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The Price of Exclusion: Coalition Formation in the Shadow of Rising Radical Right

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The Price of Exclusion: Coalition Formation in the Shadow of Rising Radical Right*

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Abstract

The increasing electoral success of populist radical-right parties poses a significant challenge to established political parties in Western democracies. While mainstream parties often maintain a policy of non-cooperation with these newcomers, such *cordon sanitaire* strategies can become increasingly costly as radical parties gain support. This study examines the conditions under which established parties abandon their exclusionary stance, focusing on the case of the Sweden Democrats in Swedish municipal politics. We adapt time-series econometric methods to identify unknown thresholds at which exclusion costs become untenable, leading to shifts in coalition formation strategies. Our analysis reveals a critical threshold at approximately 19% electoral support, beyond which the probability of Sweden Democrats' inclusion in governing coalitions significantly increases. We demonstrate that as radical party support approaches this threshold, coalition sizes expand, office rents are redistributed, and the ideological dispersion of governing parties widens. Once the threshold is surpassed, these trends reverse. Our findings highlight the trade-offs mainstream parties face in responding to the rise of challenger parties and contribute to broader debates on coalition formation, party system change, and the accommodation of anti-establishment parties in democratic systems.

Keywords: coalition formation, cordon sanitaire, populist radical right, Sweden Democrats

JEL: D72, P16

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The recent surge of populist radical parties, which many see as a significant threat to the stability and integrity of democratic systems (Guriev and Papaioannou 2022), has forced mainstream parties across Europe to rethink their coalition and policy strategies. These parties, mostly on the radical right, have disrupted traditional political alignments, leading established political groups to respond in various ways. Some mainstream parties have adjusted their policy positions to counter the populists' appeal, either by downplaying the issues these parties highlight, taking a confrontational stance, or co-opting some of their policy positions (Meguid 2005, 2008; Han 2015; Abou-Chadi 2016; Abou-Chadi and Krause 2020).

In addition to adjustment of policy positions, one common approach has been to implement a *cordon sanitaire*, isolating radical parties from participating in government. Parties such as the Flemish Bloc/Interest and the Walloon National Front in Belgium, the Republicans in Germany, the Dutch Centre Party, and the French National Front have faced consistent boycotts from their mainstream counterparts. But as populist radical parties become more entrenched, they become harder to ignore or marginalize. The lack of viable coalition options may push established parties to include parties that they previously did not want to collaborate with in governing coalitions (Sartori 1976; Warwick 1992). For example, parties like the Danish People's Party, the Norwegian Progress Party, Italy's Northern League, and the Austrian and Dutch Freedom Parties have found inclusion in government despite their radical right ideologies (Van Spanje and Van Der Brug 2007; De Lange 2012; Akkerman and Rooduijn 2015; Twist 2019).

These observations present a puzzle: why do established parties sometimes forgo potentially beneficial alliances with radical parties, and under what conditions do they change this stance? We examine this dilemma through the lens of the Sweden Democrats' exclusion from—and later inclusion in—Swedish municipal governing coalitions.

Standard theories of coalitional bargaining posit that office-, vote-, and policy-seeking parties weigh the costs and benefits of different alternatives, forming or joining coalitions

that maximize their payoffs, contingent on other parties' behavior. However, we argue that when considering an alliance with a populist radical party, established parties face a more nuanced decision-making problem. This complexity stems from two observations. First, there is a potential and possibly uncertain cost of governing with a radical party. This cost depends on various elements, such as the government's performance and voters' reactions to governing with a party disliked by so many (Leander 2024; Jacobs 2024).[1] Conversely, excluding a radical party from the governing coalition may also incur costs. These could include office or policy concessions to alternative coalition partners, or challenges associated with forming a minority government. Ultimately, whether established parties coalesce with radical parties or not then depends on their ability and willingness to trade off office rents and policy objectives.

Overview Thus far, empirical work assessing what happens to the distribution of office rents and policy outcomes when the costs of maintaining a cordon sanitaire grow greater and greater has been missing from the locus. We address this gap by examining the populist radical-right Sweden Democrats party (see, e.g., Dal Bó et al. 2023 for further background), in particular its exclusion from and inclusion in governing coalitions. The party made its parliamentary debut in the 2010 parliamentary election, after which the mainstream parties committed to not cooperating with the Sweden Democrats at all levels of government (Art 2011; Heinze 2018; Backlund 2020). At the local level, this commitment had practically started already earlier and held up to the local election of 2018—despite the fact that the popularity of the party had been increasing steeply since the early 2000s, reaching more than one-fifth of the vote share in some municipalities.

We couple data on election results and governing coalitions in Swedish municipalities with empirical methods often used in time-series analysis to identify unknown kink points

[1]Some political parties may be associated with a special *repugnance cost*, beyond the typical political cost of compromising with politicians from a different party. This constraint is analogous to how repugnance acts as a constraint on market interactions (Roth 2007). In the decision of whether to coalesce with a radical party or not, these costs may even be different from the usual factors related to office-, vote-, and policy-seeking motivations of parties (Leander 2024; Axelsen 2024).

and discontinuities (Hansen 2000, 2017). We first show that the Sweden Democrats party is systematically excluded from governing coalitions in Swedish municipalities until it reaches a certain size. When the electoral support of the Sweden Democrats is less than around 19%, which is closely correlated with the seat share acquired by the party in the Swedish proportional representation system, the party is almost always left in the opposition. However, after reaching this point, the probability of the Sweden Democrats being included in the governing coalition increases drastically as the party size increases.

This convex relationship between the electoral support of Sweden Democrats and the probability of being incorporated in the governing coalition is unusual in the Swedish political landscape; for other small and medium-sized parties, the coalition inclusion probability appears to be a concave function of party size. For the two main parties (the Social Democratic Party and the Moderate Party), the coalition inclusion probability is similarly concave in their vote share, and one of the parties is virtually always included in the governing coalition. The diverging patterns suggest that other parties that take part in governing party coalitions are willing to sacrifice office and policy perks to exclude the Sweden Democrats.

We then study how the distribution of office rents—measured based on our newly collected data—and dispersion of governing parties' ideology evolve around this threshold. We see clear changes at the kink point for the Sweden Democrats' size. In particular, before reaching the cutoff, the number of parties in the governing coalition increases in relationship to Sweden Democrats' vote share, and so does the ideological dispersion of the governing parties. Once passing the cutoff, the relationship becomes negative. We argue that this is an (indirect) effect of the cordon sanitaire policy and show that it is unique to the Sweden Democrats. This observation is in line with a remark by Rydgren (2007) who points out that the presence of repugnant parties in the municipal council may result in the formation of large coalitions of parties that may even not have collaborated before, with the purpose of neutralizing the potential power of the radical party. The parties also appear to be more willing to generate

new paid positions to its coalition members and distribute other parties a greater share of office rents, but only up until a certain point.

Related literature and our contributions Our findings have implications for the understanding of how party systems adapt to the rise of radical parties, the conditions under which political norms like the cordon sanitaire break down, and the strategic calculations that shape coalition formation in multiparty systems.

Our work engages with the burgeoning literature on populist radical right parties (Mudde 2007; Akkerman, de Lange, and Rooduijn 2016; Guriev and Papaioannou 2022). Much of this work focuses on explaining the rise of such parties (Edo et al. 2019; Rodrik 2021; Bergh and Kärnä 2021, 2022; Dehdari 2022; Dal Bó et al. 2023), how their successes influence other parties' or voters' policy positions (Abou-Chadi 2016; Abou-Chadi and Krause 2020; Johansson, Kärnä, and Meriläinen 2023; Kärnä and Öhberg 2023), how parties and candidates can try to uphold cordon sanitaire against such parties in elections (Nibourel 2024), or what happens when they participate in government (Ferré and Manzano 2022; Dehdari et al. 2022; Riera and Pastor 2022; Funke, Schularick, and Trebesch 2023). We contribute to this scholarship by studying how the presence and growth of a populist radical right party shapes the formation of governing coalitions.

Understanding how coalition bargaining shapes the allocation of office rents and policy outcomes is central to the theories of coalition formation in politics (Choate, Weymark, and Wiseman 2019; Persson, Roland, and Tabellini 2007; Norman 2002; Baron 1993, 1991; Austen-Smith and Banks 1990; Laver and Shepsle 1990; Baron and Ferejohn 1989; Austen-Smith and Banks 1988). Empirical work has examined how diverse institutional features and party-level characteristics such as party size and ideology influence coalition membership and formateur selection (Fujiwara and Sanz 2019; Martin and Stevenson 2010; Bäck and Dumont 2008; Diermeier, Eraslan, and Merlo 2003; Martin and Stevenson 2001). However, this work only offers limited insights on how the rise of repugnant parties affects coalition formation

and the outcomes thereof. This is an important gap given the rise of radical parties witnessed in many countries.

A side product of our analysis is an additional explanation to two puzzles observed in the empirical coalition formation literature. The first puzzle is that parties do not always receive office perks in proportion to their contributions to the coalition (Meriläinen and Tukiainen 2022; Bäck, Debus, and Dumont 2011; Mershon 2001; Warwick and Druckman 2001; Browne and Franklin 1973), a prediction known as "Gamson's law" (Gamson 1961). The second one is that minimum winning coalitions—prominently hypothesized as a typical result of coalition formation by Riker (1962)—are not always formed, even if they are theoretically expected to maximize the spoils of office for the involved parties.

Previous studies have shown that the presence of populist radical parties can complicate coalition negotiations, often leading to increased bargaining delays and more complex coalition dynamics (Geys, Heyndels, and Vermeir 2006; Loxbo 2010; Bäck, Debus, and Imre 2024). Our findings reveal that as the Sweden Democrats grows, parties form larger and ideologically more diverse coalitions to keep them out, but only until a certain threshold beyond which the likelihood of their inclusion increases. This in turn also leads other outcomes shifting. This result aligns with a more general result of Kayser, Orlowski, and Rehmert (2023) that changes in coalition inclusion probabilities can have substantial predictive power for policy and political outcomes. In all, the actual coalition involvement of the Sweden Democrats as well as the increased probability of them being included may matter for policy outcomes.[2]

[2]This is to be expected, as a large literature shows that the size and composition of governments are important determinants of policies that are put in place. Persson, Roland, and Tabellini (2007), Schaltegger and Feld (2009), and Freier and Odendahl (2015), among others, study the link between the size of governing coalitions and various budgetary outcomes, and Pettersson-Lidbom (2008) and Folke (2014), for example, show that the political power that parties hold in local councils shapes diverse policy outcomes.

Sweden Democrats in Local Government

This section provides background on the case we study: Sweden Democrats' coalition participation (and non-participation) in Swedish municipalities. The first subsection discusses the Sweden Democrats party, and the second subsection describes Swedish local politics as well as coalition formation in the municipal government. While national politics often dominate discussions of the radical right, we believe that examining local coalitions offers useful insights. The large number of municipalities provides statistical power, while the variation in local contexts allows us to isolate the importance of radical party size in coalition formation.

The Sweden Democrats Party

The Sweden Democrats has transformed from a minor fringe party into the second-largest political party over the past twenty years (Rydgren and Van der Meiden 2019), reflecting significant growth in voter support (see Panel A of Figure 1). The Sweden Democrats has attracted support from voters across the Swedish political spectrum, but especially among individuals who previously voted for the traditionally dominant center-left Social Democrats and the center-right Moderate Party (Jylhä, Rydgren, and Strimling 2019). The party has performed particularly well in locations where there are more social and economic "outsiders" (Dal Bó et al. 2023).[3]

Political scientists and sociologists have classified the party as a typical radical-right party (Rydgren 2007, 2018), or a populist right-wing party (Norris and Inglehart 2018). The Sweden Democrats' political platform advocates for, e.g., tougher policies toward crime and reduced public funding for integration policies (Rydgren and Van der Meiden 2019).[4]

[3] Jylhä, Rydgren, and Strimling (2019) note that the voters of the Sweden Democrats are predominantly male, working-class, and less-educated. Dal Bó et al. (2023) document that the Sweden Democrat politicians also represent their voters in these characteristics.

[4] That said, the Sweden Democrats party has been increasingly successful in increasing the number of issues that they pursue (Erlingsson, Vernby, and Öhrvall 2014).

Despite being labeled right-wing, the party does not typically support free market policies or low public spending. Instead, they argue that reduced immigration can sustain a generous welfare state. This positioning is illustrated in Panel C of Figure 1, which uses the Chapel Hill Expert Survey to show the policy positions of Swedish parties. Economically, the Sweden Democrats are closer to the left-wing parties than to the center-right parties, but they are clearly distinct in their stance on the GAL-TAN scale (Hooghe, Marks, and Wilson 2002).[5]

The rise of the Sweden Democrats has significantly influenced the political landscape in Sweden, particularly regarding coalition strategies and voter attitudes and creating genuine difficulties in forming efficient coalitions at the national level (Aylott and Bolin 2019). Initially, leaders of other political parties refused to debate with the Sweden Democrats due to multiple factors: fear of legitimizing xenophobic rhetoric, concerns about voter backlash, and genuine ideological differences. Despite the growing influence of the Sweden Democrats, mainstream parties committed to not cooperating with them at all levels of government, a stance that persisted at the local level until the 2018 elections (Backlund 2020). The cordon sanitaire against the Sweden Democrats was not merely an informal agreement, but a publicly declared stance by the mainstream parties. This created a situation where electoral success did not translate into governing power for the Sweden Democrats.

The Sweden Democrats party has been heavily disliked by voters across the political spectrum, as shown in Panel B of Figure 1 which presents the average likability scores for each political party based on the SOM Institute voter survey. Over time, however, the Sweden Democrats have become less disliked among the supporters of the Moderate Party and the Christian Democratic Party. This shift in public perception likely contributed to the party's changing role in coalition politics. Following the 2022 parliamentary election, the Sweden Democrats began supporting the center-right ruling coalition, although they did not join the government. At the local level, the party has similarly coalesced with other center-

[5]Given the tasks of Swedish local governments, we think the economic policy position is a more important dimension of ideology from a pure policy point of view. However, the GAL-TAN position of the Sweden Democrats may well be one important reason why other parties typically want to distance themselves from the Sweden Democrats.

right parties, typically the Moderate Party and/or the Christian Democrats. However, while at the national level coalitions have historically followed the conventional division to leftist and center-right parties, coalitions across the political spectrum are more common at the local level than at the national level.

Local Governments in Sweden

There are 290 municipalities in Sweden. They are responsible for providing a large share of local public services that comprise the Swedish welfare state, ranging from childcare to sanitation. These services are financed through local taxes set and collected by the municipalities. The municipalities are governed by local councils which have between 31 and 101 members. The local councils are elected every four years using a proportional representation system.

Local politics has been historically dominated by the center-left Social Democratic Party and the center-right Moderate Party, although some of the smaller parties have gained more popularity locally.[6] Today, the Sweden Democrats has a very varied support at the local level, from fairly limited support to being the largest political party.[7]

In Swedish municipalities, coalition government formation operates within a system of assembly government, where the executive committee's composition is determined by proportional representation rather than majority confidence from the municipal council. However, since the 1960s, an informal practice of limited majority rule has been adopted, wherein committee leaders, akin to the prime minister, are appointed by a council majority. This quasi-parliamentary system emphasizes informal coalitions of parties rather than formal investiture votes, with a relative majority required for appointing committee leaders and

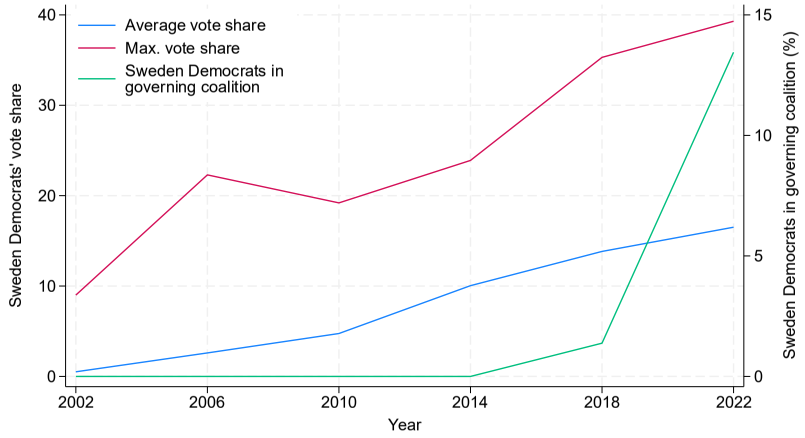
[6]These smaller parties include the Christian Democrats, the Center Party, and the Liberal Party on the center-right, and the Left Party and the Green Party on the left. There are also other small parties and non-partisan groups that have gained popularity locally.

[7]The party grew organically mainly from the south of Sweden and has the least support in the northernmost parts of Sweden (Erlingsson, Loxbo, and Öhrvall 2012). Appendix Figure OA1 maps Sweden Democrats' electoral support at the local level over the years 2010-2022.

passing municipal budgets (Bäck 2006). While informal, the governing coalitions are salient to voters.

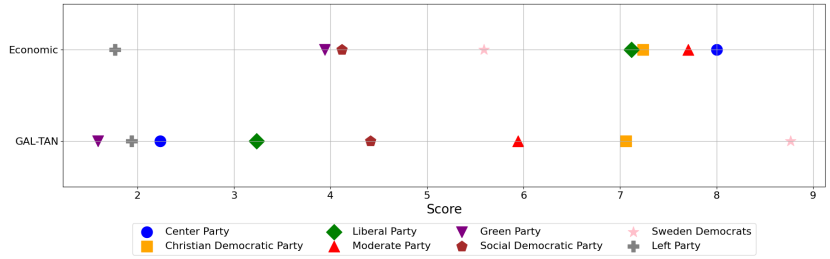
Other parties excluded the Sweden Democrats systematically from the governing coalitions also in the municipal government (Backlund 2020). However, as we saw in Panel A of Figure 1, this cordon sanitaire started breaking apart already in 2018, and coalition participation of the Sweden Democrats became even more prevalent after the 2022 election. We illustrate the coalition participation of all Swedish parties in Appendix Figure OA2. Furthermore, Appendix Figure OA3 presents the typology of governing coalitions by electoral term.

Although we do not seek to explain why other parties do not want to govern with the Sweden Democrats, prior work provides us with some ideas. For example, Leander (2024) presents lessons from elite interviews with political elites in a small set of Swedish municipalities, arguing that five aspects of social relations matter: (dis)satisfaction, (in)appropriate behavior, (dis)trust, (un)familiarity, and leadership. These ideas are also central to the analysis of Axelsen (2024) who describes a social-norms based theory of cordon sanitaire, focusing on why such a policy is upheld, and applies his theory to the case of Sweden Democrats in Swedish local governments.



Panel A: Sweden Democrats' performance in local elections and participation in governing coalitions in Swedish municipalities.

Panel B: Average likability of political parties by year.



Panel C: Policy positions of Swedish parties in 2018.

Figure 1. The Sweden Democrats in the Swedish political landscape.

Notes: In the bottom panel, a positive number indicates a more favorable view of the party and vice versa. The data in the top panel come from the Chapel Hill Expert Survey, and the data in the bottom panel come from the SOM Institute.

Conceptual Framework

To provide structure for our analysis, we first outline a conceptual framework that captures the core dynamics of coalition formation. Let us consider a political landscape where four main groups are present: a large right-wing party, a large left-wing party, a set of smaller parties on the left and right, and a repugnant, populist right-wing party. In Sweden, this controversial party is represented by the Sweden Democrats, a radical populist right-wing party. The goal of parties is to form a coalition with more than 50% of the seats in order to govern (Riker 1962; Laver and Schofield 1990).

Historically, left-wing parties like the Social Democrats in Sweden have avoided forming coalitions with the Sweden Democrats. The right-wing party (e.g., the Moderates) has three coalition options: (i) form a coalition with minor parties, (ii) include the repugnant party, or (iii) attempt a cross-ideological coalition with the left-wing party. If the right-wing party is unable to form a coalition, the left-wing party may seize the opportunity to govern by forming a coalition with smaller parties (Bäck and Dumont 2008).

Parties are motivated by several factors: enacting policies aligned with their ideological goals, securing office benefits, and managing the risks of working with the controversial party. Parties may hesitate to include such a party due to fears of voter backlash, damage to their reputation, or internal discord. We refer to this hesitation as a "repugnance cost" (Roth 2007; Van Spanje and Van Der Brug 2007).

In many cases, including the controversial party carries significant risks. These risks could manifest as electoral losses, negative media coverage, or party infighting. However, if the controversial party grows larger or becomes more mainstream, these risks may diminish (Downs 2001; Meguid 2005).

The central challenge for the right-wing party lies in balancing the trade-offs between policy alignment, office benefits, and the repugnance cost of working with the controversial party. If they prioritize policy, they will aim to form a coalition that aligns ideologically. If

they are more focused on power and influence, they might seek to maximize their control over government, even if that means compromising on some policy goals (Strøm 1990; Müller and Strøm 1999).

When the repugnance cost of working with the controversial party is too high, the right-wing party may attempt to form a coalition that excludes them. However, if they cannot form a coalition without the controversial party, the left-wing party may step in and form a government. As the controversial party grows stronger, the right-wing party might become more willing to include them, as the cost of exclusion could eventually outweigh the potential backlash from their inclusion. Over time, if the controversial party moderates its stance or continues to grow, the reluctance to partner with them may decrease (Bale 2003; De Lange 2012).

Coalition negotiations are inherently strategic, as parties anticipate how others will respond. A party may reject a coalition offer if it believes a better deal is available, and the final outcome reflects the interplay between parties' preferences for policy, office rents, and the costs of including the controversial party (Axelrod 1970; Grofman 1982).

As the controversial party gains prominence, coalition dynamics shift. The right-wing party may increasingly rely on the controversial party for support, while the left-wing party turns to centrist or other smaller parties for alliances. These changing patterns affect not only which parties govern, but also how power is distributed and what policies are pursued (Warwick 1996; Martin and Stevenson 2001).

Our empirical analysis tests these ideas by identifying when—in terms of the Sweden Democrats' size—coalition strategies shift, particularly regarding the inclusion or exclusion of the Sweden Democrats. In particular, we aim to determine the threshold at which the benefits of including the controversial party outweigh the costs. We will then use this threshold to reveal how parties navigate the trade-offs between policy alignment, office benefits, and the strategic considerations of including or excluding the controversial party.

Data and Empirical Approach

We now describe the data and methods that we use to understand how the coalition involvement of the Sweden Democrats depends on its size, and how other outcomes evolve around this threshold.

Data

We use information on local election results obtained from Statistics Sweden (SCB). Our data cover seven elections between 1998 and 2022. In these data, we observe the electoral performance of each party (vote and seat shares). We have additionally collected information on the composition of the governing coalitions from the Swedish Association of Local Authorities and Regions.

We also collect novel data on the allocation of office rents in Swedish local governments. We measure these rents by the number of paid part- or full-time positions working for the local government. While most politicians are so-called leisure politicians who attend local council meetings on their free-time and maintain their everyday jobs after election (Dal Bó et al. 2017), there are some who are paid to perform their tasks. Allocating these positions is a form of bargaining that is affected by the coalition size and strength of each party. Since there are no official data on the number of paid politicians or which party they belong to, we sent a survey to all Swedish 290 municipalities and asked for this information from 2002 to 2022.[8]

Identifying Unknown Kink Points and Discontinuities

The main hypothesis that we want to test is that once the Sweden Democrats reaches a certain size, it becomes increasingly costly and difficult for the established parties to keep it

[8]Not all municipalities responded to our survey despite Sweden's strict right-to-information laws, and many were not able to locate data going all the way back to 2002.

out of governing coalitions. At this cutoff, let us call it γ, we would expect to see a "tipping point." The unknown threshold in our statistical model corresponds to the point at which exclusion costs begin to outweigh repugnance costs, given the extent to which other parties care about policy and office rents and inclusion or exclusion of the Sweden Democrats party.

The exact nature on the tipping point depends on various factors, such as power relations of all parties represented in the local government, expected punishment from the electorate from coalescing with a radical party (or some other type of cost of coalescing with a populist radical-right party), and policy-, office- and vote-seeking tendencies of parties participating in the coalition bargaining process. We remain agnostic about the exact manifestation of the potential tipping point and allow for the possibility of a discontinuous jump in the probability of Sweden Democrats becoming part of the governing coalition and a discontinuity in the first derivative (i.e., the slope when regressing an indicator for the Sweden Democrats belonging to the governing coalition on a function of its size).

We borrow methods often used in time-series econometric analyses to identify unknown kink points and discontinuities (Hansen 2000, 2017). This approach is akin to regression discontinuity and kink designs (Lee and Lemieux 2010; Card et al. 2015).[9] Instead of time, we apply these to an important measure of party size, namely electoral support (i.e., party vote share).

Suppose that we are interested in the following, piece-wise linear regression:

$$\begin{aligned}&\mathbf{1}[\textit{Sweden Democrats in governing coalition}]_{mt} = \\ &\alpha_0 + \alpha_1 \mathbf{1}[\textit{Sweden Democrats' vote share} \geq \gamma]_{mt} + \alpha_2 \textit{Sweden Democrats' vote share}_{mt} + \\ &\alpha_3 \mathbf{1}[\textit{Sweden Democrats' vote share} \geq \gamma]_{mt} \times \textit{Sweden Democrats' vote share}_{mt} + \epsilon_{mt}. \quad (1)\end{aligned}$$

[9]For example, Card, Mas, and Rothstein (2008) use a similar approach to test for discontinuities in the dynamics of neighborhood racial composition. However, due to sample size limitations, we are unable to use the state-of-the art methods for point estimation and statistical inference. Therefore, we take our analysis as descriptive rather than causal.

Here, m refers to municipality and t refers to election year, and ϵ_{mt} is the error term. Other variables are self-explanatory.

We need to estimate the parameters α_0, α_1, α_2, α_3, and γ. The solution to this problem can be found numerically by a grid search over γ, obtaining $\hat{\alpha}$s for each candidate value, and then fixing $\hat{\gamma}$ and $\hat{\alpha}$s so that the sum of squared residuals (SSR) is minimized (Hansen 2017). If there is a discontinuous jump at the cutoff, we would expect to see $\alpha_1 \neq 0$. Similarly, if there is a change in the slope at the cutoff, it should be the case that $\alpha_2 \neq \alpha_3$.[10]

Party Size and Coalition Inclusion

We present two sets of results in this section. First, we show that the Sweden Democrats party is systematically excluded from governing coalitions in Swedish municipalities but only until it reaches a certain size. Second, we document that this convex relationship between the electoral support of Sweden Democrats and the probability of being incorporated in the governing coalition is very unusual in the Swedish political landscape, as the coalition inclusion probability appears to be a concave function of party size for all other parties.

Sweden Democrats

We begin by plotting the relationship between party size and being included in the governing coalition for the Sweden Democrats in Figure 2. The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of $\hat{\gamma}$. We also show evenly spaced binned averages (green dots), where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

[10] We use vote share instead of seat share to have a continuous metric of party size without mass points which would be present in the seat share metric, but we also verify robustness to using the seat share as the running variable instead. Note that we could also allow a more flexible relationship between the outcome and the running variable, Sweden Democrats' vote share. However, a graphical inspection of the data suggests that a linear function approximates the underlying shape of the data reasonably well. We complement this analysis by fitting lowess to the data, but taking the cutoff estimate from the piece-wise linear approach.

Our analysis suggests that there is a threshold point at 18.5% vote share for the party. Up until this point, the Sweden Democrats are almost never part of the governing coalition. While there is no discontinuous jump at the cutoff, there is a clear change in slope. It grows tenfold from 0.003 to 0.03. This difference in slopes is also statistically significant with $p < 0.01$.

The 18.5% threshold likely represents a tipping point where the electoral costs of continued exclusion begin to outweigh the reputational costs of collaboration. This level of support typically translates to the Sweden Democrats being the third-largest party in the local government.

We complement the graphical analysis with Table 1 which also assesses robustness to including additional covariates.[11] We first control for year fixed effects to account for the fact that there was a nationwide cordon sanitaire in place up until the 2018 municipal election, and before that coalescing with the Sweden Democrats would have been costlier. This barely affects the estimation results, and the difference in slopes is still statistically significant while there is no significant discontinuous jump at the cutoff. The same applies if we control for region indicators to account for the fact that there is a strong geographical gradient in the spread of the party or an indicator for having a right-wing majority to account for the fact that such parties have been more willing to coalesce with the Sweden Democrats. The final column includes all covariates, with the result remaining unchanged.

Patterns for Other Parties

Are the patterns shown in Figure 2 specific to the Sweden Democrats, or do we see a similar relationship between party size and coalition inclusion probability for other parties? In Figure 3 and Appendix Table OA1, we conduct a similar analysis for all other small and medium-sized parties. Although there is no twin of the Sweden Democrats in Swedish politics, we see these parties as a useful point of comparison: the average vote share of

[11] When including the covariates in the regression, we also allows γ to vary. However, we find a robust threshold of 18.5% across all specifications.

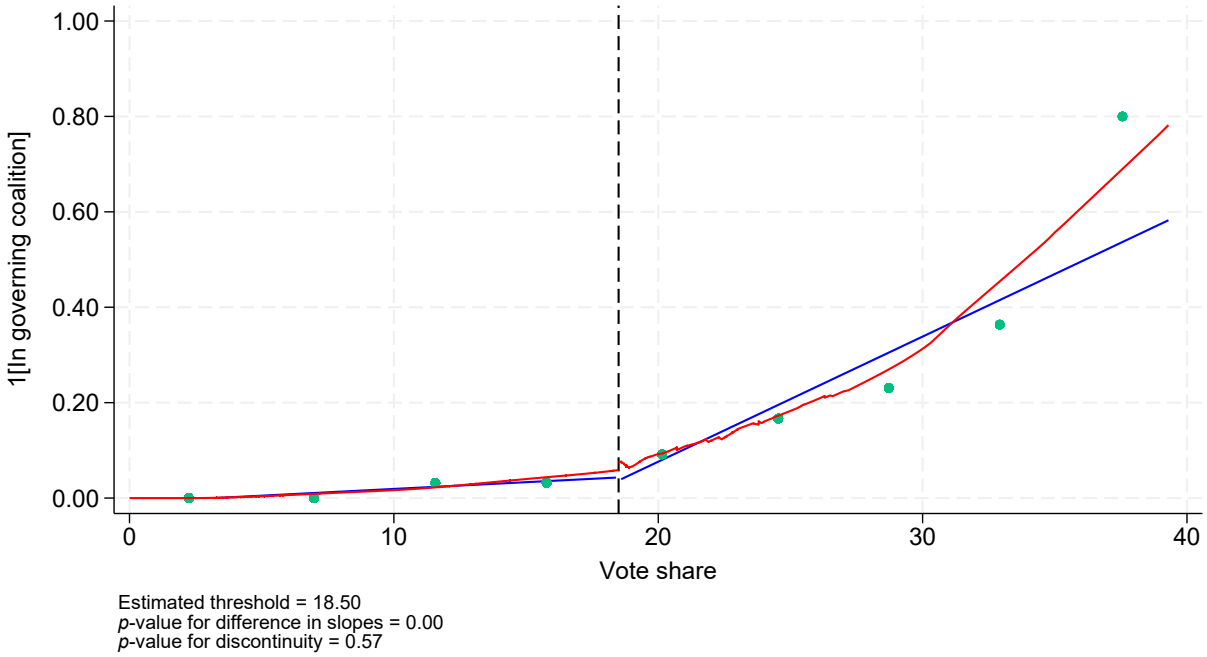


Figure 2. Party size and coalition inclusion probability: Sweden Democrats.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Sweden Democrats in our data is 8% ($SD = 7.4$), while the average vote shares of the other small and medium-sized parties (Center Party, Left Party, Liberal Party, Christian Democratic Party, and Green Party) vary between 3.8% and 12.2%.

The convex relationship between party size and coalition inclusion probability observed for the Sweden Democrats is unique among Swedish parties. For all parties in Figure 3, we detect a concave relationship between party size and coalition inclusion probability. Although we see discontinuous jumps and kinks in all cases, the Sweden Democrats party appears to be clearly distinct from any other party. For all of the other small and medium-sized parties, the coalition inclusion probability increases steeply until reaching a cutoff point—which tend to be significantly smaller than for the Sweden Democrats—after which the slopes remain positive but less steep than before the threshold. For all parties except for the Liberal

Table 1. Regression results for the Sweden Democrats.

	(1)	(2)	(3)	(4)	(5)
Sweden Democrats vote share	0.003**	0.000	0.003**	0.003**	-0.002
	[0.001]	[0.001]	[0.001]	[0.001]	[0.002]
Sweden Democrats vote share × Threshold	0.026**	0.025**	0.026**	0.026**	0.024**
	[0.007]	[0.007]	[0.007]	[0.007]	[0.007]
Threshold	-0.006	-0.013	-0.007	-0.006	-0.010
	[0.035]	[0.034]	[0.036]	[0.035]	[0.035]
N	1520	1520	1520	1520	1520
Threshold	18.5	18.5	18.5	18.5	18.5
p-value for difference in slopes	0	0	0	0	0
p-value for discontinuity	.86	.7	.84	.86	.76
Year		✓			✓
Region			✓		✓
Right-wing majority				✓	✓

Notes: The dependent variable is an indicator for the Sweden Democrats party being included in the governing coalition. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. Robust standard errors are reported in brackets. * and ** denote statistical significance at 5% and 1% levels, respectively.

Party, this threshold virtually coincides with the parties being guaranteed at least some representation in the municipality.

The pattern is also distinct from that for the two main parties in Swedish politics, the Social Democratic and the Moderate Party. For them, the probability of participating in the governing coalition increases steadily until the party either is close to holding or holds an absolute majority of the seats and can govern alone or together with some small party (see Appendix Figure OA4).

Additional Results

Excluding parties with no representation In Appendix Figure OA5 and Table OA2, we estimate the cutoff points and associated discontinuities and shifts in slopes while excluding parties that gain no representation in the local council. For some parties (in particular, the Liberal Party, the Christian Democrats, and the Green Party), the model that minimizes the

SSR is simply a linear regression of the coalition inclusion probability on party vote share. For the Left Party, the pattern is similar to what we find in Appendix Figure 3 and Table OA1. For the Center Party, the relationship between the coalition inclusion probability and party size is roughly flat around 50% probability until the party reaches a support of about 20%, after which the slope becomes upward tilting. For all parties, the pattern is again very different from the Sweden Democrats who are still systematically excluded until they reach a certain size.

Using seat share as the measure of party size In Appendix Figure OA6, we use the seat share as the measure of party size instead of the party vote share, again restricting our sample to parties that have a non-zero seat share. The results are in line with the analyses that we show here in the main text. We observe a convex relationship only for the Sweden Democrats, for whom the estimated threshold (about 19.7% of the municipal council seat share) is also significantly higher than for other parties which exhibit a distinctively different shape between party size and the coalition inclusion probability.

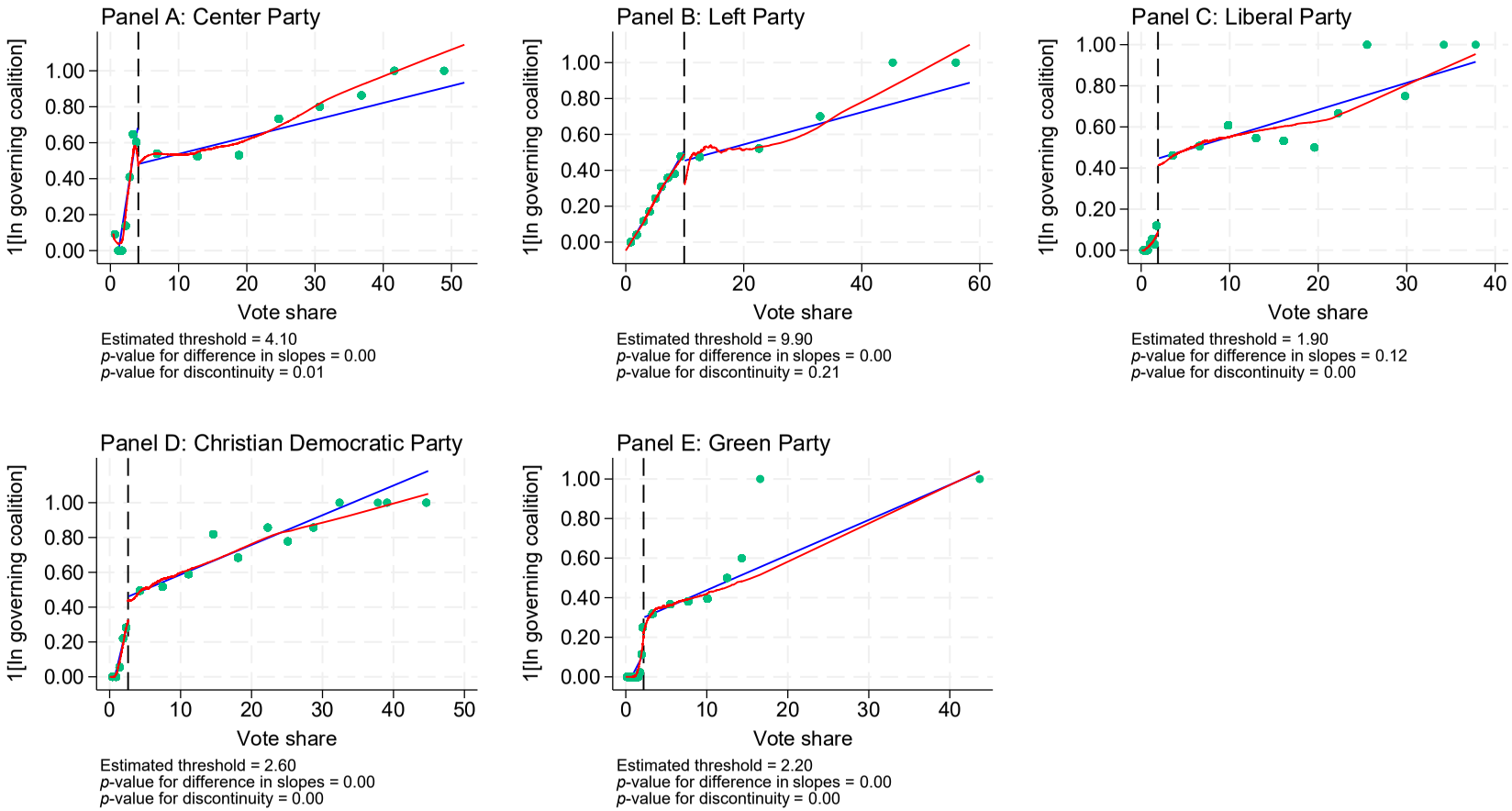


Figure 3. Party size and coalition inclusion probability: Other small and medium-sized parties.

Notes: The figures show linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The thresholds have been estimated to minimize the SSR of the regressions, allowing for changes in slope and discontinuous jumps at the cutoff points. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

How Inclusion and Exclusion of the Sweden Democrats Shape Office Rents and Policy

Having established a threshold effect in the Sweden Democrats' coalition inclusion, we now examine how this threshold shapes coalition dynamics, office rent distribution, and policy positions. We hypothesize that the approach to this threshold, and its crossing, significantly alters political bargaining and outcomes.

Two motivating examples Parties can alter office rents in two ways: by changing the size of the pie or by dividing the pie differently. Let us consider two examples to illustrate this. During the period 2010-2014, Stockholm was ruled by a typical center-right coalition with all the four non-socialist parties in a coalition. With the Moderate Party being the largest political party, they held six out of ten full-time (paid) politician positions.[12] During the period 2018-2022, the four center-right parties were not able to get a majority due to the increased support for the Sweden Democrats which they refused to cooperate with. Hence, they chose to include the Green Party in the ruling coalition. The party was able to gain two full-time seats despite their low electoral support which was nevertheless sufficient to create a majority coalition. The Moderate Party in turn sacrificed two full time positions, leaving them with only four seats.

Another example is Malmö, the third-largest city in Sweden. During 2014-2018, it was ruled by a leftist coalition, with the Social Democrats being the largest party. During the 2018-2022 period, the left-wing coalition was not able to gain a majority due to the increased representation of the Sweden Democrats. They convinced the small, center-right Liberal Party to support them.[13] In return for their contribution to the governing coalition,

[12]In larger municipalities, the opposition parties typically have a few full time positions, in this case a total of three.

[13]The Liberals decided to form a coalition with the Social Democrats instead of joining a right-wing coalition that would rely on support from the Sweden Democrats. Roko Kursar, the group leader for the Liberals in Malmö, commented on the coalition, stating that "[w]e have been clear that we will

the acquired three full-time positions. Rather than redistributing political positions, Malmö increased the total number of full-time politicians.

In both of these cases, it is not just the allocation of office rents that changes. Which parties are involved in the governing coalition naturally changes the ideological composition of the governing coalition which plausibly matters for the policies that are put in place (Cervellati, Gulino, and Roberti 2024).

Empirical Analysis

To move from anecdotal evidence to empirical estimates, we now use the threshold $\hat{\gamma}$ estimated using equation (1) and run the following regression, where y_{mt} is one of our office rent or policy outcomes:

$$\begin{aligned} y_{mt} = \beta_0 &+ \beta_1 \mathbf{1}[\textit{Sweden Democrats' vote share} \geq \hat{\gamma}]_{mt} \\ &+ \beta_2 \textit{Sweden Democrats' vote share}_{mt} \\ &+ \beta_3 \mathbf{1}[\textit{Sweden Democrats' vote share} \geq \hat{\gamma}]_{mt} \times \textit{Sweden Democrats' vote share}_{mt} + \zeta_{mt}. \end{aligned} \quad (2)$$

Distribution of office rents Figure 4 illustrates the regression results for office rents graphically. We examine the coalition size (Panel A), the number of paid full-time and part-time positions allocated to political parties (Panel B), the largest party's share of these paid positions (Panel C), and the Herfindahl-Hirschman index of the cross-party allocation of the paid positions (Panel D) evolve as the Sweden Democrats party grows larger in popularity.

We see that before reaching the cutoff point, coalition sizes tend to follow an increasing trend. After the cutoff point, this trend is reversed, and coalition sizes start becoming smaller. We may speculate that the formateurs are willing to incorporate more parties in the governing coalitions to avoid coalescing with the Sweden Democrats—until this becomes

not become dependent on the Sweden Democrats. My voters are proud that we stand by what we have said" (see https://www.svt.se/nyheter/lokalt/skane/klart-med-socialdemokratiskt-styre-i-malmo; accessed August 26, 2024).

too costly, politically and otherwise. The parties also appear to generate new paid positions to the coalition members and distribute a greater share of office rents to the junior coalition partners—up until a certain point.

The observed increase in coalition size as the threshold is approached likely reflects established parties' attempts to build broader alliances to maintain government control without the Sweden Democrats. However, once the threshold is crossed, the inclusion of the Sweden Democrats allows for smaller, potentially more ideologically cohesive coalitions.

We present detailed regression results in Panel A of Table 2 which reports the regression results without (odd columns) and with (even columns) additional covariates. Although the statistical significance and sign of the left-hand slopes varies slightly across specifications, our conclusions regarding the sign (and statistical significance) of the change in slopes remain unchanged.

Implications for policy Panels E and F then consider the ideological range of governing parties, measured by the distance between the maximum and minimum economic and GAL-TAN ideology among the parties included in the coalition. We see that government ideology becomes more dispersed toward the threshold, after which it becomes less dispersed the more popular the Sweden Democrats party and, thus, the larger the probability of its coalition inclusion.[14]

Instrumental Variable Estimation

We complement our analysis with an IV approach which provides us with more direct estimates of how the outcomes covary with the government involvement of the Sweden Democrats. More specifically, we instrument $\mathbf{1}[\textit{Sweden Democrats in governing coalition}]$ with $\mathbf{1}[\textit{Sweden Democrats' vote share} \geq \gamma]$ and $\mathbf{1}[\textit{Sweden Democrats' vote share} \geq \gamma] \times$

[14]These observations observations resonate with what we see in Appendix Figure OA3 which shows the types of governing coalitions across electoral terms covered by our data. Starting after the 2014 election, we see that cross-bloc coalitions have been becoming increasingly more prevalent, while the share of pure left-wing coalitions has been steeply decreasing.

Sweden Democrats' vote share. The first stage regression thus corresponds to the specification (1), and the second stage regression takes the form

$$y_{mt} = \delta_0 + \delta_1 \mathbf{1}[\widehat{\textit{Sweden Democrats in government}}]_{mt} + \delta_2 \textit{Sweden Democrats' vote share}_{mt} + \mu_{mt}. \quad (3)$$

The estimates, which we present in Panel B of Table 2, corroborate our earlier findings. When Sweden Democrats are included in governing coalitions, (i) coalition size is smaller, (ii) there are less paid positions, (iii) the largest party holds a larger share of the paid positions, (iv) the allocation of the paid positions is less dispersed, and (v) the policy positions of the parties involved in the governing coalition are less dispersed.

Estimates for Other Minor Parties

We also conduct similar analyses for other minor parties. These results can be found in Appendix Figures OA7-OA11 and Tables OA3-OA7. Although there is some evidence of outcomes changing at the cutoff where the relationship between the coalition inclusion probability and party size shifts, these changes are not systematically similar to those that we found for the Sweden Democrats. Furthermore, the changes are largely driven by the other minor parties being sufficiently popular to gain any representation in the local council.

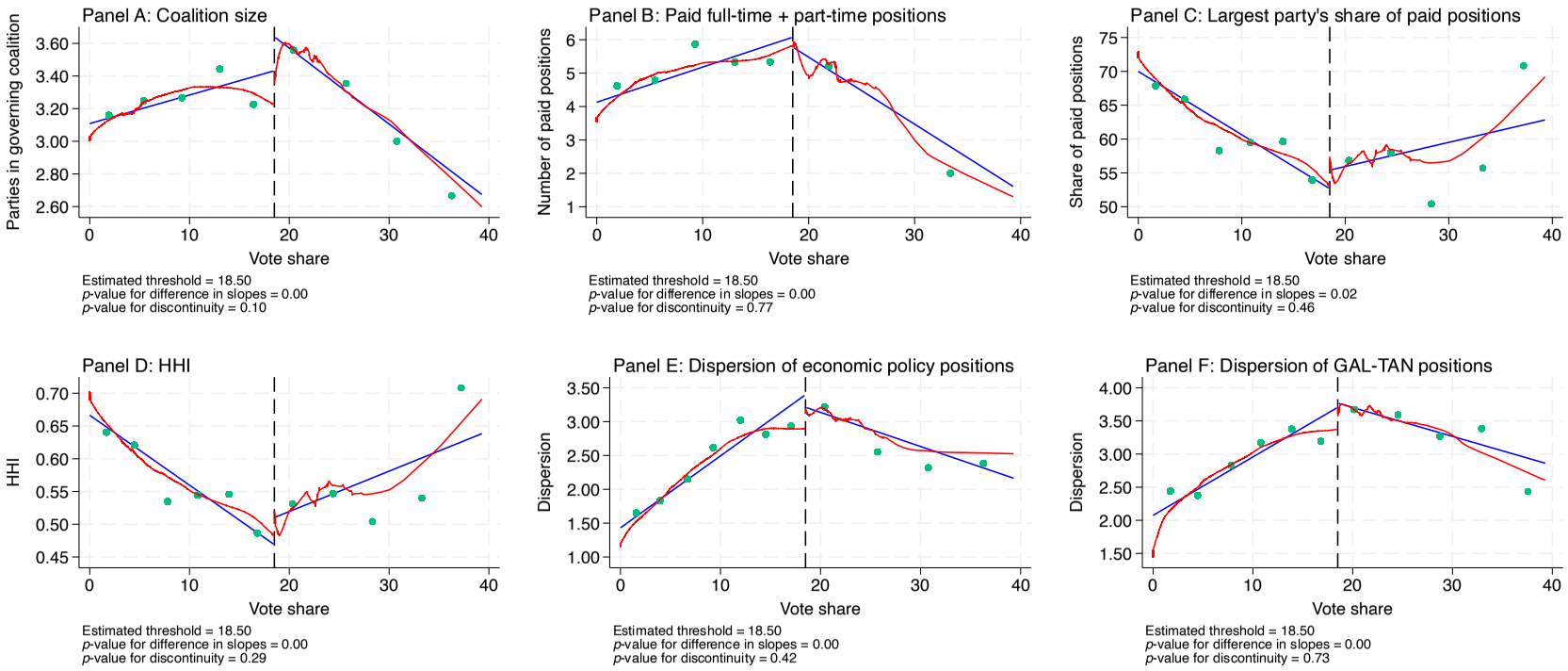


Figure 4. Size of the governing coalition, distribution of office rents, and ideological dispersion.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The threshold has been estimated to minimize the SSR when regressing an indicator for the Sweden Democrats being in the governing coalition on its vote share, allowing for a change in slope and a discontinuous jump at the cutoff point. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Table 2. Regression results for office payoffs and ideological composition of the governing coalition.

	Coalition size		Paid positions		Largest party's share of paid positions		HHI		Spread of economic ideology		Spread of GAL-TAN ideology	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
Sweden Democrats' vote share	0.014*	0.019	0.065	-0.059	-0.821**	0.158	-0.009**	0.001	0.097**	0.094**	0.073**	0.013
	[0.006]	[0.012]	[0.047]	[0.096]	[0.165]	[0.322]	[0.002]	[0.003]	[0.010]	[0.020]	[0.009]	[0.015]
Sweden Democrats' vote share × Threshold	-0.046**	-0.048**	-0.201**	-0.229**	0.357	0.973	0.006	0.011*	-0.050	-0.018	-0.044*	-0.058*
	[0.016]	[0.018]	[0.069]	[0.069]	[0.522]	[0.534]	[0.005]	[0.005]	[0.026]	[0.025]	[0.021]	[0.024]
Threshold	0.235	0.300*	-0.001	-0.054	1.893	0.094	0.031	0.012	-0.118	-0.050	0.171	0.462*
	[0.129]	[0.135]	[1.050]	[1.110]	[3.730]	[3.748]	[0.040]	[0.039]	[0.231]	[0.225]	[0.181]	[0.182]
N	1520	1520	1036	1036	1017	1017	1017	1017	1435	1435	1437	1437
p-value for difference in slopes	0	0	0	.12	.03	.17	.01	.11	0	0	0	.01
p-value for discontinuity	.07	.03	1	.96	.61	.98	.44	.75	.61	.83	.35	.01
Panel B												
1[Sweden Democrats in governing coalition]	-1.119*	-1.176	-6.577*	-7.817**	15.207	31.601*	0.259	0.374*	-2.301**	-0.932	-1.202	-1.190
	[0.477]	[0.600]	[2.660]	[2.840]	[13.750]	[15.594]	[0.150]	[0.168]	[0.798]	[0.886]	[0.646]	[0.811]
N	1520	1520	1036	1036	1017	1017	1017	1017	1435	1435	1437	1437
First-stage F	11.54	9.01	11.86	10.53	12.35	11.14	12.35	11.14	11.43	8.75	11.43	8.75
Threshold	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5	18.5
Year		✓		✓		✓		✓		✓		✓
Region		✓		✓		✓		✓		✓		✓
Right-wing majority		✓		✓		✓		✓		✓		✓

Notes: The dependent variables are indicated as column titles. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. Robust standard errors are reported in brackets. * and ** denote statistical significance at 5% and 1% levels, respectively.

Discussion

We conclude by discussing three additional aspects of coalition formation in the presence of a cordon sanitaire against the Sweden Democrats and the break-up of it. First, do certain minor parties systematically benefit from the cordon sanitaire or it breaking apart? Second, how does the rising electoral support of the Sweden Democrats affect the formation of minority governments, particularly around the 19 percent threshold? Third, to what extent are our findings driven not just by office rents and policy trade-offs, but by the fact that a coalition with the Sweden Democrats may become the only viable option?

Other Parties' Coalition Participation

Figure 5 illustrates changes in coalition participation for minor parties' coalition participation as the Sweden Democrats' vote share approaches and surpasses the 19% threshold. The Center Party, in particular, benefits from the cordon sanitaire, as its probability of coalition inclusion increases steadily up to the threshold, after which the probability declines (Panel A). A similar, albeit less pronounced, pattern is observed for the Christian Democrats and the Green Party (Panels D and E). For the Left Party, the slope remains negative on both sides of the threshold, but a oticable upward jump occurs at the cutoff (Panels B and C).

Prevalence of Minority Governments

Previously, Loxbo (2010) has argued that the Sweden Democrats' appearance in local politics in 2002 and 2006 has been responsible for the emergence of minority governments in Swedish municipalities.[15] In Figure 6, we show that the seat share of the governing coalition decreases and the probability of a minority government increases steeply until the 19% threshold point, after which the slope becomes less steep. Nevertheless, echoing the arguments of Loxbo

[15]In our data, about one fourth of the municipalities have governing coalitions with a total seat share below 50%, and their prevalence increases over time.

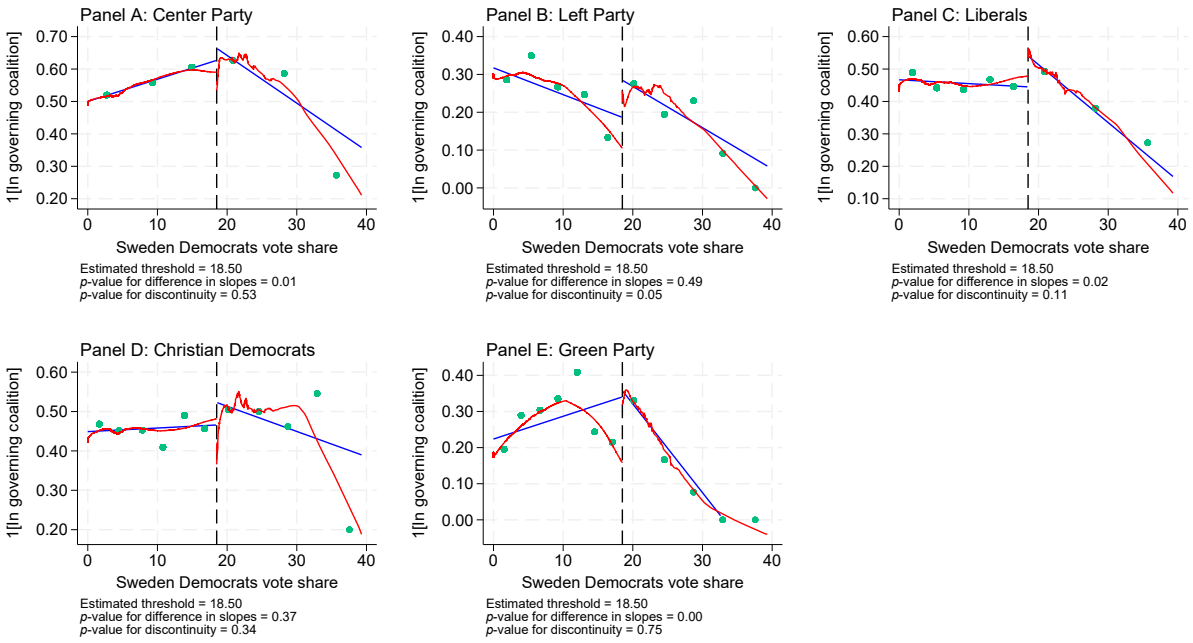


Figure 5. Sweden Democrats' growth and minority parties' coalition participation.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. We illustrate how the coalition inclusion probability of each minor party evolves around the threshold which has been estimated to minimize the SSR when regressing an indicator for the Sweden Democrats being in the governing coalition on its vote share, allowing for a change in slope and a discontinuous jump at the cutoff point. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

(2010), it appears many municipalities still have minority governments after the threshold point.

To sustain the minority governance, the governing parties may have to seek support from opposition parties, possibly by making office or policy concessions. This suggests that the patterns we documented in Figure 1 and Table 2 may understate the role that the cordon sanitaire and the break-up thereof have in shaping office rents and policy outcomes.

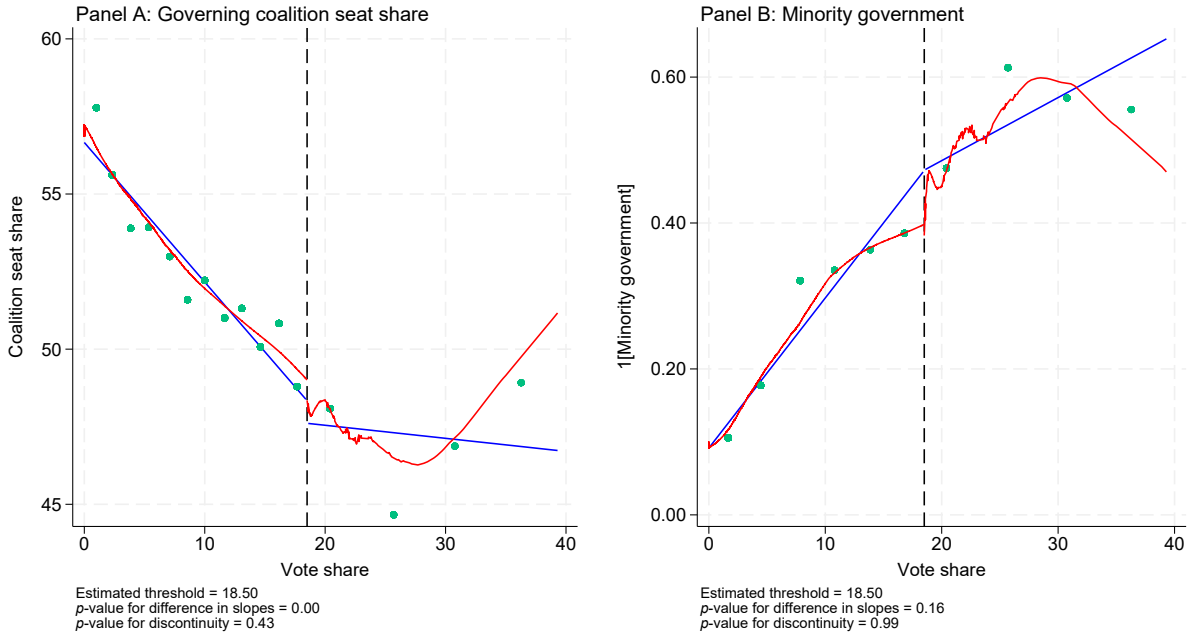


Figure 6. Sweden Democrats and minority governments.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. In Panel A, we show how the seat share of the governing coalition evolves around the threshold which has been estimated to minimize the SSR when regressing an indicator for the Sweden Democrats being in the governing coalition on its vote share, allowing for a change in slope and a discontinuous jump at the cutoff point. In Panel B, the outcome is an indicator for there being a minority government. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Between a Rock and a Hard Place?

The findings thus far provide one possible explanation for why the kink point for the Sweden Democrats' coalition inclusion occurs at around 19%. At this point, parties may see the political and policy costs of excluding the Sweden Democrats as too large.

Another possible mechanism is that the political power balance shifts at the cutoff, making it difficult or impossible to form alternative coalition types (Sartori 1976; Warwick 1992). A particularly complicated situation is one in which the Social Democrats—the main opponent of the Moderate Party—and the Sweden Democrats—a repugnant party against which there was historically a universal cordon sanitaire—together hold more than half of the local council seats.

There is a small and statistically significant jump in the joint seat share of the Social Democrats and the Sweden Democrats at the cutoff of 19% vote share for the Sweden Democrats, but no kink point. We further do not find that when the Social Democrats and the Sweden Democrats hold more than 50% of the local council seat share, the Sweden Democrats would become more likely to be incorporated in the governing coalition (see Figure 7). Thus, we believe this mechanism alone is unlikely to explain the shift in the Sweden Democrats' coalition inclusion probability that we documented above.

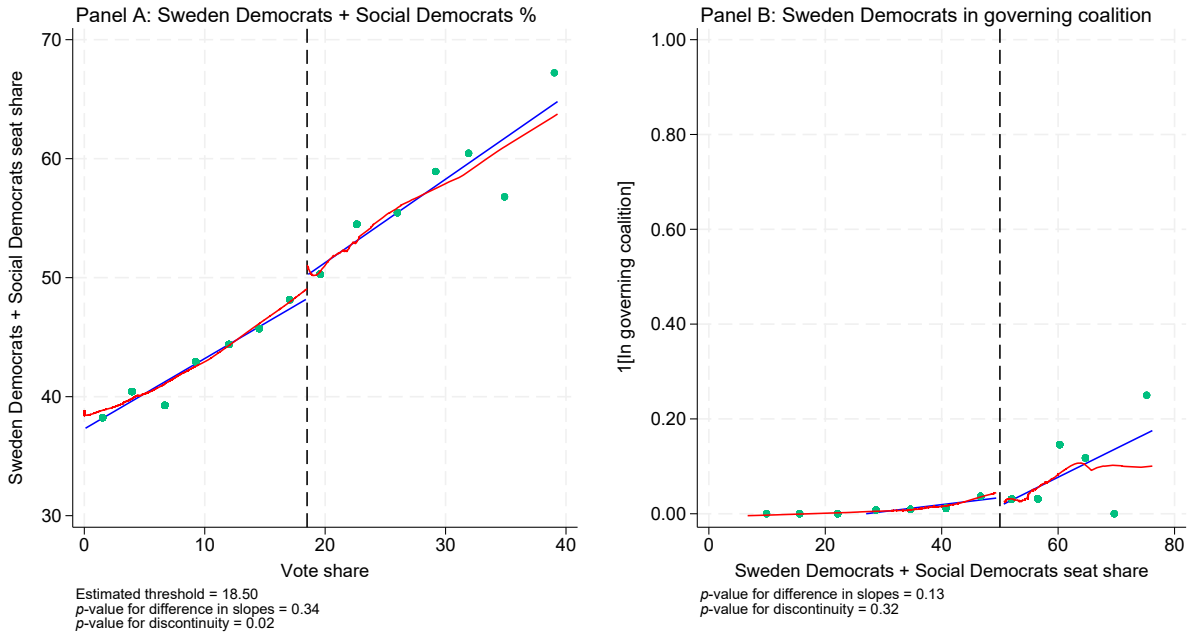


Figure 7. A test for an alternative mechanism.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. In Panel A, we show how the seat share of Sweden Democrats and Social Democrats evolves at the threshold which has been estimated to minimize the SSR when regressing an indicator for the Sweden Democrats being in the governing coalition on its vote share, allowing for a change in slope and a discontinuous jump at the cutoff point. In Panel B, we show how the coalition inclusion probability of Sweden Democrats changes at the cutoff of Sweden Democrats and Social Democrats having a majority (50%) of the local council seats. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Concluding Remarks

We study the politics and economics of trying to uphold a cordon sanitaire against a populist right-wing party, the Sweden Democrats. We find that established parties systematically keep the Sweden Democrats out of governing coalition coalitions, but only up until a certain point. When the party becomes sufficiently large, the costs of exclusion become untenable and the cordon sanitaire begins to break apart. While previous studies have noted the challenges posed by radical right parties to coalition formation (e.g., Mudde 2007), our work provides the first quantitative evidence of a specific threshold effect. This contributes to debates about the mainstreaming and normalization of radical right parties (Akkerman, de Lange, and Rooduijn 2016; Valentim 2024) by identifying a tipping point in their political acceptance to governing coalitions.

Our findings are consistent with the following narrative: Established parties trade off office rents and policy to keep the Sweden Democrats out of the government, but they are only willing to make sacrifices up to a certain extent. During this process, politicians increase the size of their political coalition, which entails adding more political parties to the ruling coalition, leading to an expansion or redistribution of political offices. Increased prominence of the Sweden Democrats also shapes the ideological composition of governing coalitions, suggesting that there may be fundamental consequences for policy outcomes as well. In line with Loxbo (2010), we also find that the presence and growth of the Sweden Democrats shapes the formation of minority governments, although they are still a minority form of governance in Swedish municipalities.

We take our analysis as a first pass to understanding the role that radical party size plays in their inclusion in or exclusion from governing coalitions. We hope that this study sets forth a further research agenda. Let us outline some potential avenues for future work.

First, the recent successes of radical parties on the right and the left across Europe call for comparative investigation of the hypothesis that we have studied. A cross-country

analysis would have its own merits, possibly enabling analysis of heterogeneities in party size threshold across different electoral and party systems and other factors. Especially the potential differences between populist radical left and right-wing parties could be interesting to assess. Gathering similar data from local governments in other countries would possibly enable a large-N study. A particularly promising idea would be to analyze a context where the coalition participation of radical parties is more common, as this would enable a more sophisticated estimation of regression-discontinuity and regression-kink designs in the spirit of what we do in the present paper.[16]

Second, the existing formal models of coalition bargaining are not perfectly suited to understanding coalition formation in the presence of repugnant parties. We hope that the empirical patterns we document offer food for thought for theorists who are interested in analyzing these types of coalition formation situations beyond the simple conceptual framework we present in the present paper. Some important steps toward this direction are taken in Afsar and Weibull (2021) who examine the Shapley values of different coalition options in government formation in Sweden, accounting for the fact that some parties have a strict preference to never coalesce with each other.

Third, coupling a carefully crafted model with the suitable data could enable a structural estimation, in the spirit of the work by Diermeier, Eraslan, and Merlo (2003), Frey, López-Moctezuma, and Montero (2023), Montero (2024), and others, of how parties weigh the different trade-offs when deciding whether to coalesce or not with a radical party or other aspects of government formation when radical parties are involved.

[16] An obvious limitation of the "global approach" that we take due to the limited number of times that the Sweden Democrats party has been involved in governing coalitions is that we place weight also to observations that are further away from the threshold. The ideal empirical study should exploit the randomness of election outcomes right around the cutoff for causal identification (Hyytinen et al. 2018; Card et al. 2015; Gelman and Imbens 2019).

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Online Appendix to "The Price of Exclusion: Coalition Formation in the Shadow of Rising Radical Right"

This appendix contains auxiliary figures and tables. We describe their contents below.

Figure OA1 This figure maps the electoral performance of the Sweden Democrats across Swedish municipalities in 2010, 2014, 2018, and 2022. We see that the party first increased its popularity in the southern parts of Sweden and eventually became popular also in other parts.

Figure OA2 Here, we illustrate the share of municipalities in which each party belongs to the governing coalition across the elections. The general pattern is that the Social Democratic Party, the Moderates, and the Center Party appear to be most commonly part of these coalitions, although the minor parties also participate fairly often. Starting after the 2018 and especially the 2022 elections, Sweden Democrats have increased their political power by being incorporated into municipal governing coalitions.

Figure OA3 Figure OA3 shows the distribution of different types of governing coalitions across time. Pure left-wing or center-right coalitions were more frequent until after the 2014 election, after which especially left-wing coalitions have become less prevalent. At the same time, cross-bloc coalitions (with or without other parties) have been becoming much more common. For example, starting in 2011, only about one fourth of municipalities had such governing coalitions, but in twelve years this number increased roughly two-fold.

Table OA1 In Table OA1, we study whether the relationship between the vote share and the coalition inclusion probability for other minor parties in Swedish local politics. The convex relationship between party size and the coalition inclusion probability in the case of the Sweden Democrats turns out to be unusual.

For all other minor parties, we detect a concave relationship between the party size and the coalition inclusion probability. Although we see discontinuous jumps and kinks in all cases, the Sweden Democrats party appears to be clearly distinct from any other party. For all of the other small and medium-sized parties, the coalition inclusion probability increases steeply until reaching a cutoff point—which tend to be significantly smaller than for the Sweden Democrats—after which the slopes remain positive but less steep than before the threshold. For all parties except for the Liberal Party, this threshold virtually coincides with the parties being guaranteed at least some representation in the municipality.

Figure OA4 The pattern for the Sweden Democrats is also distinct from that for the two main parties in Swedish politics, the Social Democratic and the Moderate Party. For them, the probability of participating in the governing coalition increases steadily until the party either is close to holding or holds an absolute majority of the seats and can govern alone or together with some small party.

Figure OA5 and Table OA2 In Figure OA5 and Table OA2, we estimate the cutoff points and associated discontinuities and shifts in slopes while excluding parties that gain no representation in the local council. For some parties (in particular, the Liberal Party, the Christian Democrats, and the Green Party), the model that minimizes the SSR is simply a linear regression of the coalition inclusion probability on party vote share. For the Left Party, the pattern is similar to what we find in Figure 3. For the Center Party, the relationship between the coalition inclusion probability and the party size is roughly flat around 50% probability until the party reaches a support of about 20%, after which the slope becomes upward tilting. In conclusion, for all parties, the pattern is very different from the Sweden Democrats who are still systematically excluded until they reach a certain size.

Figure OA6 In Figure OA6, we estimate the cutoff points and associated discontinuities and shifts in slopes using the seat share as the running variable. The figure shows that the shape is very similar as what we found when measuring party size by the vote share.

Figures OA7-OA11 and Tables OA3-OA7 In these figures and tables, we examine how office rents and the ideological dispersion of governing coalitions evolves around the cutoffs detected for other parties. Although there is some evidence of outcomes changing at the cutoff where the relationship between the coalition inclusion probability and party size shifts, which is perhaps to be expected given the shifts in the probabilities (Kayser, Orlowski, and Rehmert 2023), these changes are not systematically similar to those that we found for the Sweden Democrats. Furthermore, the changes are largely driven by the other minor parties being sufficiently popular to gain any representation in the local council.

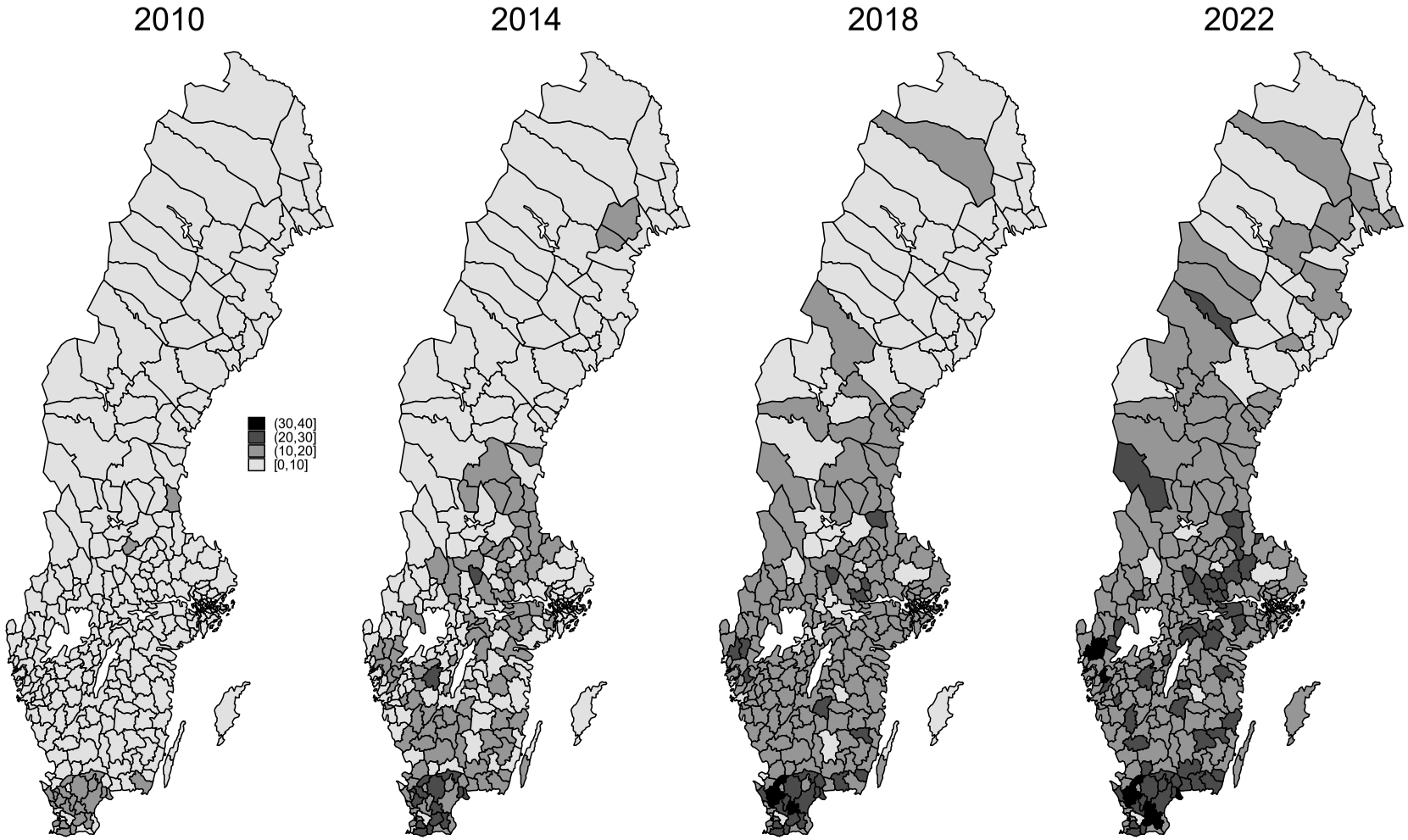

Figure OA1. Electoral performance of the Sweden Democrats in Swedish municipalities, 2010-2022

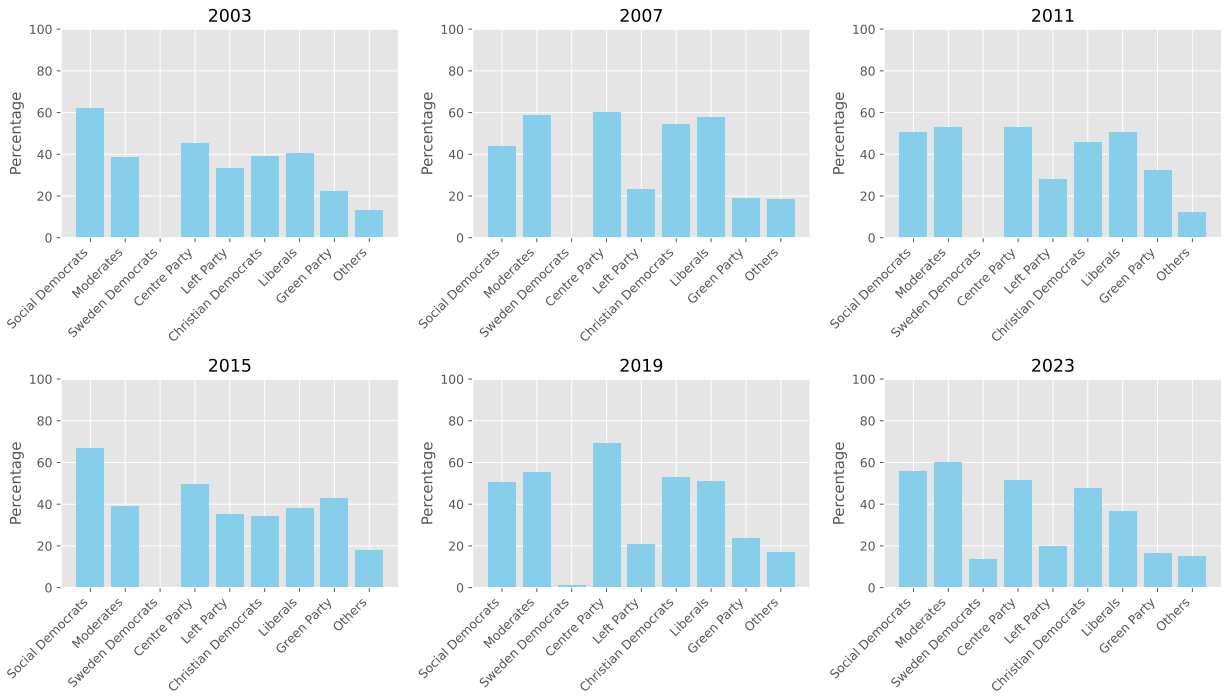

Figure OA2. Parties' participation in governing coalitions.

Notes: The figure shows the share of local governing coalitions that each party belongs to by each term included in our data. "Others" includes minor parties not represented in the Swedish parliament and local political groups that are not registered parties.

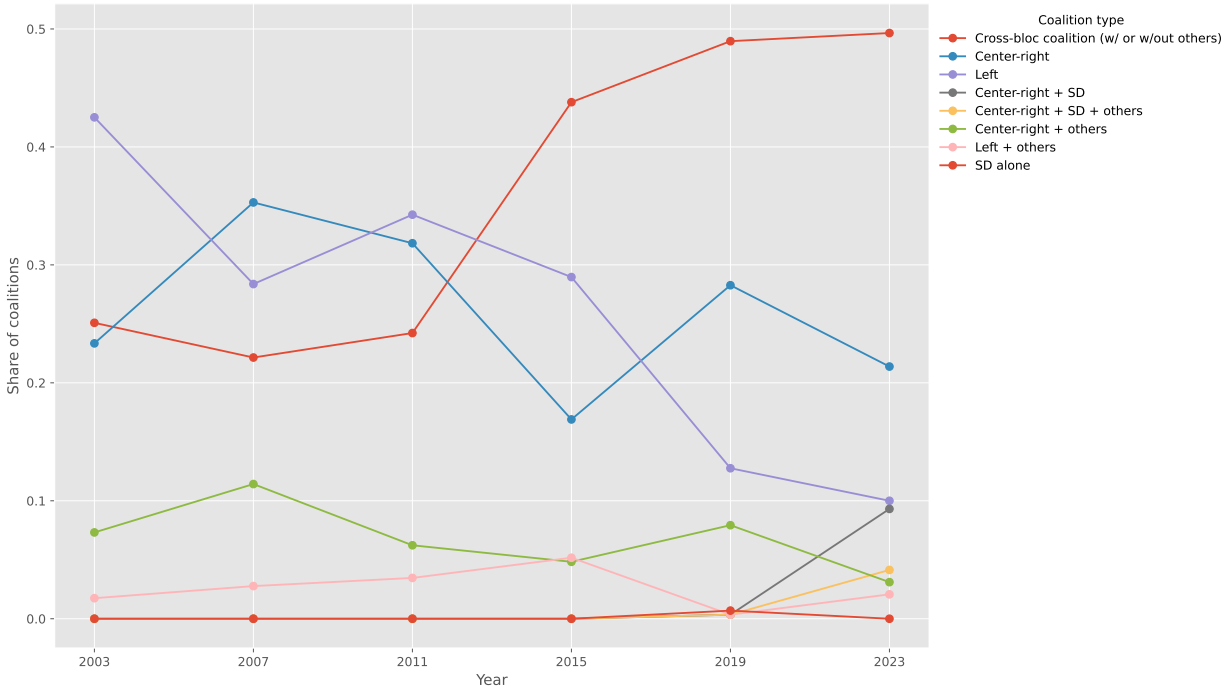

Figure OA3. Typology of governing coalitions in Swedish municipalities.

Notes: The coalition types are ordered by their prevalence in the term starting in the year 2023.

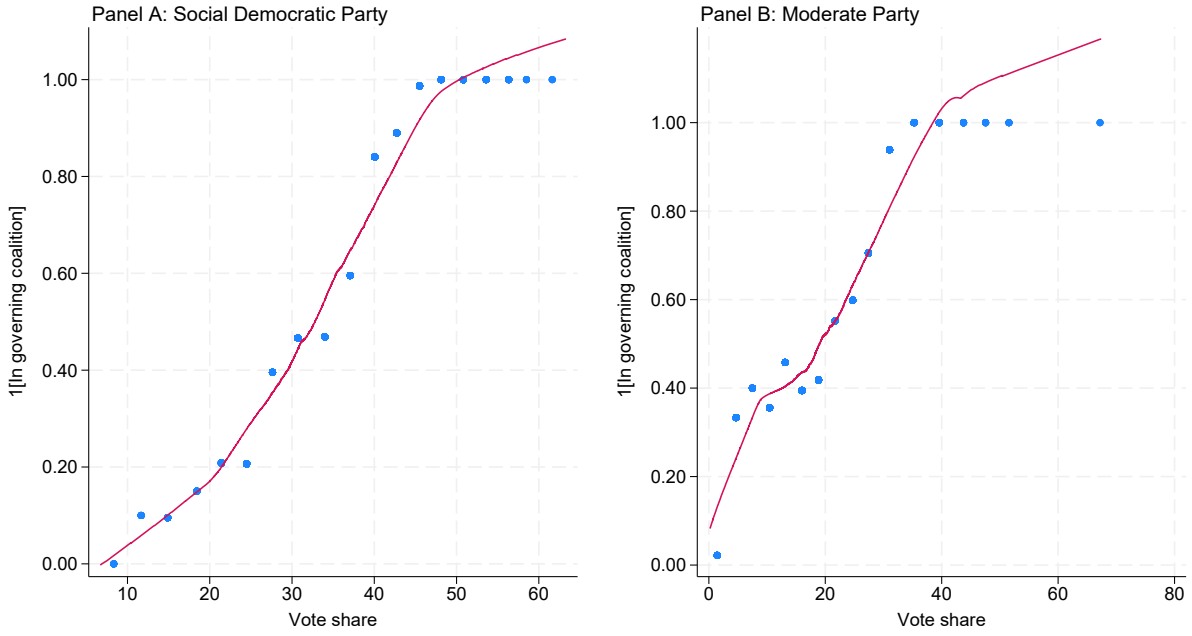

Figure OA4. Party size and coalition inclusion probability for the Social Democratic Party and the Moderate Party.

Table OA1. Regression results for other minor parties.

	Center Party		Left Party		Liberals		Christian Democrats		Green Party	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Party vote share	0.244**	0.193**	0.057**	0.028**	0.060*	0.048	0.170**	0.097**	0.079**	0.019
	[0.030]	[0.032]	[0.004]	[0.006]	[0.028]	[0.038]	[0.025]	[0.029]	[0.019]	[0.018]
Party vote share × Threshold	0.009**	0.003*	0.009**	0.006*	0.013**	0.004	0.017**	0.009**	0.018**	0.016**
	[0.001]	[0.001]	[0.003]	[0.003]	[0.003]	[0.003]	[0.002]	[0.002]	[0.005]	[0.005]
Threshold	-0.225**	-0.143*	-0.056	-0.015	0.360**	0.323**	0.143**	0.140**	0.183**	0.254**
	[0.064]	[0.060]	[0.050]	[0.034]	[0.041]	[0.046]	[0.047]	[0.048]	[0.033]	[0.026]
N	1735	1735	1734	1734	1735	1735	1734	1734	1733	1733
Threshold	4.1	4.1	9.9	7.4	1.9	1.9	2.6	2.5	2.2	2
p-value for difference in slopes	0	0	0	0	.09	.26	0	0	0	.85
p-value for discontinuity	0	.02	.26	.66	0	0	0	0	0	0
Year		✓		✓		✓		✓		✓
Region		✓		✓		✓		✓		✓
Right-wing majority		✓		✓		✓		✓		✓

Notes: The dependent variable is an indicator for the party indicated in the column title being included in the governing coalition. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. Robust standard errors are reported in brackets. * and ** denote statistical significance at 5% and 1% levels, respectively.

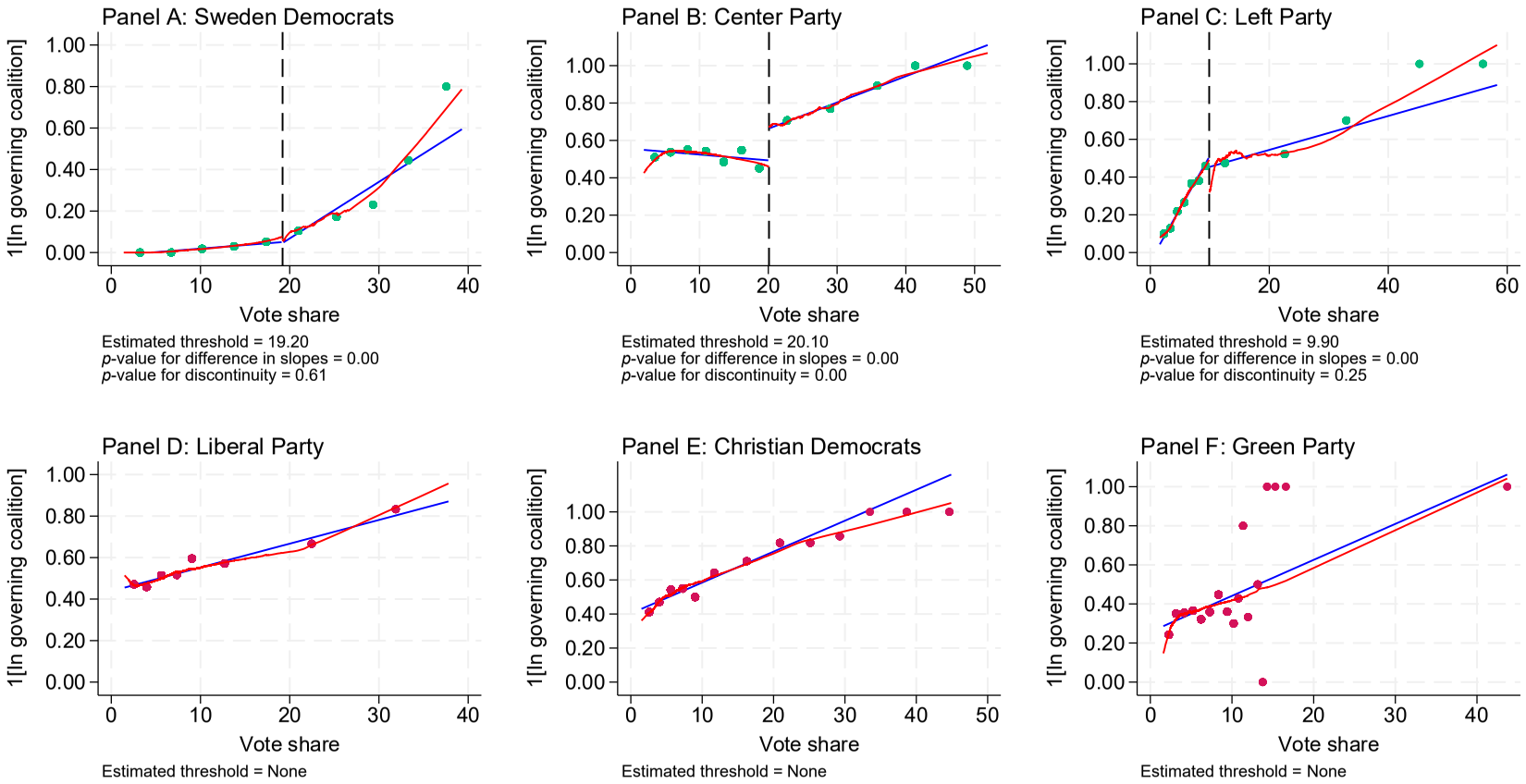

Figure OA5. Party size and coalition inclusion probability: Excluding parties with no representation.

Notes: The figures show linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The thresholds have been estimated to minimize the SSR of the regressions, allowing for changes in slope and discontinuous jumps at the cutoff points. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Table OA2. Party size and coalition inclusion probability: Regression results excluding parties with no representation.

	Sweden Democrats		Center Party		Left Party		Liberals		Christian Democrats		Green Party	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Party vote share	0.003**	-0.002	-0.003	0.003	0.056**	0.008**	0.011**	0.004	0.018**	0.009**	0.018**	0.013*
	[0.001]	[0.002]	[0.003]	[0.002]	[0.006]	[0.002]	[0.003]	[0.003]	[0.002]	[0.002]	[0.005]	[0.005]
Party vote share × Threshold	0.027**	0.025**	0.014**		0.009**							
	[0.008]	[0.008]	[0.003]		[0.003]							
Threshold	-0.004	-0.008	0.171**		-0.053							
	[0.042]	[0.041]	[0.050]		[0.052]							
N	1274	1274	1683	1683	1614	1614	1538	1538	1542	1542	1333	1333
Threshold	19.2	19.2	20.1		9.9							
p-value for difference in slopes	0	0	0		0							
p-value for discontinuity	.92	.85	0		.31							
Year		✓		✓		✓		✓		✓		✓
Region		✓		✓		✓		✓		✓		✓
Right-wing majority		✓		✓		✓		✓		✓		✓

Notes: The dependent variable is an indicator for the party indicated in the column title being included in the governing coalition. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. Robust standard errors are reported in brackets. * and ** denote statistical significance at 5% and 1% levels, respectively.

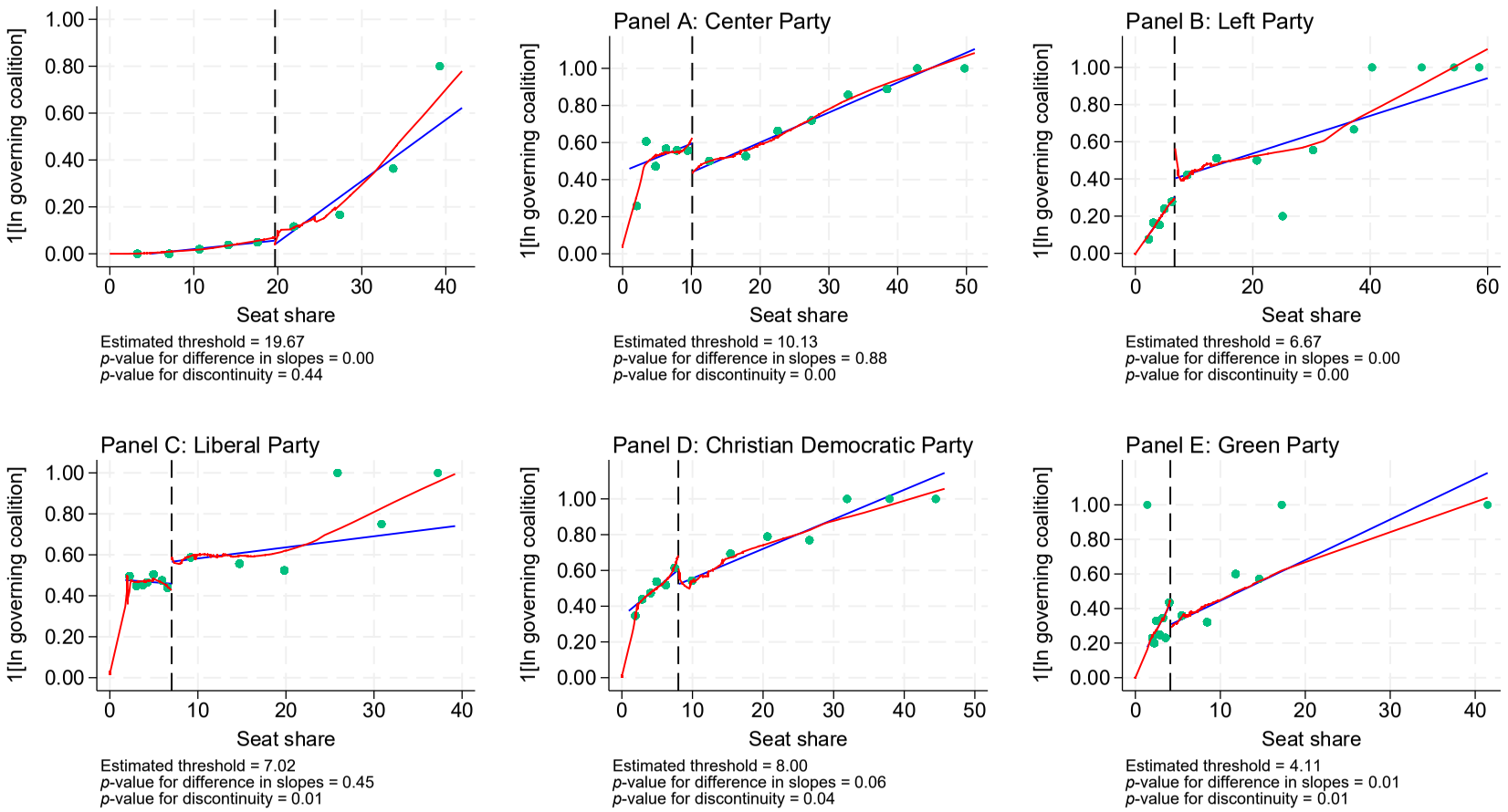

Figure OA6. Party seat share and coalition inclusion probability.

Notes: The figures show linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The thresholds have been estimated to minimize the SSR of the regressions, allowing for changes in slope and discontinuous jumps at the cutoff points. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

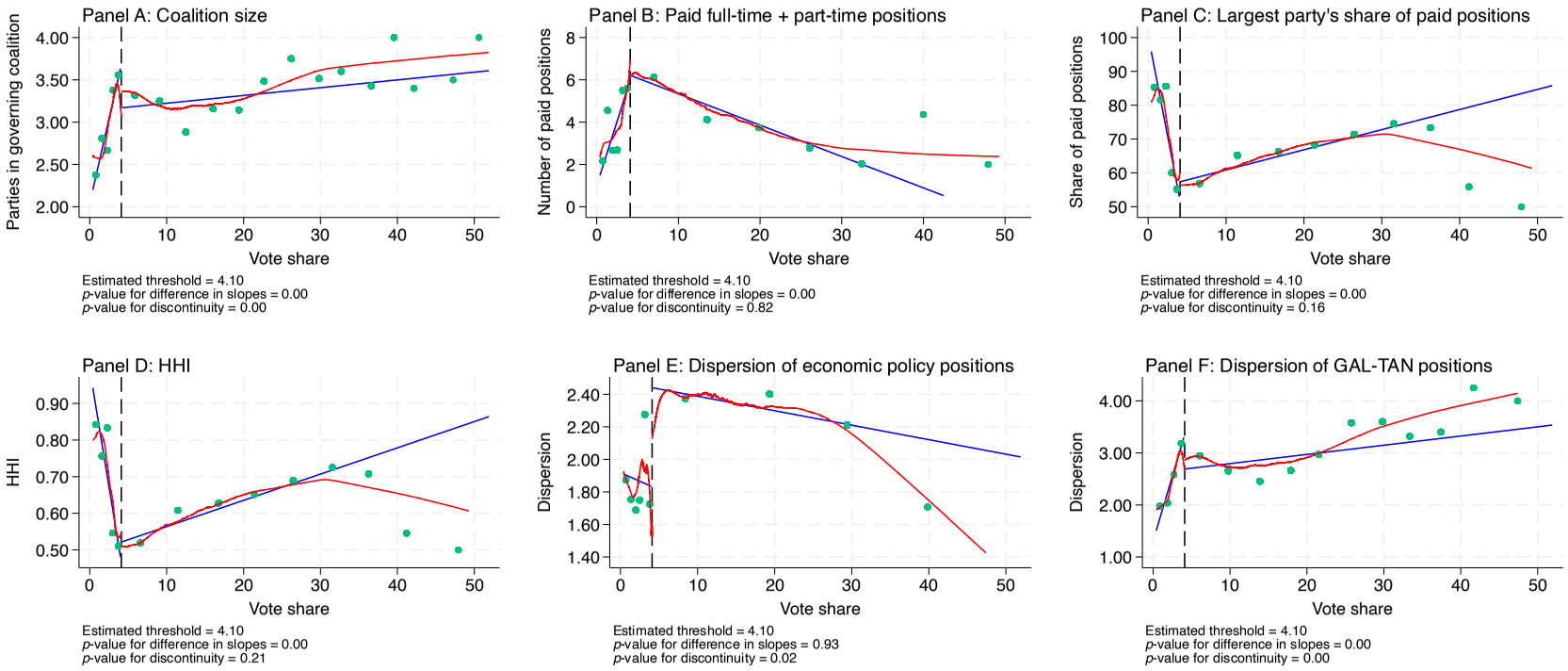

Figure OA7. Size of the governing coalition, distribution of office rents, and ideological dispersion: Center Party.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The threshold has been estimated to minimize the SSR when regressing an indicator for the Center Party being in the governing coalition on its vote share, allowing for a change in slope and a discontinuous jump at the cutoff point. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Table OA3. Regression results for office payoffs and ideological composition of the governing coalition: Center Party.

	Coalition size		Paid positions		Largest party's share of paid positions		HHI		Spread of economic ideology		Spread of GAL-TAN ideology	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
Party vote share	0.026	0.019	1.448**	1.116*	-9.365**	-8.624**	-0.108**	-0.096**	-0.154	-0.132	-0.045	0.000
	[0.065]	[0.065]	[0.480]	[0.510]	[2.352]	[2.431]	[0.026]	[0.026]	[0.147]	[0.140]	[0.112]	[0.099]
Party vote share × Threshold	-0.005	-0.004	-0.139**	-0.112**	0.700**	0.412**	0.008**	0.005**	-0.013	0.011	0.000	0.005
	[0.003]	[0.004]	[0.022]	[0.027]	[0.109]	[0.124]	[0.001]	[0.001]	[0.007]	[0.008]	[0.005]	[0.005]
Threshold	-0.161	-0.099	0.026	0.020	3.297	6.123	0.035	0.072	0.740**	0.327	-0.120	-0.270
	[0.114]	[0.122]	[1.002]	[1.034]	[3.967]	[3.993]	[0.043]	[0.042]	[0.257]	[0.239]	[0.179]	[0.162]
N	1735	1735	1181	1181	1160	1160	1160	1160	1474	1474	1476	1476
p-value for difference in slopes	.63	.72	0	.02	0	0	0	0	.34	.31	.69	.96
p-value for discontinuity	.16	.42	.98	.98	.41	.13	.4	.09	0	.17	.5	.1
Panel B												
1[Center Party in governing coalition]	1.199**	1.370	-12.708**	-15.633	45.388**	15.325	0.556**	0.223	-1.413*	-0.064	2.149**	3.099**
	[0.298]	[0.719]	[3.037]	[8.895]	[13.070]	[27.846]	[0.145]	[0.304]	[0.671]	[1.350]	[0.462]	[0.997]
N	1735	1735	1181	1181	1160	1160	1160	1160	1474	1474	1476	1476
First-stage F	26.73	4.43	19.54	2.78	20.62	2.82	20.62	2.82	20.51	4.46	20.46	4.44
Threshold	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Year		✓		✓		✓		✓		✓		✓
Region		✓		✓		✓		✓		✓		✓
Right-wing majority		✓		✓		✓		✓		✓		✓

Notes: The dependent variables are indicated as column titles. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. Robust standard errors are reported in brackets. * and ** denote statistical significance at 5% and 1% levels, respectively.

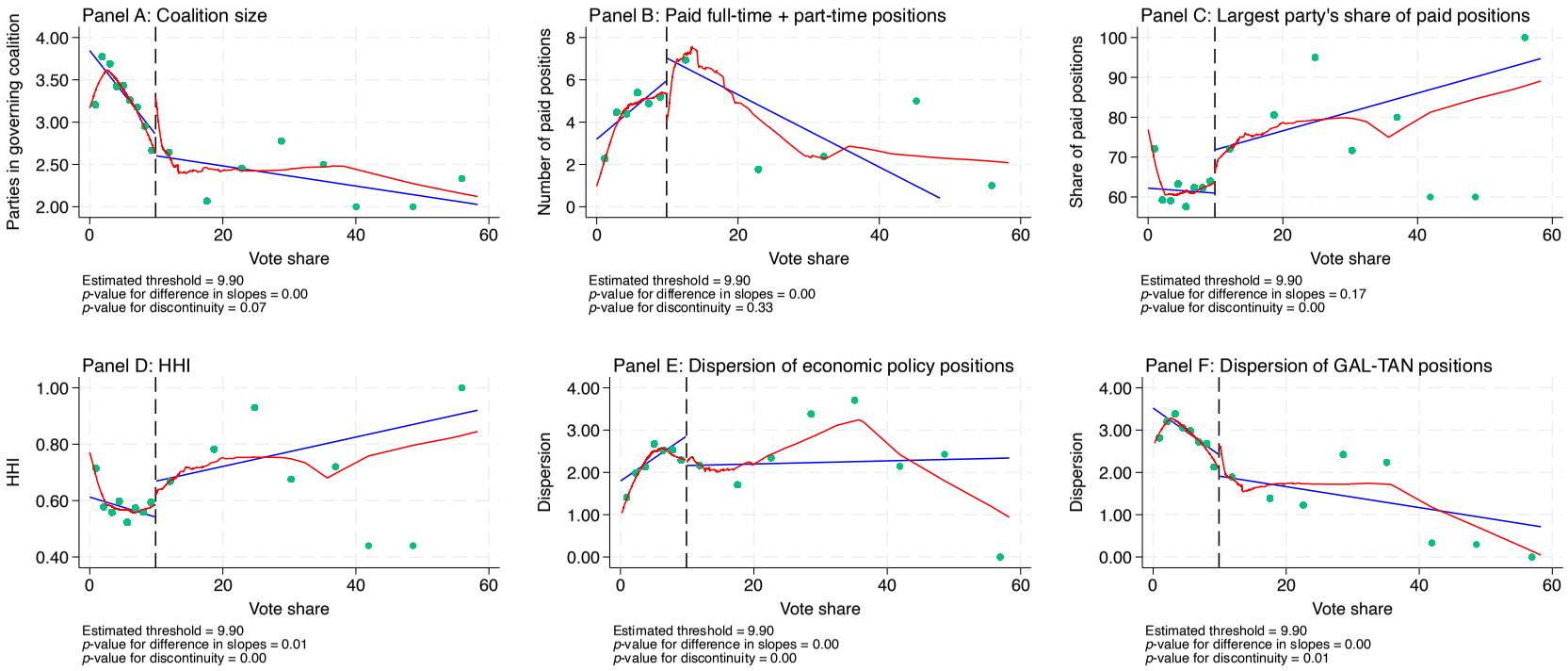

Figure OA8. Size of the governing coalition, distribution of office rents, and ideological dispersion: Left Party.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The threshold has been estimated to minimize the SSR when regressing an indicator for the Left Party being in the governing coalition on its vote share, allowing for a change in slope and a discontinuous jump at the cutoff point. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Table OA4. Regression results for office payoffs and ideological composition of the governing coalition: Left Party.

	Coalition size		Paid positions		Largest party's share of paid positions		HHI		Spread of economic ideology		Spread of GAL-TAN ideology	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
Party vote share	-0.099**	0.027	0.310**	0.179	-0.431	-2.005**	-0.010*	-0.024**	0.019	0.021	-0.080**	0.028
	[0.015]	[0.021]	[0.080]	[0.118]	[0.396]	[0.610]	[0.004]	[0.007]	[0.023]	[0.033]	[0.023]	[0.028]
Party vote share × Threshold	-0.012	-0.017	-0.166**	-0.055	0.428*	0.371*	0.005*	0.004*	-0.016	-0.012	-0.018	-0.023*
	[0.012]	[0.010]	[0.043]	[0.032]	[0.198]	[0.145]	[0.002]	[0.002]	[0.021]	[0.017]	[0.013]	[0.010]
Threshold	-0.250	-0.174	1.050	1.713**	11.178**	1.381	0.130**	0.013	-0.526*	-0.264	-0.565**	-0.050
	[0.139]	[0.091]	[1.097]	[0.613]	[3.300]	[2.463]	[0.037]	[0.027]	[0.213]	[0.148]	[0.197]	[0.124]
N	1734	1734	1180	1180	1159	1159	1159	1159	1474	1474	1476	1476
p-value for difference in slopes	0	.05	0	.06	.05	0	0	0	.25	.37	.01	.08
p-value for discontinuity	.07	.06	.34	.01	0	.58	0	.63	.01	.08	0	.69
Panel B												
1[Left Party in governing coalition]	-1.157	-2.965	-20.142*	-7.918	67.475	56.046	0.749	0.593	1.580	0.183	-0.732	-3.123
	[1.353]	[2.129]	[10.001]	[5.734]	[35.748]	[34.789]	[0.413]	[0.372]	[1.918]	[2.273]	[1.335]	[1.750]
N	1734	1734	1180	1180	1159	1159	1159	1159	1474	1474	1476	1476
First-stage F	4.16	2.35	3.22	2.15	3.37	2.35	3.37	2.35	5.73	3.10	5.73	3.10
Threshold	9.9	7.4	9.9	7.4	9.9	7.4	9.9	7.4	9.9	7.4	9.9	7.4
Year		✓		✓		✓		✓		✓		✓
Region		✓		✓		✓		✓		✓		✓
Right-wing majority		✓		✓		✓		✓		✓		✓

Notes: The dependent variables are indicated as column titles. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. Robust standard errors are reported in brackets. * and ** denote statistical significance at 5% and 1% levels, respectively.

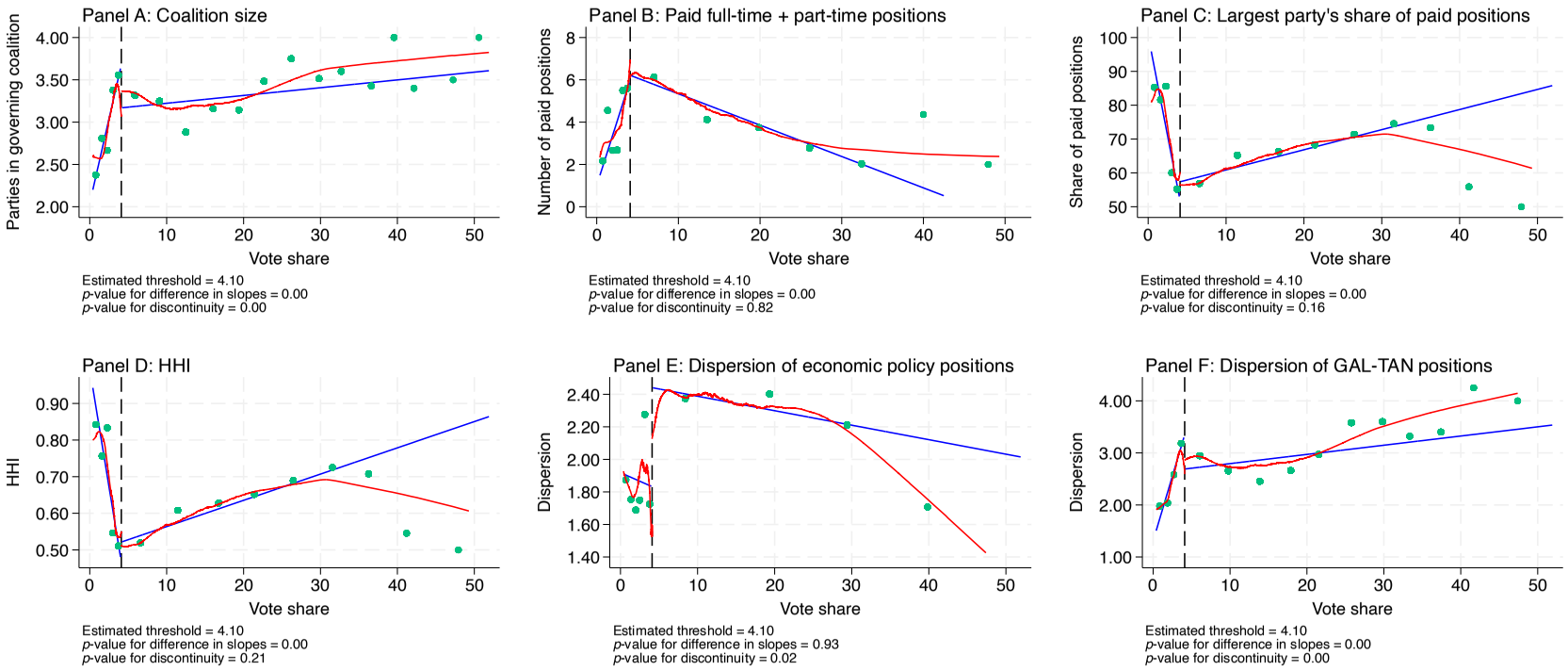

Figure OA9. Size of the governing coalition, distribution of office rents, and ideological dispersion: Liberals.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The threshold has been estimated to minimize the SSR when regressing an indicator for the Liberals being in the governing coalition on its vote share, allowing for a change in slope and a discontinuous jump at the cutoff point. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Table OA5. Regression results for office payoffs and ideological composition of the governing coalition: Liberals.

	Coalition size		Paid positions		Largest party's share of paid positions		HHI		Spread of economic ideology		Spread of GAL-TAN ideology	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
Party vote share	-0.015	-0.107	1.572	1.691*	-4.102	-4.458	-0.062	-0.064	-0.168	-0.129	-0.066	0.055
	[0.150]	[0.149]	[1.000]	[0.811]	[4.354]	[4.159]	[0.047]	[0.043]	[0.309]	[0.317]	[0.257]	[0.219]
Party vote share × Threshold	-0.022**	-0.017**	0.160**	0.217**	-0.211	-0.633**	-0.002	-0.008**	-0.072**	-0.014	-0.038**	-0.012
	[0.005]	[0.006]	[0.059]	[0.071]	[0.222]	[0.232]	[0.002]	[0.003]	[0.016]	[0.015]	[0.010]	[0.009]
Threshold	-0.126	-0.082	-1.268	-1.367	-0.885	-0.898	0.001	0.007	0.369	0.412	-0.850**	-0.572**
	[0.153]	[0.152]	[1.316]	[1.129]	[4.369]	[4.188]	[0.048]	[0.044]	[0.317]	[0.309]	[0.268]	[0.219]
N	1735	1735	1181	1181	1160	1160	1160	1160	1474	1474	1476	1476
p-value for difference in slopes	.96	.55	.16	.07	.37	.36	.2	.2	.76	.72	.91	.76
p-value for discontinuity	.41	.59	.34	.23	.84	.83	.98	.87	.24	.18	0	.01
Panel B												
1[Liberals in governing coalition]	0.785**	0.997*	1.686	-1.127	-16.887	-18.028	-0.142	-0.162	-1.819**	0.642	-0.000	-0.053
	[0.280]	[0.430]	[2.731]	[3.142]	[9.138]	[11.142]	[0.100]	[0.118]	[0.518]	[0.764]	[0.426]	[0.549]
N	1735	1735	1181	1181	1160	1160	1160	1160	1474	1474	1476	1476
First-stage F	70.56	27.87	46.61	26.24	42.92	24.36	42.92	24.36	90.09	36.36	90.07	36.75
Threshold	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9
Year		✓		✓		✓		✓		✓		✓
Region		✓		✓		✓		✓		✓		✓
Right-wing majority		✓		✓		✓		✓		✓		✓

Notes: The dependent variables are indicated as column titles. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. Robust standard errors are reported in brackets. * and ** denote statistical significance at 5% and 1% levels, respectively.

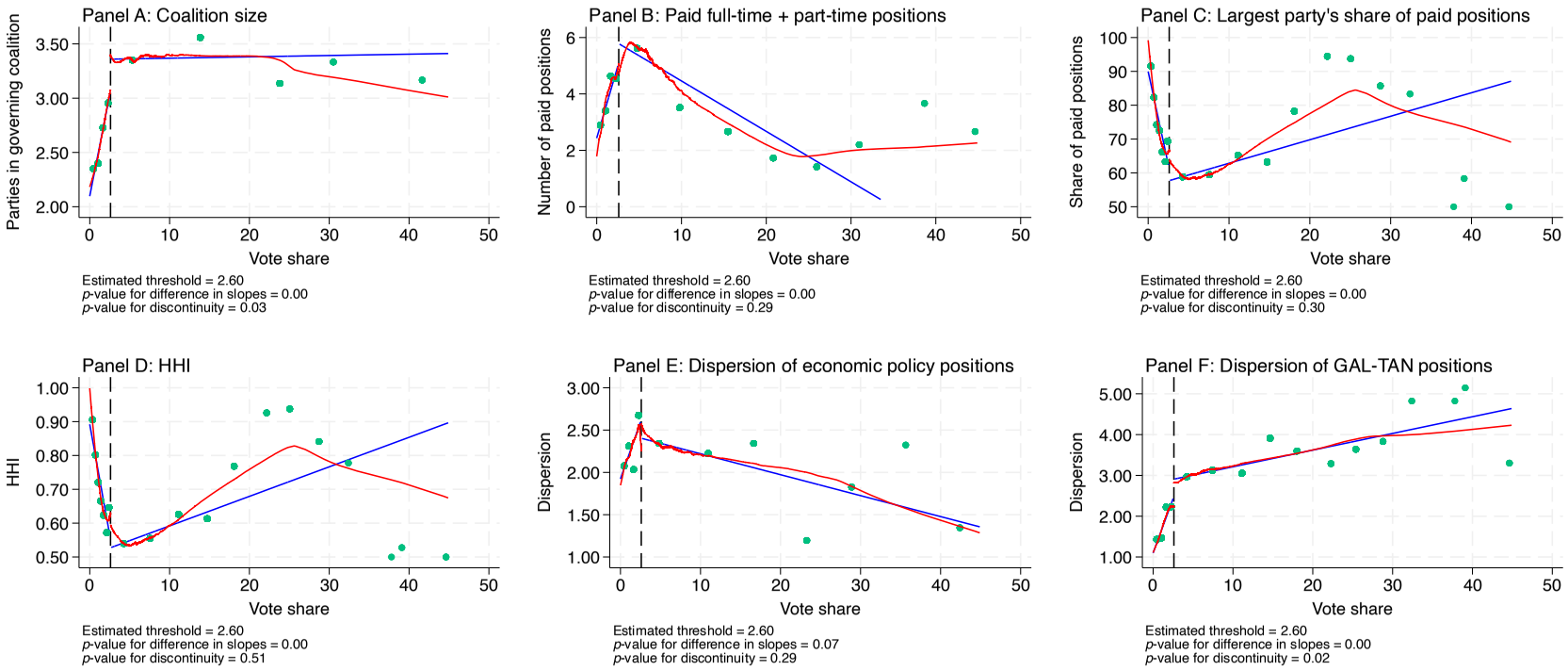

Figure OA10. Size of the governing coalition, distribution of office rents, and ideological dispersion: Christian Democrats.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The threshold has been estimated to minimize the SSR when regressing an indicator for the Christian Democrats being in the governing coalition on its vote share, allowing for a change in slope and a discontinuous jump at the cutoff point. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Table OA6. Regression results for office payoffs and ideological composition of the governing coalition: Christian Democrats.

	Coalition size		Paid positions		Largest party's share of paid positions		HHI		Spread of economic ideology		Spread of GAL-TAN ideology	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
Party vote share	0.076	-0.000	1.195**	0.640	-9.690**	-6.028**	-0.121**	-0.079**	0.382*	0.301	0.054	0.068
	[0.086]	[0.092]	[0.367]	[0.465]	[2.242]	[2.301]	[0.025]	[0.025]	[0.166]	[0.177]	[0.093]	[0.095]
Party vote share × Threshold	-0.028**	-0.025**	-0.159**	-0.111**	0.819**	0.847**	0.010**	0.009**	-0.013	-0.008	-0.002	-0.004
	[0.004]	[0.005]	[0.027]	[0.031]	[0.181]	[0.221]	[0.002]	[0.002]	[0.010]	[0.010]	[0.006]	[0.006]
Threshold	0.060	0.163	0.880	1.067	-2.536	-4.135	-0.019	-0.033	-0.088	0.104	0.031	-0.027
	[0.097]	[0.108]	[0.654]	[0.779]	[3.437]	[3.342]	[0.038]	[0.037]	[0.207]	[0.215]	[0.111]	[0.110]
N	1734	1734	1180	1180	1159	1159	1159	1159	1473	1473	1475	1475
p-value for difference in slopes	.23	.79	0	.11	0	0	0	0	.02	.08	.55	.45
p-value for discontinuity	.54	.13	.18	.17	.46	.22	.62	.37	.67	.63	.78	.81
Panel B												
1[Christian Democrats in governing coalition]	0.482	0.570	-7.450**	-5.895	28.045**	45.160*	0.377**	0.556*	-1.470**	-0.657	2.592**	2.140**
	[0.246]	[0.505]	[1.306]	[3.496]	[8.870]	[22.199]	[0.098]	[0.248]	[0.512]	[0.957]	[0.307]	[0.492]
N	1734	1734	1180	1180	1159	1159	1159	1159	1473	1473	1475	1475
First-stage F	42.59	12.36	40.87	7.95	40.19	8.15	40.19	8.15	37.31	10.55	37.21	10.80
Threshold	2.6	2.5	2.6	2.5	2.6	2.5	2.6	2.5	2.6	2.5	2.6	2.5
Year		✓		✓		✓		✓		✓		✓
Region		✓		✓		✓		✓		✓		✓
Right-wing majority		✓		✓		✓		✓		✓		✓

Notes: The dependent variables are indicated as column titles. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. Robust standard errors are reported in brackets. * and ** denote statistical significance at 5% and 1% levels, respectively.

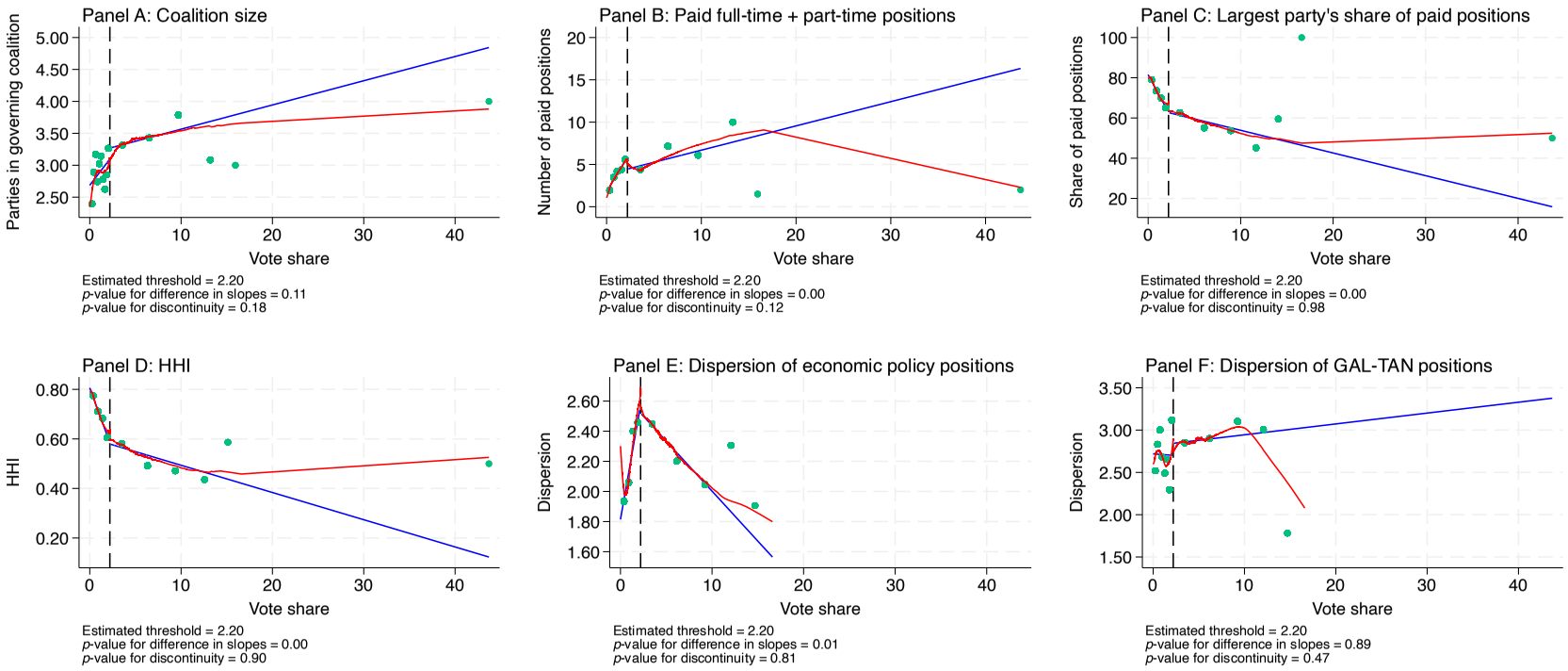

Figure OA11. Size of the governing coalition, distribution of office rents, and ideological dispersion: Green Party.

Notes: The figure shows linear (blue line) and lowess (red line) fits estimated separately on both sides of the threshold. The threshold has been estimated to minimize the SSR when regressing an indicator for the Green Party being in the governing coalition on its vote share, allowing for a change in slope and a discontinuous jump at the cutoff point. We also show evenly spaced binned averages, where the bins have been selected following Calonico, Cattaneo, and Titiunik (2015).

Table OA7. Regression results for office payoffs and ideological composition of the governing coalition: Green Party.

	Coalition size		Paid positions		Largest party's share of paid positions		HHI		Spread of economic ideology		Spread of GAL-TAN ideology	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A												
Party vote share	0.121	-0.184	1.856**	2.800**	-8.761**	-10.350**	-0.103**	-0.115**	0.188	0.414*	-0.033	-0.398*
	[0.091]	[0.101]	[0.538]	[0.892]	[2.356]	[2.844]	[0.025]	[0.031]	[0.160]	[0.199]	[0.154]	[0.155]
Party vote share × Threshold	0.024*	0.028**	0.285*	0.299*	-1.090**	-1.576**	-0.010*	-0.016**	-0.107**	-0.063**	0.004	0.045*
	[0.012]	[0.010]	[0.140]	[0.133]	[0.409]	[0.399]	[0.004]	[0.004]	[0.021]	[0.024]	[0.020]	[0.020]
Threshold	0.027	0.142	-1.419	-1.671	0.536	3.422	0.003	0.033	-0.371	-0.485*	0.062	0.409*
	[0.122]	[0.119]	[0.912]	[1.083]	[3.267]	[3.478]	[0.035]	[0.037]	[0.210]	[0.233]	[0.194]	[0.171]
N	1733	1733	1180	1180	1159	1159	1159	1159	1472	1472	1474	1474
p-value for difference in slopes	.29	.04	0	0	0	0	0	0	.07	.02	.81	0
p-value for discontinuity	.82	.23	.12	.12	.87	.33	.92	.38	.08	.04	.75	.02
Panel B												
1[Green Party in governing coalition]	1.464**	2.049**	3.665	2.257	-30.134*	-29.669**	-0.304*	-0.306**	-1.887*	-0.820	0.721	2.835**
	[0.408]	[0.355]	[3.524]	[2.902]	[12.219]	[9.999]	[0.131]	[0.107]	[0.921]	[0.738]	[0.651]	[0.578]
N	1733	1733	1180	1180	1159	1159	1159	1159	1472	1472	1474	1474
First-stage F	32.58	74.54	21.36	52.49	21.22	51.51	21.22	51.51	22.31	52.42	22.10	52.31
Threshold	2.2	2	2.2	2	2.2	2	2.2	2	2.2	2	2.2	2
Year		✓		✓		✓		✓		✓		✓
Region		✓		✓		✓		✓		✓		✓
Right-wing majority		✓		✓		✓		✓		✓		✓

Notes: The dependent variables are indicated as column titles. The threshold has been estimated to minimize the SSR of the regression, allowing for a change in slope and a discontinuous jump at the cutoff point. Robust standard errors are reported in brackets. * and ** denote statistical significance at 5% and 1% levels, respectively.