.027)		
				−0.041 (0.022)		
Opposition control					−0.022 (0.040)	
					−0.023 (0.038)	
	−				—	
					−0.019 (0.024)	
					−0.019 (0.020)	
Dispersion of power index*						−0.037 (0.019)
						−0.037 (0.018)
	−					—
						−0.020 (0.013)
						−0.021 (0.011)
Constant		0.479 (0.075)	1.006 (0.113)	0.690 (0.116)	0.675 (0.168)	0.590 (0.059)
		0.479 (0.071)	1.010 (0.098)	0.691 (0.110)	0.677 (0.160)	0.590 (0.055)
		—	—	—	—	—
		0.569 (0.054)	0.839 (0.132)	0.743 (0.068)	0.717 (0.102)	0.637 (0.040)
		0.569 (0.040)	0.843 (0.108)	0.744 (0.056)	0.718 (0.085)	0.638 (0.032)
N		12/11	12/11	13/12	11/10	11/10

Note. In each cell the first two entries omit Australia and the last two omit Australia and Belgium. Entries (1) and (3) are simulated LS, entries (2) and (4) are OLS for comparison. Standard errors in parentheses.
*Rescaled such that high values represent diffusion.

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winner's position; thus focusing on the representational motivation alone, while incomplete, gets us far. In systems of power sharing, the daily practice of compromise sets an incentive for voters to endorse parties whose positions differ from their own views. The more power sharing built into the system, the more voters face a trade-off between the two considerations. Thus focusing on representational considerations alone will likely be misleading in consensual systems.

The approach interacting institutional context and individual behavior allows for investigation of a wide array of questions in comparative research. The model presented above offers a formalization of the institutional dependence of issue voting. It is easy to imagine extensions to the model. An explicit module of government formation varying across polities is one such extension. Another extension is an interaction of institutional context with individual-level characteristics.

More generally, the institutional effect in this study is interactive: institutional context affects the relative weight voters place on two motivations. In other contexts, macro-unit variables may have an additive effect, accounting for a certain attitude or behavior among individuals. Yet another possibility is macro-unit variables that affect dispersion of some outcome variable across individuals. The way macro and micro interact depends, of course, on the substantive question at stake. Whether interactive, additive, or affecting dispersion, incorporating both levels into the analysis is often crucial for deepening our understanding of individual-level phenomena.

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