The Electoral System, the Party System and Accountability in Parliamentary Government

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Appendix

The Sample

Table A.1 lists the countries and elections in our analysis. We also record the regime type of each country in our analysis on the basis of Shugart and Carey (1992) and Elgie (2018). As we noted in the text (fn. 1), one scope condition on our theoretical argument is that the cabinet be elected by and responsible to the legislature rather than to a directly-elected head of state. Thus, our conception of electoral accountability applies to parliamentary and premier-presidential rather than to presidential or president-parliamentary regimes.

There are three cases in our analysis that ostensibly run against this rule: Austria, Iceland, and Portugal (1976-82). Elgie notes that it makes little empirical sense to class Austria and Iceland as president-parliamentary regimes; the presidency in both these countries is weak, and each country

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operates along parliamentary lines. During the semi-presidential period 1976-82, the Portuguese legislature could politically control the government and public administration. The composition and survival of the government depended not only on presidential, but also on parliamentary confidence, because the legislature could bring down the government by refusing to approve a motion of confidence or by voting two motions of no confidence (Martins 2006, 85-86). Thus, constitutionally speaking, and in contrast to presidential systems, the Portuguese government was founded on parliamentary principles; the president could not, at least immediately, conduct the general policy of the country. Austria, Iceland, and Portugal all thus fall within our scope condition.

Table A.1: Countries, Elections, and Regime Types included in the Empirical Analysis

Country	Years	Regime Type	Country	Years	Regime Type
Sweden	1948-2010	Parliamentary	Austria	1949-2008	Premier-Presidential[a]; President-Parliamentary[b]
Norway	1949-2009	Parliamentary	Great Britain	1950-2010	Parliamentary
Denmark	1947-2011	Parliamentary	Ireland	1948-2011	Parliamentary[a]; Premier-Presidential[b]
Finland	1948-2011	Premier-Presidential	Canada	1945-2011	Parliamentary
Iceland	1946-2009	Premier-Presidential[a]; President-Parliamentary[b]	Australia	1946-2010	Parliamentary
Belgium	1946-2010	Parliamentary	New Zealand	1946-2011	Parliamentary
Netherlands	1946-2012	Parliamentary	Japan	1960-2005	Parliamentary
Luxembourg	1948-2009	Parliamentary	Israel	1949-1999	Parliamentary
France	1946-2012	Parliamentary (1946-62); Premier-Presidential (1963-)	Czech Republic	1996-2010	Parliamentary
Italy	1948-2008	Parliamentary	Estonia	1995-2011	Parliamentary
Spain	1977-2011	Parliamentary	Hungary	1990-2010	Parliamentary
Greece	1974-2012	Parliamentary	Latvia	1993-2002	Parliamentary
Portugal	1976-2011	President-Parliamentary[b] (1976-1982); Premier-Presidential (1983-)	Poland	1993-2011	Premier-Presidential
Germany	1949-2009	Parliamentary	Slovakia	1994-2012	Parliamentary (1994-98); Premier-Presidential (1999-)

Note: The table lists each country's regime type based on Shugart and Carey (1992) and Elgie (2018). Cases for which those sources disagree on the country's regime type are denoted by superscripts, with [a] indicating the regime type per Shugart and Carey (1992), and[b] indicating the regime type per Elgie (2018).

Computation of the Bipolarity Index

We compute the bipolarity index for each election in our data set by emulating the methodology set out in Maoz and Somer-Topcu (2010).[1] The procedure is as follows:

1. We locate parties in a two-dimensional policy space on the basis of the ideal points developed by Franzmann and Kaiser (2006) from the Comparative Manifesto Project. It is material to situate parties in a multi-dimensional policy space else we rule out "triangular" interactions a priori.

2. We then compute parties' policy horizons, $H_i \geq 0$ on the basis of the method set out in Warwick (2000). Warwick's methodology involves three steps:

   (a) Compute the policy position of every cabinet in our panel as the seat-weighted average of the policy positions of the parties in that cabinet;

   (b) Regress party i's membership in cabinet j on the policy distance between party i and cabinet j and a set of party dummies;

   (c) Estimate party i's policy horizon as the distance at which party i's probability of joining cabinet j is 50 percent.

   To avoid a situation in which all parties' horizons overlap by default, we reduce the radius of parties' policy horizons by 25 percent and define i and j as affiliated if their policy horizons overlap ($a_{ij} = 1$) and unaffiliated if their policy horizons are disjoint ($a_{ij} = 0$). Our results are robust to how much we scale parties' policy horizons.

3. We accumulate the information from Step 2 into a binary $n \times n$ party affiliation matrix, A, that indicates whether any two parties i, $j, \ldots n$ are connected to one another.

4. We subject A to an iterative algorithm that groups parties into proto-coalitions. Parties i and j constitute a proto-coalition, C_k, if i) the intersection of their policy horizons, H_i and H_j

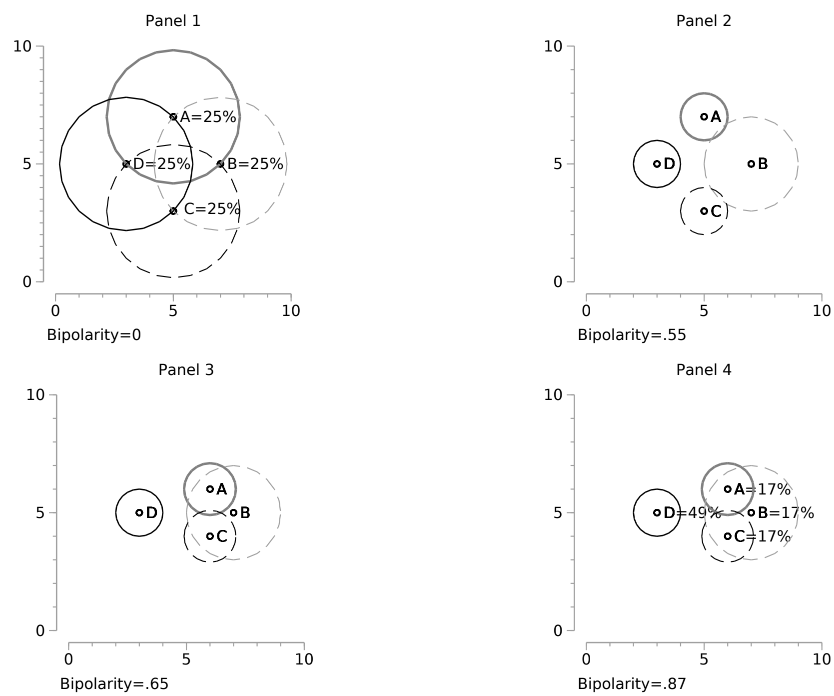
[1] Maoz and Somer-Topcu's (2010, 812-818) approach involves representing party systems as networks, and hence they call their index a *network polarization index*. We prefer to call the measure a *bipolarity index*.

is non-empty, and ii) i and j are not themselves a strict subset of another proto-coalition (Maoz and Somer-Topcu 2010, 812). Observe that neither condition bars party i from being a member of more than one proto-coalition nor from being a proto-coalition unto itself.

5. Once proto-coalitions $C_1...C_k$ are identified, one can compute their seat shares, overlap in membership, and internal cohesion. With these quantities in hand, computation of Maoz and Somer-Topcu's bipolarity index is straightforward.[2]

The BI is one when there exists i) exactly two ii) highly cohesive proto-coalitions of iii) equal size that have iv) no common members. The BI collapses to zero if there exists just one proto-coalition, the grand coalition. If each party is its own proto-coalition, the BI collapses to $\sum_{i=1}^{K}(s_i)(1-s_i)$ where s_i is the proportion of seats held by party i.

Figure A.1: The Party System and the Bipolarity Index



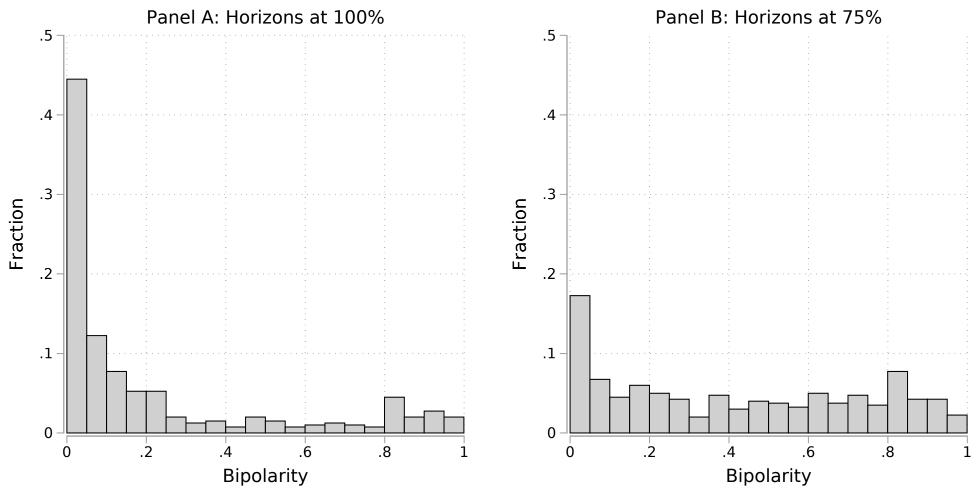
[2]Maoz and Somer-Topcu (2010, 816, 820) base the internal cohesion of proto-coalition k on the basis of the total quadratic (policy) distances between all party members of k whereas we use total (i.e.summed) Euclidean distances between all party members of k.

Figure A.1 shows how the constituent elements of the BI interact. The first panel of Figure A.1 depicts a policy space inhabited by four parties of equal weight. The concentric circles around the parties' ideal points represent their respective policy horizons. Because all parties' horizons intersect, there is a single proto-coalition and the BI is 0. The second panel shrinks the policy horizons of parties A, C, and D. The change results in three proto-coalitions – {A, B}, {B,C} and {D} – and an increased BI of .55. The third panel of Figure A.1 moves the ideal points of parties A and C closer to B such that the policy horizons of all three parties intersect. The BI increases to .65 as a result of this change, mainly because the number of proto-coalitions has declined from three (in Panel 2) to two in panel 3 (i.e., {A,B,C} and {D}). The fourth panel keeps the parties in the same positions as the third panel, but alters their weights such that party D controls 49% of the seats whereas parties A, B, and C each control 17%. The near equality in the weights of the two proto-coalitions boosts the BI to .87.

Variation in Horizon Size

As noted above, we identify elements of A by first reducing the radius of parties' horizons by 25 percent, and then defining parties i and j as affiliated if their policy horizons overlap. Reducing the size of parties' policy horizons limits situations in which all parties' policy horizons overlap by default. Under such conditions, the bipolarity index collapses to zero; if such conditions are widespread, the bipolarity index does little to differentiate party systems. This is not an abstract concern. If we leave horizons at 100% of their estimated values, almost 45% of the elections in our sample return bipolarity scores of 0 (see Panel A of Figure A.2). The distribution of the BI is much less skewed when we reduce horizons to 75% of their estimated values (Panel B of Figure A.2), with fewer than 20% of elections returning bipolarity scores of 0. It is also the case that the variance of the BI is maximized when horizons are set to 75% of their estimated values, which explains our scaling decision.

Figure A.2: Distribution of the Bipolarity Index



If reducing parties' policy horizons increases the variance of the BI, it also raises the question of how sensitive our results are to our scaling decision. We must also recognize that parties' policy horizons are not known with certainty but are estimated with some statistical error. We consider the consequences of both our scaling of party's policy horizons and the measurement error inherent in our estimates of those policy horizons on our statistical results by: i) varying the scaling factor that we apply to parties' policy horizons, ii) re-computing the party affiliation matrix and bipolarity index for each election, and then iii) re-estimating Specification 1 of Table 1 above.

Table A.2: 3SLS Estimation of the Votes-Seats-Portfolios Relationship Varying the Size of Parties' Policy Horizons

	100%	95%	90%	85%	80%	75%	70%	65%	60%	55%	50%
Dependent Variable: ΔS_{ijt}											
ΔV_{ijt}						1.73***					
						(.24)					
PR_{jt}						.60					
						(.63)					
$\Delta V_{ijt} \times PR_{jt}$						-.60**					
						(.24)					
$\ln(M)_{jt}$						.26*					
						(.15)					
Constant						-1.49***					
						(.53)					
R^2 *(Votes to Seats)*						.77					
Dependent Variable: ΔC_{ijt}											
ΔS_{ijt}	2.42***	2.40***	2.15***	2.29***	2.17***	2.21***	2.23***	2.19***	2.19***	2.13***	2.17***
	(.48)	(.49)	(.51)	(.52)	(.53)	(.49)	(.50)	(.50)	(.51)	(.55)	(.59)
BI_{jt}	-.41	-1.92	-3.17	-3.62	-1.56	.53	-1.39	.79	1.65	2.08	-.15
	(3.83)	(4.02)	(3.37)	(3.37)	(3.47)	(2.88)	(2.93)	(2.78)	(2.43)	(3.29)	(4.35)
$\Delta S_{ijt} \times BI_{jt}$	1.20*	1.22	1.59**	1.33**	1.52**	1.41***	1.36**	1.56**	1.53**	1.64***	1.55**
	(.69)	(.76)	(.66)	(.65)	(.61)	(.45)	(.59)	(.64)	(.62)	(.63)	(.75)
ENP_{jt}	.76	.69	.58	.54	.58	.71	.62	.71	.75	.75	.67
	(.62)	(.61)	(.59)	(.57)	(.59)	(.61)	(.59)	(.60)	(.61)	(.62)	(.60)
$\Delta S_{ijt} \times ENP_{jt}$	-.26**	-.26*	-..22*	-.25*	-.25*	-.26**	-.28**	-.29**	-.30***	-.31***	-.32***
	(.13)	(.12)	(.13)	(.13)	(.13)	(.12)	(.12)	(.12)	(.11)	(.11)	(.11)
$CENTRAL_{ijt}$	.51	.56	.56	.62	.51	.42	.51	.38	.37	.35	.45
	(.60)	(.58)	(.57)	(.53)	(.52)	(.51)	(.51)	(.53)	(.55)	(.56)	(.60)
$\Delta S_{ijt} \times CENTRAL_{ijt}$	.13	.12	.10	.10	.10	.09	.11	.09	.08	.08	.08
	(.08)	(.08)	(.08)	(.07)	(.07)	(.07)	(.07)	(.07)	(.07)	(.07)	(.07)
Constant	-10.38***	-9.89***	-9.06***	-8.76***	-9.17***	-10.12***	-9.23***	-10.23***	-10.78***	-10.98***	-9.70***
	(3.07)	(3.07)	(2.98)	(2.92)	(3.11)	(3.21)	(3.24)	(3.17)	(3.23)	(3.61)	(3.70)
R^2 *(Seats to Portfolios)*	.35	.36	.36	.36	.36	.36	.36	.36	.35	.35	.35
N Obs (Clusters)						880 (28)					

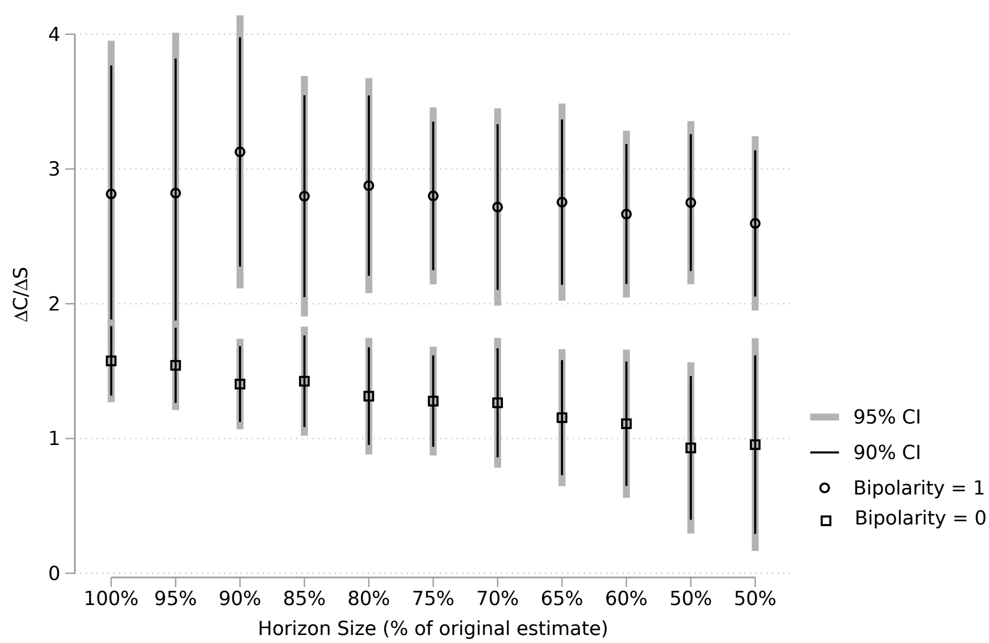
Bootstrapped standard errors (clustered by country) in parentheses (1000 replications).

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

The results of this process are shown in Table A.2, with policy horizons varying from 100 to 50 percent of their original size. The first-stage estimates are unaffected by the scaling of the policy horizons because the bipolarity index appears only in the second-stage of the model. The coefficient on the interaction between changes in seat shares and bipolarity remains statistically significant regardless of the scaling factor applied to parties' policy horizons.

Figure A.3 offers a graphical perspective of these results; it shows the marginal effects of changes in seat shares on changes in portfolio shares conditional on party system bipolarity. In keeping with the results presented in the main text, the marginal effect of changes in seat shares on changes in portfolio shares is always greater in highly bipolar party systems than in non-bipolar systems, i.e., $\frac{\partial \Delta C_{ijt}}{\partial \Delta S_{ijt}} | BI_{jt} = 1 > \frac{\partial \Delta C_{ijt}}{\partial \Delta S_{ijt}} | BI_{jt} = 0$. In addition, the 90 percent confidence intervals of these estimates never overlap. We conclude that our results are largely robust both to any statistical variation in our estimates of parties' policy horizons or to the scaling factor applied to them.

Figure A.3: Robustness of Seats-Bipolarity Interaction to Variation in Parties' Policy Horizons



Descriptive Statistics

Table A.3 provides descriptive statistics for the variables in the specifications shown in Table 1 in the main text.

Table A.3: Descriptive Statistics

	mean	sd	min	max
ΔC_{ijt}	-11.27	28.74	-106.39*	84.76
ΔS_{ijt}	-2.45	7.44	-56.61	38.89
ΔV_{ijt}	-1.60	4.96	-29.73	20.65
PR_{jt}	.82	.38	0.00	1.00
$\ln(\bar{M})_{jt}$	2.10	1.54	0.00	5.01
BI_{jt}	.36	.30	0.00	1.00
ENP_{jt}	4.07	1.51	1.54	9.05
$CENTRAL_{ijt}$	1.99	1.30	0.00	6.80
N = 880				

* C can exceed 100% in absolute value because the incumbent government held power for a period somewhat longer than the CIEP.

Distribution of Accountability Outcomes, Bipolarity, and Changes in Portfolios by Electoral System

Table A.4 shows the distribution of accountability outcomes across electoral formulas. The central point of Table A.4 is that the distribution of accountability outcomes is remarkably similar across electoral formulas. Twenty-eight percent of incumbent parties operating under a majoritarian electoral formula experience accountability failures in either sanctions and rewards, as compared to 35.1 percent of incumbent parties operating under a proportional electoral formula. Insulation is somewhat more frequently encountered in majoritarian systems, however, with the end result that 62.7 percent of incumbent parties operating under majoritarian electoral formulas are held accountable as compared to 58.7 percent of incumbent parties operating under proportional electoral formulas.

Figure A.4 shows the distribution of the BI conditional on the electoral formula. On average, bipolarity is lower in proportional systems than in majoritarian systems. What is more important,

Table A.4: Accountability Outcomes by Electoral System

		Majoritarian	Proportional
Unaccountable			
	Sanctions (i.e., $\frac{\Delta C}{\Delta V} < 0$, $\Delta V < 0$)	14.3	15.6
		(23)	(115)
	Rewards (i.e., $\frac{\Delta C}{\Delta V} < 0$, $\Delta V > 0$)	13.7	19.5
		(22)	(144)
Insulated			
	Sanctions (i.e., $0 \leq \frac{\Delta C}{\Delta V} < 1$, $\Delta V < 0$)	5.6	4.3
		(9)	(32)
	Rewards (i.e., $0 \leq \frac{\Delta C}{\Delta V} < 1$, $\Delta V > 0$)	3.7	1.9
		(6)	(14)
Accountable	(i.e., $1 \leq \frac{\Delta C}{\Delta V}$)		
		62.7	58.7
		(101)	(434)
N Cases		161	739

Main cell entries are percentages

Figures in parentheses are relevant N observations

however, is that we observe outcomes across the full range of the BI regardless of the electoral system. That is, we observe highly bipolar and non-bipolar outcomes under both majoritarian and proportional electoral systems. This indicates that the interaction effects in our reduced-form models that involve the electoral system are estimated on the support of the data, i.e., we are not estimating marginal effects beyond the range of the data.

Additional Robustness Tests

Table A.5 below presents a series of additional robustness tests of Specification 1 of Table 1.

Coordinating Aspects of the Electoral System

We noted in the main text that preferential ballots, joint lists, and run-offs may offset the risk of a coordination failure among voters and opposition parties and thus reinforce the incumbents' accountability to the electorate. We test this conjecture by defining a dummy variable, $COORDINATE_{jt}$, that identifies the electoral system as one that uses preferential ballots, joint lists, or run-offs and interacting it with changes in an incumbent party's vote share. The results of Specification 1 of

Figure A.4: Distribution of Bipolarity by Electoral System

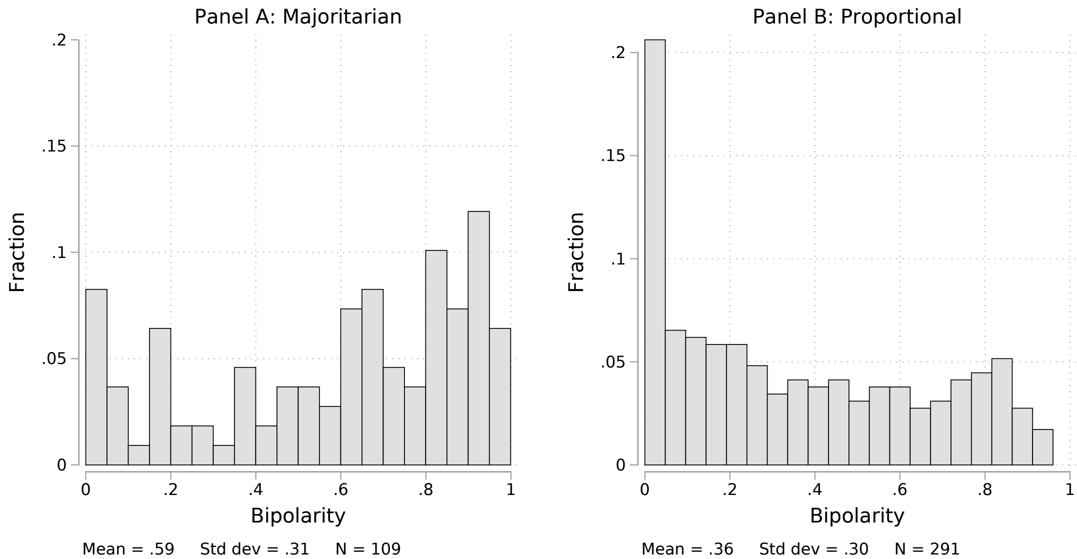


Table A.5 indicates that preferential ballots, joint lists, and run-offs have no impact on the rate at which changes in votes translate into changes in seats. Coefficients of the other variables are largely unaffected by the presence of $COORDINATE_{jt}$ and $\Delta V_{ijt} \times COORDINATE_{jt}$ in the model.

Alternative Definitions of Incumbency and Government Power

The specifications in Table 1 in the main text use a party's "time-weighted" share of portfolios in *any* (non-caretaker) incumbent cabinet as a metric of a party's control over government policy. Here, we consider two alternative measures of incumbency and governmental power: 1) a party's share of portfolios in the *longest-serving* (non-caretaker) cabinet of the previous term; and 2) a party's share of portfolios in the *last-serving* (non-caretaker) cabinet of the previous term. Specifications 2 and 3 in Table A.5 replicate Specification 1 of Table 1 using these alternative measures. The coefficient on $\Delta S_{ijt} \times BI_{jt}$ is positive and statistically significant regardless of whether we measure incumbency and changes in governmental power in terms of portfolios in the longest-serving or last-serving cabinets. We infer that our results are robust to how one measures incumbency and policy-making power.

"Winning" and "Losing" Incumbents

We have argued that the electorate's capacity to sanction or reward incumbent parties is integral to electoral accountability, and that this capacity is amplified when the party system takes on a bipolar structure. Our results comport with this view. It is possible, however, that our results come about not because voters in highly bipolar party systems enjoy an enhanced capacity to sanction incumbents, but because incumbents in highly bipolar party systems are disproportionately rewarded (in terms of cabinet portfolios) when they manage to increase their vote shares. We investigate this possibility by estimating our model separately on i) "winning" incumbent parties that saw their vote shares increase or hold steady between elections, and ii) "losing" incumbent parties that saw their vote shares decline between elections. These results appear in Specifications 4 and 5, respectively.

The coefficient of 3.13 (*s.e.* = .89) on $\Delta S_{ijt} \times BI_{jt}$ in Specification 5 confirms that "winning" incumbents in highly bipolar systems enjoy a greater return of cabinet portfolios given electoral success than "winning" incumbents in non-bipolar systems. The coefficient on $\Delta S_{ijt} \times BI_{jt}$ is smaller in Specification 4 than in Specification 5 (b = 1.01, *s.e.* = .55), but it still indicates that "losing" incumbents in highly bipolar party systems also shed cabinet portfolios at a greater rate than do losing incumbents in non-bipolar systems. These results confirm that bipolarity amplifies the electorate's capacity to both sanction *and* reward incumbents.

Omitted Country Effects

Specification 6 extends our efforts to assess whether our results reflect omitted variable bias. We do this by including a full set of country dummies in both equations. If the interaction between seats and bipolarity simply reflects cross-country differences, then the coefficient on $\Delta S_{ijt} \times BI_{jt}$ should fall to zero when we include country fixed effects. This does not happen. The estimated coefficient on $\Delta S_{ijt} \times BI_{jt}$ is 1.43 (*s.e.* = .42), which is not substantively or statistically different from the estimate reported in Table 1.

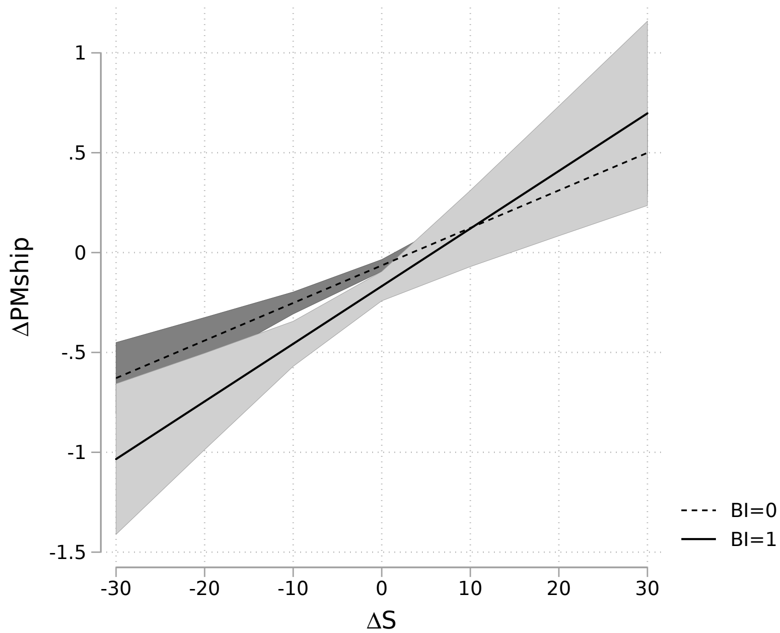
The Prime Minister

It is possible that our results elide the impact of the party system with the fact that the prime minister's party tends to bear a disproportionate share of the blame (credit) for bad (good) economic conditions (e.g., Duch and Stevenson 2008; Fisher and Hobolt 2010; Debus, Stegmaier, and Tosun 2014). Equally, there is literature to suggest that voters i) punish parties that are seen to compromise (Fortunato 2017) , and ii) tend to perceive junior coalition partners as compromising more than senior partners (Fortunato and Adams 2015). Regardless, the concern is that our bipolarity result is a function of omitted variable bias because we do not account for a party's status in the incumbent government. We evaluate this counterargument in Specification 7. We do so by including a dummy variable for the party of the incumbent prime minister of the longest-serving cabinet (PM_{ijt}) and interacting it with changes in the party's seat share. The coefficient of .75 on $\Delta S_{ijt} \times PM_{ijt}$ indicates that the marginal effect of seats on portfolios is stronger for prime ministerial parties. The results are thus consistent with a model in which the prime minister's party bears a disproportionate share of the blame (credit) for the government's performance. The key point, however, is that the coefficient on $\Delta S_{ijt} \times BI_{jt}$ remains positive and statistically distinguishable from zero (b = 1.09, *s.e.* = .54) even when we control for an incumbent party's control of the premiership.[3]

This result prompts us to consider how our model applies to a higher standard of accountability. Specification 8 examines the relationship between changes in seats and changes in the premiership. This is a higher standard of electoral accountability both in the sense that it takes on an all-or-nothing character and because the premiership is typically the most powerful executive office in a parliamentary regime. The question is thus whether voters can effectively sanction the party of the

[3]The result is virtually identical if we control for a party's status as the senior partner instead of the prime minister's party (largely because the prime minister's party is almost always the senior coalition partner).

Figure A.5: The Effect of Bipolarity on the Seats-Premiership Relationship



incumbent prime minister, and whether their capacity to do so hinges on the characteristics of the party system.

The coefficients of ΔS_{ijt} and $\Delta S_{ijt} \times BI_{jt}$ in Specification 8 are small but their substantive effect is significant, This is indicated by Figure A.5, which shows the effect of changes in seats on the probability of change in the party of the prime minister. In a non-bipolar system, a 10 percent decline in the seat share of the incumbent prime minister's party reduces the party's probability of retaining the premiership by .25. By comparison, a similar decline in a highly bipolar system reduces the party's probability of retaining the premiership by .45.

Investiture Rules

Specification 9 considers whether the seats-to-portfolios relationship varies depending on whether a country subjects cabinets to an investiture vote or employs other measures of positive parliamentarism.[4] An investiture requirement should theoretically amplify the marginal effect of seats on portfolios. This is because an incumbent cabinet that lost seats is less likely (all else equal) to be able to win an investiture vote that would allow it to retain cabinet power. Conversely, the absence of an investiture require might allow the incumbent cabinet to continue in power because the legislature cannnot agree on an alternative government. We observe that the estimated coefficient on $\Delta S_{ijt} \times BI_{jt}$ remains positive and statistically significant when we include dummies for invesiture ($INVEST_{jt}$) and positive parliamentarism ($POSPARL_{jt}$). Moreover, we also find that an investiture requirement amplifies the seats-to-portfolios effect.

[4] The data on investiture rules and positive parliamentarism were generously provided by Cheibub, Martin, and Rasch (2015).

Table A.5: Additional Specifications

	Coordinating Electoral System	Longest Cabinet	Last Cabinet	Losing Incumbents	Winning Incumbents	Country Dummies	PM's Party	ΔPMship	Investiture
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Dependent Variable: ΔS_{ijt}									
ΔV_{ijt}	1.73***	1.80***	1.82***	1.86***	1.63***	1.73***	1.80***	1.80***	1.85***
	(.35)	(.23)	(.23)	(.20)	(.57)	(.05)	(.24)	(.23)	(.22)
PR_{jt}	.43	.32	.04	.36	.82	-.71	.31	.33	.72
	(.75)	(.83)	(.66)	(.98)	(1.55)	(.75)	(.83)	(.86)	(.87)
$\Delta V_{ijt} \times PR_{jt}$	-.61*	-.67***	-.68***	-.64***	-.63	-.63***	-.66***	-.67***	-.72***
	(.34)	(.23)	(.24)	(.20)	(.59)	(.06)	(.24)	(.23)	(.22)
$COORDINATE_{jt}$	-.49								
	(.90)								
$\Delta V_{ijt} \times COORDINATE_{jt}$	-.005								
	(.27)								
$\ln \bar{M}_{jt}$	.24	.27*	.30*	.25	.22	.54*	.27	.27	.24*
	(.17)	(.16)	(.18)	(.21)	(.14)	(.31)	(.19)	(.16)	(.15)
Constant	-1.26*	-1.24**	-1.01*	-.73	-1.57	Country FEs	-1.24	-1.25*	-1.57**
	(.67)	(.73)	(.53)	(.87)	(1.48)		(1.72)	(.74)	(.79)
R^2 *(Votes to Seats)*	.77	.77	.77	.75	.53	.81		.77	.78
Dependent Variable: ΔC_{ijt}									
ΔS_{ijt}	2.21***	1.64***	1.36**	2.31***	.14	2.27***	1.58***	.01	2.09***
	(.49)	(.59)	(.65)	(.71)	(.77)	(.39)	(.49)	(.01)	(.51)
BI_{jt}	.53	-6.29	-4.99	1.57	-6.67	-.16	.65	-.10**	-.52
	(2.92)	(3.98)	(4.18)	(3.36)	(5.06)	(2.96)	(3.21)	(.05)	(3.26)
$\Delta S_{ijt} \times BI_{jt}$	1.41***	.97***	1.19**	1.01*	3.13***	1.43***	1.09**	.01	.99**
	(.48)	(.45)	(.51)	(.55)	(.89)	(.42)	(.54)	(.01)	(.48)

Table A.5: Additional Specifications

	Coordinating Electoral System	Longest Cabinet	Last Cabinet	Losing Incumbents	Winning Incumbents	Country Dummies	PM's Party	ΔPMship	Investiture
ENP_{jt}	.71	1.82*	1.96**	1.51*	-.53	-.46	.44	.03*	1.03
	(.60)	(.94)	(1.00)	(.86)	(.81)	(.71)	(.67)	(.01)	(.65)
$\Delta S_{ijt} \times ENP_{jt}$	-.26**	-.07	-.04	-.24	-.33**	-.27***	.09	.002	-.24**
	(.12)	(.15)	(.18)	(.15)	(.16)	(.08)	(.55)	(.01)	(.12)
$CENTRAL_{ijt}$	.42	.07	.91	.15	-.88	-.16	.09	.004	-.07
	(.52)	(.73)	(.65)	(.79)	(.69)	(.68)	(.55)	(.01)	(.48)
$\Delta S_{ijt} \times CENTRAL_{ijt}$	.09	.07	.11	.02	.61**	.08	.04	.001	.06
	(.07)	(.10)	(.10)	(.08)	(.24)	(.09)	(.07)	(.002)	(.08)
PM_{ijt}							-2.49		
							(1.64)		
$\Delta S_{ijt} \times PM_{ijt}$							.75**		
							(.37)		
$INVEST_{jt}$									.06
									(2.02)
$\Delta S_{ijt} \times INVEST_{jt}$									.84*
									(.28)
$POSPARL_{jt}$									1.78
									(2.69)
$\Delta S_{ijt} \times POSPARL_{jt}$									-.53
									(.46)
Constant	-10.12***	-21.72***	-20.29***	-15.43***	4.73	Country FEs	-8.31**	-.18	-12.29***
	(3.20)	(4.96)	(4.58)	(4.37)	(4.47)		(3.43)	(.05)	(4.11)
R^2 *(Seats to Portfolios)*	.36	.30	.29	.33	.20	.46	.36	.18	.35

Table A.5: Additional Specifications

	Coordinating Electoral System	Longest Cabinet	Last Cabinet	Losing Incumbents	Winning Incumbents	Country Dummies	PM's Party	ΔPMship	Investiture
N Obs (Clusters)	880 (28)	798 (28)	641 (28)	572 (28)	308 (28)	880 (28)	798 (28)	798 (28)	778 (28)

Bootstrapped standard errors (clustered by country) in parentheses (1000 replications).

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Reduced Form Estimates

We can write the reduced form of Specification 4 in Table 1 as:

$$
\begin{aligned}
\Delta C_{ijt} &= \beta_0 + \beta_1 \Delta V_{ijt} + \beta_2 PR_{jt} + \beta_3 \Delta V_{ijt} \times PR_{jt} + \beta_4 BI_{jt} + \beta_5 \ln \bar{M}_{jt} + \beta_6 CENTRALITY_{ijt} \\
&+ \beta_7 \Delta V_{ijt} \times BI_{jt} + \beta_8 PR \times BI_{jt} + \beta_9 \Delta V_{ijt} \times PR_{jt} \times BI_{jt} + \beta_{10} \Delta V_{ijt} \times \ln \bar{M}_{jt} \\
&+ \beta_{11} PR_{jt} \times \ln \bar{M}_{jt} + \beta_{12} \Delta V_{ijt} \times PR_{jt} \times \ln \bar{M}_{jt} + \beta_{13} \Delta V_{ijt} \times CENTRALITY_{ijt} \\
&+ \beta_{14} PR_{jt} \times CENTRALITY_{ijt} + \beta_{15} \Delta V_{ijt} \times PR_{jt} \times CENTRALITY_{ijt}.
\end{aligned}
\tag{1}
$$

If we differentiate the above equation with respect to ΔV_{ijt}, we can decompose these marginal effects into an electoral system effect and a party system effect. For proportional systems we obtain:

$$
\frac{\partial \Delta C_{ijt}}{\partial \Delta V_{ijt}}\Big|(PR=1) = \underbrace{\beta_1 + \beta_3}_{\text{electoral system}} + \underbrace{\overbrace{(\beta_7 + \beta_9) BI_{jt}}^{\text{bipolarity}} + \overbrace{(\beta_{10} + \beta_{12}) \ln \bar{M}_{jt}}^{\text{fragmentation}} + \overbrace{(\beta_{13} + \beta_{15}) DDM_{ijt}}^{\text{centrality}}}_{\text{party system}} \tag{2}
$$

whereas for majoritarian systems, we have:

$$
\frac{\partial \Delta C_{ijt}}{\partial \Delta V_{ijt}}\Big|(PR=0) = \underbrace{\beta_1}_{\text{electoral system}} + \underbrace{\overbrace{\beta_7 BI_{jt}}^{\text{bipolarity}} + \overbrace{\beta_{10} \ln \bar{M}_{jt}}^{\text{fragmentation}} + \overbrace{\beta_{13} DDM_{ijt}}^{\text{centrality}}}_{\text{party system}} \tag{3}
$$

Applying OLS to Eq. 1 yields the following estimates of the coefficients in Eqs. 2 and 3:

$$\frac{\partial \Delta C_{ijt}}{\partial \Delta V_{ijt}}\bigg|(PR=1) = \underbrace{2.01}_{\text{electoral system}} + \underbrace{\overbrace{.85BI_{jt}}^{\text{bipolarity}} - \overbrace{.07\ln\bar{M}_{jt}}^{\text{fragmentation}} + \overbrace{.02CENTRAL_{ijt}}^{\text{centrality}}}_{\text{party system}}$$

$$\frac{\Delta C_{ijt}}{\Delta V_{ijt}}\bigg|(PR=0) = \underbrace{3.18}_{\text{electoral system}} + \underbrace{\overbrace{4.08BI_{jt}}^{\text{bipolarity}} + \overbrace{.13\ln\bar{M}_{jt}}^{\text{fragmentation}} - \overbrace{.50CENTRAL_{ijt}}^{\text{centrality}}}_{\text{party system}}$$

The complete results appear in Table A.6. The reduced form estimates show that that incumbent parties that lose (win) votes generally also lose (gain) portfolios and policy-making power, and do so independently of the electoral system. Moreover, the effects of the party system—of bipolarity, in particular—are on par with the effect of the electoral system.

Table A.6: Additional Specifications of the Reduced Form Model

	Reduced Form of Spec. 4	Winning Incumbents (Fig. 6, Panel B)	Losing Incumbents (Fig. 6, Panel B)
ΔV_{ijt}	3.18***	-1.30	-5.32***
	(.99)	(2.21)	(1.35)
PR_{jt}	4.65	-14.19	-7.85
	(5.00)	(8.00)	(8.78)
$\Delta V_{ijt} \times PR_{jt}$	-1.17	3.41	-4.59***
	(1.11)	(2.59)	(1.65)
BI_{jt}	1.12	8.40	-26.10
	(10.83)	(10.39)	(21.47)
$\Delta V_{ijt} \times BI_{jt}$	4.08***	6.58	-1.57
	(1.22)	(4.57)	(1.61)
$PR_{jt} \times BI_{jt}$	-7.56	-16.70	31.50
	(11.62)	(12.00)	(23.54)
$\Delta V_{ijt} \times PR_{jt} \times BI_{jt}$	-3.23**	-7.18	4.86*
	(1.57)	(5.29)	(2.49)
$\ln \bar{M}_{jt}$	9.29***	25.43	7.49**
	(1.87)	(89.77)	(2.96)
$\Delta V_{ijt} \times \ln \bar{M}_{jt}$	.13	-5.88	-.25
	(.67)	(29.12)	(.38)
$PR_{jt} \times \ln \bar{M}_{jt}$	-8.16***	-24.28	-4.10
	(1.94)	(89.67)	(3.08)
$\Delta V_{ijt} \times PR_{jt} \times \ln \bar{M}_{jt}$	-.20	5.21	.58
	(.67)	(29.08)	(.40)
$CENTRAL_{ijt}$	1.52	-4.81*	3.43***
	(1.77)	(2.43)	(1.19)
$\Delta V_{ijt} \times CENTRAL_{ijt}$	-.50*	.65	-.33
	(.29)	(1.22)	(.51)
$PR_{jt} \times CENTRAL_{ijt}$	-2.04	5.36	-5.26***
	(1.90)	(2.82)	(1.69)
$\Delta V_{ijt} \times PR_{jt} \times CENTRAL_{ijt}$	.52	-.52	.20
	(.33)	(1.40)	(.55)
Constant	-11.61**	10.61	-6.10
	(4.60)	(7.03)	(7.24)
R^2	.25	.14	.22
N Obs (Clusters)	880 (28)	308 (28)	572 (28)

Standard errors clustered by country in parentheses.

$^{*}p < .10$; $^{**}p < .05$; $^{***}p < .01$

Bipolarity and the Legislative Bargaining Environment

One of our main empirical results is that the more bipolar the party system, the greater the marginal effect of a change in seats on a change in cabinet portfolios. One might argue that this merely tells us that, all else equal, changes in seat shares are more likely to result in portfolio changes in party systems where parties form fewer coalitions. Controlling for the effective number of parties in our regressions is not sufficient to rebut this counter-argument. It is the total number of parties that hold seats in the legislature, not the effective number of legislative parties, that determines the number of possible coalitions. That said, the counter-argument loses its force if we can demonstrate that bipolarity continues to effect the rate at which seats translate into portfolios even when we control for the number of possible coalitions that can be formed in the legislature.

Table A.7 shows that this is indeed case. The regressions in Table A.7 estimate the seat-to-portfolios relationship controlling for the complexity of the legislative bargaining environment. The first specification in Table A.7 controls for the number of (potential) coalitions in legislature as opposed to the effective number of legislative parties. The interaction between changes in seats and bipolarity remains positive and significant. The number of (potential) coalitions in legislature enters the second specification directly and as an interaction with changes in the incumbent party's seats. Again, the interaction between changes in seats and bipolarity remains positive and significant.

Table A.7: The Votes-Seats-Portfolios Relationship Controlling for the Legislative Bargaining Environment

	(1)	(2)	(3)	(4)
Dependent Variable: ΔS_{ijt}		As in Table A.2		
Dependent Variable: ΔC_{ijt}				
ΔS_{ijt}	1.20***	1.17***	1.24***	1.70***
	(.24)	(.24)	(.23)	(.45)
BI_{jt}	-.32	-.25	.31	-.50
	(2.68)	(2.69)	(2.80)	(2.68)
$\Delta S_{ijt} \times BI_{jt}$	1.90***	1.93***	1.97***	1.57***
	(.49)	(.49)	(.50)	(.46)
$CENTRAL_{ijt}$	.24	.24	.10	.16
	(.41)	(.51)	(.48)	(.49)
$\Delta S_{ijt} \times CENTRAL_{jt}$	.07	.07	.05	.09
	(.08)	(.08)	(.08)	(.07)
$NCOALITIONS \times 10^{-3}_{jt}$	.05	.08		
	(.49)	(.30)		
$\Delta S_{ijt} \times N\ COALITIONS \times 10^{-3}_{jt}$		.01		
		(.10)		
$DOMINANT_{jt}$			-7.57**	-9.51***
			(3.86)	(3.67)
$\Delta S_{ijt} \times DOMINANT_{jt}$				-.60
				(.42)
$TOP-2_{jt}$			-6.12	-6.07
			(4.57)	(4.70)
$\Delta S_{ijt} \times TOP-2_{jt}$				.24
				(.72)
$TOP-3_{jt}$			-3.99	-5.77*
			(3.32)	(3.28)
$\Delta S_{ijt} \times TOP-3_{jt}$				-.57
				(.59)
$OPEN_{jt}$			-.82	-3.18
			(3.41)	(3.40)
$\Delta S_{ijt} \times OPEN_{jt}$				-.81
				(.61)
Constant	-6.46***	-6.53***	-1.88	-.26
	(1.76)	(1.78)	(3.60)	(3.55)
R^2 *(Seats to Portfolios)*	.34	.34	.35	.376
N Obs (Clusters)		880 (28)		

Bootstrapped standard errors (clustered by country) in parentheses (1000 replications).

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Specifications 3 and 4 employ Laver and Benoit's (2015) typology of legislative party systems as an alternative means to control for the complexity of the legislative bargaining system (see n. 14 in the main text). Specification 3 enters the Laver-Benoit party system indicators directly. The coefficient of $\Delta S_{ijt} \times BI_{jt}$ remains positive and statistically significant. Specification 4 interacts the Laver-Benoit party system dummies with changes in seats. None of the interactions is statistically significant whereas the interaction between changes in seats and bipolarity remains positive and significant. We conclude that party system bipolarity is not merely a proxy for a "simple" legislative bargaining environment, and that interactive effect of changes in seats and bipolarity on change in portfolios remains intact even when one controls for the nature of the legislative bargaining environment.

We closed the "Mechanisms" section by conjecturing that bipolarity amplifies the marginal effect of seats on portfolios because it reduces the set of viable coalitions that an incumbent party can form to protect its policy-making power from electoral sanction. Consistent with this conjecture, we showed that party system bipolarity is associated with a reduction in the number of connected, minimum winning coalitions in the legislature from 3.5 to 1.9, holding constant the complexity of the legislative bargaining environment (see Table 2). It follows on this argument that the marginal effect of seats on portfolios should increase as the number of connected, minimum winning coalitions in the legislature decreases, and that it should do so independently of the complexity of the legislative bargaining environment. This is in fact the case. Table A.8 estimates the seats-portfolios relationship but uses the number (in 100s) of potential connected ($CONNECT_{jt} \times 10^{-2}_{jt}$), minimum winning ($MWC_{jt} \times 10^{-2}_{jt}$), and connected and minimum winning coalitions ($CMWC_{jt} \times 10^{-2}_{jt}$) in the legislature in place of our bipolarity index. We control for the number of potential coalitions in the legislature and Laver-Benoit party system type. The coefficients on the seats-coalition type interactions (i.e., $\Delta S_{ijt} \times CONNECT_{ijt} \times 10^{-2}_{jt}$, $\Delta S_{ijt} \times MWC_{jt} \times 10^{-2}_{jt}$, and $\Delta S_{ijt} \times NCMWC_{jt} \times 10^{-2}_{jt}$) thus effectively tell us how the marginal effect of seats on portfolios changes as the fraction of certain types of coalitions in the set of potential coalitions changes.

Specification 1 shows that the marginal effect of changes in seats on changes in portfolios decreases as the number of connected coalitions in the set of potential coalitions increases holding constant the legislative bargaining environment. The coefficient on the seats-connected coalitions interaction ($\Delta S_{ijt} \times CONNECT_{ijt} \times 10^{-2}_{jt}$) is very small relative to the main effect, however (i.e., -.20 versus 2.15). Specification 2 shows that the marginal rate at which changes in seats translate into changes in portfolios is entirely independent of the number of potential minimum winning coalitions in the legislature. Finally, Specification 3 interacts changes in seats with the number of potential minimum winning and connected coalitions in the legislature. The coefficient on the seats-connected and minimum winning coalitions interaction ($\Delta S_{ijt} \times CMWC_{jt}$) indicates that the marginal seats-to-portfolios effect decreases (by 5.46) for every 100 additional connected, minimum winning coalitions in the set of potential coalitions. We stress that this effect is obtained with the size of the set of potential coalitions and the complexity of the legislative bargaining environment held constant. Thus as the number of connected, minimum winning coalitions in the set of potential coalitions increases, the rate at which changes in seats translate into changes in portfolios declines.

Table A.8: The Seats-Portfolio Relationship Modified by Coalition Type

	(1)	(2)	(3)
Dependent Variable: ΔS_{ijt}		As in Table A.2	
Dependent Variable: ΔC_{ijt}			
ΔS_{ijt}	2.15***	2.06***	2.23***
	(.15)	(.14)	(.18)
$CONNECT_{jt} \times 10^{-2}_{jt}$	.84		
	(.55)		
$\Delta S_{ijt} \times CONNECT_{jt} \times 10^{-2}_{jt}$	-.20**		
	(.09)		
$MWC_{jt} \times 10^{-2}_{jt}$		.49	
		(1.55)	
$\Delta S_{ijt} \times MWC_{jt} \times 10^{-2}_{jt}$		.05	
		(.32)	
$CMWC_{jt} \times 10^{-2}_{jt}$			3.58
			(9.49)
$\Delta S_{ijt} \times CMWC_{jt} \times 10^{-2}_{jt}$			-5.46*
			(3.12)
$NCOALITIONS \times 10^{-2}_{jt}$	-.01	.00	.00
	(.00)	(.01)	(.00)
$DOMINANT_{jt}$	-6.68**	-6.30**	-6.70**
	(3.01)	(3.03)	(3.01)
$TOP-2_{jt}$	-5.01	-4.93	-5.28
	(4.04)	(4.06)	(4.03)
$TOP-3_{jt}$	-2.96	-2.23	-3.09
	(3.08)	(3.09)	(3.08)
$OPEN_{jt}$	-.59	1.34	-.19
	(3.05)	(3.00)	(3.15)
Constant	-2.88	-3.06	-2.62
	(2.78)	(2.79)	(2.77)
R^2 *(Seats to Portfolios)*	.33	.33	.33
N Obs (Clusters)		899 (28)	

Bootstrapped standard errors (clustered by country) in parentheses (1000 replications).

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

The Endogeneity of the Party System

The Electoral System and the Party System

Our model of the electoral system and party system (i.e., Eqs. 2 and 3 in the main text) is predicated on the view that the party system is analytically distinct from the electoral system. In other words, we assume that (conditional on electoral rules) changes in a party's vote share affect its share of cabinet portfolios only via changes in the party's seat share. (Specification 4 in Table 1 modifies this assumption by also casting the effective number of parties in the party system as a function of the average district magnitude.) The counter-argument is that the party system is wholly endogenous to the electoral system. If this counter-argument is correct, then directly including the electoral system variables (i.e., ΔV_{ijt}, PR_{jt}, $\Delta V_{ijt} \times PR_{jt}$, and $\ln(\overline{M})_{jt}$) in Eq. 3 should wipe out the effects of the party system variables on changes in an incumbent party's share of cabinet portfolios.

We test this counter-argument by combining the structural and reduced-form models of the party system as specified in Specification 4 of Table 1,

$$
\begin{aligned}
\Delta C_{ijt} = {} & \alpha_0 + \alpha_1 \Delta S_{ijt} + \alpha_2 BI_{jt} + \alpha_3 \Delta S_{ijt} \times BI_{jt} + \alpha_4 ENP_{jt} + \alpha_5 \Delta S_{ijt} \times ENP_{jt} \\
& + \alpha_6 CENTRAL_{ijt} + \alpha_7 \Delta S_{ijt} \times CENTRAL_{ijt} + \beta_1 \Delta V_{ijt} + \beta_2 PR_{jt} + \beta_3 \Delta V \times PR_{jt} \\
& + \beta_4 \ln \overline{M}_{jt} + \beta_5 \Delta V_{ijt} \times BI_{jt} + \beta_6 PR_{jt} \times BI_{jt} + \beta_7 \Delta V_{ijt} \times PR_{jt} \times BI_{jt} + \beta_8 \ln \overline{M}_{jt} \times BI_{jt} \\
& + \beta_9 \Delta V_{ijt} \times ENP_{jt} + \beta_{10} PR_{jt} \times ENP_{jt} + \beta_{11} \Delta V_{ijt} \times PR_{jt} \times \ln \overline{M}_{jt} + \beta_{12} \ln \overline{M}_{jt} \times ENP_{jt} \\
& + \beta_{13} \Delta V_{ijt} \times CENTRAL_{ijt} + \beta_{14} PR_{jt} \times CENTRAL_{ijt} + \beta_{15} \Delta V_{ijt} \times PR_{jt} \times CENTRAL_{ijt} \\
& + \beta_{16} \ln \overline{M}_{jt} \times CENTRAL_{ijt}
\end{aligned}
\tag{4}
$$

where the α's apply to the party system (i.e., structural) variables, and the β's apply to the electoral system (i.e., reduced-form) variables, respectively. The counter-argument predicts that $\alpha_1 = \alpha_3 = \alpha_5 = 0$. Estimating Eq. 4 via OLS, we obtain:

$$\Delta C_{ijt} = -\underset{(6.53)}{9.24} + \underset{(\mathbf{1.06})}{\mathbf{2.35}}\Delta S_{ijt} + \underset{(6.21)}{3.74}BI_{jt} + \underset{(\mathbf{.71})}{\mathbf{2.24}}\Delta S_{ijt} \times BI_{jt} + \underset{(2.89)}{.79}\,ENP_{jt} - \underset{(\mathbf{.25})}{\mathbf{.64}}\Delta S_{ijt} \times ENP_{jt}$$

$$+ \underset{(1.09)}{.95}\,CENTRAL_{ijt} + \underset{(\mathbf{.13})}{\mathbf{.40}}\,\Delta S_{ijt} \times CENTRAL_{ijt} - \underset{(2.81)}{.49}\,\Delta V_{ijt} - \underset{(7.87)}{9.26}PR_{jt} + \underset{(2.33)}{1.06}\Delta V \times PR_{jt}$$

$$+ \underset{(2.18)}{3.05}\ln\overline{M}_{jt} + \underset{(1.38)}{.14}\,\Delta V_{ijt} \times BI_{jt} - \underset{(9.51)}{4.29}PR_{jt} \times BI_{jt} - \underset{(.92)}{2.36}\beta_7\Delta V_{ijt} \times PR_{jt} \times BI_{jt} - \underset{(1.77)}{.68}\,\ln\overline{M}_{jt} \times BI_{jt}$$

$$+ \underset{(.95)}{.63}\,\Delta V_{ijt} \times ENP_{jt} - \underset{(3.04)}{1.09}PR_{jt} \times ENP_{jt} - \underset{(.82)}{.19}\,\Delta V_{ijt} \times PR_{jt} \times \ln\overline{M}_{jt} - \underset{(.33)}{.30}\,\ln\overline{M}_{jt} \times ENP_{jt}$$

$$- \underset{(.41)}{.83}\,\Delta V_{ijt} \times CENTRAL_{ijt} + \underset{(1.58)}{.40}\,PR_{jt} \times CENTRAL_{ijt} + \underset{(.31)}{.36}\,\Delta V_{ijt} \times PR_{jt} \times CENTRAL_{ijt}$$

$$- \underset{(.43)}{.50}\,\ln\overline{M}_{jt} \times CENTRAL_{ijt}$$

$N = 880 \quad R^2 = .37$

Standard errors clustered by country in parentheses.

We observe that the coefficients on α_1, α_3, α_5 and α_7 (highlighted in bold) remain statistically significant, and that the signs on the coefficients are consistent with the argument that accountability increases in bipolarity and decreases in the party's distance from the center of the policy space. We conclude that the bipolarity of the party system is not reducible to aspects of the electoral system.

The Bipolarity Index and Changes in Cabinet Portfolios

A related concern is that the bipolarity index (BI) is endogenous to changes in incumbent parties' portfolio shares. The underlying problem in this case is not reverse causality per se. The main components of the BI are the parties' seat shares and their policy positions as derived from their election manifestos. Clearly, manifestos are issued and seats are won or lost before, not after, cabinet portfolios are redistributed. The concern is rather that the error term of Eq. 3 contains a variable that simultaneously effects both the BI and the share of portfolios that an incumbent party wins or loses.

Such a situation could arise via a relationship between parties' policy horizons and their portfolio shares. As described above, we use the intersection of parties' policy horizons to identify the number and membership of proto-coalitions in each party system. A potential issue with this approach is that one or two parties with large policy horizons will tend to push the BI toward zero (because this situation is more likely to produce a single, grand proto-coalition). If parties with large (small) horizons also experience systematically smaller (or larger) changes in their share of cabinet portfolios, then the BI is potentially endogenous to changes in parties' portfolio shares via their policy horizons.

Our efforts to address this concern begin by re-estimating the BI in a manner that does not use the parties' policy horizons to identify proto-coalitions. We do so by identifying proto-coalitions on the basis of the median (Euclidean) policy distance, $\widetilde{D}_{kjt}$, between all k parties in country j at election t. Parties that are within a policy distance $\widetilde{D}_{kjt}$ of one another are counted as members of the same proto-coalition. Once proto-coalitions are identified in this fashion, the BI is re-calculated as described above. We denote this version of the BI as BI*. Note well, that by identifying proto-coalitions on the basis $\widetilde{D}_{kjt}$, we ensure that BI* is wholly independent of parties' policy horizons and hence the historical pattern of coalition formation within any given country.

We use the BI* in two ways. First, we employ the BI* as a proxy for the BI directly in Specification 1 of Table 1. The results appear in the column labeled "Proxy" in Table A.9. We provide two benchmarks with which to evaluate these results, OLS estimates of the seats-to-portfolios relationship in Specification 1 of Table 1, and the 3SLS estimates of Specification 1 of Table 1 that appear in the main text. The coefficients obtained when we use BI* as a proxy for the BI are generally of the same magnitude, sign and statistical significance.

Second, we estimate the seats-to-portfolios relationship via 2-stage least squares. We use the BI*, the maximum policy distance between polar parties in the system at a given election ($DISTANCE_{jt}$), the votes-to seats variables (i.e., ΔV_{ijt}, PR_{jt}, $\Delta V \times PR_{jt}$, $\ln \overline{M}_{jt}$), and their interactions as instruments for ΔS_{ijt}, BI_{jt}, and $\Delta S_{ijt} \times BI_{jt}$.[5] Note that the BI* and $DISTANCE_{jt}$

[5]This is not an ad hoc decision. By Eq. 2, we have $\Delta S_{ijt} = \alpha_0 + \alpha_1 \Delta V_{ijt} + \alpha_2 PR_{jt} + \alpha_3 \Delta V_{ijt} \times PR_{jt} + \alpha_4 \ln(\overline{M})_{jt}$. If

are constructed solely from parties' policy positions that are themselves derived from the parties' respective election manifestos. Consequently, these variables are unrelated to parties' policy horizons or the pattern of coalition formation in a given country. As such, both variables are plausibly exogenous to changes in incumbent parties' cabinet portfolios.

Table A.9 shows two specifications of our 2-stage least squares model. The first specification instruments for ΔS_{ijt}, BI_{jt}, and $\Delta S_{ijt} \times BI_{jt}$, with the effective number of legislative parties, ENP_{jt}, and the party's distance from the dimension-by-dimension median, $CENTRAL_{ijt}$ entering directly. The coefficient on ΔS_{ijt} and $\Delta S_{ijt} \times BI_{jt}$ are in the same direction as our original estimates and retain their statistical significance.

One objection to the first specification is that it does not control for the $\Delta S_{ijt} \times ENP_{jt}$ interaction. We cannot enter $\Delta S_{ijt} \times ENP_{jt}$ into the model directly, however, because of the exclusion restriction on the instruments for ΔS_{ijt} (i.e., that ΔV_{ijt}, PR_{jt}, $\Delta V \times PR_{jt}$ and $\ln(\overline{M})_{jt}$ effect changes in the party's portfolios only through changes in its seat shares. We therefore use the effective number of electoral parties as an instrument for the effective number of legislative parties, ENP_{jt} in Specification 2. The resulting coefficient estimates are very close to those produced by OLS and the 3SLS estimates we present in the main text. In particular, the coefficient on $\Delta S_{ijt} \times BI_{jt}$ remains positive and statistically significant. This accords with the hypothesis that the marginal effect of changes in seat on changes in portfolios is greater the more bipolar the party system, and it is consistent with our broader argument about the relationship between the party system and electoral accountability. We acknowledge that issues can be raised with any one of our estimation

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we posit $BI_{jt} = \beta_0 + \beta_1 BI^*_{jt} + \beta_2 DISTANCE_{jt} + \beta_3 BI^*_{jt} \times DISTANCE_{jt}$, we have:

$$\Delta S_{ijt} \times BI_{jt} = (\alpha_0 + \alpha_1 \Delta V_{ijt} + \alpha_2 PR_{jt} + \alpha_3 \Delta V_{ijt} \times PR_{jt} + \alpha_4 \ln(\overline{M})_{jt}) \times (\beta_0 + \beta_1 BI^*_{jt} + \beta_2 DISTANCE_{jt} + \beta_3 BI^*_{jt} \times DISTANCE_{jt}).$$

One can appreciate the relationship between the BI and the maximum distance between polar parties in the system by recalling that the BI equals 1 when there exist two, mutually exclusive proto-coalitions, and equals 0 when there exists just one amorphous grand proto-coalition (e.g., 1983 Italy in Figure 3). All else equal, proto-coalitions are more likely to remain distinct from one another, and bipolarity should be higher, as $DISTANCE_{jt}$ increases.

strategies. Equally, the relationship between portfolios, seats and the structure of the party system remains intact notwithstanding changes in measurement, specification, and estimation technique.

Table A.9: IV Estimates of Seats-to-Portfolios Relationship

	OLS	Specification 1 Table 1	Proxy	2SLS (1)[a]	2SLS (2)[b]
ΔS_{ijt}	2.23***	2.21***	2.34***	**1.45*****	**2.75*****
	(.45)	(.50)	(.40)	**(.33)**	**(.60)**
BI_{jt}	.51	.53	3.32	**-.31**	**-.15**
	(2.79)	(2.84)	(4.22)	**(5.64)**	**(5.56)**
$\Delta S_{ijt} \times BI_{jt}$	1.41***	1.41***	1.30**	**1.53****	**1.51****
	(.45)	(.50)	(.62)	**(.83)**	**(.76)**
ENP_{jt}	.69	.71	.88	1.29***	.64
	(.51)	(.57)	(.55)	(.47)	(.50)
$\Delta S_{ijt} \times ENP_{jt}$	-.26**	-.26**	-.31***		**-.26*****
	(.11)	(.13)	(.09)		**(.11)**
$CENTRAL_{ijt}$	.42	.42	.38	.21	-.33
	(.51)	(.53)	(.56)	(.48)	(.65)
$\Delta S_{ijt} \times CENTRAL_{ijt}$	.09	.09	.10		**-.20**
	(.06)	(.07)	(.07)		**(.15)**
Constant	-10.04***	-10.12***	-12.15***	-11.61***	-8.05***
	(3.05)	(3.00)	(4.00)	(3.37)	(3.12)
R^2	.36	.37	.35	.35	.35
N (clusters)			880 (28)		
1st stage F				21.40	631.96
df (n, d)				18, 861	23, 857

[a]Instruments: ΔV_{ijt}, PR_{jt}, $\Delta V \times PR_{jt}$, $\ln(\overline{M})_{jt}$ BI^*_{jt}, $Distance_{jt}$, $\Delta V_{ijt} \times BI^*_{jt}$, $PR_{jt} \times BI^*_{jt}$, $\Delta V_{ijt} \times PR_{jt} \times BI^*_{jt}$, $\ln(\overline{M})_{jt} \times BI^*_{jt}$, $BI^*_{jt} \times Distance_{jt}$, $\Delta V_{ijt} \times Distance_{jt}$, $PR_{jt} \times Distance_{jt}$, $\Delta V_{ijt} \times PR_{jt} \times Distance_{jt}$, $\ln(\overline{M})_{jt} \times Distance_{jt}$, $\Delta V_{ijt} \times PR_{jt} \times Distance_{jt} \times BI^*_{jt}$, , $\ln(\overline{M})_{jt} \times BI^*_{jt} \times Distance_{jt}$.

[b]Instruments: ΔV_{ijt}, PR_{jt}, $\Delta V \times PR_{jt}$, $\ln(\overline{M})_{jt}$, BI^*_{jt}, $Distance_{jt}$, $\Delta V_{ijt} \times BI^*_{jt}$, $PR_{jt} \times BI^*_{jt}$, $\Delta V_{ijt} \times PR_{jt} \times BI^*_{jt}$, $\ln(\overline{M})_{jt} \times BI^*_{jt}$, $BI^*_{jt} \times Distance_{jt}$, $\Delta V_{ijt} \times Distance_{jt}$, $PR_{jt} \times Distance_{jt}$, $\Delta V_{ijt} \times PR_{jt} \times Distance_{jt}$, $\ln(\overline{M})_{jt} \times Distance_{jt}$, $\Delta V_{ijt} \times PR_{jt} \times Distance_{jt} \times BI^*_{jt}$, $\ln(\overline{M})_{jt} \times BI^*_{jt} \times Distance_{jt}$, $ENEP_{jt}$, $\Delta V_{jt} \times ENEP_{jt}$, $PR_{jt} \times ENEP_{jt}$, $\Delta V_{jt} \times PR_{jt} \times ENEP_{jt}$, $\ln(\overline{M})_{jt} \times ENEP_{jt}$.

Standard errors clustered by country in parentheses.

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Variables of boldfaced coefficients are instrumented.

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