The personalization of electoral rules: How shifting influence from selectors to voters affects party unity

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Abstract

How does making electoral systems more candidate-centered affect party unity? Using a principal–agent perspective, this study makes three contributions to the literature on this topic. Conceptually, it suggests thinking about the incentives due to personalization as arising from a shift in electoral impact from party selectors to voters. Theoretically, it incorporates this notion into a spatial model of parliamentary voting that also considers principals' monitoring capacities. From the resulting framework follows a rich set of observable implications, notably that candidate-centered electoral systems facilitate rather than undermine collective action within parliamentary parties under certain conditions. Empirically, this study then analyzes the 2010 reform of Sweden's flexible-list proportional representation system, which changed the preference vote threshold. As expected, I find that when extreme (district-based) selectors disagree with the moderate bills supported by the party group leadership, personalized rules incentivize politicians to support these policies and vote in unison.

Keywords:
parliamentary voting, party unity, personalization, candidate selection, flexible-list PR, principal-agent model

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It is often argued that candidate-centered electoral systems add to the collective action problems of political parties. They may threaten party unity in parliamentary voting by weakening the party's sanctioning potential and creating incentives for members of parliament (MPs) to differentiate themselves from co-partisans (e.g., Carey, 2009; Carey and Shugart, 1995; Depauw and Martin, 2009; Sieberer, 2006). Although recent work suggests that party leaders can take precautions by screening candidates in the selection stage (Carroll and Nalepa, 2020; Coman, 2015; Preece, 2014; Shomer, 2016), the fact that multidistrict proportional representation (PR) often goes along with decentralized candidate selection (Bowler et al., 1999) still leaves many parties at risk.[1] Moreover, European voters' opportunities to express preferences for candidates and the impact of these votes on intra-party seat allocation have increased considerably in recent decades (Renwick and Pilet, 2016).

This study makes three main contributions by examining in depth how the personalization of electoral rules affects party unity. First, it suggests conceptualizing the incentives derived from personalizing the electoral system as the result of a shift in electoral impact from party selectors to voters.[2] The scope for any change in a given case therefore depends on whether targeted voters rather than the selectors in the party want MPs to vote differently. Second, in theoretical terms, I incorporate this notion of a shift in principals' influence in a spatial model of parliamentary voting. Since the importance of monitoring capacity has been emphasized both in the general literature (Fearon, 1999; Ferejohn, 1986; Gailmard and Jenkins, 2009) and in work on electoral systems (André et al., 2014; Bowler and Farrell, 1993; Shugart, 2013), the theory also formalizes the (perceived) monitoring/sanctioning probabilities of the two principals. From the resulting theoretical framework follows a rich set of observable implications, notably

[1] The data reported by Shomer (2014: 543) suggest that decentralized/inclusive candidate selection is at least common in systems with an average district magnitude between 2 and 20.

[2] This is in line with competing principals' perspective of legislative behavior (Carey, 2009; Hix, 2002; Meserve et al., 2017). The formal theoretical paper presented by Buisseret and Prato (2020) also studies this trade-off in the context of a signaling game.

that an unfortunate trade-off between candidate focus and party-based representation need not necessarily materialize. When selectors disagree with a policy supported by the party group (PG) and popular with an MP's target electorate, personalization – as defined here – may actually *promote* party unity in voting.

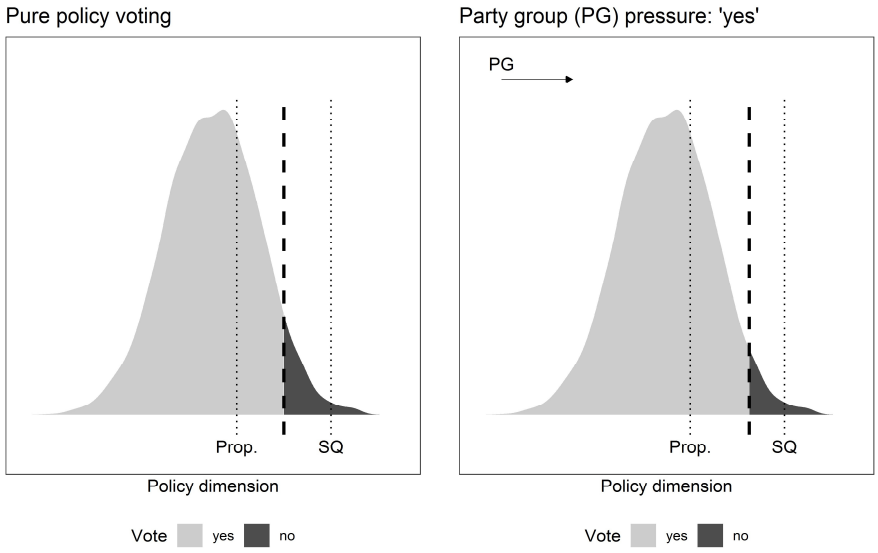
Third, the study presents empirical evidence for this prediction from the 2010 reform of Sweden's flexible-list PR (FLPR) system, which allows me to isolate the effect of a change in candidate focus. In FLPR systems, the party-mandated pre-electoral ranking of candidates decides on the post-electoral allocation of seats within the party, but candidates may "jump the queue" if they win enough personal votes (Marsh, 1985; Renwick and Pilet, 2016).[3] In 2010, the Swedish parliament reduced the preference vote threshold above which candidates are moved to the top of the post-electoral ranking. This subtle change in electoral rules helps us identify the extent to which a shift in influence from selectors to voters affects electoral incentives.[4] Relying on anticipated changes in list flexibility and comparing individual voting behavior over time (cf Levitt, 1996; Olivella and Tavits, 2014; Slapin et al., 2018), the research design holds three factors constant: other features of the electoral system (e.g., district boundaries), any aspects of voters selecting different types of MPs (the original rules are still in place), and time-invariant MP features. The empirical analysis then focuses on MPs cross-pressured between a moderate electorate and party selectors with more extreme policy preferences. The results show that the anticipation of reform effects weakening selectors (while strengthening the influence of voters) actually *increased* unity in votes on centrist policy proposals, which were necessitated by the minority government context (i.e., the parties in cabinet did not command a majority of seats in parliament).

[3] Altogether, 10 of the 30 European countries covered by Pilet et al. (2016) used such a system in 2011.

[4] Previous work points out the links between preference votes and parliamentary voting loyalty under FLPR. Crisp et al. (2013) show that past disloyalty predicts a higher personal vote, while both Stegmaier et al. (2016) and Willumsen and Öhberg (2017) report a positive correlation between the past personal vote and subsequent dissent. However, these results do not shed light on electoral incentives directly. Further, MPs may be of the popular type that both attracts votes and allows them to be disloyal (Tavits, 2009).

The theoretical and empirical analyses presented in this study point out the importance of considering the preferences and monitoring behavior of both selectors and voters when analyzing the effects induced by the candidate focus of electoral rules. Failure to do so may partially explain why the empirical results on the link between candidate-centered electoral rules and party unity are mixed.[5] Moreover, an increase in party unity due to more personalized electoral rules may even be a common scenario. For example, it occurs when nomination happens in districts that pitch party activists with more extreme preferences against both the more moderate parliamentary PG leadership and the broader target electorate.[6] That ideologically driven activists clash with the leadership has long been a prominent theme in the literature

Figure 1: Standard cut point shift model



This graph shows a right-of-center party. The proposal seeks to move a strongly right-wing status quo (SQ) closer to the center.

[5] Some studies find differences (Carey, 2009; Depauw and Martin, 2009; Hix, 2004), while others report no effects (Desposato, 2006), or what may be regarded as ambiguous evidence (Sieberer, 2006).

[6] The seminal contribution by Carey and Shugart (1995: 420) explains that "[w]hen we speak of a tension between personal and party reputation, then, we are referring to the potential conflict between individual politicians and *district-level* party leaders" [my emphasis]. Subsequent work typically does not (or perhaps cannot due to data limitations) incorporate the policy preferences of these selectors (for an exception see Ascencio and Kerevel, 2020).

on political parties (e.g., Katz, 2001; May, 1973; Schofield and Sened, 2005).[7] Overall, the analysis also implies that the recent argument about electoral dealignment threatening party unity when combined with candidate-focused electoral institutions (André et al., 2015) is context-dependent.

Extending the cut point shift model

This section introduces the decision-theoretic model used to analyze the impact of personalizing electoral rules on parliamentary voting. In a standard one-dimensional spatial model of roll-call voting, the cut point represents the location at which an MP would be indifferent between choosing "yes" and "no" on policy grounds. Consider the example in the left panel of Figure 1, which shows the distribution of ideal points within one PG located on the right side of the policy continuum. A bill is proposed to move the status quo, which falls near the right end of the overall dimension (e.g., because no legislation on the issue exists), closer to the center of the space. Under pure policy voting, some of the party's right-wing MPs will not support the proposal since their ideal point falls to the right of the cut point (i.e., they are closer to the status quo than to the location of the bill). To increase unity, more centrist PG leaders would thus have to pressure these MPs in some way (Clinton et al., 2004; Hug, 2016; Snyder and Groseclose, 2000).[8] The right panel illustrates how "carrots" or "sticks" make some MPs concede. Such inducements shift the cut point for all the MPs of this party to the left, which makes some alter their choice; however, for those with the most rightist views, the policy incentives remain strong.

[7] However, we should be careful to assume a general pattern of "curvilinear disparity" within all parties (e.g., Van Holsteyn et al., 2017).

[8] Unless these MPs forgo a policy gain in exchange for a longer-run benefit from the clarity of the party label (Willumsen, 2017).

Following Clinton et al. (2004: 356, 363–366) and using the parametrization of Jessee (2016: 1109), if we assume random utility maximization with independent normal errors, the probability of MP *i* voting "yes" in vote *j* can be expressed as

$$P_{ij} = P(y_{ij} = 1) = \Phi\left(\underbrace{\beta_j(x_p + \Delta x_i - \gamma_j)}_{\text{policy}} + \overbrace{\delta_{pj}}^{\text{PG}}\right), \qquad (1)$$

where Φ is the normal cumulative density function (CDF), x_p is the ideal point of the PG, Δx_i is the MP's ideological distance from that,[9] γ_j is the bill-specific cut point, and δ_{pj} is a party-specific inducement ("pressure") term. β_j reflects the direction and extent to which the vote decision is policy-driven.

To gain novel insights, I extend this standard model by adding re-election incentives into the equation:

$$\begin{aligned} P_{ij} = P(y_{ij} = 1) &= \Phi(\mu_{ij}) \\ &= \Phi(\underbrace{\beta_j((x_p + \Delta x_i) - \gamma_j)}_{\text{policy}} + \overbrace{\delta_{jp}}^{\text{PG}} + \underbrace{\rho_i[\overbrace{(1-\omega)\psi_s\delta_{js}}^{\text{selectors}} + \overbrace{\omega\psi_v\delta_{jv}}^{\text{voters}}]}_{\text{re-election considerations}}). \end{aligned} \qquad (2)$$

Re-election considerations are reflected in the weighted mean of the inducements offered by selectors and voters, which is multiplied by a factor $\rho_i \geq 0$ to capture the importance of re-election to the MP. A key component of ρ_i is electoral vulnerability (Peskowitz, 2018; Sieberer and Ohmura, 2019), but it may also incorporate factors such as ambition and outside options. The relative importance of selectors and voters for re-election concerns is captured by the weight of voters $\omega \in [0,1]$, with the corresponding value

[9] I use this notation rather than individual ideal points x_i since the context is a party-centered parliamentary system. This will help clarify some of my later statistical modeling choices.

for selectors being $1 - \omega$.[10] Just as the PG may urge the MP to vote in a certain way, selectors and voters can provide inducements $\delta_{j.}$.[11] Since selectors or voters may fail to monitor or sanction the MP's voting choice, MPs may discount these inducements, which is reflected in the probability $\psi_{.} \in [0,1]$.[12]

The left panel of Figure 2 shows (starting from the pure policy voting case) that an MP may relent to pressure from selectors if they fully control his/her re-election prospects and could then demand that the bill be rejected.[13] Hence, the cut point moves to the left and dissent with the PG increases. The right panel depicts the case in which voters both influence re-election prospects and counteract the pressure by right-wing selectors. This happens when targeted voters are also right-wing, but exert less of a "pull" than selectors (see Voter group 1 in Figure 2) or when they actually support the bill (see Voter group 2). In this case, the level of dissent is lower than that in the left panel of Figure 2.

Formally, how the expected parliamentary vote choice changes when voters' influence on re-election increases is given by (see Appendix A.1 for the derivation)

$$\frac{\partial P_{ij}}{\partial \omega} = \frac{\partial P_{ij}}{\partial \mu_{ij}} \frac{\partial \mu_{ij}}{\partial \omega} = \overbrace{\frac{1}{\sqrt{2\pi}} e^{-\mu_{ij}^2/2}}^{\text{closeness to indifference}} \rho_i \overbrace{(\psi_v \delta_{jv} - \psi_s \delta_{js})}^{\text{weighted "pull"}}. \qquad (3)$$

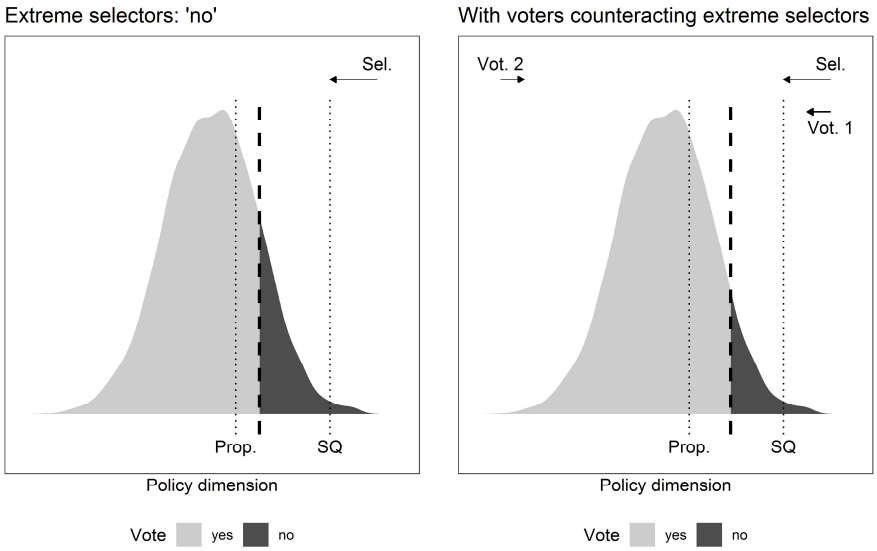
[10] The models of Levitt (1996) and Lindstädt et al. (2011) also weight principals, but focus on the position taken publicly. Taking such a model to the data requires further assumptions about the policy space, though. For FLPR, the formal model in Buisseret and Prato (2020) uses a list flexibility parameter to capture the variation between the case in which only list rank matters for re-election and the one in which only preference votes do.

[11] This model leaves open the origin of the inducements by principals. In what follows, the spatial motivation (broadly understood) of the principals is assumed, but other roots (e.g., links to interest groups) are conceivable. The model is also compatible with the idea that MPs expect rewards from "grandstanding" to constituents (Slapin et al., 2018), even when their PG's choice is ideologically closer to their own ideal point (and perhaps to that of the principal) than the status quo. Other recent work (e.g., Campbell et al., 2019) suggests that voters value dissent since it signals the candidate's integrity. Because that leaves open the question of how MPs choose *which votes* to use for signaling, it is beyond the scope of this study to examine the implications of such a mechanism for personalization effects.

[12] To be precise, the $\psi_{.}$ parameters correspond to MPs' *beliefs* about monitoring and sanctioning, which may or may not coincide with the actual behavior of principals. In addition, for simplicity, Equation 2 does not contain a ψ parameter referring to the PG, implicitly assuming that it equals one (perfect monitoring). Relaxing this would only affect the term capturing the closeness to indifference in Equation 3.

[13] The example assumes that the parameters making up re-election considerations are the same for all MPs. In the extended model represented by Equation 2, each MP may have a different cut point in principle.

Figure 2: Common shift in the individual cut points due to electoral principals



Basic setup as in left panel of Figure 1.
Left panel: $\omega = 0$, $\delta_{js}\,\psi_s < 0$, $\rho_i > 0$.
Right panel: $\omega > 0$, $\delta_{js}\,\psi_s < 0$, $\delta_{jv}\,\psi_v > \delta_{js}\,\psi_s$, $\rho_i > 0$.
All the parameters are identical across MPs i, meaning that there is a common shift in individual cut points.

Three basic insights about the consequences of a heightened influence of voters (ω) (e.g., due to an electoral reform) follow. First, this effect depends on the baseline probability, or the proximity of the MP to being indifferent. While this concerns the distance to the general bill-specific cut point γ_j, it could also be influenced by other factors in Equation 2 or even the error term.[14] For example, if MPs are strongly drawn toward voting "yes" or "no" because of ideological reasons or the "carrots" and "sticks" of the PG, the impact of changes in ω will be small.[15] Second, the impact depends on the strength of individual electoral concerns, ρ_i. For example, some MPs hardly need to take into account electoral considerations

[14] The first term on the right-hand side refers to the slope of the standard normal CDF, with π representing the mathematical constant.

[15] The PG-level inducement δ_{jp} is posited as being independent of concerns about (general) elections. Rather, it captures hard and soft rewards/sanctions such as the future prospects of obtaining parliamentary posts or "mega-seats" (Martin, 2014). If much of the "total" disciplining power of parties rests in re-nomination (δ_{js}) rather than other arenas (δ_{jp}), the baseline probabilities may be less skewed toward the extreme.

because they are almost certain to be re-elected no matter how they vote in parliament.[16] Third, the impact of voters' influence depends on the net preference inducements by voters and selectors weighted by the respective monitoring/sanctioning probabilities: $\psi_v\delta_{jv} - \psi_s\delta_{js}$. Crucially, this points out that an increase in voters' influence can decrease as well as increase the chance that an MP will vote "yes," thereby implying more or less dissent with the PG leadership.[17]

To discuss this in more detail, suppose that the PG leadership is in favor of the proposal decided upon.[18] In some circumstances, personalization indeed poses a threat to party unity, in line with the standard argument. This happens if selectors siding with the PG leadership (supporting "yes," $\delta_{js} > 0$) are weakened at the expense of voters who choose "no" ($\delta_{jv} < 0$). The same implication follows if both selectors and voters are in favor of a "yes" ($\delta_{js} > 0$,$\delta_{jv} > 0$), but the "pull" by empowered voters is smaller (i.e., the product of the inducement and perceived monitoring/sanctioning probability is smaller for voters than for selectors, $\psi_v\delta_{jv} < \psi_s\delta_{js}$). Loosely speaking, dissent becomes more likely here since MPs believe that voters (who gained power) let them get away more easily than selectors (who ceded power) would, for instance, because MPs believe that many voters will never hear about how they vote on bills anyway.

However, in some scenarios, shifting the influence from selectors to voters will make a "yes" vote more likely and, hence, encourage the PG to vote in unity. This is the case if selectors would like the MP to vote "no" ($\delta_{js} < 0$), while voters fall on the side of the PG and push for "yes" ($\delta_{jv} > 0$; see Voter group 2 in Figure 2). Importantly, this occurs regardless of the absolute size of these inducements and independent of monitoring capacities $\psi_.$: if selectors demanding dissent lose power to voters favoring the consenting choice, the likelihood of unity rises. In another scenario, an MP is also more likely to cast a consenting "yes" vote when both selectors and voters push for the conflicting "no" ($\delta_s < 0$, $\delta_v < 0$), but the

[16] An electoral reform may change not only ω, but also ρ_i.
[17] Using a game-theoretic model, Ascencio and Kerevel (2020) derive the similar prediction that the effect of delegating candidate selection from the party leadership to other intra-party actors can lead to more or less dissent in candidate-centered systems depending on actors' preferences and motivations.
[18] The same argument will apply with the reverse signs if PG leaders are against the bill.

"pull" resulting from the inducement and perceived monitoring capacity is smaller in absolute terms for voters than for selectors (i.e., $0 > \psi_v\delta_v > \psi_s\delta_s$; see Voter group 1 in Figure 2). Here, the monitoring/sanctioning deficiencies of voters work in favor of unity since MPs expect less electoral damage from consenting.

Reform of FLPR in Sweden

The recent reform of FLPR in Sweden is a suitable case for examining the effect of personalization on parliamentary voting. Sweden originally switched from a (de facto) closed-list PR system to an FLPR one for its national elections in 1998 (Davidsson, 2006).[19] The original rules posited one optional candidate vote and a preference vote threshold of 8%. Under these rules, any candidates receiving 8% of the total party vote (the sum of ballots with and without a preference vote) in the district were moved to the top of the post-electoral ranking in the order of their preferential votes.[20] Later, following a review of the first reform (SOU, 2007), the Committee on the Constitution recommended decreasing the personal vote threshold at the national level to 5%, the same value already applied in regional and local elections.

Two aspects of the reform are noteworthy. First, other aspects of the electoral system were unchanged; in particular, district boundaries remained stable. Second, the 2010–14 parliament was elected under the former rules, but MPs knew about the new rules for the subsequent election from the beginning of that legislative period. This is because any changes to the Swedish constitution need to be passed by parliament twice, with a general election held between the two votes (Ch. 8, Art. 14 of the Instrument of Government). The votes took place in June and November 2010, with the election being held in

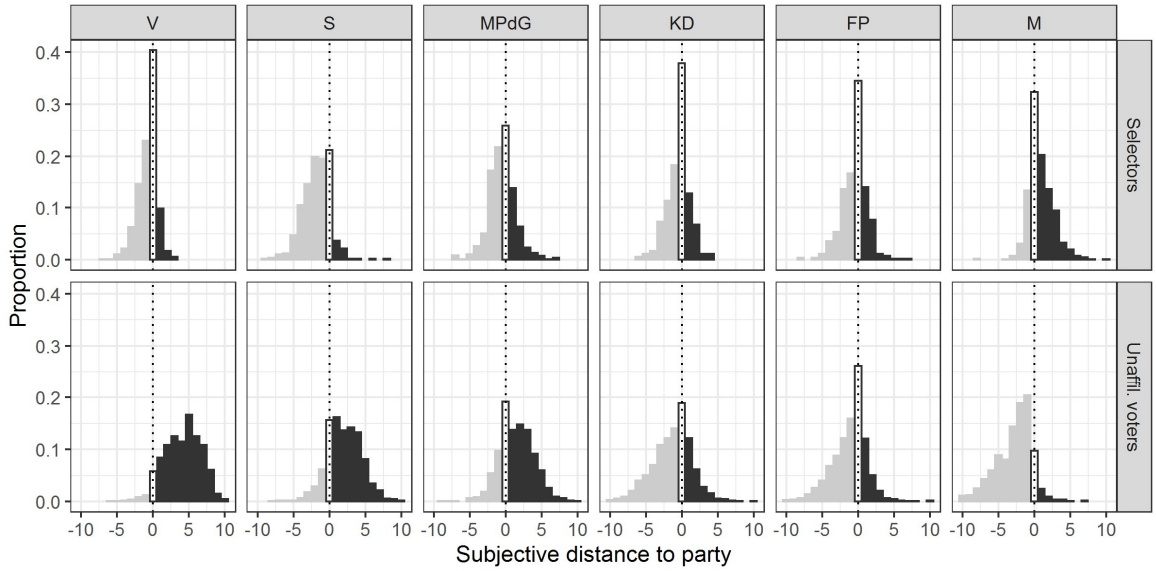
[19] In Swedish national elections, 349 seats are allocated across 29 electoral districts (Hermansson, 2016).
[20] Davidsson (2006) studies the consequences of introducing preference voting on parliamentary behavior using before and after comparisons and Fransson (2018) examines whether Swedish voters choose other types of MPs than selectors do.

September. This setup allows me to isolate the effects due to (anticipated) institutional *incentives* from the *selection* aspect of the principal–agent relationship.

In an FLPR system such as the Swedish one, the size of the threshold affects the flexibility of the list and therefore the relative importance of selectors and (personal) voters for MPs' electoral concerns (ω in the model above). When the pre-electoral ranking loses relevance, the party selectorate has less to promise as a reward; hence, its sanctioning threats are less credible. At the same time, being popular with the electorate becomes more relevant since personal votes can affect seat allocation. Indeed, reducing the threshold from 8% to 5% changes the *absolute* number of votes required to bypass the list order. Since the threshold is defined relative to the total vote for the (district-level) list, its reachability depends on such factors as party size, the number of voters, and preference vote take-up in practice (Däubler and Hix, 2018). Therefore, as discussed in more detail in Section 3.1, the reform should only have changed the anticipated list flexibility for subsequent elections (eventually held as scheduled in 2014) for *some* lists.

The comparative statics result in Equation 3 points out that the effects of increasing voters' influence ω depend on the preferences of selectors and voters. Hence, the parties and votes analyzed need to be selected in a way that guarantees an unambiguous prediction. In the case studied, there are two crucial aspects for this. First, following the 2010 elections (Bäck and Bergman, 2016: 209–211), the center-right cabinet consisting of the Moderates (M), Center Party (C), Liberals (FP), and Christian Democrats (KD) stayed in power; however, the change from majority to minority status required them to find centrist compromises with the opposition, which proved difficult (Aylott, 2016: 161). Another barrier was the fact that parties ruled out cooperating with the newly represented and populist Sweden Democrats (SD). In Sweden, parliamentary votes pitch the majority position, originating from the committee that dealt with the bill, against an alternative, typically supported by one or more of the opposition parties. Hence, in the 2010/14 period, any compromise by opposition to the centrist government may have disappointed

Figure 3: Principals' positions relative to the party



This figure shows the difference between self-placement and the placement of the party on a left/right scale. The colors illustrate the sign of the distance. Data for selectors are from respondents to the 2015 party member survey (Kölln and Polk, 2018) who report having taken part in candidate selection for national elections (the survey does not cover C). Data for voters are from respondents to SNES 2010 (Holmberg and Oscarsson, 2017) who do not consider themselves to be supporters of any party.

purists on at least one side of the divide, say, left-wing MPs from the opposition bloc or right-wing MPs from parties in government.[21]

Second, candidates for Sweden's national elections are usually nominated at the regional level (Aylott, 2013; Bergman et al., 2006).[22] As a consequence, it is important to ask whether the preferences and monitoring capacities of the party actors at the district level differ from those of voters. Esaiasson and Wängnerud (2016: 191) report that Swedish elites are more polarized than voters, and Figure 3 confirms this pattern using data from election and party member surveys. The vast majority of potentially targeted unaffiliated voters (cp. André et al., 2015; Kam, 2009) place themselves to the right of left-wing parties (the Left Party [V], Social Democrats [S], and Greens [MPdG]), whereas many of their selectors see

[21] For a graphical illustration and further discussion, see Appendix A.2.

[22] Appendix A.3 shows there is little variation in that regard based on data from the 2010 candidate survey.

themselves to the left of their party. The same pattern but with opposite signs holds for the largest right-wing party, M. The reform effects can be clearly predicted for these parties: centrist compromises will appeal to unaffiliated voters but not selectors.[23] By contrast, for FP and KD, selectors and unaffiliated voters are aligned since large parts of the distribution overlap on the left side. That makes it hard to say whether strengthening voters at the expense of selectors would affect parliamentary voting in these parties. While the preferences in the four parties V, S, MPdG, and M are typically polarized, some of their *district-level* selectorates may not exhibit this general pattern. Appendix A.4 outlines how multilevel analysis of party member survey data is used to retain only local branches in which the probability that the median selector falls to the extreme side exceeds .8.

Combining the features of the Swedish case discussed in this section yields the following specific prediction. For district-level parties characterized by a selectorate with relatively extreme policy preferences, if the PG leadership supports the centrist majority proposal, the probability that an MP casts a dissenting "no" vote *decreases* in more flexible lists.

Empirical analysis

Research design

Ideally, we would like to observe the same MP voting in the same context, but with the relative electoral importance of selectors and voters varying (i.e., different ω). However, while the individual counterfactual outcome is unobservable, the Swedish personal vote reform can help us estimate the average effect of a shift in the weighting of the two principals (here, on the probability of breaking the

[23] MPs may only seek personal votes from core voters whose policy preferences are aligned with those of the selectorate. However, it is plausible to assume that core voters (are perceived to) monitor less than selectors, so their pull for rejecting the centrist compromises is weaker than that by selectors. Hence, the predicted reform effect also points to more consent.

Table 1: Example of intra-party seat allocation (2010, M, North and East Scania district, ballots cast for party: 60,930, seats won: 4)

Name	Pre-electoral list rank	Personal votes		Vote rank	Post-electoral rank (8% rule)	Post-electoral rank (5% rule)
		N	% of ballots			
M. Pålsson	1	1970	3.2	2	1	2
H. Wallmark	2	3238	5.3	1	2	1
C. Akej	3	1199	2.0	3	3	3
G. Montan	4	883	1.4	4	4	4
A. Åkesson	5	649	1.1	6	5	5
C. Westdahl	6	692	1.1	5	6	6
...	...	...	...	...	...	...

party line in votes on centrist compromises). Indeed, the Swedish reform allows us to work with anticipated reform effects. Because of the requirement that two consecutive parliaments need to pass constitutional changes, the first elections under the new rules were supposed to take place only in 2014 (and in fact did so), but the change in rules was certain from late 2010. While all MPs in the 2010/14 legislative period were elected under the old rules, the anticipation of the new rules for upcoming elections changed perceived list flexibility (and thus ω) during 2010/14 for MPs from *some* lists.

Consider the example of the intra-party seat allocation from the 2010 election summarized in Table 1. M won four seats in this district, and its pre-electoral ranking was equivalent to its post-electoral ranking since no candidate reached a number of personal votes as high as 8% of all the ballots cast for the list. To infer the list flexibility for the upcoming electoral contest, it is plausible to assume that MPs use the personal vote results of candidates on their list from the preceding election (in 2010) and form an expectation by applying the new 5% preference vote threshold. Doing so, Mr. Wallmark, ranked second on the pre-electoral list, now passes the preference vote threshold and leads the post-electoral ranking, while the other candidates follow in order of their pre-electoral list positions. In short, the list has become more flexible because of the rule change.

For all MPs in the 2010/14 period, Table 2 reports the change induced by this kind of anticipation. The criterion for distinguishing different levels of list flexibility used here is whether a candidate other than the one at the top of pre-electoral ranking reaches the preference vote threshold.[24] In this situation, seats are no longer allocated on the basis of the pre-electoral list position alone, suggesting that the threshold is reachable for those who are not the selectorate's preferred candidates, which makes the competition for personal votes more important. Most MPs (376) were elected from lists on which only the candidate at the top of the pre-electoral ranking cleared the threshold (as per the actual 2010 result); however, applying the rule change increases the anticipated flexibility for 58 (15.4%) of them. In what follows, this is referred to as the (list-level) treatment condition.

To estimate the electoral incentive effects, we could draw on a cross-sectional comparison of MPs (see the first row of Table 2). However, without information on MPs' individual preferences (i.e., their

Table 2: Cross-sectional changes in list flexibility due to anticipation of the reform, 2010/14

	Anticipation: 2010 result + applying the 5% threshold		
	Only the top-ranked candidate above the threshold	Any lower-ranked candidate above the threshold	Sum
Actual 2010 result (8% threshold) Only the top-ranked candidate above the threshold	318	58	376
Any lower-ranked candidate above the threshold	0	22	22
Sum	318	80	398

Note: Includes replacement MPs; excludes MPs from SD, which do not use district-specific lists.

[24] This distinction is similar to that made by Däubler and Hix (2018), who differentiate "strongly" and "weakly" flexible lists in this way.

deviations Δx_i from the party position x_p), this can give rise to endogeneity problems.[25] Therefore, I rely on a comparison over time and examine whether those who switch by anticipation change their behavior (in 2010/14, or $t = 2$) compared with their own past behavior (in 2006/10, or $t = 1$), in different ways than those whose perception remains the same. Among the 376 MPs from lists with only the top-ranked candidate above the threshold, 224 (or 59.6%) were also members of the 2006/10 Riksdag and 216 of those came from a similarly inflexible list in 2006/10; moreover, 128 were from district-level parties with an extreme selectorate (compare Appendix A.4). These form the initial pool for the comparison, which allows us to examine the consequences of institutionally induced personalization incentives, holding any selection aspects of the principal–agent relationship constant.[26]

Appendix A.8 outlines how focusing only on MPs who were free of electoral incentives in 2006/10 reduces the number of assumptions required to identify the electoral reform effect. To select MPs based on their electoral vulnerability in 2006/10, I adopt the bootstrap election approach suggested by Kotakorpi et al. (2017) to simulate seat allocation outcomes based on the observed voting results plus random elements to model an MP's perceived vulnerability to vote swings. MPs with a re-election probability greater than .5 in 2006/10 are included in the analysis sample. Appendix A.6 provides further details of the bootstrap approach. To summarize, the cases analyzed include those MPs sitting in both the 2006/10 and the 2010/14 periods who (a) are from district-level parties with relatively extreme selectors (a subset of lists from M, MPdG, S, and V, as discussed in Appendix A.4),[27] (b) had lists in which only the top-

[25] For example, opposition MPs with more moderate ideal points may less frequently dissent than their colleagues already before the reform, subsequently fail to be granted the top list rank by the selectorate but garner between 5% and 8% of the preference vote, and continue to vote in a more loyal fashion. In this case, the lower dissent levels in the treatment group are not due to the occurring switch of list flexibility status; rather, it is the other way around.

[26] This is because the 2010 election was still held under the former rules. Appendix A.5 shows that 2006/10 MPs that did not re-run or were not re-elected had similar 2006/10 dissent rates to their continuing colleagues. Therefore, the results should not be affected.

[27] C (not part of the party member survey) and SD (used only national lists in the elections of interest) are not considered.

ranked candidate reached the threshold in both in periods, and (c) whose seats were reasonably safe in 2006/10.[28]

The dependent variable measures dissent when voting on bills that the PG leadership supports. The respective PG leaders want to pass the majority proposal by the committee, which reflects the center-right government majority in 2006/10 and some form of centrist compromise in the minority government context in 2010/14. In addition to voting "yes" or "no," MPs can abstain (Rosas et al., 2015; Willumsen and Öhberg, 2017). Since abstentions count against the majority required for passage in the Swedish parliament, it is theoretically unclear whether extreme selectors would push for strong dissent in the form of a "no" or might be pleased with an "abstain." I thus use two variants of a binary dependent variable: one considers abstentions to be dissent, while the other counts only "no" choices as disloyal behavior. Information on parliamentary voting is provided by the Riksdag's Open Data service.[29] The proportion of dissenting votes (on a percentage point scale) is calculated relative to the tally of votes in which an individual MP participated.[30] Many studies of party discipline rely on the floor result post hoc to determine the PG preference. Instead, I use the vote of the PG leader as an indicator of group preference.[31] While the level of dissent is low, dispersion compared with the mean is considerable (mean of .68 [sd .86] without abstentions and 2.03 [sd 1.89] with abstentions in 2006/10, .15 [sd .18] without and .41 [sd .38] with abstentions in 2010/14; all values on a percentage point scale).

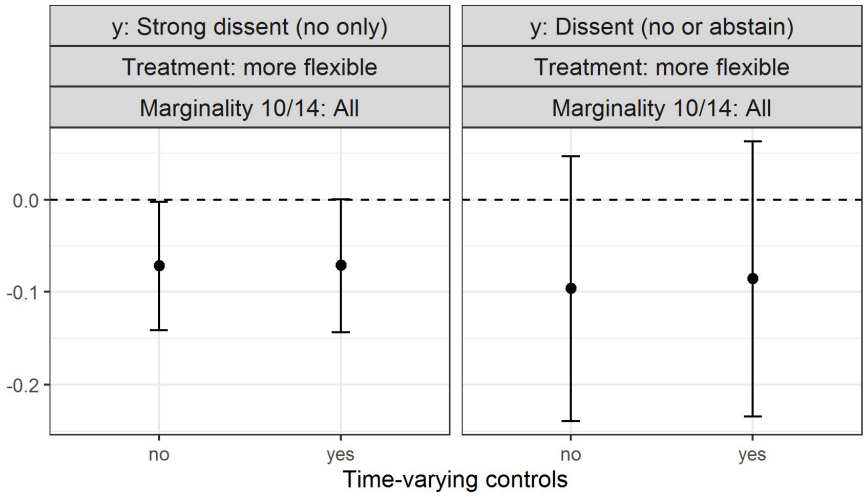
Under the minority government in 2010/14, the proposals must have been backed by at least one opposition party in committee. Opposition parties more readily agree with those bills than before, and the

[28] In addition, I exclude MPs who cast fewer than 20 votes (in which the PG voted "yes") in the full term.
[29] As Willumsen and Ohberg (2017: 688, 706) describe, in practice all votes are recorded and the decisions taken by acclamation are uncontroversial.
[30] Should MPs miss votes intentionally to avoid taking a position (Ceron, 2015), this may induce conservative bias.
[31] When the whip did not cast a vote or the leader's post was vacant, I use the modal vote of the PG.

typical vote in the minority government context becomes less ideologically divisive.[32] As discussed in Appendix A.8, this makes the use of models with a lagged dependent variable preferable to those with fixed effects for MPs.[33] The estimation is by OLS; in the models without control variables, this is essentially a comparison of the mean rates (cp. Wooldridge, 2010: 564–565).[34] The time-varying control variables include seniority (based on the number of terms), an indicator for having been the list leader, and the logged ratio of the number of candidates and party magnitude as measures of intra-party competition (Crisp et al., 2007).

Results

Figure 4: Effects of the anticipated increase in list flexibility on the dissent rate (percentage points)



Point estimates and 95% confidence interval. Number of MPs: N=17 with change, N=95 without.

[32] In addition, if we empirically examine the changes in the dependent variable over time (across the treatment and control groups), there is a strong negative correlation between the dissent rate at $t = 1$ and its change between periods (see Appendix A.7). The strongest dissenters at $t = 1$ have the largest changes toward less dissent. This pattern is compatible with the expectation that the values of β are lower in 2010/14 than in 2006/10.

[33] Table A.4 in Appendix A.9 shows that the estimated treatment effects are larger in absolute terms in a fixed effects specification as expected.

[34] Confidence intervals use a t-distribution with 38 degrees of freedom (the number of party lists is 40 and there are up to two variables at the list level, namely, the treatment and the measure of intra-party competition).

Figure 4 summarizes the main results from the four regression models analyzing the dissent rate for votes on centrist proposals supported by the PG leadership. The models differ in two ways: the dependent variable (strong dissent in the form of voting "no" compared with dissent in the form of voting "no" or abstaining) and the inclusion or not of time-varying controls. Table 3 provides the full results.

The evidence clearly does not favor the common notion that incentives from a personalized electoral system diminish party unity. If the PG leadership favors a "yes" vote on centrist proposals and MPs face selectors in their districts with relatively extreme preferences, anticipating more influence by voters reduces dissent rates. The model for strong dissent (without controls) estimates this effect at -.072 percentage points (95% confidence interval [-.141, -.003]). To put this figure into perspective, consider the mean dissent rate in the control group in the 2010/14 period, which is .148 percentage points, or 1.48 disagreements per 1000 votes. Hence, since dissent was a rare phenomenon, the estimated effect of anticipating a shift from selectors to voters is actually substantial in relative terms. The size of the estimated treatment effect amounts to ≈ 49% of the mean outcome in the control group. For the dependent variable that includes abstentions as dissent, the effect is also negative, but estimated with less precision (-.096 [-.239, .047]). The effect size is also more moderate in this specification based on the comparison to the control group outcome (≈ 24%). This suggests that selectors with extreme preferences are indeed pushing for strong dissent in the form of "no" votes rather than mere abstentions.

The graph already highlights that the effects of the reform on incentives hardly change when adding time-varying factors that may be associated with parliamentary voting behavior. Table 3 highlights that the confidence interval excludes zero for none of these predictors. With regard to differences across parties, the frequency of dissent was lower (across all the models) among MPs from V (in opposition) than among those from the large government party of M. The positive difference between MPs from S and M is only statistically significant when not including the control variables.

Table 3: Regression models for the share of dissent (%) in centrist votes

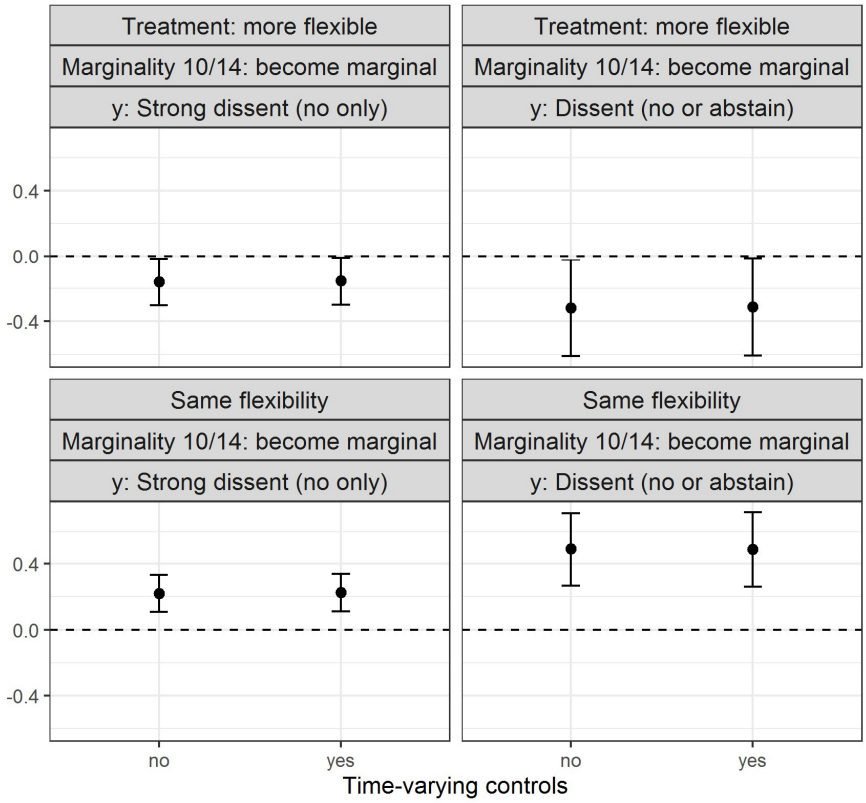
	(M1)	(M2)	(M3)	(M4)
	Strong dissent (no)	Strong dissent (no)	Dissent (no or abstain)	Dissent (no or abstain)
	Plain	w/ controls	Plain	w/ controls
Electoral incentives (ref.: same flexibility)				
more flexible list	-.072 [-.141,-.003]	-.072 [-.144,.001]	-.096 [-.239,.047]	-.086 [-.234,.063]
Logged intra-party competition (list)		.018 [-.066,.103]		.076 [-.093,.246]
List leader 0/1		.003 [-.056,.061]		-.023 [-.144,.098]
Seniority (ref.: 1 term)				
Seniority 2+ terms		.029 [-.030,.088]		.050 [-.071,.171]
Party indicators (ref.: M)				
S	.077 [.013,.141]	.062 [-.011,.134]	.186 [.005,.367]	.149 [-.045,.342]
V	-.313 [-.506,-.119]	-.318 [-.543,-.092]	-.751 [-1.265,-.236]	-.799 [-1.359,-.238]
Lagged dep. var.	.132 [.093,.171]	.130 [.089,.171]	.128 [.075,.180]	.127 [.074,.181]
Intercept	.025 [-.018,.068]	-.015 [-.164,.134]	.061 [-.028,.150]	-.078 [-.379,.223]
Mean *y* control group t2	.148		.402	
Mean Δ*y* control group t2-t1	-.503		-1.563	
N MPs	112			

Note: OLS coefficients, 95% confidence interval based on t(38)-distribution in brackets.

These results can be complemented by an additional analysis that considers only MPs who are electorally marginal in 2010/14 ($t = 2$) as possibly affected by the weighted influence of principals in that period (in the notation of the theoretical model, for all others ρ_{i2} is taken to be zero.). As an extra advantage, this allows us to study the change in the behavior of MPs whose list type remains as inflexible as before, but who become more marginal over time. The top row of Figure 5 shows the change in voting behavior for MPs whose list becomes more flexible and who also become more vulnerable over time. The estimates (without controls, see Table A.5) are -.160 [-.303, -.016] for strong dissent and -.319 [-.611,-.026] for the version also considering abstentions. Hence, in line with the expectations, the point estimates become larger when restricting the treatment group to those cases who experience both an increase in voters' weight and a loss of electoral safety over time (N=3). Turning to those MPs whose list type remains (fairly) inflexible, but whose electoral vulnerability increases over time, this reveals further evidence in favor of the overall argument. These parliamentarians should become more dependent on the district selectorate with its relatively extreme preferences. Indeed, for this group, a decrease in electoral safety predicts an increase in dissent on centrist proposals supported by the PG leadership (.220 [.109,.331] for strong dissent, .490 [.267,.713] with abstentions), N=5 MPs). In line with our expectations, this pattern runs counter to both the general negative trend in dissent over time and the effect for those MPs whose lists become more flexible. This additional result reinforces the evidence for the overall argument that the list type shapes the weights of the principals and the latter incentivize, especially for those MPs who are electorally vulnerable.

As discussed in Appendix A.6, there are no hard and fast rules for deciding which degree of change in re-election probability changes MPs' perceptions. Appendix A.11 summarizes the main results graphically when the re-election probability cut-off above (below) which MPs are considered to be safe (unsafe) in 2006/10 (2010/14) is lowered to .3 or raised to .65 compared with the default choice of .5.

Figure 5: Changes in the dissent rate (%) for MPs marginal in 2010/14



Point estimates and 95% confidence interval. See Table A.5 for the full results. Number of MPs: N=3 becoming marginal over time and list becoming more flexible due to anticipation, N=5 becoming marginal over time and list remaining inflexible, N=104 remaining non-marginal or list remaining inflexible.

The main conclusions do not change since the findings for a switch in list flexibility are similar (see Figure A.4). Unsurprisingly, the findings from the sub-group analysis that incorporates marginality changes into the treatment definition (which also leaves few cases) are somewhat more sensitive to these choices, but in a predictable way. With the higher threshold, the differences become smaller, whereas they are partly stronger with the lower cut-off (see Figure A.5).

Taken together, studying the impact of the Swedish personal vote reform corroborates the theoretical argument. Although the inference relies on the mere anticipation of list type and comparatively few MPs

change list type, there is clear evidence that strengthening voters at the expense of selectors (with more extreme preferences) reduced rather than increased dissent in votes on centrist policy proposals.

Discussion

This study made three contributions to explaining how the personalization of electoral rules affects party unity, each of which has broader implications. First, I suggested approaching incentives due to the personalization of electoral rules as a shift in influence from party selectors to targeted (personal) voters.[35] A key analytical insight from principal–agent theory is that incentivization and selection are distinct if interrelated mechanisms (see Carroll and Nalepa, 2020; Fearon, 1999; Gagliarducci and Nannicini, 2013). The focus on incentives in this study highlights that it is important to start from principals' preferences for the behavior of MPs as their agents. The relative influence of selectors and voters only makes a difference if the preferences (or monitoring capacities) of the two groups differ. Importantly, conceptualizing personalization as strengthening voters at the expense of selectors also explains why the resulting incentives need not result in a stronger focus on personal features or traits in a narrow sense. Generally, we should formulate predictions based on what the two principals want their agents to do and whether their monitoring is sufficient to achieve it.

Second, extending the spatial model of voting by incorporating a term for the weighted influence of the two principals elucidated that personalization – as understood here – need not undermine party unity. In particular, if candidate selection occurs at the regional level, it should not be taken for granted that selectors share the policy preferences of the PG in parliament. In addition to potential geographical differences (Rodden, 2010), policy disagreement between the leadership and mid-level activists

[35] The argument applies equally when comparing the personal focus of rules synchronously across two political systems.

constitutes a central source of conflict in political parties (May, 1973; Katz, 2001; Schofield and Sened, 2005). What also follows is that increasing electoral competition for unaffiliated voters (Dalton and Wattenberg, 2002; Rohrschneider and Whitefield, 2012) need not necessarily reinforce the challenge to party unity posited by candidate-focused electoral institutions, as recently argued by André et al. (2015). Such a situation only materializes if there is a moderate electorate, while PG leaders have relatively extreme preferences that they need to push through with the help of selectors sharing their views. In addition, the model points to a different threat. If voters cannot match selectors in terms of monitoring/sanctioning capacity, both principals could be worse off following personalization when their preferences are aligned (cp. Gailmard and Jenkins, 2009). Finding out more about the extent to which this potential side effect occurs in practice is important for assessing the overall consequences of electoral reforms seeking to increase voters' influence. The monitoring argument could also inform the related debate on whether different forms of primaries affect legislative behavior in systems with single-member plurality systems such as the United States (e.g., Alvarez and Sinclair, 2012; McGhee et al., 2014).

Third, drawing on the FLPR reform in Sweden to identify the effects of incentives, the empirical part of this study showed that MPs from parties characterized by preference polarization became more likely to support centrist policies over time if they anticipated that voters would gain influence at the expense of selectors. The absolute level of dissent in voting is low in the Swedish parliament, and nowhere near levels threatening the content of party labels or functionality of PGs. The results are nevertheless noteworthy since the relative variation across MPs is considerable, and the findings may be indicative of more general changes in representation. If an effect is visible in roll-call voting, which offers the major advantage of letting us observe MPs deciding on the same proposals, we should actually find even stronger signs of policy moderation in other activities such as speeches (Bäck et al., 2014) or private members' bills (Davidsson, 2006). The results therefore suggest that the personalizing reform in Sweden incentivized the MPs of the parties examined to take more centrist positions. Finally, given that this

research design only tapped into MPs' anticipations and the reform studied here had only a modest impact on Swedish politics overall (Berg and Oscarsson, 2015), comparable or stronger effects should be present in other contexts. As the theoretical model explains, the effects of personalizing electoral rules on party unity also depend on such factors as parties' ex ante ideological cohesion and inducements not linked to re-election prospects.

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A Appendix: ‘ The personalization of electoral rules: How shifting influence from selectors to voters affects party unity’

Political Research Quarterly, by Thomas Däubler

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A.1 Deriving the comparative statics

Equation 2 states that the probability of voting 'yes' is given by:

$$P_{ij} = P(y_{ij} = 1) = \Phi(\mu_{ij})$$
$$= \Phi(\underbrace{\beta_j((x_p + \Delta x_i) - \gamma_j)}_{\text{policy}} + \overbrace{\delta_{jp}}^{\text{PG}} + \underbrace{\rho_i[\overbrace{(1-\omega)\psi_s\delta_{js}}^{\text{selectors}} + \overbrace{\omega\psi_v\delta_{jv}}^{\text{voters}}]}_{\text{re-election considerations}}).$$

The main interest is how this probability changes if the influence of voters ω increases. This requires taking the first derivative of P_{ij} with regard to ω. According to the chain rule, we can take the derivative of P_{ij} with regard to μ_{ij} and then the derivative of μ_{ij} with regard to ω. Since P_{ij} is the normal cumulative density function of μ_{ij}, $\frac{\partial P_{ij}}{\partial \mu_{ij}}$ is simply the normal probability density function of μ_{ij}. Then, $\frac{\partial \mu_{ij}}{\partial \omega}$ is $\rho_i[-\psi_s\delta_{js} + \psi_v\delta_{jv}]$. Combining these results gives Equation 3:

$$\frac{\partial P_{ij}}{\partial \omega} = \frac{\partial P_{ij}}{\partial \mu_{ij}} \frac{\partial \mu_{ij}}{\partial \omega} = \overbrace{\frac{1}{\sqrt{2\pi}} e^{-\mu_{ij}^2/2}}^{\text{closeness to indifference}} \rho_i \overbrace{(\psi_v\delta_{jv} - \psi_s\delta_{js})}^{\text{weighted "pull"}}.$$

A.2 Basic policy space in the Swedish Parliament, 2006-2014

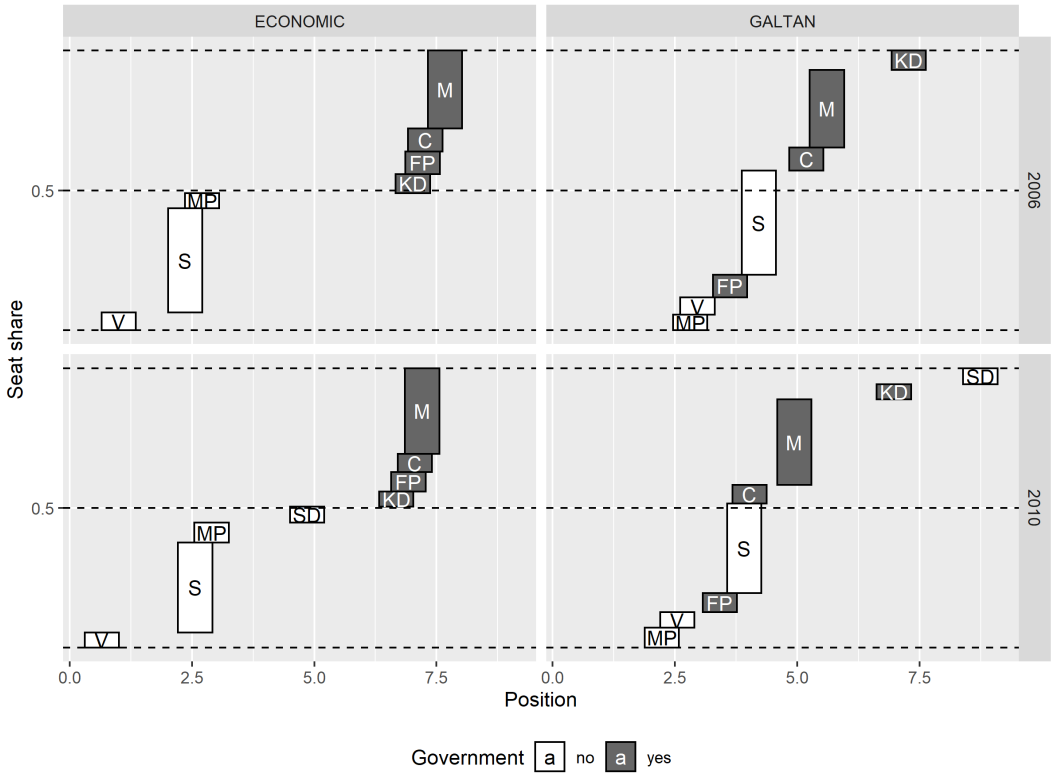
After the 2010 elections, the center–right government lost the majority of its seats in the Riksdag but continuend as a minority government. Figure A.1 illustrates how the new constellation necessitated centrist compromises by displaying seat shares and policy positions in two dimensions.

In the 2006/10 period, the pattern of decision-making in the economic realm was straightforward. The cabinet parties commanded the majority of seats and had similar adjacent positions. Suddenly losing its majority and cooperation with the right-wing Sweden Democrats not being an option, the government had to reach out to the left-bloc opposition.

In other areas, the need for centrist compromises may have already existed in 2006/10, since, at least based on the GAL/TAN dimension shown in the graph, the positions of the government parties were not connected.[35] The constellation also changed on this dimension in 2010/14, since M and C moved to the center while the advent of SD on the far-right meant that the alternative might lie to the right of the cabinet parties, which may tempt some of their MPs to support the alternative.

[35]The axis of the one-dimensional space may vary across votes owing to the policy area, or the decision could even be multidimensional; nonetheless, the argument remains the same, as long as the situation is characterized by a clash between moderate voters and more extreme party members.

Figure A.1: Party constellation in the Riksdag, 2006-2014



The x-axis shows the party positions from the Chapel Hill expert surveys (Bakker et al., 2015; Polk et al., 2017) on taxes vs. spending and the GAL/TAN dimensions (mean of the values from the 2006 and 2010 as well as 2010 and 2014 waves). The height of the bars represents seat shares (their width is equal and without substantive meaning).

A.3 Candidate selection procedures in 2010

This section summarizes responses to questions on candidates' nomination in the Swedish 2010 election, from the candidate survey that forms part of the Comparative Candidate Survey (CCS2016). The large majority of candidates report that they were selected by party members or a party conference, either in the constituency/district or at the regional level. The only party that stands out is SD, which is not considered in this study, since it did not use district-level lists in the elections of interest.

Table A.1: Reported candidate selectorate (%)

	Voters at large	Voters of party	Members of party	Party conference	Party leadership	N answers	N missing
C	1	2	52	44	2	189	40
FP	0	1	44	52	3	135	37
KD	1	2	51	43	3	178	49
MP	1	3	59	34	3	191	45
M	1	6	43	44	6	198	98
S	0	0	37	57	6	219	84
SD	0	8	46	8	38	13	14
V	0	2	46	51	1	184	44

Table A.2: Reported level of candidate selection (%)

	Constituency	Regional	National	Other	N answers	N missing
C	54	41	0	4	157	72
FP	51	46	1	2	105	67
KD	38	59	1	3	149	78
MP	42	48	0	10	166	70
M	52	40	1	7	161	135
S	51	42	1	6	160	143
SD	13	20	47	20	15	12
V	36	59	1	5	149	79

Reference

CCS (2016). Comparative Candidates Survey Module I, 2005-2013 [Dataset - cumulative file]. Distributed by FORS, Lausanne, 2016.

A.4 Identifying district-level selectorates with extreme preferences

As discussed in the main text, the parties generally characterized by selectors with relatively extreme preferences are the Moderates (M) on the right, and the Green Party (MPdG), the Social Democrats (S) and the Left Party (V) on the left.

In the 2015 party member survey (Kölln and Polk 2018), respondents placed both themselves and their party on a 0–10 left–right scale. For selectors (i.e., participants who report having taken part in candidate selection for national elections), I calculate the distance of the two placements. In M, the share of positive/right-wing deviations is 50.2%, while the share of negative/left-wing deviations is 48.8% in MP, 72.3% in S, and 47.5% in V. Assuming that the position of the median selector is influential, I estimate the probability that his/her position falls to the extreme (i.e., non-centrist) side of the party.

Since few responses at the level of the 29 districts are available, I rely on a multi-level model to implement a partial pooling approach (Gelman and Hill 2007). Loosely speaking, predictions for districts draw on the grand mean, but weight local answers depending on their number and variance. Specifically, I run an intercept-only linear model with the self-party distances as the dependent variable and random effects at the district level, party by party, using the R package rstanarm (Goodrich et al. 2020), with the default prior settings. I then simulate 1000 median values for each party–district combination. The probability of an extreme selectorate is calculated as the share of simulations with a median $> .5$ (for M) and $< -.5$ (for MPdG, S, and V). In the main analysis, I only include MPs from lists with a probability of having an extreme selectorate that exceeds .8. This criterion applies to 13 (of the 29) district-level parties in M, 28 in S, two in V, but none in MPdG.

References

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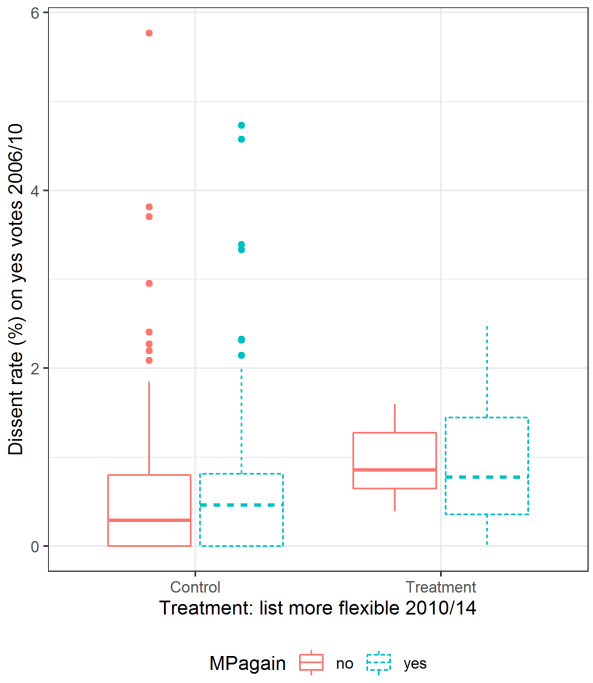
A.5 Analysis of MP dropouts (between the 2006/10 and 2010/14 periods)

The research design of this study compares 2010/14 MPs whose list flexibility changes by anticipating the reform effects with those whose does not. It addresses endogeneity problems by focusing on those MPs who were also members of the 2006/10 Riksdag and considering their behavior in the earlier period.

The cases entering the analysis therefore depend on which 2006/10 MPs decided to re-run and were re-elected. Although those dropping out are not observed in 2010/14, I can compare whether MPs within the treatment and control lists (as defined in 2010/14) showed similar voting behavior in 2006/10. Figure A.2 shows dropouts (red/left box within each pair) and continuing MPs (green/right box) by treatment and control.

Figure A.2: Comparing 2006/10 dissent rates by the 2010/14 treatment and continuation as an MP in 2010/14



Note: Based on 2006/10 MPs (N=215) from district-level parties with inflexible lists in 2006 and a preference clash (see Appendix A.4) , N=190 in the control (of which N=118 become an MP again), N=25 in the 2010/14 treatment group (of which N=18 become an MP again). (A third group of MPs whose lists failed to win seats in 2010/14 is not considered here).

The distribution of 2006/10 dissent rates is similar between dropouts and continuing MPs, both for the control group and for the treatment group. Hence, this does not suggest that continuing MPs and consequently the final comparison groups are atypical. In any case, the preferred specification of the statistical models accounts for past dissenting behavior in the form of the lagged dependent variable.

A.6 Measuring marginality using the bootstrap election approach

Kotakorpi et al. (2017) introduce the bootstrap elections method (see also Freier and Odendahl (2015) for a similar approach). This approach simulates seat allocation outcomes by resampling votes from a vote distribution and applying the actual electoral rules to distribute seats. It thus provides a measure of marginality for each individual seat in the form of the share of bootstrap samples in which a party/candidate received the given seat.

For the Finnish OLPR system, Kotakorpi et al. (2017) aim to identify candidates whose (non-)election is quasi-random for a regression discontinuity design. Their simulation is based on a multinomial distribution. Freier and Odendahl (2015) resample party vote shares in Bavarian municipal elections to build an instrumental variable for voting power, using normal distributions for the marginal distribution of each party vote share.

However, the this study requires measuring the marginality of the seat as MPs perceive it. Hence, I adopt a slightly different perspective than in the applications above, since the bootstrap should be specified to capture how MPs assess vote swings in the upcoming election.

The simulation zooms in on the eight parties represented in the Riksdag in 2010/14.[36] Since one vote share is determined by the others, only seven vote shares are simulated. Let

- corr($\mathbf{S}$) be a correlation matrix of parties' vote swings between the previous election and the one before that (based on data for the 29 districts)
- $\mathbf{V_p}$ be a diagonal matrix, where the non-zero entries represent standard deviations set to $2 * (.1 * \text{vote proportion} + .01)$, as in Folke and Rickne (2016: 43).
- $\mathbf{\Sigma_p}$ be the variance-covariance matrix calculated from $\mathbf{V_p}$ and corr($\mathbf{S}$).
- $\mathbf{V_d}$ be a diagonal matrix, where the non-zero entries represent the cross-district standard deviations of each party's vote swings between the previous election and the one before that
- $\mathbf{\Sigma_d}$ be the variance-covariance matrix calculated from $\mathbf{V_d}$ and corr($\mathbf{S}$).

The procedure is as follows:

[36] In both the 2006 and the 2010 elections, no other party was close to passing the 4% legal national party threshold.

1. Draw one vector of length seven with national-level swing values from a multivariate normal distribution $s_p \sim \mathcal{N}_7(\mathbf{0}, \mathbf{\Sigma_p})$

2. Draw 29 vectors of length seven with district-level party votes from a multivariate normal distribution $s_d \sim \mathcal{N}_7(\mathbf{0}, \mathbf{\Sigma_d})$

3. Calculate the implied swing for the eighth party and add all the drawn swing values to the observed past vote shares.

4. Allocate the seats across parties and districts based on the actual rules (including the multitier allocation procedure).

5. Allocate the seats within each party–district list based on the post-electoral ranking of candidates (i.e., candidates above the preference vote threshold are moved to the top in order of their observed personal votes).

The simulation is based on 1000 draws. Table A.3 shows the main inputs and results at the party level. For 2010/14, the last step can be performed using either the 8% or the 5% preference vote threshold. Hence, both for list flexibility and for marginality, an observation-based and an anticipation-based type exist. Since few cases experience a decrease in electoral safety due to the anticipation effect, I select those cases below the chosen cut-off (more on this below) when applying the 8% threshold or anticipating the use of the new 5% hurdle.

MPs with a re-election probability greater than .5 in 2006/10 are included in the analysis sample, with those falling below this value in 2010/14 considered to be members of the group becoming more vulnerable.[37]

For several reasons, the last step of the procedure is not based on a simulation of candidate votes. First, in practice it may be difficult for MPs to assess how swings in the personal vote will play out in future elections. Second, as candidates in Sweden can run in several districts, some are elected several times, notably prominent politicians such as party leaders. The procedure for resolving these instances and finding substitutes is complicated to model. In the rankings, I

[37] In 2010/14, this indicator is coded one if the probability is below .5 when using the 8% preference vote threshold or applying the anticipated 5% rule.

therefore remove all the observations of candidates elected in multiple real-world elections for those districts in which they were eventually not assigned the seat.

One question that arises is the choice of the variance in the simulations and the cut-off for considering an MP as marginal. The variance chosen is the same as that used by Folke and Rickne (2016: 43) and this leads to a plausible distribution of swings. To some extent, there is also a trade-off, since adding more random noise lowers the derived election probabilities for fairly safe MPs, which could be compensated by a higher cut-off for deciding who is marginal. Therefore, it is better to choose a not-too-narrow range for the swings to obtain a good amount of variance in the election probabilities across MPs and rather shift the cut-off.

One rationale for choosing the marginality cut-off is its prediction of the actual re-election of the respective electoral rank. Analysis of the ROC curve suggests that this value is close to .75 (for both elections). However, this is a post-diction, really, and it may not correspond to MPs' own assessments. In addition, the well-known pattern that humans are risk-averse in losses (Kahneman, 2011) likely applies here, which suggests using a lower threshold. The cut-off chosen is therefore .5.

References

Folke, Olle, and Johanna Rickne. 2016. "All the Single Ladies: Job Promotions and the Durability of Marriage." IFN working paper.

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Kahneman, D. 2011. Thinking, fast and slow. New York: Farrar, Straus and Giroux.

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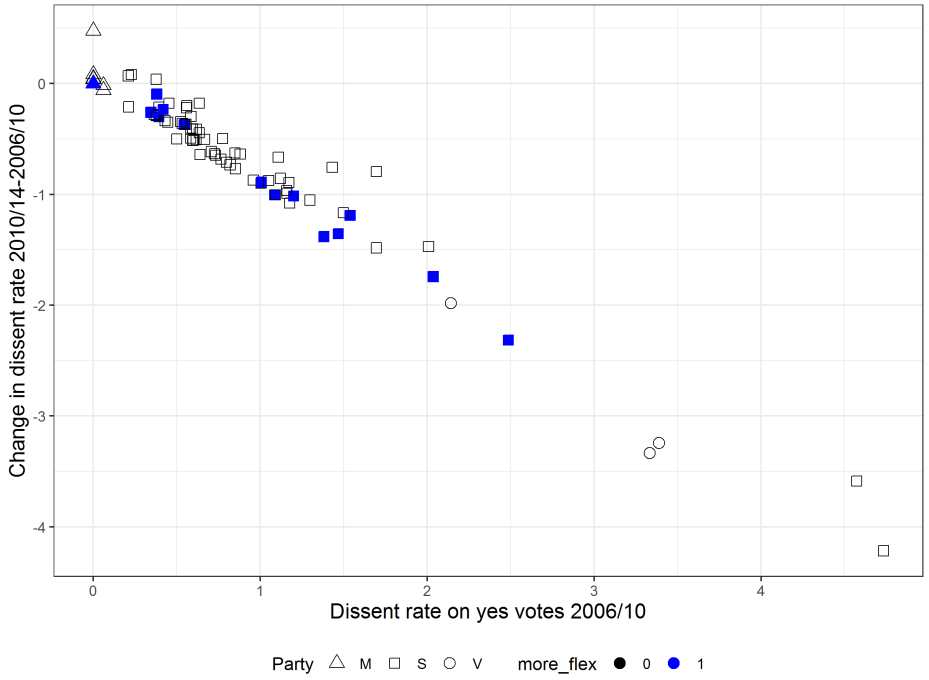
Table A.3: Summary of the simulation settings and results

	Observed:		**Assumed sd:**	**Simulation result:**			
					Seats (if in parl., %)		
	Votes (%)	Seats (%)	Votes (%)	Pr(in parl)	5%	med	95%
2006							
C	8.1	8.3	3.6	.88	4.9	8.9	14.6
FP	7.7	8.0	3.5	.87	4.6	8.6	14.3
KD	6.8	6.9	3.4	.80	4.6	8.0	12.9
M	27.0	27.8	7.4	1.00	15.5	27.5	40.1
MP	5.4	5.4	3.1	.66	4.3	6.9	10.9
S	36.0	37.2	9.2	1.00	21.5	37.8	53.9
SD	3.0	.0	2.6	.34	4.3	5.4	8.6
V	6.0	6.3	3.2	.75	4.3	7.2	11.7
2010							
C	6.7	6.6	3.3	.80	4.6	7.7	12.9
FP	7.2	6.9	3.4	.80	4.6	8.0	13.8
KD	5.7	5.4	3.1	.72	4.6	7.2	12.0
M	30.5	30.7	8.1	1.00	17.8	31.5	45.3
MP	7.4	7.2	3.5	.83	4.6	8.6	14.0
S	31.1	32.1	8.2	1.00	17.8	31.8	46.4
SD	5.8	5.7	3.2	.69	4.6	7.2	12.0
V	5.7	5.4	3.1	.66	4.6	7.7	13.2

A.7 Change in the dependent variable

Figure A.3 shows a strong negative correlation between the dissent rate (voting "no" on votes for which the PG leadership supports the "yes" side) in 2006/10 and the subsequent change. Strong dissenters are those who have the largest change toward less dissent. This holds regardless of the treatment (i.e., regardless whether list flexibility changes).

Figure A.3: Change in the dependent variable compared with the baseline



N=112 cases from the analysis sample.

A.8 Statistical modeling

As a starting point for the statistical modeling, suppose discrete types of votes, each of which is characterized by a unique pattern of bill parameters (indexed by j in Equation 2). For now, assume just one type of vote in period t. In this case, the share of dissenting votes Y_{it} equals the mean probability of voting "no" across these votes:

$$E(Y_{it}) = \frac{1}{J_t} \sum_j P(y_{itj} = 0) = \frac{1}{J_t} \sum_j \Phi(-\mu_{it}) = \Phi(-\mu_{it}) \tag{4}$$

Incorporating the theoretical argument that ω varies at the level of list l into Equation 2 and then subtracting $E(Y_{i2})$, weighted by an adjustment factor a, from $E(Y_{i2})$ gives:

$$E(Y_{i2}) - a\ E(Y_{i1}) = \overbrace{(\beta_2\gamma_2 - a\ \beta_1\gamma_1)}^{\text{intercept}} - \overbrace{(\beta_2 x_{p2} - a\ \beta_1 x_{p1} + \delta_{p2} - a\ \delta_{p1})}^{\text{party intercept}} - \overbrace{(\beta_2\Delta x_{i2} - a\ \beta_1\Delta x_{i1})}^{\text{MP effect}} - \tag{5}$$

$$\underbrace{(\rho_{i2}\ [(1-\omega_{l2})\ \pi_{s2}\delta_{s2} + \omega_{l2}\ \pi_{v2}\delta_{v2}]}_{\text{re-election considerations t2}} - a\ \underbrace{\rho_{i1}\ [(1-\omega_{l1})\ \pi_{s1}\delta_{s1} + \omega_{l1}\ \pi_{v1}\delta_{v1}])}_{\text{re-election considerations t1}}$$

Equation 5 shows that the change over time can be partitioned into an intercept, party-specific intercepts, an MP-level effect, and the difference in re-election considerations. Many types of votes in terms of their bill parameter combinations exist in practice, and the distribution of these types can vary over time and across parties. When analyzing dissent rates aggregated across vote types, the intercept and party dummy variables also capture such differences. The intention is not to identify ω per se. Rather, given the theoretically justified selection of parties and bills, I expect that an increase in list flexibility reduces dissent across bill types, and the aim lies in estimating an average effect. An alternative take on the inference problem would be directly estimating Equation 2 using MPs' vote-level decisions. However, this approach has its identification and computational challenges.

To infer such an effect, a further simplification is thus introduced. By considering only MPs who need not worry about re-election in 2006/10, ρ_{i1} should be zero for the cases studied, and electoral

incentives at $t1$ drop from Equation 5. This reduces the number of assumptions required. Recall that the analysis aims to leverage changes that result from anticipating the electoral reform, as reflected in the binary measure of empirical list flexibility. Lacking direct measures for principals' monitoring capacities $\pi_{.2}$ and preference inducements $\delta_{.2}$, the two products of $\pi_{.2}$ and $\delta_{.2}$ need to be uncorrelated with ω_{l2} . If lists with different flexibility levels systematically vary with regard to principals' inducements or monitoring behavior, the list type would not capture a pure weighting of the principals effect. While it is unrealistic that $\pi_{.2}$ and $\delta_{.2}$ are constant across all the cases analyzed, it is plausible that these parameters are constant within parties. In this case, the effect of a change in flexibility varies across parties according to Equation 3, and the estimate will reflect an average.

The choice of adjustment factor a implies two estimation strategies, using differencing/fixed effects or a lagged dependent variable (see Morgan and Winship (2007: 252-267)). Using a lagged dependent variable is the preferred specification in this case, but fixed effects models are also run for comparison purposes. As discussed above, because of the change to the minority government context, $\beta_2 < \beta_1$ is expected. Since the fixed effects specification assumes $a = 1$, removing the MP-level effects from the equation would be unsuccessful if $\Delta x_{i1} = \Delta x_{i2}$ (which seems the most plausible assumption of individual ideal points over two adjacent legislatures with a similar government/opposition setup). In addition, the potential bias when using the lagged dependent variable specification is conservative. The key expectation of the analysis is that increased list flexibility reduces dissent in the analyzed votes. Should MPs with deviating ideal points select into this treatment when $\beta_1 = \beta_2$, the lagged dependent variable approach would mistakenly attribute some of the observed decrease in dissent to the non-existent change in β.

References

Morgan, Stephen L, and Christopher Winship. 2007. Counterfactuals and Causal Inference: Methods and Principles for Social Research. Cambridge: Cambridge University Press.

A.9 Fixed effects regression models

Table A.4: Regression models for the share of dissent (%) in centrist votes

	Strong dissent (no) Plain	Strong dissent (no) w/ controls	Dissent (no or abstain) Plain	Dissent (no or abstain) w/ controls
Electoral incentives (ref.: same flexibility)				
more flexible list * t2	-.165	-.126	-.184	-.151
	[-.474,.144]	[-.438,.185]	[-.671,.303]	[-.645,.344]
Logged intra-party competition (list)		.185		-.076
		[-.349,.720]		[-.925,.772]
List leader 0/1		-.007		-.205
		[-.306,.293]		[-.680,.269]
Seniority (ref.: No previous experience)				
Seniority 1 term		.106		.236
		[-.173,.385]		[-.206,.678]
Seniority 2+ terms		-.044		.201
		[-.529,.441]		[-.567,.969]
Party indicators (ref.: M)				
S * t2	-.723	-.652	-2.233	-2.105
	[-.960,-.486]	[-.915,-.390]	[-2.606,-1.86]	[-2.521,-1.688]
V * t2	-2.883	-2.918	-7.479	-7.569
	[-3.578,-2.187]	[-3.621,-2.215]	[-8.575,-6.383]	[-8.684,-6.455]
t2	.030	-.050	.036	-.106
	[-.162,.222]	[-.336,.236]	[-.266,.339]	[-.560,.348]
Mean y control group t2	.148		.402	
Mean Δy control group t2-t1	-.503		-1.563	
N MPs	112			

Note: OLS coefficients, 95% confidence interval based on t(38)-distribution in brackets.

A.10 Regression models for the alternative definition of the treatment

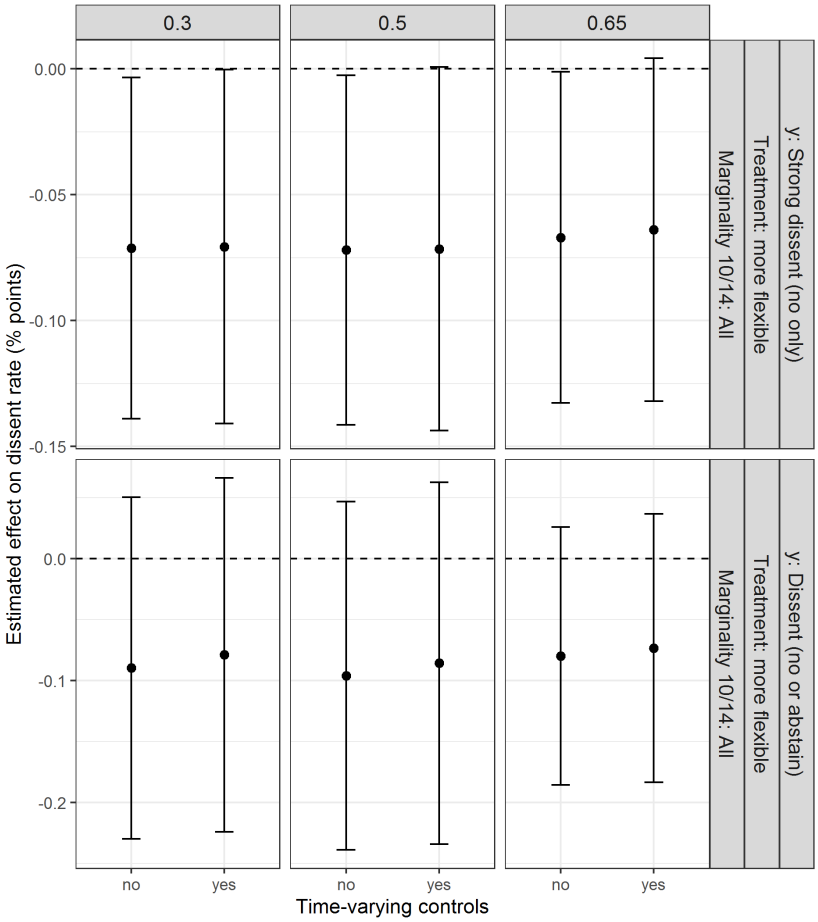
Table A.5: Regression models (% dissent rate) – treatment only if MP marginal in 2010/14

	Strong dissent (no) Plain	Strong dissent (no) w/ controls	Dissent (no or abstain) Plain	Dissent (no or abstain) w/ controls
Electoral incentives (ref.: same flexibility and not marg.)				
more flexible list and more marg.	-.160	-.153	-.319	-.310
	[-.303,-.016]	[-.297,-.008]	[-.611,-.026]	[-.608,-.012]
same flexibility and more marg.	.220	.226	.490	.489
	[.109,.331]	[.112,.339]	[.267,.713]	[.260,.718]
Logged intra-party competition (list)		.019		.064
		[-.058,.096]		[-.088,.215]
List leader 0/1		.009		-.008
		[-.046,.065]		[-.120,.104]
Seniority (ref.: 1 term)				
Seniority 2+ terms		.030		.054
		[-.025,.085]		[-.056,.164]
Party indicators (ref.: M)				
S	.079	.063	.171	.140
	[.019,.139]	[-.004,.130]	[.006,.337]	[-.036,.316]
V	-.293	-.300	-.781	-.809
	[-.474,-.112]	[-.510,-.089]	[-1.254,-.307]	[-1.326,-.291]
Lagged dep. var.	.131	.129	.136	.134
	[.095,.167]	[.091,.167]	[.088,.184]	[.084,.184]
Intercept	.007	-.037	.027	-.095
	[-.033,.048]	[-.171,.098]	[-.054,.107]	[-.360,.171]
Mean y control group t2	.138		.384	
Mean Δy control group t2-t1	-.539		-1.609	
N MPs	112			

Note: OLS coefficients, 95% confidence interval based on t(38)-distribution in brackets.

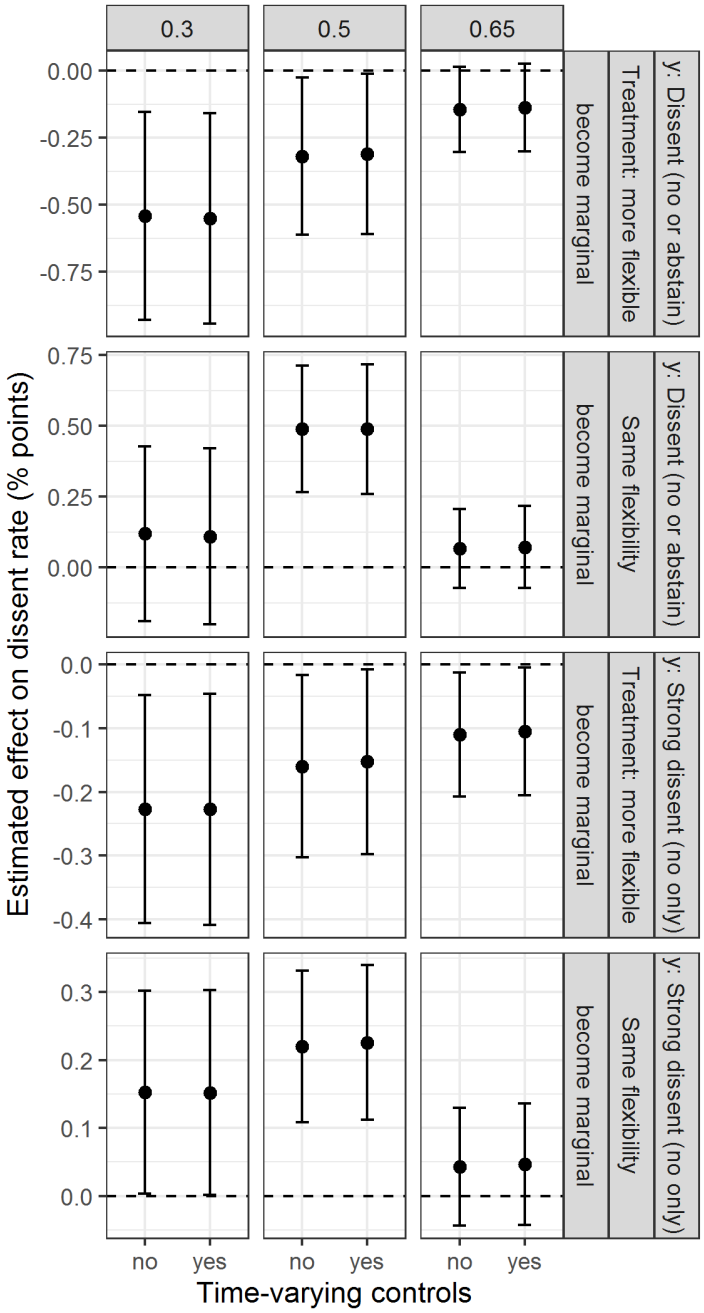
A.11 Robustness check with varying marginality cut-offs

Figure A.4: Varying the cut-off (in columns) and the effects of anticipated list flexibility on the dissent rate (% points)



Point estimates and 95% confidence interval. Number of MPs: with cut-off .3: N=17 with change, N=100 without; with cut-off .5: N=17 with change, N=95 without; with cut-off .65: N=15 with change, N=88 without.

Figure A.5: Varying the cut-off (in columns) and changes in the dissent rate (% points) for MPs marginal in 2010/14



Point estimates and 95% confidence interval. Number of MPs: with cut-off .3: N=2 becoming marginal over time and list becoming more flexible due to anticipation, N=3 becoming marginal over time and list remaining inflexible, N=112 remaining non-marginal or list remaining inflexible; with cut-off .5: N=3 becoming marginal over time and list becoming more flexible due to anticipation, N=5 becoming marginal over time and list remaining inflexible, N=104 remaining non-marginal or list remaining inflexible; with cut-off .65: N=6 becoming marginal over time and list becoming more flexible due to anticipation, N=8 becoming marginal over time and list remaining inflexible, N=89 remaining non-marginal or list remaining inflexible.