Birds of a Feather Govern Together:
Inter-Party Ties and Legislative Cooperation

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March 24, 2025

Abstract

This study seeks to advance our understanding of how inter-party personal ties among politicians impact legislative cooperation between parties. Considering that parliamentary bargaining is typically featured by weak or lacking formal institutions and high uncertainty—the kind of context in which organizational sociology research has found personal ties to be particularly influential for human interactions—we argue that personal ties between parties should increase the likelihood of cooperation. We evaluate our argument analyzing Swedish local governments, combining registry data on horizontal dynastic ties—i.e., two politicians in different parties being first- or second-degree relatives or partners—with survey data on self-reported inter-party personal connections. Our analyses consistently substantiate that inter-party ties—and especially so close family ties—impact government formation and other types of legislative cooperation. These findings have implications for our understanding of parliamentary dynamics as well as the representation of less-connected groups.

Introduction

The question of which parties in a parliament will join forces to form a governing coalition is one of the oldest topics in the research on parliamentary democracy (Baron and Ferejohn 1989; Riker 1962), and a highly important one since the government constitutes the pinnacle of political power. While previous research has established the relevance of party-level factors related to parties' size, ideological proximity, and incumbency status for understanding which parties succeed in forming a governing coalition, little is known about the relevance of factors pertaining to the individual politicians representing the parties involved in bargaining. Indeed, despite the vast literature on the personalization of politics, and the fact that individual politicians have for long played an important role in case studies of coalition formation (e.g., Luebbert 1986; Strøm and Müller 1999), the politicians themselves are typically "left in the dark" in existing theory as well as in quantitative research on government formation (Ecker and Meyer 2020; Martin and Stevenson 2010).[1]

Yet, parliamentary bargaining, and cooperation more generally, takes place between individuals, and these individuals, we argue, must not be reduced to only being representatives of a party or ideology. On the contrary, politicians are embedded in a web of private and social relations, and we should not expect them to step outside these structures when they interact in the political domain. As a case in point, political dynasties remain a widespread phenomenon in advanced democracies (Aggeborn and Nyman 2021; Folke et al. 2021; Geys and Smith 2017), and particularly in local politics, it is—as we shall see—fairly common for representatives to report having personal ties to each other also outside the political arena.

Against this background, this study aims to bring the research on legislative behavior forward by analyzing how such ties between politicians in different parties affect government formation and other forms of inter-party cooperation.

We begin by outlining a transaction cost–oriented theoretical framework of parliamentary bargaining, focusing on negotiations around forming a governing coalition. We argue that bringing inter-party personal ties into this type of analysis appears particularly warranted considering the long-standing findings from research within organizational sociology and psychology that the manifestation of personal ties may significantly reduce transaction costs of interactions to the benefit of the involved actors (Granovetter 1973; Uzzi 1997). Indeed, given that parliamentary bargaining is typically featured by weak or lacking formal institutions and high uncertainty— precisely the kind of context where the role of personal ties is found to be particularly strong (Stam et al. 2014)—we have good reasons to believe that ties matter. Specifically, we should expect that the stronger the inter-party personal ties between the politicians of a particular set of parties, the more likely those parties are to establish a cooperation and form a governing coalition.

We study inter-party cooperation in Swedish municipalities, which provides us access to arguably the world's best data on policymakers. We combine two complementary types of data on local politicians' inter-party ties: survey data on self-reported pre-political personal connections and population-wide administrative data recording dynastic ties—that is, cases where two politicians are first- or second-degree relatives or partners before entering government.

Our primary analytical focus is on government formation as the most consequential type of parliamentary cooperation. Regardless of whether we consider registry-based

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[1] For a few recent exceptions, see Huidobro and Falcó-Gimeno (2023) on the role of politicians' gender, Meriläinen and Tukiainen (2021) on experience, and Škvrňák (2021) on shared football club membership.

or self-reported personal ties, the existence of such ties across party-lines among politicians in a potential coalition has a large and politically important effect on the likelihood that said potential coalition will enter into office after an election. We furthermore confirm that these patterns extend to other forms of cooperation in the local council. Supplementary analyses disaggregating the registry-based ties demonstrate that the relationship is driven by the strongest ties among those we observe, namely immediate family members and partners.

Besides shining light on new dynamics with relevance for the government formation literature, our findings regarding strong personal ties also have implications for research on political dynasties in democracies (e.g., Fiva and Smith 2018; Geys and Smith 2017), by highlighting a previously overlooked consequence of so-called 'horizontal' dynasties (Dulay and Go 2022), meaning multiple members from the same political family holding different political offices concurrently. Specifically, we show how two family members concurrently holding office in two different parties in the legislature may impact parliamentary bargaining and benefit the dynastic actors and their parties by facilitating inter-party cooperation that in turn paves the way to executive power.

A key aspect of this study is the distribution of inter-party personal ties among politicians and its implications. The most striking pattern is that immigrant politicians have significantly fewer such ties than their native-born counterparts, potentially hindering their recruitment and career advancement. While these connections can reduce transaction costs and foster inter-party cooperation, their unequal distribution may reinforce existing inequalities by favoring well-networked candidates, disadvantaging those with fewer ties, and limiting their access to key positions. Encouragingly, the children of migrants tend to form significantly more connections, largely closing this gap.

Ties, transaction costs, and inter-party cooperation

Political actors do not spend their whole lives in the political domain; instead, they are embedded in a web of private and social relations. This implies that members of a parliament or a local assembly cannot be reduced to only being representatives of a party or ideology. Many politicians—especially so those in small towns or communities—will have relations to other politicians also outside the political arena; they may be neighbors, colleagues, childhood friends, or even related by blood. Accordingly, a large number of personal ties between politicians—many of which may antedate their entry into politics—are likely to be present in the parliament or assembly hall, including ties between politicians that represent different and ideologically distinct parties (Aggeborn and Nyman 2021).

In the following, we outline a theoretical argument for how such inter-party personal ties can facilitate coalition formation, focusing on how they affect the *transaction costs* of inter-party cooperation. In doing so we build on a fairly recent theoretical approach in government formation research that explicitly recognizes the varying search costs, bargaining costs, and agreement enforcement costs involved in coalition formation among different sets of parties (Strøm et al. 2008), but we develop our argument with specific reference to how such costs may be affected by the presence of inter-party personal ties.

The key idea in the transaction cost–oriented strand of the literature is that, other things held constant, the lower the transactions costs incurred by a potential con-

stellation of parties, the more likely that constellation of parties is to join forces and form a ruling coalition. It is, for instance, well-known that parties with experience of governing together are more likely to participate in government anew—a finding that is often attributed to transaction costs being reduced as parties gain a mutual knowledge of preferences and capacities, establish procedures and routines for communicating, and benefit from having previous agreements on which to base their discussions (Bäck and Dumont 2007; Martin and Stevenson 2010; Warwick 1996).

However, as pointed out by Bäck and Dumont (2007), transaction costs may also be affected by individual factors that promote common understanding, shared knowledge, and inter-personal trust among the involved politicians. Although this argument has not yet been systematically evaluated, it is consistent with evidence from several case studies of coalition formation on both the national (e.g., Luebbert 1986; Strøm and Müller 1999) and the sub-national level (Leander 2024; Wänström 2018)—and it resonates with long-standing findings within organizational sociology and psychology that the manifestation of personal ties may significantly reduce transaction costs of interactions to the benefit of the involved actors (Granovetter 1973; Stam et al. 2014; Uzzi 1997). In political science, scholars have drawn on social ties theory to explain, for instance, the reproduction of men's dominance in politics (Bjarnegård 2018), and the higher legislative effectiveness among socially connected legislators in the United States (e.g., Battaglini et al. 2020; Kirkland 2011). However, to the best of our knowledge, such theories have only recently been applied to inter-party parliamentary cooperation such as coalition bargaining, and so far only with reference to politicians who supposedly know each other through membership in a local football club(Škvrňák 2021).

Nevertheless, given that bargaining over coalition formation, as well as other types of inter-party parliamentary cooperation, is typically featured by weak or lacking formal institutions and high uncertainty—precisely the kind of context where the role of personal ties is found to be particularly strong (Stam et al. 2014)—it is plausible to expect that the presence of inter-personal ties between parties does matter for the likelihood that these parties will reach an agreement. This is for two reasons, both of which can be considered in terms of transaction costs.

First, as suggested by Bäck and Dumont (2007), by fostering common understanding and shared knowledge between the involved politicians, personal ties may reduce search costs—or what Adrian and Press (1968, p. 557) label information costs—that is, "the costs of collecting information concerning the value ordering and strategies of other members of the group as well as the costs of communicating one's own value ordering and bargaining positions". Such sharing of information exemplifies what negotiation scholars refer to as 'integrative behaviors' that are aimed at creating value ('enlarging the pie') which is then ultimately to be distributed among the parties involved in the bargaining (Kong et al. 2014).

Second, inter-party personal ties may influence cooperation because it may be socially costly for individuals who, in the political arena, behave in ways that are unpopular in their private networks. Excluding a relative or close friend from a governing coalition or some other type of cooperation might have a negative impact on one's relation to that person, whereas inviting the same person to a cooperation may provide benefits in the private sphere. Since this social component would be of particular importance for the cost of betrayal, personal ties have the potential to lessen the expected cost of enforcing an agreement once established. Such aspects may be difficult to ignore when choosing coalition partners, especially in a local context where politics is not as professionalized as on the national level, and where most

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municipalities are not large enough to fully separate politics from one's private life.

A long-standing discussion in research on social ties concerns the relative importance of strong ties, such as family members and close friends, and weak ties, such as acquaintances, neighbors and coworkers. In the context of coalition formation, we would expect that strong ties are the more important, because such relationships tend to be more *trusting*, in the sense that the involved actors are more confident that they will not exploit each others' vulnerabilities (Levin and Cross 2004; Tsai and Ghoshal 1998). This is of particular importance in a negotiation context, as information sharing and other types of integrative behaviors are inherently risky, because they can be exploited by the counterpart(s) (Dyer and Chu 2003; Kong et al. 2014). Accordingly, politicians with a strong tie—because they tend to be more trusting—should be more likely to share valuable information with each other, expecting such behavior to be reciprocated and, ultimately, yield mutual benefits.

Granted, with regards to the information exchange mechanism, Granovetter (1973) famously argued that weak ties are more likely to provide novel or nonredundant information since they form bridges between different groups or across structural holes (Burt 2004). However, Granovetter's argument cannot be directly applied to our case since we hold the bridged groups constant; a weak tie between two parties does not necessarily contain more novel or less redundant information than a strong tie between the same parties, as it concerns the same actors in both cases.

Similarly, tie strength should also be relevant for the social cost mechanism. The social costs imposed on a politician who behaves in ways that are unpopular among those with whom he or she have a tie outside politics are reasonably larger if these ties are stronger, and thus the politician will exert stronger effort to avoid such behaviors (cf. Kramarz and Skans 2014).

Accordingly, there are reasons to believe that stronger and more trusting ties are more important for shaping patterns of cooperation. Among social ties, those related to family are generally regarded as the most trusting (Granovetter 1985). Applied to our present analyses, this implies that the effects of social ties on inter-party cooperation should be stronger for dynastic ties than for other types of ties, and that among the dynastic ties, effects should be stronger for close family members than for more distant relatives.

Institutional context: Swedish local governments

We analyze the role of personal ties for inter-party cooperation focusing on the case of local governments in Sweden. In the coalition formation literature, analyzing local government has for long been seen a fruitful way to test broadly applicable theories on new data, to increase the number of observations, and to control for various contextual factors (Bäck 2003; Debus and Gross 2016). Our case provides data for up to 290 municipalities observed between (at most) 1998 and 2022, operating under the same institutional framework.

Municipalities are governed by a local council comprising between 21 and 101 seats, to which members are elected from multi-member electoral districts in September every fourth year. The local councils typically contain between five and nine parties, most of which are local-level branches of the eight major national parties: the Center Party, the Christian Democrats, the Conservative Party, the Green Party, the Left Party, the Liberal Party, the Social Democratic Party and the Sweden Democrats.

The political system in Swedish municipalities is commonly described as 'quasi-

parliamentary', in the sense that committee seats are distributed in proportion to the distribution in the council, but a majority coalition (or party) appoints the Mayor and all committee chairs. This coalition (or party) is commonly regarded as the equivalent of a national government (Bäck 2003; SKL 2023).

In terms of generalizability, we think there are reasons to conceive of Sweden as a fairly representative case among parliamentary democracies for observing an effect of personal ties. Coalition formation processes in Swedish local governments have many similarities with coalition formation in other parliamentary democracies (Bäck 2003; Cronert and Nyman 2021). Parties, rather than individual politicians, are the key actors in the parliamentary business at the national as well as the local level—especially so when it comes to government formation. The political system is characterized by strong party unity (Willumsen and Öhberg 2017), and the socio-economic left–right dimension has persistently dominated politics since at least the 1880s (Oscarsson and Holmberg 2016). This is also reflected in the observed coalition patterns, as historically, a large majority of the observed governing coalitions has consisted of only parties on either the left-of-center or the right-of-center.

At the same time, Sweden is experiencing similar trends as many other democracies, with an increased party system complexity and more challenging prerequisites for coalition formation. To illustrate, the local ruling coalitions that formed after the general elections in 1998 included, on average, 2.3 parties, whereas for 2022 the corresponding number was 3.2; that is, a 39 percent increase (SKL 2023). In recent elections, cross-coalitions and minority governments have become more common. Since the 2022 election, half of the municipalities are led by a coalition that includes parties from both the traditional blocs, and in nearly 40 percent the governing coalition is a minority coalition (SKL 2019).

In other words, as coalition bargaining is becoming more complex and unpredictable, there might be increasing room for individual politicians to influence its outcome—an expectation substantiated in qualitative studies by Wänström (2018) and Leander (2024). This expectation is strengthened by the fact that many municipalities as well as their local councils are small, which not only allows individual politicians to exert significant influence but also increases the likelihood that political actors have personal ties outside of politics. It is also worth pointing out that there is a considerable turnover of elected officials, both among local councilors and full-time appointees, with on average half of the local council being replaced at each election.

One last factor worth highlighting is the informal and trust-based nature of local politics in Sweden as well as many other countries, which tends to spill over on dynamics of leadership and parliamentary cooperation. A survey by Bäck et al. (2009), reanalyzed here, asked 2,400 Mayors across 17 European countries how they prioritized among four different aspects of leadership. Overall, "personal relations (friendship, respect, trust)" was rated top, as the most important aspect by 47 percent of respondents. It was the most common top priority in twelve countries including Sweden and the second-most common in the other five.[2] Considering that building inter-party cooperation is an essential leadership task in any multi-party assembly, these patterns suggest that trusting personal relationships across party lines may be an important aspect for understanding inter-party cooperation in Sweden and elsewhere.

In sum, while inter-party rather than individual cooperation should be the evident outcome of interest in Swedish local politics, we have good reasons to expect that

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[2] In Sweden, 84 percent ranked personal relations as the most important aspect. The three other aspects inquired about were "formal power and authority", "motivation through commendation and reward", and "motivation through political loyalty".

Question	Respondents	Percent
Were you personally acquainted with anyone in the other parties before both of you had been elected to the council?		
Yes	2,270	60.71
No	1,469	39.29
Were you personally acquainted with anyone in party p?		
Yes	6,734	21.45
No	24,666	78.55
How is it to cooperate with this or those person(s) compared to other politicians in the same party?		
Much more difficult	37	1.64
Somewhat more difficult	168	7.46
No difference	1,402	62.23
Somewhat easier	467	20.73
Much easier	179	7.94

Note: The alternatives "somewhat more difficult" and "somewhat easier" were not labeled in the survey.

Table 1: Results from survey of inter-party cooperation

inter-party personal ties exist and might influence patterns of cooperation. The rest of the paper serves to assess how well these expectations are borne out by empirical data.

Measuring inter-party ties

Beginning with the question of how to best capture the extent of inter-party personal ties, we use two complementary data sources. The first is a confidential survey distributed in late 2020 to nearly all Swedish local council politicians. Almost 4,000 councilors participated; see the Supplemental Information for details (section S2) and a discussion of ethical considerations (section S3).

The survey asked the following question: "Among the members of the local council that belong to another party than yours, is there anyone with whom you were personally connected to already before the two of you were elected into the council." As reported in Table 1, 60.7 percent of respondents affirmed that they had a historical personal connection to one or more persons from another party. Second, respondents were asked to indicate to which party or parties the person(s) in question belonged, choosing among the eight major parties and a category for other party. On average, 21.5 percent of respondents were connected to any given party among the eight major ones.

To assess the assumption that personal ties may facilitate cooperation between two individuals, we also asked respondents about their perceptions of what it is like to cooperate with this or those person(s) compared to other politicians in the same party. As demonstrated in Table 1, although 62 percent stated "no difference", the share of respondents who answered that such cooperation is easier is much larger (28.7 percent) than the share answering that it was more difficult (9.1 percent)—equivalent to a balance score of 19.6 percentage points in the theorized direction.

The second source of data on personal ties is administrative data covering the universe of local politicians elected between 1998 and 2022—close to 46,000 individuals—
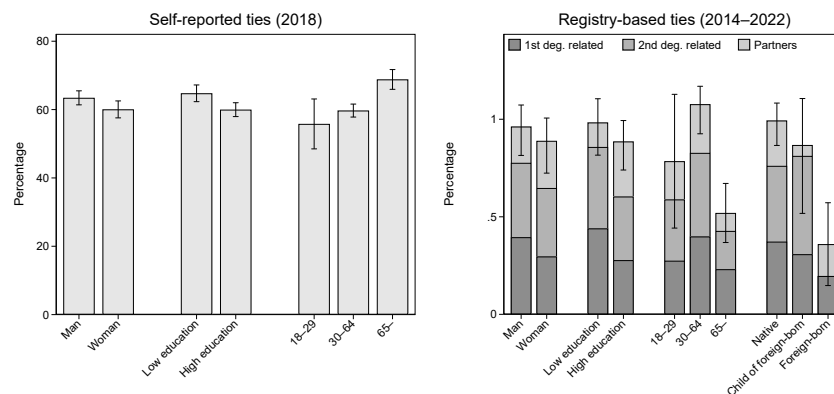
Figure 1: Distribution of inter-party ties across socio-demographic groups.

as well as their historical records. The two sources have complementary advantages. While the administrative data is more exhaustive with regards to the amount of politicians and elections covered, the self-reported ties in the survey data will cover a more comprehensive representation of the ties among those responding.[3]

We focus this analysis on three types of family-based ties: first-degree relatives (parents, children, siblings and half-siblings), second-degree relatives (grandparents, grandchildren, aunts, uncles, nieces, nephews, cousins, and half-cousins), and partners (politicians with joint children or who are in a marriage or registered partnership). To mitigate the risk for reverse causation, we have defined partners strictly as those identifiable in registry data prior to the first occurrence of the two parties governing together. Altogether, we identify 276 unique inter-party ties, which amount to 369 ties when considering each election where the tie is present.

We consider personal ties to be a valuable political resource that has not received the scholarly attention it merits. This is particularly relevant from the perspective of political equality, as such ties are potentially more concentrated than resources such as time, money, or civic skills (cf. Verba et al. 1995). Examining how these ties are distributed among socio-demographic groups is therefore essential. To that end, Figure 1 reports the percentage of local politicians with self-reported and registry-based inter-party ties across relevant groups.[4]

A first noteworthy observation is the great difference in frequency between self-reported and registry-based ties, which implies that our measure of self-reported ties primarily captures other types of personal relationships than family ties. As to the distribution across groups, the graphs show that men have slightly more inter-party ties than women, and politicians with lower education levels are more likely to have inter-party ties compared to those with higher education levels. This applies to both the self-reported and the registry-based ties, but the differences between these groups

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[3] Although the administrative data also allow for identifying shared social contexts such as neighborhoods and workplaces, we focus our analysis on family-based ties. The main reason is that if we were to infer weak social ties from these broader contexts, we would be unable to distinguish analytically between two people having a shared experience and an increased likelihood of them actually being acquainted.

[4] We use registry-based ties for politicians elected to the municipal council in 2014, 2018 and 2022. This set of elections was chosen because they are the three most recent elections while also being centered at the election period of the survey.

are small. When it comes to age, we see that young politicians seem to have fewer ties than the middle-age group. This is expected, as young politicians have friends and siblings who because of their age are less likely to be in the local council, but the small size of this group makes the results for this category less precise. Notably, individuals aged 65 and older are more likely than others to report social ties in the survey, but the least likely to have registry-based social ties. This discrepancy is primarily due to missing data, as many of the registers used to identify ties are unavailable for older cohorts. However, it may also partly reflect the natural accumulation of acquaintances over a lifetime—an aspect that registry data do not capture.

Among all sub-groups investigated, individuals born outside of Sweden—a characteristic observed only in the registry data—exhibit the lowest prevalence of inter-party personal ties. While this finding may not be surprising given the nature of the ties under investigation, it adds to the list of potential disadvantages faced by politicians with immigrant backgrounds (Dancygier et al. 2015). Encouragingly, for children of migrants, the gap in inter-party ties compared to native-born politicians is almost entirely eliminated. The implications of these findings and their connection to research on political representation are discussed in the concluding remarks.

A note is also warranted regarding the patterns of ties between parties with different size and ideology. As we should expect, large parties have a larger number of ties, and the frequency of interpersonal ties decreases with ideological distance. Thus, we find the largest number of ties between the Social Democrats on the one hand, and the Left party, the Centre party and the Moderates, on the other, while the largest probability of two randomly drawn politicians being related is found if the two parties are the Left party and the Greens or the Christian Democrats and a local party. The exact numbers for each party-dyad, and for our two measures of personal ties, can be found in the Supplemental Information (section S5). Yet, we should not exaggerate the correlation between personal ties and ideology; the average ideological distance between two parties in the municipal council is 2.6 steps, compared to 2.2 steps for parties that share a registry-based tie.

Analyzing the formation of governing coalitions

We begin by focusing on arguably the most demanding type of parliamentary cooperation: the formation of a governing coalition. We here apply the 'potential coalition framework', which has dominated the empirical literature on government formation over the past 20–25 years (Glasgow and Golder 2015; Martin and Stevenson 2001, 2010), including at subnational levels (e.g., Bäck 2003; Bäck et al. 2013; Debus and Gross 2016). This means that we treat the government formation process as a discrete choice problem in which the local council chooses one—but only one—of all the potential governing coalitions that the parties represented in the council may form. The units of analysis in this framework, accordingly, are all potential coalitions available for consideration in the municipality's local council at the time of government formation.[5] In total, we analyze up to 2,001 government formation opportunities taking place between 1998 and 2022.

As is standard in the literature, the formation process will be modeled using a conditional logit model, where the probability $\hat{y}$ that the potential coalition c is the one entering government office out of the set of n potential coalitions in the

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[5] The number of potential governments in a local council with n parties equals $2^n - 1$ (Martin and Stevenson 2001).

Related to size	Related to ideology
Number of parties	Left–right range
Single party	Left–right range of opposition
Single party majority	Weighted distance to L–R median
Minority	Includes L–R median party
Seat share	Includes largest L–R median party
Seat share squared	Cross-cutting coalition
Change in seat share	
Minimal winning coalition (MWC)	*Based on other party characteristics*
Connected MWC	Incumbent coalition
Minimum MWC	Incumbent parties
Most ideologically narrow MWC	National party fixed effects
MWC with least parties	Alliance coalition
Includes the largest party	Alliance coalition less one party
	Alliance coalition plus one party
Combinations of variables	Red-green coalition
Incumbent x Change in seat share	Red-greens less one party
Minority x Opposition left–right range	Red-greens plus one party

Table 2: Potential coalition characteristics

formation opportunity occurring in municipality m after election t is written as a logistic function of the characteristics associated with each potential coalition ($\boldsymbol{x}_{cmt}$), such as its incumbency status, its combined seat share, or the ideological range between the parties:

$$\hat{y}_{cmt} = \frac{e^{\boldsymbol{\beta}'\boldsymbol{x}_{cmt}}}{\sum_{c=1}^{n} e^{\boldsymbol{\beta}'\boldsymbol{x}_{cmt}}} \tag{1}$$

We follow this approach, but in addition to the conventional potential coalition characteristics included in $\boldsymbol{x}_{cmt}$ (see Table 2 for details), we also compute measures that are based on data on individual politicians, derived from the administrative data as well as our survey.

How to aggregate the ties in these data to the level of the potential coalition deserves some discussion. Beginning with the registry-based personal ties, we first calculate the number of inter-party links in the coalition that share at least one such tie, where we define an inter-party link as a combination of two politicians, from different parties, that belong to the same potential coalition. Letting R_{ijt} denote a binary indicator for a personal tie between the two politicians i and j at year t, p a party and C the set of parties in the municipality-election-specific potential coalition, we can write the number of inter-party ties in the coalition using Iverson brackets, which means that brackets are equal to one if the condition is true, and zero otherwise:

$$\text{Registry-based ties } (R_{cmt}) = \sum_{i=1}^{n} \sum_{j=1}^{i-1} R_{ijt}[p_i \neq p_j][p_i \in C][p_j \in C] \tag{2}$$

To account for the fact that the number of observed personal ties increases both with the size of a coalition and the share of non-missing data, we also construct five control

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	Ties		Party dyads			Potential coalitions		
	Unique	Total	Mean	Min	Max	Mean	Min	Max
Registry-based ties	276	369	0.007	0	2	0.047	0	4
First-degree relatives	113	153	0.003	0	2	0.020	0	2
Second-degree relatives	85	113	0.002	0	2	0.015	0	3
Partners	78	103	0.002	0	1	0.012	0	2
Self-reported ties	6598	6598	0.817	0	12	6.341	0	95

Table 3: The number of ties in party dyads and potential coalitions

variables intended as proxies for the expected number of ties. The intuitive logic is to use the same equation as above, replacing R_{ijt} with an indicator for non-missing data. Details about these indicators are provided in the Supplemental Information (Section S1). Additionally, our government formation analysis includes a binary indicator for potential governments composed of a single party, accounting for the fact that all variables capturing inter-party ties necessarily take a value of zero for such coalitions.

The approach to measuring self-reported ties is similar but adjusted slightly due to the nature of the data. In our survey, collected during the 2018–2022 election term, we asked respondents if they were personally acquainted with anyone in party s before joining the municipal council. This means that, although we can identify the respondent's connection to a party, we cannot specify the individual to whom they were tied. Consequently, some ties are likely being counted twice. The calculation can be represented as follows,

$$\text{Self-reported ties } (S_{cm}) = \sum_{i=1}^{n} \sum_{p=1}^{P} S_{ip}[p_i \neq j][p_i \in C][p \in C]w_j \tag{3}$$

where S_{ip} is a binary indicator of whether respondent i reported an acquaintance in party p before joining the municipal council, and the Iverson brackets ensure that the respondent belongs to another party than the one asked about and that both parties belong to the potential coalition. Lastly, w_s is a party weight equal to one for the eight major parties or, for other parties, the seat share held by that party as a proportion of the seat share of all other parties in the municipal council. The party weight is included because, as noted above, respondents were asked about the eight major parties and an additional "other party" category. When more than one other party exists in a municipality, it is unclear which specific party the respondent might be referencing, so we allocate these ties in proportion to the relative size of the other parties.

Equations 2 and 3 also describe how we calculate most variables related to party dyads, which constitute our second unit of analysis, as these party dyads are naturally a subset of all potential coalitions. Table 3 presents the number of ties identified per party dyad and potential coalition. The average number of registry-based ties is 0.007 for party dyads and 0.047 for potential coalitions, with the number of ties never exceeding 2 or 4, respectively. In contrast, self-reported ties are considerably more numerous, averaging 0.8 ties per dyad and 6.3 ties per potential coalition.

It is likely that some politicians matter more than others. In particular, a strong tie between two individuals should be of larger importance if the two politicians are influential in their respective party, or if they have an active role in the coalition formation process. Lacking reliable information about the relative influence of politicians,

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we have based our measures of personal ties on all elected politicians in the local council (who belong to the parties in the respective potential coalitions), weighting each one equally. However, we have also conducted analyses where we limit the calculations to politicians at the top of the ballot, or those who indicated in our survey that they participated in negotiations with other parties, with similar results. This might not be surprising considering that many parties have no more than a handful of representatives in the local council.

Are coalitions with ties more likely to enter into office?

Our main results are presented in Table 4. In the first column we use a 'naive' specification where we only include the number of registry-based personal ties and the aforementioned controls that are intended as proxies for the expected number of inter-party ties in the coalition. Using this model we find a positive and statistically significant effect for our registry-based measure. The coefficient of 0.359 indicates that the odds of a coalition with one registry-based tie entering office are 1.43 times greater than the odds of a coalition without such ties,[6] holding all other factors constant. However, we will elaborate further on interpreting the effect size below. As shown by the small McFadden R^2, personal ties can only account for a tiny fraction of the coalitions that form, but we should not expect anything else.

In the second column, we add a vector of 30 potential coalition variables presented in Table 2, which are regularly used in coalition formation research (e.g., Cronert and Nyman 2021), as well as nine binary party indicators. These variables fit our data well and the high McFadden R^2 score shows that the model reduces the log likelihood function with more than 50 percent, which is a very good fit also in comparison to previous research on coalition formation. In this context it is reassuring that the regression coefficient for our measure of personal ties remains stable and even sees a slight increase. This finding indicates that the effect of the ties in the naive model is not confounded by the factors that usually explain coalition formation.

To address possible concerns that the association may be be driven by the personally connected politicians being more similar to each other, the third column adds controls that measure the similarities between the politicians in the potential coalition with regards to sex, age, country of birth, income and education. These controls do not add to the model's explanatory power and the estimated effect of registry-based ties remains virtually unchanged.

In the fourth column, we restrict the sample to coalitions formed after the 2018 election and substitute our registry-based measure of personal ties with self-reported ties from the survey pertaining to that election. As shown, the coefficient for this measure is half the magnitude of the registry-based measure. This aligns with our expectations, as self-reported ties represent a broader definition compared to the strong ties captured in our registry data. Thanks to the large number of self-reported ties, this effect is much more precisely estimated, despite the smaller number of observations.

Interpreting logit coefficients is challenging because the marginal effect on a coalition's office probability (in percentage points) varies with its likelihood of entering government. A common solution is to present the marginal effect for a typical case, but this approach is uninformative in our context since 96 percent of coalitions in our data have an estimated office probability below one percent. Although these coalitions are indeed representative of the constructed universe of potential coalitions, they offer

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[6] $e^{0.359} = 1.43$.

	(1)	(2)	(3)	(4)
Registry-based ties	0.359***	0.383**	0.382**	
	(0.113)	(0.165)	(0.164)	
Self-reported ties				0.182***
				(0.035)
Observations	556,719	556,719	556,719	92,366
Pseudo R2	0.010	0.551	0.552	0.510
Pot. coal. variables	No	Yes	Yes	Yes
Similarities	No	No	Yes	Yes
Elections	All	All	All	2018

Table 4: Government formation analysis, 1998−2022

little insight into actual coalition formation. Consequently, marginal effects based on the typical coalition would underestimate the real-world significance of personal ties. Another approach is to calculate the maximum marginal effect by dividing the regression coefficient by 4 (Gelman 2007, p. 82).[7] However, this method would instead exaggerate the relevant effects, as even the most probable coalitions often have election probabilities far from 0.5, where the logistic curve is steepest.

As a balanced alternative, we propose the probability-weighted marginal effect, which accounts for the probability distribution by weighting each coalition according to its estimated office probability. The intuition behind this approach—relevant not only in our context but in most discrete choice models—is that we are primarily interested in the effect on *plausible* potential coalitions, with each coalition's plausibility measured by its baseline probability. In our analysis, the estimated probability-weighted marginal effect of a registry-based tie is 4 percentage points, and about 1.6 percentage points for self-reported ties. By any means, these are large and politically important effects.

Do these results extend to other forms of cooperation?

Next, we aim to determine whether the patterns identified above extend to other forms of parliamentary cooperation. To this end, we aggregate our data from the individual politician level to party dyads. In terms of variable coding, these dyads correspond to the subset of potential coalitions comprising exactly two parties, with the exception of how the dependent variables are defined.

Our first set of party-dyad models analyze government formation, in order to verify that the results in the dyadic framework are consistent with those reported in the potential coalitions framework above. In these models, we employ a binary dependent variable that equals one for all party dyads that participated in a governing coalition, irrespective of whether additional parties were included in the coalition. In the second set of models, the dependent variable is a survey-based indicator capturing whether the two parties, either during or in preparation for the current election period, cooperated or negotiated on a common proposal, the municipal budget, or forming a governing

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[7] The marginal effect in a logistic regression model is given by $\beta \cdot P(1 - P)$, where β is the coefficient and P is the predicted probability. The term $P(1 - P)$ represents the variance of a Bernoulli distribution and is maximized when $P = 0.5$. At this point, $P(1 - P) = 0.25$.

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	Governed		Cooperated			
	(1)	(2)	(3)	(4)	(5)	(6)
Registry-based ties	0.067***		0.053		0.044	
	(0.023)		(0.051)		(0.053)	
Self-reported ties		0.026***		0.033***		0.025***
		(0.005)		(0.004)		(0.004)
Observations	51,542	5,603	5,603	5,603	4,524	4,524
Adjusted R^2	0.306	0.294	0.389	0.395	0.323	0.328
Mean of dep. variable	0.172	0.192	0.366	0.366	0.236	0.236
Similarities	Yes	Yes	Yes	Yes	Yes	Yes
Muni–party-dyad FE	Yes	-	-	-	-	-
Party-dyad FE	-	Yes	Yes	Yes	Yes	Yes
Municipality FE	-	Yes	Yes	Yes	Yes	Yes
Sample	All	All	All	All	NotGov	NotGov
Elections	All	2018	2018	2018	2018	2018

Ordinary Least Squares regression. Standard errors clustered on party-dyad.

Table 5: Analysis of party-dyad cooperation

coalition. This indicator is calculated as the share of survey respondents, from either party in the dyad, who confirm such cooperation.[8] The proportion of dyads identified as cooperating under this measure is approximately twice as large as the share that governs together, supporting our interpretation that this measure captures other forms of collaboration beyond governing coalitions.

In our analysis, we regress these indicators on the number of inter-party ties observed between the parties in the dyad, using first registry-based ties and then self-reported ties. Because only one of our outcomes is binary we apply a linear model (OLS), with standard errors clustered at the party-dyad level. The model of government participation in the first column is estimated across all elections, enabling the inclusion of municipality-party-dyad fixed effects. The models in subsequent columns are estimated using data from 2018 only, for which survey data are available, and include separate fixed effects for municipalities and party dyads.

The results are presented in Table 5. The first two columns address government formation. The findings suggest that the likelihood of two parties governing together increases by approximately six percentage points when a personal tie between them, observable in registry data, exists compared to when it does not. As also observed in the potential coalition analysis, the effect of self-reported ties is about half as large but estimated with significantly greater precision. Specifically, for each respondent reporting familiarity with someone in the other party, the probability of governing together increases by 2.6 percentage points. Both these effects are strikingly large, given that only 17 and 19 percent, respectively, of party dyads in the two samples govern together.

Turning to Columns 3 and 4, we find that these patterns extend to other forms of cooperation. For registry-based ties, the estimated effect is smaller and no longer statistically significant. However, for survey-based ties, the effect is slightly larger and estimated with high precision. Collectively, these results suggest that inter-party ties

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[8] For 80 percent of the observations, this measure takes on values of either 0 or 1, consistent with expectations for a valid indicator.

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facilitate various forms of collaboration. To ensure that these results are not solely driven by party dyads that govern together, Columns 5 and 6 present an analysis excluding all governing dyads. This exclusion only marginally weakens the estimated effects.

Is a causal interpretation warranted?

Our results indicate that personal ties substantially facilitate inter-party cooperation, both regarding government formation and elsewhere. But should this relationship be interpreted as a causal effect?

Despite access to what may be the world's most comprehensive dataset on politicians, the number of ties observable in our data is too small to permit a design-based causal inference approach, such as a regression discontinuity design, given the rarity of such ties in the population of interest. Instead, our approach relies on a large set of control variables, including potential coalition characteristics, various demographic similarity measures, and, in the most demanding specifications, fixed effects at the municipality–party-dyad level. Reassuringly, as was shown in Table 4, the results remain remarkably stable across different specifications, even as a large proportion of the variation in the outcome is accounted for. In Table S5 in the Supplemental Information we show that the results from the government formation analysis remain virtually unaffected even after the inclusion of potential coalition fixed effects, which we for computational reasons can only implement in a linear regression model. Despite this robustness, some potential threats to causal inference remain to discuss.

One plausible concern is reverse causation—i.e., that the inter-personal tie arises as a consequence of political cooperation. As previously mentioned, this is why we define all non-biological ties strictly as those identifiable in registry data prior to the first instance of the two parties governing together. While this excludes direct reverse causation, it does not eliminate all forms of endogenous cooperation, such as government coalitions before our data starts in 1994, informal coalitions, or favorable predispositions between parties. However, supplementary analyses (see Table S4 and Table S7 in the Supplemental Information) show that our results are not driven by ties vulnerable to such biases. For instance, the effects estimated for first-degree relatives closely mirror those for partners, which is reassuring since familial ties cannot result from prior cooperation.

A remaining concern is selection bias, specifically the possibility that politicians with ties to potential coalition partners may have a higher probability of being elected compared to those with ties to other parties. This could occur if party elites indeed do believe that such ties facilitate cooperation and therefore prioritize candidates with connections to likely coalition partners. Indeed, when we asked the politicians in our survey how different personal characteristics are valued when their parties decide whom to place at the top of the local council ballot, almost 80 percent agreed that "having good relationships with potential cooperation parties" is very or fairly important.[9]

Although we cannot completely rule out this dynamic, there are two reasons why we find it less plausible as the primary driver of our results. First, if party elites believe

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[9] Unsurprisingly, "representing the party's opinions", being "competent", and being "popular with the voters" were considered even more important, but the results nevertheless suggest that inter-party relationships is a factor that may come into play on the margin. The results are very similar if we restrict the sample to people serving on their party's local election committee.

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that such interpersonal ties facilitate coalition formation and act accordingly, this would imply that they themselves interpret these ties as having a causal effect, aligning with the interpretation of our results as primarily a causal effect. Second, this type of selection effect is precisely what our control variables in the government formation analysis are designed to address. To reiterate, while those controls account for most of the variation in the government formation analysis, they had virtually no impact on the estimated effect of inter-party ties. Although control variables are rarely sufficient for establishing causal identification, this robustness substantially reduces our concern about the risk of this particular bias.

In conclusion, while our analysis provides strong evidence of a robust relationship between personal ties and inter-party cooperation, certain threats to causal inference remain. Nevertheless, although we cannot rule out the possibility of selection effects, we consider a causal interpretation to be the most credible explanation for our findings.

Concluding remarks

In this paper, we examine how personal ties between politicians in different parties—including horizontal political dynasties where members of the same family simultaneously hold elected office (Dulay and Go 2022)—affect inter-party cooperation in Swedish local politics. We found that one additional family tie in one of the *plausible* potential coalitions—i.e., two politicians being first or second degree relatives, or partners—increases the probability for that coalition to be elected into government office with approximately four percentage points. The estimated effect of self-reported ties, which also includes non-family connections, is about half that size. The party-dyad analysis furthermore showed that similar patterns exist also for other types of legislative cooperation, as party-dyads are estimated to become 3–4 percentage points more likely to cooperate in the local council for each politician who has a personal connection to someone in the other party. Consistent with our transaction cost–oriented theoretical argument, the strongest effects are observed for strong ties characterized by high levels of mutual trust, such as those between partners and first-degree relatives.

These are substantial effects, but what are their implications? Drawing on prior research on personal ties and political representation, we may conceive of both positive and negative consequences. On the one hand, in the current multi-party context, these types of effects may encourage parties to favor candidates with personal connections to other parties over equally or even more suitable contenders. Taking personal ties into account when selecting candidates would lead to passing over politicians who might better represent voters or otherwise be more qualified, even though politicians with such connections are not, on average, any less qualified or representative (Geys and Smith 2017).

On the other hand, linking back to our theoretical discussion, if personal ties serve to reduce the transaction costs involved in cooperation, such ties might make politics more effective by enabling productive cooperation that would otherwise not have been possible. This could be particularly beneficial in cases where they foster mutual trust and cooperation across political divides, thereby potentially reducing affective polarization. In addition, with regards to dynastic ties, these may also improve the functioning of the legislature through tutoring among politicians that are family members (Geys and Smith 2017; Parker 1996).

Concerning political representation, it is likely that the consequences of personal connections differ between groups, depending both on how the ties are distributed and

the nature of the norms that regulate the representation of various groups. Historically, in many male-dominated parliaments, the majority of female politicians relied on significant family connections (Gertzog 2002), remarkably often serving as widows of deceased legislators (Kincaid 1978). This reliance persists today, with female candidates depending more on family ties than their male counterparts for their political careers (Baturo and Gray 2018; Folke et al. 2021).

However, while dynastic capital have benefited the political careers of (heterosexual) women, the importance of personal ties poses a major hurdle for groups who are less well-connected. Specifically, if party elites prefer candidates with personal connections to other parties, they may discriminate against immigrant politicians, who, according to our data, are less than half as likely as native legislators to possess such ties. Fortunately, we find no lack of connections for the children of immigrants. This finding aligns with the insights of Dancygier et al. (2021), who observe that immigrants in Sweden are just as willing as natives to pursue political office but are significantly less likely to become candidates or be placed in electable positions. They suggest that a lack of social contact between politicians and potential immigrant candidates may be a significant barrier to immigrant recruitment. Notably, their study finds no unexplained differences in the likelihood of seeking office between individuals with Swedish-born and foreign-born parents, which resonates with our finding that children of immigrants possess personal ties at similar rates as natives.

In all, the presence and influence of inter-party personal ties are neither unambiguously good nor bad. Their impact depends critically on how parties—acting as gatekeepers—manage and channel these relationships. A forward-looking approach would involve identifying ways to preserve the benefits of interpersonal trust and cooperation, while minimizing the risk that personal networks crowd out more qualified candidates or perpetuate patterns of under-representation.

Lastly, with regards to generalization, we argued earlier that Sweden is a fairly representative case among parliamentary democracies for observing an effect of personal ties (p. 6). Here, it is worth reflecting on the extent to which our present findings would travel beyond the local political level. Although national legislators often know each other from local politics or the time in their parties' youth wings, the sheer difference in population size means that we would not expect as many family ties in the national parliament. It is therefore difficult to make an empirical generalization of our results to national politics. However, several of the mechanisms we described in our theory section appear just as applicable to the national level. And while political dynasties are less frequent than in local politics, they are indeed present at the national level as well. Moreover, trust and mutual understanding could be built between individuals that did not know each other before they were elected to parliament, for example due to inter-personal chemistry or through a history of parliamentary cooperation. Future and more qualitatively oriented research could explore the conditions under which interpersonal connections at higher legislative tiers influence coalition dynamics, policy outcomes, and democratic quality.

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