

Necessary or Optional? Gender and Coalition Strategies in French Municipal Elections

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Abstract

This paper studies whether the gender of political leaders affects coalition strategies in electoral settings. I use French municipal elections from 2008, where institutional rules determine if coalitions are necessary or optional to enter the second round. Then, I compare strategic choices of men- and women-led lists, controlling for electoral strength, political orientation and local characteristics. The results show that women leaders are more likely to form coalitions when merging is required but tend to avoid coalitions when they are optional. These differences have implications for access to seats in municipal councils, but not for coalition characteristics.

Keywords: Gender and politics; Coalition formation; Pre-electoral coalitions; French municipal elections

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1 Introduction

Coalition formation is a central feature of electoral competition in many political systems, as parties and candidates trade off electoral strength against control over offices and policy. While this topic has received extensive attention in the theoretical literature, empirical evidence on how individual characteristics of political leaders shape coalition choices remains limited. In particular, little is known about whether the gender of party or list leaders affects coalition formation.

Answering this question empirically is challenging because coalition choices are typically endogenous to electoral strength, ideological proximity, and local political environments. To the best of my knowledge, only one unpublished manuscript directly examines the role of gender in coalition formation. [Bagues and Campa \(2019\)](#) study Spanish municipalities and show that women leaders are less successful than men in forming governing coalitions after elections. My paper instead focuses on *pre-electoral coalitions*, defined as agreements between electoral lists before voting, with the objective of improving electoral prospects. [Hortala-Vallve, Meriläinen and Tukiainen \(2024\)](#) provide a clear analysis of the trade-offs involved in such pre-electoral coalitions and document their consequences for electoral support and seat allocation in Finnish municipal elections, but do not explore potential gender differences in coalition strategies.

I study this question in the context of French municipal elections, which offer a well-suited institutional setting. Elections are held under a two-round list system with sharp vote-share thresholds that determine whether coalitions are necessary or optional. Lists that obtain between 5% and 10% of the vote in the first round can only access the second round by merging with another list, whereas lists above 10% may either merge, run unchanged, or withdraw. Using comprehensive data from the 2008, 2014, and 2020 elections, I compare the coalition choices of men- and women-led lists in these two distinct strategic environments, controlling for electoral strength, political orientation, and local characteristics.

The results show clear gender differences in strategic behavior that depend on institutional constraints. When coalition formation is necessary to access the second round, women leaders are more likely than men to form coalitions, and this higher access to the second round translates into a modest increase in candidates elected. When coalition formation is optional, women leaders are more likely to run unchanged rather than form coalitions. In this case, these strategic differences do not translate into meaningful differences in electoral outcomes. Across both settings, I find no systematic differences in the type or composition of coalitions that are formed.

These findings can be interpreted in light of several strands of literature. The economics and psychology literature highlights gender differences in behavioral responses, particularly in political contexts. For instance, women tend to avoid competitive environments ([Niederle and Vesterlund, 2007](#); [Preece and Stoddard, 2015](#)). In French municipal elections, [Peveri and Sangnier \(2023\)](#) show that women leaders are more likely to exit politics after an initial electoral loss, suggesting different attitudes toward competition and risk. Other work highlights gender differences in cooperation and ideological positioning: [Gagliarducci and Paserman \(2022\)](#)¹ document higher levels of cooperation among Republican women in the U.S. Congress and interpret women as signaling more centrist positions, potentially facilitating coalition formation.

¹Replicated and extended by [Bagues, Campa and Etingin-Frati \(2023\)](#).

An alternative explanation relates to the institutional design of French municipal elections, where “zipper” gender quotas impose strict gender alternation on lists. This feature may mechanically alter the issues surrounding coalition formation of men and women-led lists. In that sense, my paper connects to the broader literature on gender quotas (O’Brien and Rickne, 2016; De Paola, Scoppa and Lombardo, 2010; Besley et al., 2017; Bagues and Campa, 2021). While such quotas have been effective at increasing women’s representation in municipal councils, they have had limited impact on the share of women mayors (Lassébie, 2020). My paper focuses exactly on these women at the top of electoral lists and their strategic behavior.

The remainder of the paper proceeds as follows. Section 2 describes the institutional setting. Section 3 presents the data. Section 4 outlines the empirical strategy. Section 5 reports the results, and the final section concludes.

2 Institutional setting

French municipal councils in medium and large municipalities are elected through a two-round list system.² Lists must be complete, ordered, and must alternate genders throughout. The identity of the list leader is central, as the head of the winning list typically becomes mayor. Indeed, campaign materials such as political manifestos and posters often make list leaders highly visible.

Voters select one list in the first round. Unless a list receives more than 50% of the vote, a second round is held. The first-round vote share determines who may continue and under which circumstances:

- Lists with less than 5% of the vote cannot enter the second round.
- Lists between 5% and 10% may only enter by merging with a list above 10%.
- Lists above 10% may either run unchanged, merge with any list above 5%, or withdraw entirely.³

In this context, merging lists is defined as creating a new complete and ordered list in round 2 composed of candidates who were running in different lists in round 1, again ensuring gender alternation. I also call this phenomenon, forming a coalition.

These thresholds create clear differences in the strategic environment. Lists between 5% and 10% face a single option: they must find a partner, and coalitions are therefore necessary. For lists above 10%, however, coalitions are optional, as they can run without any change.

After the first or the second round, seat allocation follows the same rule. The winning list receives half of all seats. The remaining seats are distributed proportionally among all lists present in the decisive round. Seats within a list are then assigned following the order of candidates.

The majority bonus given to the winning list, guaranteeing an absolute majority in the municipal council, creates a trade-off for lists considering forming coalitions. On the one hand, a coalition partner that is politically aligned is likely to increase vote shares and the probability of winning.

²The rules apply to municipalities above 3,500 inhabitants in 2008 and, following the 2013 reform, to all municipalities above 1,000 inhabitants in 2014 and 2020.

³Lists may choose to withdraw in order not to split the vote and to help another list win the election.

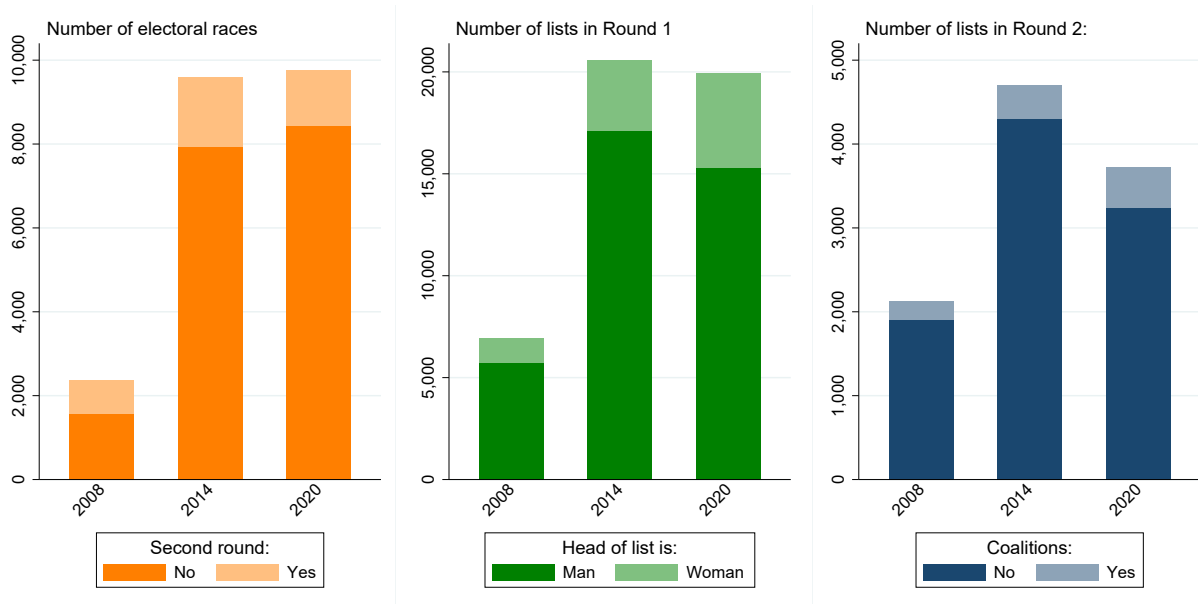
On the other hand, merging with other lists means sharing positions and giving up some seats to coalition partners.

3 Data

I focus on French municipalities above the relevant population thresholds that imply list elections in 2008, 2014, and 2020. For each list, I observe the vote share in the first round, whether it continues to the second round, whether it merges, and, using the electoral results, I calculate the share of candidates from the list who are elected to the municipal council. The gender of list leaders is observed directly in 2008 and 2020 from official sources. For 2014, gender is inferred from first names or matched across years whenever possible. I also use the official classification of lists by political affiliation that I further group into five categories: Radical left, left, center, right, radical right, and non-classified.

Figure 1 shows basic descriptive patterns. First, following the 2013 reform extending lists elections to smaller municipalities, the number of municipalities with list elections increases sharply, from about 2,500 in 2008 to more than 9,000 in 2014 and 2020. The second panel highlights the large gender imbalance, with men being far more likely to head lists in all years. The raw number also shows that many municipalities have only one or two competing lists, which results in a single round only. Complementary summary statistics reported in Table A1 in the Appendix show that, on average, municipalities with a second round are about four times larger than those with only one round. The third panel focuses on municipalities with lists that enter the second round. Among these, about 12% are coalition lists that combine candidates from at least two first-round lists.

Figure 1: Electoral races characteristics by year



Additional descriptive statistics, including population size, turnout rates, and gender composition for lists in Rounds 1 and 2, appear in Table A1 in the Appendix.

4 Empirical strategy

My empirical strategy starts by comparing whether men and women leaders of municipal lists differ in their strategic choices of forming coalitions in the second round, both when coalitions are necessary and when they are optional. Because strategic options differ sharply between lists in the 5–10% range and those above 10%, I estimate the model separately for the two groups.

To do so, my baseline model is an OLS specification in which the unit of observation is a first-round list i running in race j . Formally,

$$Y_{ij} = \alpha + \beta \text{WomanLeader}_{ij} + X_j\gamma + \delta_{\text{year}} + \delta_{\text{rank}} + \delta_{\text{orientation}} + \varepsilon_{ij}, \quad (1)$$

where Y_{ij} denotes a second-round outcome such as forming a coalition or running alone. The variable of interest WomanLeader_{ij} is an indicator equal to one if the list leader is a woman. I control for race-specific characteristics in Round 1, denoted X_j , which include the number of registered voters, turnout rate, the number of lists running initially, and the number of potential coalition partners⁴. Fixed effects absorb systematic differences across election cycles δ_{year} , the rank of list i in the first round δ_{rank} , and political orientation $\delta_{\text{orientation}}$. In the fullest specification, I also include department fixed effects, which in the French context correspond to medium-sized geographical units. For robustness, the results tables report the coefficient of interest β across different sets of controls and fixed effects. Lastly, ε_{ij} represents the error term.

Using the same type of model, the remaining part of the analysis investigates whether the different strategies chosen by men and women leaders have consequences for the share of candidates from their list who obtain a seat in the municipal council. In the last part, I focus only on lists that decide to form a coalition. I examine whether the characteristics of these coalitions differ depending on the gender of the list leader.

5 Results

5.1 Necessary coalitions

The first part of the results concerns lists that are not automatically qualified for Round 2 and therefore must find another list that did qualify and is willing to include some of their members in a new coalition list. In this subsample, Table 1 shows how having a woman as the top name on the list affects, first, the probability of finding a coalition partner and gaining partial access to the second round (columns (1)–(3)) and, second, how this translates into electoral outcomes (columns (4)–(6)).

The estimates show that women-led lists are more likely to appear in the second round through a merger. The baseline probability for men-led lists is around 17%, and this rises to roughly 23% for women-led lists when controlling for race characteristics, list rank in Round 1, political orientation, and year fixed effects. Adding department fixed effects reduces the magnitude slightly but preserves the overall pattern. Importantly, increased access to the second round has direct implications for access to seats in municipal councils. Although the coefficients are modest and only marginally

⁴This represents the number of lists with a sufficient score in Round 1, above the 5% or 10% thresholds depending on the case

significant, they suggest an increase of about 3.8% in the share of candidates elected from women-led lists compared to men-led lists.

Table 1: Gender differences in forming necessary coalitions to access Round 2

	Run in R2			Share elected R2		
	(1)	(2)	(3)	(4)	(5)	(6)
Women leaders	0.058** (0.023)	0.058** (0.023)	0.041* (0.023)	0.0027* (0.0016)	0.0026* (0.0015)	0.0021 (0.0016)
N reg. voters R1		0.000 (0.000)	-0.000 (0.000)		-0.0000 (0.0000)	-0.0000 (0.0000)
Turnout R1		-0.580*** (0.145)	-0.636*** (0.189)		-0.0250*** (0.0088)	-0.0250** (0.0108)
N lists R1		0.018** (0.008)	0.015 (0.009)		0.0021*** (0.0007)	0.0018*** (0.0006)
N lists above 10%		0.048** (0.020)	0.034 (0.021)		0.0027** (0.0012)	0.0023* (0.0013)
Year FE	YES	YES	YES	YES	YES	YES
Rank FE	YES	YES	YES	YES	YES	YES
Political orientation FE	YES	YES	YES	YES	YES	YES
Department FE	NO	NO	YES	NO	NO	YES
R2	0.064	0.089	0.159	0.036	0.062	0.122
N	1480	1480	1477	1480	1480	1477
Men leaders baseline	0.173	0.173	0.173	0.071	0.071	0.071

Notes: Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses. OLS estimates using different sets of controls and fixed effects. Controls include the number of registered voters in the municipality in Round 1, turnout in Round 1 (between 0 and 1), the number of lists running in Round 1, and the number of lists that passed the 10% threshold and are therefore potential coalition partners. Fixed effects include election cycle, rank of the list in Round 1, political orientation, and geographical ‘department’. Following the specification in Section 4, the sample is restricted to lists i in race j that ranked third or higher and obtained between 5% and 10% of the vote in the first round.

These results indicate that when merging is the only available strategy, women leaders are more successful at forming coalitions, and this translates into greater access to seats in the municipal council. One interpretation relates to the behavior of women leaders, or at least to the expectations of potential partners. For example, merger negotiations may require more communication, concessions, and compromise. An alternative interpretation is more mechanical and relates to gender quotas and the requirement of gender alternation on lists. It is well known that it is often harder to recruit women than men to run for office. As a result, it may be easier for coalition partners to integrate a woman who has already demonstrated strong commitment by leading a list into the new coalition list.

5.2 Optional coalitions

Moving on to lists that qualify for the second round, these lists face three possible options. At the baseline, men-led lists decide to run unchanged compared to Round 1 in 76% of cases, merge with

one or more other lists in 16%, and withdraw entirely in 8% of cases.

The estimation results are reported in Table 2. Columns (1)–(3) show, as before, that women-led lists are more likely to have at least one of their members access the second round. However, when decomposing this outcome into running in a coalition (columns (4)–(6)) versus running unchanged (columns (7)–(9)), the positive effect appears to come almost entirely from running alone. Indeed, the probability of forming a coalition is not statistically different from zero.

In sum, when lists are strong enough to continue without external partners, women leaders appear more inclined to do so.

The consequences for elected positions are unclear. Running unchanged has the advantage of allocating seats only among the list's own members. Forming a coalition, by contrast, can attract additional voters and reduce electoral competition, which may translate into substantially more seats in case of victory, but it comes at the cost of giving up some positions to coalition partners.

Because lists face three possible options, Table 3 first reports the interaction between a woman-led list and running in Round 2⁵ (columns (1)–(3)), and then, conditional on running, the interaction between a woman-led list and forming a coalition (columns (4)–(6)) on the share of candidates from the list who obtain a seat in the municipal council.

Both interaction coefficients are small and statistically insignificant. As a result, women-led lists that enter the second round do not obtain a higher share of seats than men-led lists. On average, about 30% of candidates from the original list are elected. This average masks large disparities between winning lists, which automatically receive more than 50% of the seats, other lists that obtain a smaller share, and lists that do not run in the second round and therefore obtain no seats.

Moreover, conditional on entering the second round, running in a coalition appears to be a less favorable option, as it tends to reduce the share of elected candidates from the original list. This effect does not differ depending on whether the list is led by a man or a woman. Taken together, the results suggest that gender differences in strategy are present, but do not translate into different electoral success.

Institutional constraints appear to affect men and women differently and shape their strategic choices. When merging is necessary, women leaders merge more often. When merging is optional, women leaders tend to avoid it.

⁵Including both running unchanged and running in a coalition.

Table 2: Gender differences in forming optional coalitions or running alone in Round 2

		Run in R2		Run in coalition R2			Run alone R2		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Women leaders	0.0121** (0.0057)	0.0109* (0.0057)	0.0102* (0.0057)	0.0009 (0.0082)	-0.0058 (0.0079)	-0.0092 (0.0080)	0.0114 (0.0091)	0.0169* (0.0089)	0.0194** (0.0089)
N reg. voters R1		0.0000 (0.0000)	0.0000 (0.0000)		0.0000*** (0.0000)	0.0000*** (0.0000)		-0.0000** (0.0000)	-0.0000** (0.0000)
Turnout R1		-0.2479*** (0.0326)	-0.1698*** (0.0388)		-0.1349*** (0.0465)	-0.0618 (0.0549)		-0.1124** (0.0516)	-0.1061* (0.0611)
N lists R1		0.0005 (0.0028)	-0.0032 (0.0032)		0.0206*** (0.0063)	0.0109 (0.0069)		-0.0200*** (0.0065)	-0.0141** (0.0071)
N lists above 5%		0.0045 (0.0039)	0.0097** (0.0042)		0.0433*** (0.0079)	0.0520*** (0.0085)		-0.0392*** (0.0082)	-0.0426*** (0.0088)
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Rank FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Political orientation FE	YES	YES	YES	YES	YES	YES	YES	YES	YES
Department FE	NO	NO	YES	NO	NO	YES	NO	NO	YES
R2	0.136	0.142	0.151	0.063	0.109	0.123	0.150	0.174	0.185
N	12484	12484	12484	12484	12484	12484	12484	12484	12484
Men leaders baseline	0.920	0.920	0.920	0.160	0.160	0.160	0.760	0.760	0.760

Notes: Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parenthesis. OLS estimates using different sets of controls and fixed effects. Controls include the number of registered voters in the municipality in Round 1, turnout in Round 1 (between 0 and 1), the number of lists running in Round 1, and the number of lists that passed the 5% threshold and are therefore potential coalition partners. Fixed effects include election cycle, rank of the list in Round 1, political orientation, and geographical 'department'. Following the specification in Section 4, the sample is restricted to lists i in race j that ranked in the top-two or obtained more than 10% of the vote in the first round.

5.3 Types of coalitions

Finally, Figure 2 compares the characteristics of coalitions formed by men- and women-led lists. Across several measures—number of partners, identity of the merged-list leader, and share of original candidates—there are no systematic gender differences. This suggests that gender affects coalition *formation*, but not the *structure* of resulting coalitions.

6 Conclusion

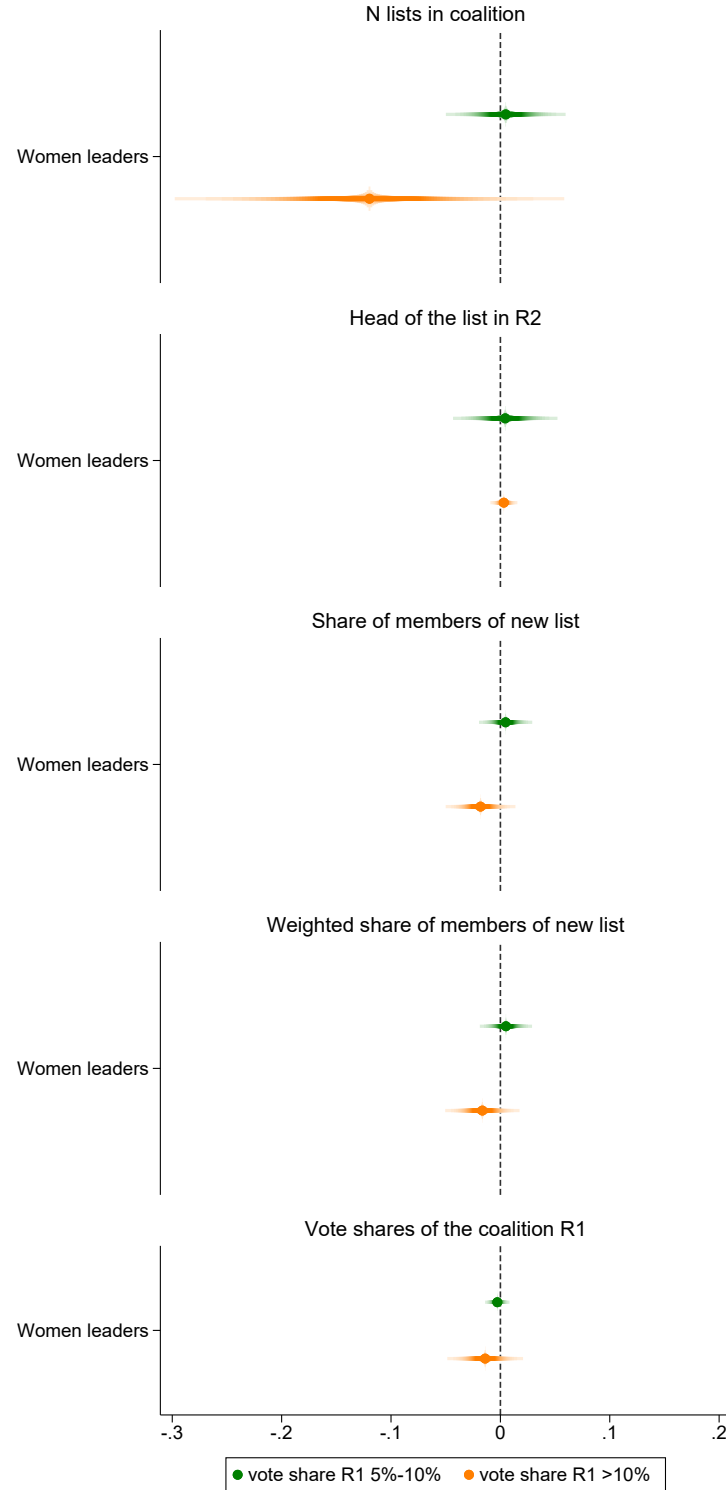
This paper provides evidence that institutional constraints shape gender differences in coalition strategies in French municipal elections. When forming coalitions is necessary to advance to the second round, women leaders are more likely to merge with other lists. This increases their probability of securing seats in municipal councils. However, when coalition formation is optional, women leaders are more likely to run as is rather than form coalitions. These findings suggest that gender differences in political strategy are not uniform but rather emerge in response to specific institutional incentives. From a policy perspective, the results show that electoral rules and quota designs can interact with leader characteristics to influence political behavior and the allocation of political power within elected bodies.

Table 3: Gender differences in election results in Round 2

	Share elected (all lists)			Share elected (conditional on running in R2)		
	(1)	(2)	(3)	(4)	(5)	(6)
Women leaders	0.0016 (0.0037)	0.0028 (0.0038)	0.0003 (0.0047)	-0.0017 (0.0048)	-0.0022 (0.0048)	-0.0029 (0.0048)
Runs in R2	0.0981*** (0.0025)	0.1000*** (0.0026)	0.0997*** (0.0027)			
Women $\times$ Runs	-0.0030 (0.0056)	-0.0044 (0.0057)	-0.0033 (0.0064)			
Runs in a coalition				-0.0120** (0.0047)	-0.0083* (0.0047)	-0.0073 (0.0047)
Women $\times$ Coalition				0.0038 (0.0104)	0.0044 (0.0102)	0.0010 (0.0098)
N reg. voters R1		-0.0000 (0.0000)	-0.0000 (0.0000)		-0.0000 (0.0000)	-0.0000 (0.0000)
Turnout R1		0.0169 (0.0222)	-0.0394 (0.0267)		0.0147 (0.0240)	-0.0449 (0.0288)
N lists R1		0.0053* (0.0029)	-0.0064** (0.0030)		0.0057* (0.0030)	-0.0068** (0.0031)
N lists above 5%		-0.0160*** (0.0035)	-0.0036 (0.0037)		-0.0168*** (0.0037)	-0.0035 (0.0038)
Year FE	YES	YES	YES	YES	YES	YES
Rank FE	YES	YES	YES	YES	YES	YES
Political orientation FE	YES	YES	YES	YES	YES	YES
Department FE	NO	NO	YES	NO	NO	YES
R2	0.662	0.663	0.668	0.632	0.633	0.639
N	12484	12484	12484	11490	11490	11490
Men leaders baseline	0.304	0.304	0.304	0.331	0.331	0.331

Notes: Significance levels: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parenthesis. OLS estimates using different sets of controls and fixed effects. Controls include the number of registered voters in the municipality in Round 1, turnout in Round 1 (between 0 and 1), the number of lists running in Round 1, and the number of lists that passed the 5% threshold and are therefore potential coalition partners. Fixed effects include election cycle, rank of the list in Round 1, political orientation, and geographical 'department'. Following the specification in Section 4, the sample is restricted to lists i in race j that ranked in the top-two or obtained more than 10% of the vote in the first round. Columns (4)-(6) the sample further restrict the sample to lists that have at least one member that entered round 2, in the same list in a newly created coalition list.

Figure 2: Gender differences in types of coalitions



Notes: The figure plots the estimated coefficient β from the full specification described in Section 4. Estimates are reported with 95% confidence intervals based on robust standard errors. The outcomes of interest are: the number of coalition partners; an indicator for whether the head of list i appears in the new coalition list; the raw share of candidates in the coalition list who come from list i ; the same share weighted by candidates' ranks within the new list; and the total vote share of the coalition list in Round 1, calculated as the sum of vote shares obtained by each coalition partner. The sample is restricted to lists i in race j that merged with at least one other Round 1 list to form a coalition in Round 2. The top set of estimates corresponds to lists ranked third or higher that obtained between 5% and 10% of the vote in the first round (coalitions that are necessary to access Round 2). The bottom set of estimates corresponds to lists that were among the top two or obtained more than 10% of the vote in the first round (coalitions that are optional).

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7 Appendix

A Tables

Table A1: Summary Statistics

	Races with only R1	Races with R2	All races
Averages			
Population	4,374	18,154	6,964
N registered voters	3,169	12,035	4,857
Turnout rate R1	.516	.569	.526
Turnout rate R2	-	.585	-
N lists R1	1.79	4.16	2.24
N lists R2	-	2.74	-
Share of woman head R1	.172	.215	.180
Share of woman head R2	-	.200	-
Share coalition lists R2	-	.122	-
N	17,940	4,220	22,160