Party Nominations and Female Electoral Performance: Evidence from Germany

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September 28, 2021

Abstract

What accounts for differences in electoral success between male and female candidates? We use a decomposition strategy to distinguish between voter behavior and differences in party nomination strategies. In doing so, we exploit the unique features of the German mixed electoral system, where voters simultaneously cast votes for a party and for a candidate in their constituency. Using a panel of all electoral districts in eleven federal elections (1983–2017), we establish two facts. First, female district candidates nominated by the two largest parties (the center-right CDU and the center-left SPD) perform worse than their male counterparts. Second, the difference in performance is driven by party nomination strategies: the two largest parties, the CDU and SPD, systematically nominate female candidates in districts where their party is less popular, making it harder for women to win those districts. We also find that parties' nominations strategies can explain most of the variation in gender gaps in electoral performance across parties and election years. We do not find evidence that bias among voters systematically contributes to the vote gap.

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1 Introduction

The relationship between gender and electoral success remains at the core of the study of women in politics. A central question in this line of research is the relationship between electoral systems and women's representation in politics. In cross-national comparisons, proportional representation has been found to be more conducive to female than single member districts (Fortin-Rittberger and Eder, 2013). In the German electoral system, where constituents cast votes for both district candidates and party lists, only 31% of all delegates elected in 2017 were women (down from 36% in 2013). Of the 299 electoral districts, only 64 (21%) elected a woman as their direct delegate. Between 1983 and 2017, female candidates running for one of the two historically main parties, the CDU/CSU and the SPD, received on average 3.4 percentage points fewer votes than male candidates who ran for the same parties.

How can we explain this political gender gap? In this paper, we study whether the relative underperformance of women is driven by voter decisions or by parties' nomination behavior. We exploit the mixed electoral system in Germany, using the party vote shares as a proxy for party popularity in a given constituency. In doing so, we can disentangle whether (1) women candidates perform worse because voters discriminate against female candidates or (2) whether parties systematically nominate female candidates to run in districts where their party is less popular. Our approach relies on a version of the Oaxaca-Blinder decomposition, a method commonly used to study mean outcome differences between groups (see e.g. Jann, 2008; Bourguignon, Ferreira and Leite, 2008; Elder, Goddeeris and Haider, 2010). Using a panel of aggregate election results in all districts from eleven federal elections between 1983 and 2017, we decompose the overall difference in electoral performance into a component that can be attributed to voters, and a component that stems from party nominations.

Our results indicate that parties are the main driver of the gender vote gap. Differences in candidate success arise because the two main parties, the SPD and CDU/CSU, nominate female candidates to districts where the party is less competitive. The opposite is true for some of the smaller parties Our findings are in line with the results from more descriptive methods. First, we find that the simple difference between candidate and party vote shares tends to be more negative for female district candidates, indicating that voters are somewhat more likely to split their tickets when the direct candidate is a woman, which is consistent with both voter discrimination and strategic voting, if female candidates are nominated to districts where candidates representing their party are not competitive. Second, we examine nomination probabilities for female candidates. As suggested by the decomposition results,

women are less likely to be nominated to safe seats than men. Again, this effect is strongest for the CDU/CSU and SPD parties. Importantly, the electoral disadvantage for female direct candidates is decreasing over time.

2   Theory

We argue that there are three possible explanations for the apparent gap in electoral success between female and male candidates in first-past-the-post elections. First, parties may act as gatekeepers and nominate women in constituencies where their party has fewer supporters. Second, voters may discriminate against female candidates, all else equal. Finally, it is possible that all else is not equal, and that being a female candidate is correlated with other characteristics which voters value differently. Of course, these mechanisms are not mutually exclusive and may well complement or offset each other.

First, on the supply side, candidate gender may be correlated with party popularity in electoral districts. Parties might nominate female candidates to districts where the party itself is less popular than in districts where the party nominates male candidates. Male party elites may be biased against women candidates, preferring candidates that are more like them (Niven, 1998). In general, men who make nomination decisions may favor other men (Krook, 2010). The nomination process for women has been shown to be more difficult when party gatekeepers are men (Cheng and Tavits, 2011).

At the same time, policy demanders within parties may advocate for better representation of women and minority candidates (Crowder-Meyer and Cooperman, 2018; Kitchens and Swers, 2016), and parties may have incentives to nominate such candidates to appeal to liberal voters (Hassell and Visalvanich, 2019). The combination of local gatekeepers and pressure to nominate a certain share of women overall may result in women being nominated in electoral districts which are less competitive. Since party strength and the electoral success of district candidates are highly correlated, this would lead to a relative under-performance of female candidates.

Second, on the demand side, voters may be biased against female candidates. Possibly, voters are less likely to vote for a female candidate than for a male candidate. Prior research has emphasized the presence of gender stereotypes (Huddy and Terkildsen, 1993; Lawless, 2004; Sanbonmatsu, 2002), in particular when activated by campaigns (Bauer, 2015), as well as potential bias against female candidates (Dolan, 2018; Stout and Kline, 2011; Leeper, 1991), which could negatively affect the electoral performance of female candidates. Some

recent studies, however, find no evidence of gender bias in the evaluation of candidates (Brooks, 2013; Hayes, Lawless and Baitinger, 2014).

Third, candidate gender may be correlated with other candidate characteristics that affect vote choice (Geys and Mause, 2014). Compositional differences between male and female candidates could drive the gap in electoral success. As an example, male candidates could be more visible (Reeves and Smith, 2019), have longer tenure in office, or may be more likely to be the incumbent (Palmer and Simon, 2010). As such, female candidates may not perform worse at the ballot box *because* they are women, but because on average they perform worse on dimensions voters value. Of course, part of this phenomenon can be thought of as path dependency: men may be more successful in the present because they have been more successful in the past.

Note that the different channels may be offsetting each other – it may, for example, be the case that voters are biased against women *and* that women are more qualified, thus yielding similar vote shares as men (Fulton, 2012), or that women win seats in less competitive districts due to their personal characteristics.

Our goal is to disentangle these three mechanisms. Disentangling them is typically very challenging since we cannot observe the counterfactuals, i.e. whether voters would have voted for a candidate if she were of a different gender and whether politicians would have appointed a candidate to a given district if she were male. As we discuss in the next section, we take advantage of the mixed electoral system in Germany to overcome these challenges.

3   Advantages of the German Electoral System for Estimation

One of the core challenges in studying discrimination against female candidates is that we cannot observe the counterfactual, i.e. how voters in a given district would have cast their ballots had the candidate been male. The German mixed electoral system offers an excellent proxy. Germany uses a mixed-member proportional electoral system to elect representatives to the *Bundestag*: Each voter can cast two votes, one for a candidate in their constituency (*Erststimme*) and one for a party list (*Zweitstimme*). Half of all seats in the national parliament are allocated to the candidates who win the districts, while the other half is allocated based on the party lists. Our empirical strategy employs the party vote as a measure for individual party preferences. If voters deviate from their party decision when casting their votes for a specific candidate, they express their preference for the candidate.

Vote splitting could be motivated by specific candidate characteristics, such as candidate gender, or by strategic considerations. Compared to pure proportional or pure single member district systems, the German case allows us to separate party preferences from candidate preferences, once we take strategic considerations into account.

In Germany, nominations of Parliamentary direct candidates are a good proxy for local party preferences. Electoral law in Germany stipulates that candidate selection should occur at the local level in a sufficiently democratic manner. Candidates in single-member districts (SMD) are selected by local party chapters—either through an election where all members of the local party branch vote, or through an election by delegates who were themselves elected by party members. One of the stated goals of German election law is the decentralization of candidate selection. Prior empirical work has argued that this goal has largely been achieved, as central party organs have little formal or informal influence on candidate selection in SMDs (Reiser, 2020b). At the same time, while relatively independent of influence from national party leadership, local candidate selection procedures are not as democratic as the election law stipulates. While nomination procedures have become more democratic over time, district party elites continue to command considerable influence over who gets selected, and pre-convention campaigning often results in uncontested conventions (Reiser, 2020b).

Another important factor for our investigation are gender quota. While most German parties have instituted gender quota ranging from 33% to 50% for the party leadership and candidates on state party lists, single member district candidates are largely exempt from the quotas.[1] We provide further details on candidate selection in Appendix C.

4 Data

We use electoral results from the eleven most recent elections in Germany (1983–2017), combined with data on gender and party affiliation of all candidates. The source for the

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[1]The prevalence of gender quotas varies between German parties. The Green party was the first to institute a quota for women in 1979 for party lists and the party leadership, where half of all posts have to go to women. The Left Party (*Linkspartei*), founded in 2007, has a similar quota. In 1988, the social democratic SPD adopted a quota which stipulated that 40% of all leadership posts are reserved for women. Among center-right parties, no binding quotas exits. Angela Merkel's CDU party instituted a non-binding quota called the *Frauenquorum* in 1996, stipulating that one third of party offices should be held by women. If internal elections fail to reach this goal, they are declared invalid and have to be repeated, and additional candidates may be put on the ballot. However, if the repeat elections again fail to reach the quota, they are still declared valid and party offices are filled as determined by the internal election.

data is the Federal Returning Officer[2], who supervises elections on the federal level. Our unit of analysis is the electoral district (*Wahlkreis*). In the 2017 election, there were a total of 299 electoral districts (*Wahlkreise*).

The Federal Returning Officer also maintains a list of all candidates, both for constituencies and for the party lists. These candidate lists includes information on candidate gender, our main independent variable. In addition, the candidate lists also contain information on candidate age and occupation. We link the candidate lists to electoral results, allowing us to measure the precise electoral performance of all candidates. We limit the sample to candidates of the five largest German parties during this time period: The center-right Christian Democratic Union and its Bavarian sister party, the Christian Social Union (CDU/CSU), the center-left Social Democrats (SPD), the Green Party, the Left Party and the classical liberal FDP.[3] In 2017, these five parties together obtained 82 percent of the party vote.

5 The Gender Vote Gap in Germany

To motivate our analysis, we first present data on the simple gender vote gap, or the average difference in vote shares between male and female district candidates. In Figure 1, we plot the difference in mean vote shares between female and male district candidates over time. Among the two main parties, we observe that between 1983 and 2017 female candidates who run for the CDU/CSU receive on average 3.9 percentage points fewer votes than their male candidates, compared to 2.3 percentage points in the SPD. The reverse is true for the Left Party, where female candidates receive on average 3.2 percentage points *more* votes than their male counterparts for the years since reunification. For the FDP and Green parties, women do somewhat better than men, but this difference is comparatively small. The gender vote gap decreases over time. In the CDU/CSU, it decreased from its most extreme value of -6.4 percentage points in 1998 to -0.6 percentage points in 2017. Similarly in the SPD, it decreased from -4.8 percentage points in 1983 to -0.3 percentage points in 2017.

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[2]The most recent data can be accessed on https://www.bundeswahlleiter.de/en/. The 1980 election is the first election for which the Bundeswahlleiter provides results and candidate characteristics. Since some of our analyses rely on lagged variables, we have to drop the 1980 election for these analyses. To be consistent, we therefore use the 1983 election as the first election in our data for the remainder of the paper

[3]These five parties represent the political landscape prior to the 2017 election. Since then, several major developments have occurred: The rise of the radical-right AfD, the decline of the SPD and the surge of the Green party.

Figure 1: Average difference in electoral performance between female and male direct candidates
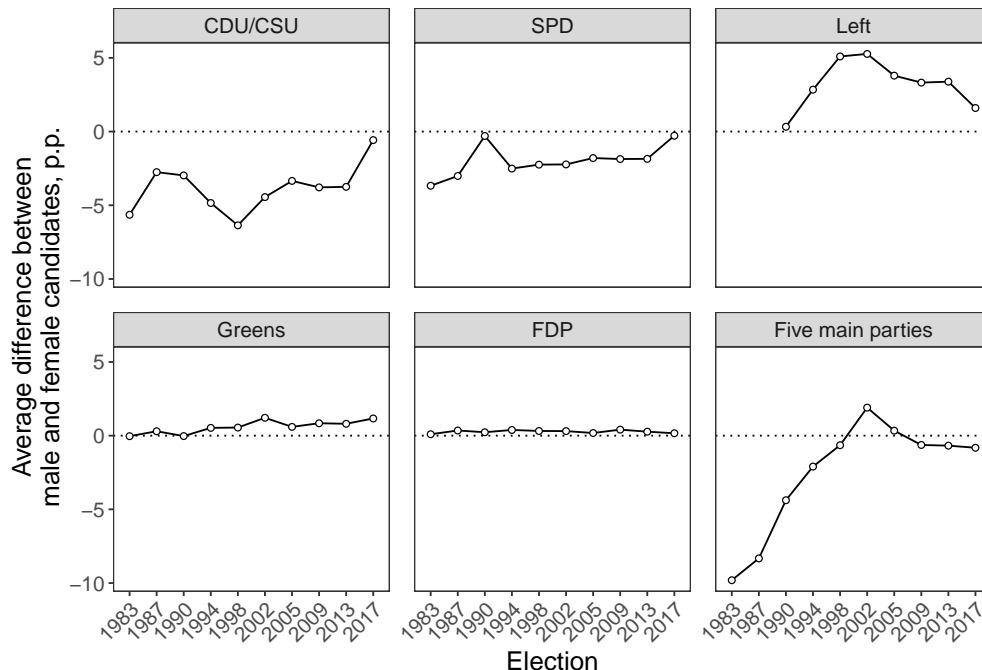
Note: The figure shows the percentage point difference in average vote shares between female and male candidates across eleven elections for five parties. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. The Left party did not exist in West Germany prior to 1990. We average over vote shares in electoral districts. Negative values on the y-axis indicate that, on average, male candidates receive a higher proportion of votes than female candidates.

These differential vote shares translate into a higher probability of being elected for male candidates in the two largest parties. Figure 2 shows the probability of getting elected for male and female direct candidates over time. As is evident from the relatively flat lines hovering over zero, the three smaller parties studied here, the Left, Greens and FDP, win very few direct mandates.

The aim of the remainder of this paper is to disentangle these three mechanisms – does the political gender gap we observe stem primarily from party nomination strategies, discrimination by voters, or can we explain most of the variation through compositional differences?

6   Decomposition: Empirical Strategy

To understand the mechanisms underlying the gender vote gap in Germany, we leverage the German mixed electoral system in combination with a classic method from labor economics,

Figure 2: Probability of getting elected for female and male direct candidates
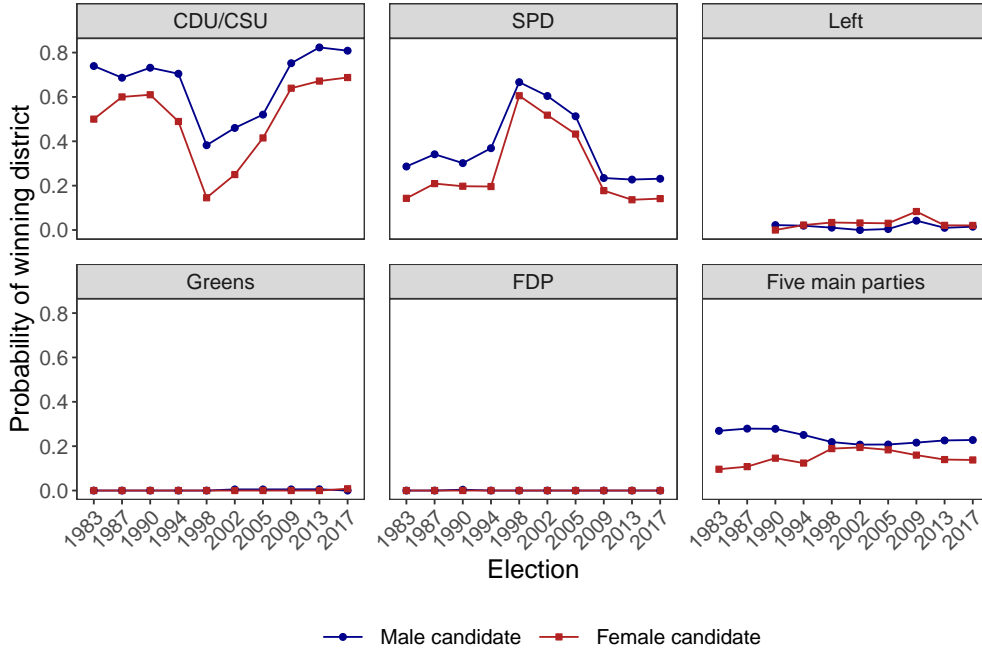
Note: The figure shows the probability of winning the district for female and male candidates across ten elections for five parties. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. The Left party did not exist in West Germany prior to 1990. The panel labeled 'five main parties' includes all candidates from the five parties shown in the other panels.

decomposition analysis. We decompose overall gender vote gap into two parts: The contribution of political parties and the contribution of voters. Our approach is based on the Oaxaca-Blinder decomposition, a method often used in labor economics for understanding the drivers of differential wages (Blinder, 1973; Jann, 2008; Oaxaca, 1973). Intuitively, the application of the method to our case can be described as follows: Female and male candidate vote shares can be modeled as a function of party vote shares – voters who support a party likely also support the candidate of that party. However, some voters may split their tickets, so party vote share will probably not explain all of the variation in candidate vote shares. The overall difference in electoral success between female and male candidates can be decomposed into two parts: One that is explained by differences in party vote shares, and one that is explained by differences in voter behavior. The formal setup of the method is a follows.

Using only female candidates, we can run:

$$CV_{ipt}^{W} = \alpha^{W} + \beta^{W} PV_{ipt}^{W} + \epsilon_{ipt} \tag{1}$$

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where CV_{ipt} is the candidate vote share of candidate i in district p at election year t. PV_i is the party list vote share of i's candidate's in district p at election year t.

The same equation can be estimated using only male candidates:

$$CV_{ipt}^M = \alpha^M + \beta^M PV_{ipt}^W + \epsilon_{ipt} \tag{2}$$

Now, $\overline{CV^g} = \alpha^g + \beta^g \overline{PV^g}$ is the average candidate vote share of each gender g.

Let $\overline{CV^M}$ and $\overline{CV^W}$ be the average candidate vote share of men and women, respectively. We are interested in studying (decomposing) differences in average electoral performance between men and women: $\overline{CV^W} - \overline{CV^M}$. Note this average can be taken for many sub-samples (e.g., only one particular election year or region, only one particular party, or only a particular party in a year).

OLS estimation of (1) and (2) guarantee that $\overline{CV^g} = \alpha^g + \beta^g \overline{PV^g}$ for $g \in \{M, W\}$, where $\overline{PV^g}$ is the the analogous party vote average to $\overline{CV^g}$. The average vote share difference between men and women can be decomposed as follows:

$$\overline{CV^W} - \overline{CV^M} = \alpha^W + \beta^W \overline{PV^W} - \alpha^M - \beta^M \overline{PV^M} =$$
$$= \alpha^W + \beta^W \overline{PV^W} - \alpha^M - \beta^M \overline{PV^M} + \beta^W \overline{PV^M} - \beta^W \overline{PV^M} =$$
$$= [\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}] + \beta^W (\overline{PV^W} - \overline{PV^M}) \tag{3}$$

The term in brackets $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$ can thus be interpreted as the part of the differential performance between female and male candidates that is attributed to voters. More precisely, if voters are equally likely to cast a candidate vote that "differs" from the party vote when the candidate is either a man or woman, then this bracket equals zero (since $\alpha^M = \alpha^W$ and $\beta^M = \beta^W$). If the term in brackets is negative, it implies that voters are predicted (by the estimated Equations 1 and 2) to be more likely to vote for party x but **not** vote for candidate of party x when party x's candidate is a woman instead of a men. Note that this prediction is evaluated at the mean $\overline{PV^M}$ level, since we are decomposing the mean difference in electoral performance ($\overline{CV^W} - \overline{CV^M}$). Moreover, it provides a counterfactual exercise: a measure of how much larger or smaller the candidate gender vote gap would be if voters treated male and female candidates equally, conditional on their party vote.

The second term $\beta^W (\overline{PV^W} - \overline{PV^M})$ is the part of differences in candidate vote shares

that can be attributed to parties. More precisely, it isolates the part of the vote share difference that can be attributed to women being, on average, nominated to run in districts where their parties are more or less popular. If male and female candidate were nominated to run in districts where their party is equally popular (on average), this term would be zero. If this term is negative, it indicates that women are systematically nominated to run in districts where their party is less popular. As before, this measure also provides the answer to a counterfactual thought exercise: how much larger or smaller would the candidate gender vote gap be if parties nominated men and women in districts where the parties are equally popular (as measured by the party vote share). Figure 3 summarizes the logic of this decomposition analysis graphically.

Figure 3: Decomposition
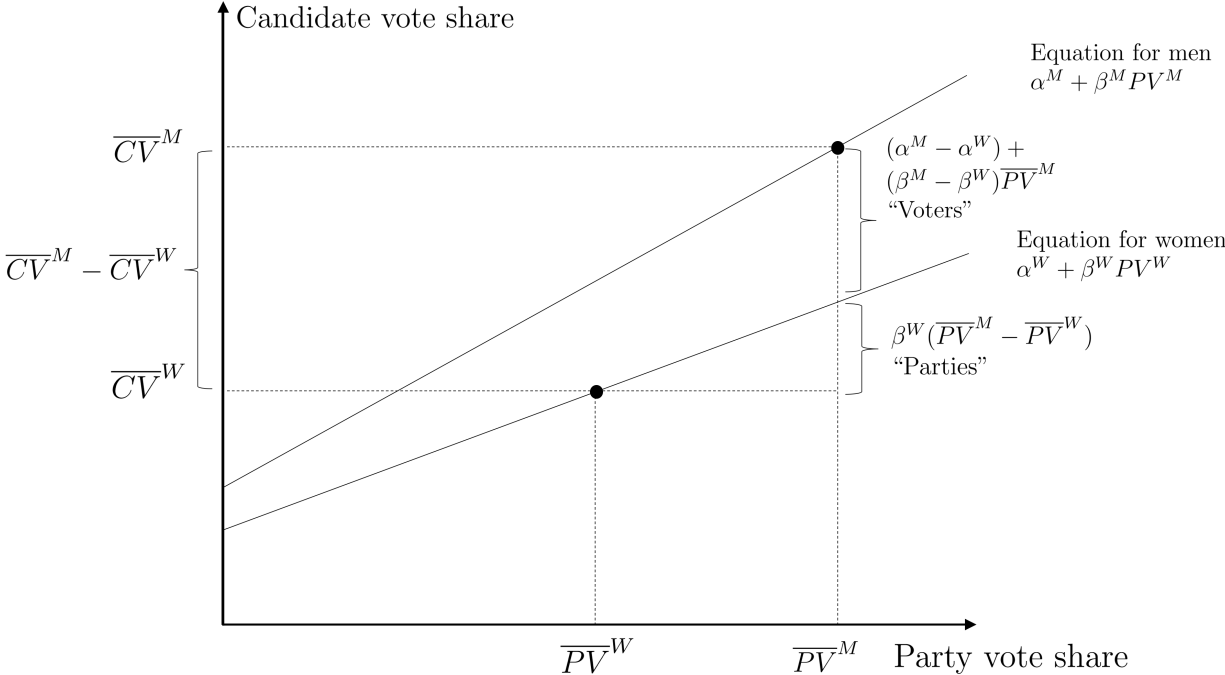
6.1 Decomposition: Preliminaries

Before we present the results of the decomposition, we discuss two additional analyses that support the validity of our decomposition strategy. In the previous formulation, the relationship between candidate vote and party vote share is linear. To make sure that this assumption is justified, we plot the relationship between party vote shares and candidate vote shares in Figure A3 and Figure A4 in the Appendix. Overall, the association between party and candidate vote is close to the 45-degree line, supporting the assumption of lin-

earity. When we disaggregate the relation by parties and election years in Figure A4, we find that the FDP and the Greens deviate somewhat from a perfectly linear relationship. However, the deviations are relatively small for those two parties, and all but absent for the other three. Therefore, we argue that the linear functional form which we specify above approximately captures the relationship between party and candidate vote shares.

In a second step, we assess whether candidate gender affects party vote shares. As stated before, we assume that party vote shares are a suitable proxy for individual party preferences. Then, the difference between candidate and party vote shares can be considered to stem from individual preferences for the candidates. However, the causal arrow could also point in the other direction: candidate gender might influence party vote shares – for example, because voters update their views about a party when they see a male or female candidate on the ballot –, which would invalidate our empirical strategy. An example of a situation where candidate characteristics affect the party vote in mixed systems is discussed in Hainmueller and Kern (2008), who show that candidate incumbency increases party vote shares. To test whether party vote shares are endogenous to candidate gender, we use a difference-in-difference framework across four elections from 2002 to 2017[4]. The units of observation are district–party dyads. We use a subset of the data where a given party initially fields a male candidate in 2002, but eventually switches to a female candidate on one of the three subsequent election. In Table A5 in the Appendix, we present results from a two-way fixed effects model where we regress party vote share on candidate gender. We find that switching to a female candidate has close to no effect on the vote share of the party fielding the candidate. The results confirm that party vote shares are not endogenous to candidate gender[5].

7 Drivers of the Gender Vote Gap

The results of the decomposition analysis indicate that the difference in vote shares between direct male and female candidates is driven by differences in party popularity in places where women candidates are nominated. In Figure 4, we present the results from the decomposition analysis as a bar chart. The figure shows the respective contributions of the voters and party

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[4]Analysis to be expanded to include all election years between 1983 and 2017.

[5]As stated before, we have to consider the probability that candidate gender is correlated with other candidate characteristics. In this case, candidate gender may represent a bundled treatment, which may in theory lead to the null result shown in Table A5. Potentially, candidate gender does have an effect on party vote shares, but this effect is counteracted by some other, currently unobserved, difference between male and female candidates. For this reason, we intend on collecting additional background information about candidates

$(\beta^W (\overline{PV^W} - \overline{PV^M}))$ to the total gender vote gap, pooled across eleven election between 1983 and 2017. For the voter contribution, we combine two terms, $\alpha^W - \alpha^M$ and $(\beta^W - \beta^M)\overline{PV^M}$, since both capture voter behavior. As before, party contribution corresponds to the term $\beta^W (\overline{PV^W} - \overline{PV^M})$.

Figure 4 visualizes the results. It becomes apparent that the majority of the total difference in vote shares between male and female candidates can be explained by differences in party popularity. As in Figure 1, we again observe that women candidates running for the CDU/CSU and SPD parties generally perform worse than men, as can be seen from the large negative "Total" term, indicating the total differences in electoral performance. For the three smaller parties, the reverse is true. For all parties, the party contribution constitutes the largest part of the total differences in electoral performance. Looking at the case of the CDU/CSU, the difference between male and female candidates would be at most 0.166 percentage points if male and female candidates were nominated in equally competitive districts (i.e. if $\overline{PV^W} = \overline{PV^M}$). This constitutes about 3% of the total gender vote gap that we observe.For the CDU/CSU and the SPD, women systematically underperform because they are nominated to districts where their party is weaker compared to male candidates. Nominating men and women to districts where their party is equally popular would remove a substantial part of the gender vote gap.

Figure 5 visualizes the three terms – total difference in votes, the party nomination term, and the voter term – over time, by party. Table B7 in the Appendix presents the results of the decomposition analysis in table format. In Appendix Tables B8 and B9, we show a more exhaustive version of the table, including all parameters discussed in Section 6.

7.1   Additional Results

After establishing that differences in party popularity account for the largest share of the total gender vote gap, we now examine two additional points to supplement the main results. First, we introduce a new outcome, the within-party difference between candidate vote shares and the party vote in a given district. It is closely related to the vote term in the decomposition, as it measures whether the relationship between party and candidate vote shares differs conditional on candidate gender. Second, we take a closer look a party nomination behavior by modeling candidate gender as a function of district competitiveness.

Figure 4: Pooled decomposition results
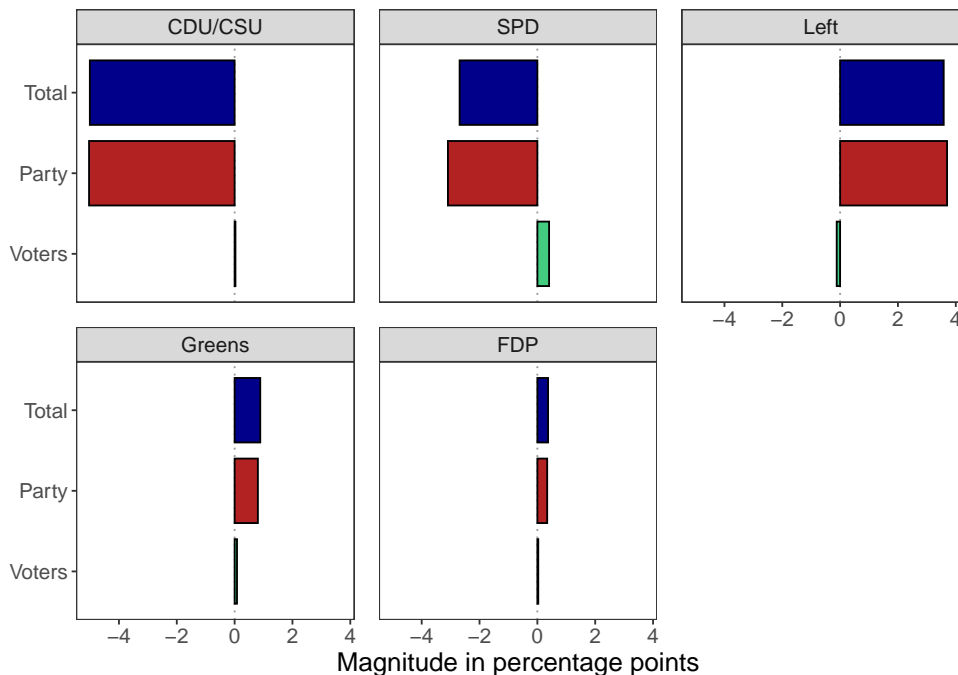
Note: The figure summarizes the results of the decomposition analysis outlined in section 6. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. The 'Voters' bar is the $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$ term, representing the contribution of voters to the total gender vote gap. The 'Party' bar is the $\beta^W(\overline{PV^W} - \overline{PV^M})$ term, representing the contribution of the parties. The final 'Total' bar is the total gender vote gap, i.e. $\overline{CV^W} - \overline{CV^M}$.

Candidate relative to party performance

First, we focus on between-party and over-time changes in the voter term. While we note that the contribution of voters to the total gender vote gap is comparatively small, it still warrants further investigation. We define a new dependent variable $Y_{ipt}^g = CV_{ipt}^g - PV_{ipt}^g$. It directly measures how candidate i of gender g in district p in election year t performs relative to his or her party. The intuition is that voters may punish candidates whose characteristics they do not condone by giving their direct vote (*Erststimme*) to another candidate from an allied party, while still casting their party vote (*Zweitstimme*) for their preferred party.

In Figure 6, we examine changes in Y_{ipt}^g conditional on election and party. For the larger SPD and CDU/CSU parties, we consistently find that candidates receive more votes than their respective parties. For the Green and FDP parties, the reverse is true. A potential explanation for this are strategic considerations among voters. Typically, only candidates from the CDU/CSU, SPD and, in some instances, Left parties are popular enough to win districts. Therefore, strategic voters may deviate from their party preference for the smaller

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Figure 5: Decomposition results over time
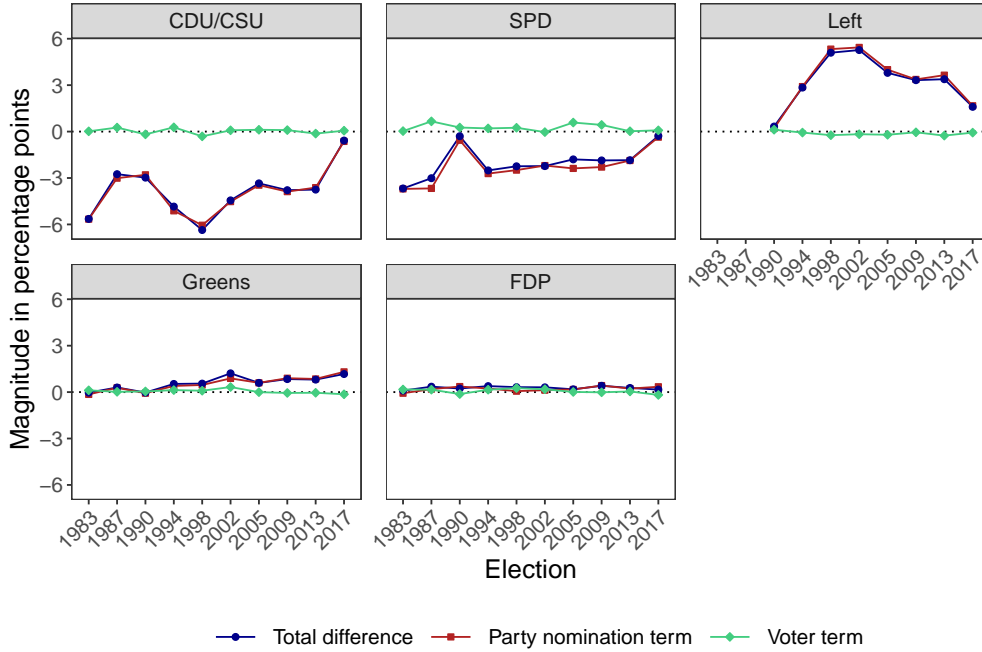
Note: The figure plots the party term, voter term and the total gender gap over time. We consider all elections between 1983 and 2017. The 'Voter' term equals $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$, representing the contribution of voters to the total gender vote gap. The 'Party' term is $\beta^W(\overline{PV^W} - \overline{PV^M})$, representing the contribution of the parties. The 'Total' line is the total gender vote gap, i.e. $\overline{CV^W} - \overline{CV^M}$.

parties, as straight ticket voting would mean giving a vote to a candidate who will certainly not win the district.

Candidate gender seems to play little role for the decision to deviate from the party vote. Across all parties and elections, the difference between candidate and party vote shares Y_{ipt} is similar. Only the CDU/CSU party exhibits a pattern where voters are more likely to deviate from their party preference when the candidate is male. However, this difference remains small compared to the overall gender vote gap that we document in Figure 1.

Nomination patterns by competitiveness

Moving from the contribution of voters to party nomination strategies, we now substantiate the finding that female candidates commonly run in districts where their party is weaker than in districts where male candidates run. More specifically, we estimate a series of models where candidate gender is a function of the district competitiveness. For each candidate i in district p for election t, we calculate $PV_{ipt} - PV_{jpt}^{Max}$, where PV_{ipt} is the party vote share

Figure 6: Candidate performance relative to party performance
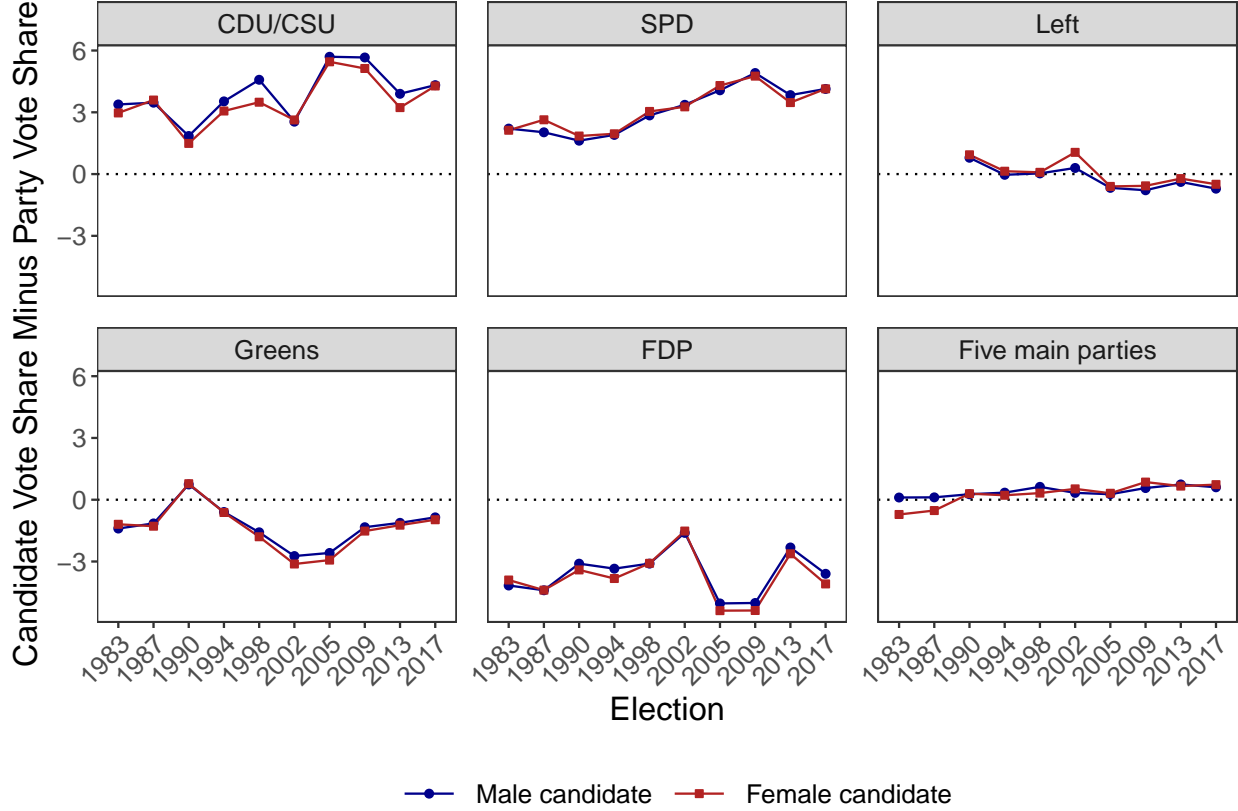
Note: The figure shows the percentage-point difference between candidate and party vote for a given candidate, across eleven elections for five parties. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. The Left party did not exist in West Germany prior to 1990. We average over all electoral districts. Positive values on the y-axis indicate that, on average, candidates receive more votes than their respective party in the same district.

for candidate $i's$ party. The variable PV_{jpt}^{Max} is the highest vote share among all remaining parties $j \neq i$ in district p and election t. If candidate $i's$ party receives the most votes in district p, then $PV_{ipt} - PV_{jpt}^{Max}$ will be positive, and negative otherwise. We define district competitiveness as follows:

$$
C_{ipt} = \begin{cases} \text{Sure loss} & \text{if} \quad -(PV_{ipt} - PV_{jpt}^{Max}) > c \\ \text{Safe seat} & \text{if} \quad PV_{ipt} - PV_{jpt}^{Max} > c \\ \text{Competitive} & \text{otherwise} \end{cases}
$$

A district is a sure loss district if party i trails the winning party by more than c percentage points, while a safe seat is a district when party i wins the district (based on party vote)

by a margin greater than c. The party vote shares and the candidate gender are measured at the same point in time, which technically means that a party cannot observe the district competitiveness prior to the election. However, competitiveness is likely correlated over time, so the measurement error in the model should be manageable. Since there is no straightforward choice of the cutoff c, we estimate the same model for three different values of the cutoff: 5, 10 and 15 percentage points. In all models, the unit of observation is a district-party-year combination. The outcome measures whether candidate i in district p in election t is a woman. The previously defined district competitiveness measure C_{ipt} is the independent variable, and we include fixed effects when possible.

In Table 1, we report the results of regressing the nomination of a female candidate on district competitiveness. As before, we pool all elections since 1983. Across the three values of the cutoff, the results look similar: In districts that can be considered 'safe', women are between 6.8 and 8.2 percentage points less likely to be nominated when we pool across all parties. Among the individual parties, we find the strongest evidence for differential nomination strategies for the SPD. Female candidates are between 8.9 and 13.4 percentage points less likely to be nominated to safe seats, compared to men. We consider these results to be somewhat surprising. As a center-left party, the SPD is not commonly regarded as the least progressive party when it comes to female representation. The pattern for the CDU/CSU party is similar, if less severe. While our estimates for the individual party are often imprecise, the CDU/CSU and SPD estimates mirror our findings in the decomposition: The two largest parties tend to nominate female candidates in districts where the party is weaker, resulting in worse electoral outcomes for female candidates.

We visualize the probability of nominating a female candidate conditional on district competitiveness in Figure 7. We limit our sample to the three parties that exhibit the largest gender vote gaps: The CDU/CSU, SPD and Left parties. The results reinforce our conclusion from the decomposition strategy. For the SPD, we find that the probability of being nominated to safe seats is initially low for female candidates, but slowly converges to that that of being nominated in competitive districts. For the CDU/CSU, the probability of being nominated in sure loss districts decreases over time. As a general pattern, we find that party nominations initially penalize female candidates. However, this pattern slowly disappears over time, mirroring the decline in the gender vote gap shown in Figure 1.

Table 1: Likelihood of nominating a female direct candidate & competitiveness

	Female candidate (c=5p.p.)					
	All parties	**CDU/CSU**	**SPD**	**FDP**	**Greens**	**Left party**
Safe seat (vs. competitive)	−0.068***	−0.040	−0.089**			−0.009
	(0.015)	(0.024)	(0.029)			(0.154)
Sure loss (vs. competitive)	0.025	−0.001	0.070*	0.149***	0.008	−0.051
	(0.016)	(0.026)	(0.028)	(0.023)	(0.231)	(0.064)
Party FE	Yes	No	No	No	No	No
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes
N	14447	3236	3222	3217	2796	1976
R-squared	0.090	0.276	0.276	0.158	0.160	0.228
	Female candidate (c=10p.p.)					
Safe seat (vs. competitive)	−0.076***	−0.037	−0.117***	−0.058		−0.048
	(0.015)	(0.024)	(0.031)	(0.081)		(0.196)
Sure loss (vs. competitive)	0.031*	0.033	0.089**	0.091	−0.094	−0.076
	(0.016)	(0.029)	(0.028)	(0.077)	(0.120)	(0.055)
Party FE	Yes	No	No	No	No	No
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes
N	14447	3236	3222	3217	2796	1976
R-squared	0.090	0.277	0.278	0.158	0.161	0.229
	Female candidate (c=15p.p.)					
Safe seat (vs. competitive)	−0.082***	−0.043	−0.134***			0.317**
	(0.015)	(0.024)	(0.034)			(0.118)
Sure loss (vs. competitive	0.018	0.043	0.065*	−0.127*	−0.036	−0.060
	(0.016)	(0.037)	(0.031)	(0.055)	(0.095)	(0.049)
Party FE	Yes	No	No	No	No	No
District FE	Yes	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes
N	14447	3236	3222	3217	2796	1976
R-squared	0.088	0.277	0.274	0.160	0.160	0.230

Note: OLS. The binary outcome variable takes value 1 if a female candidate is nominated by a party in a district, 0 otherwise. The unit of observation is a district-party-year combination. A district is a sure loss district if party i trails the winning party by more than c percentage points, while a safe seat is a district when party i wins the district (based on party vote) by a margin greater than c. The cutoff c is set to be 5 percentage points in the top panel, 10 percentage points in the middle panel, and 15 percentage points in the bottom panel. Missing coefficients indicate that the party in question was never in a 'safe seat' position for a given cutoff. Standard errors are clustered at the level of the electoral district. ***p < .001; **p < .01; *p < .05

Figure 7: Likelihood of nominating a female direct candidate and district competitiveness
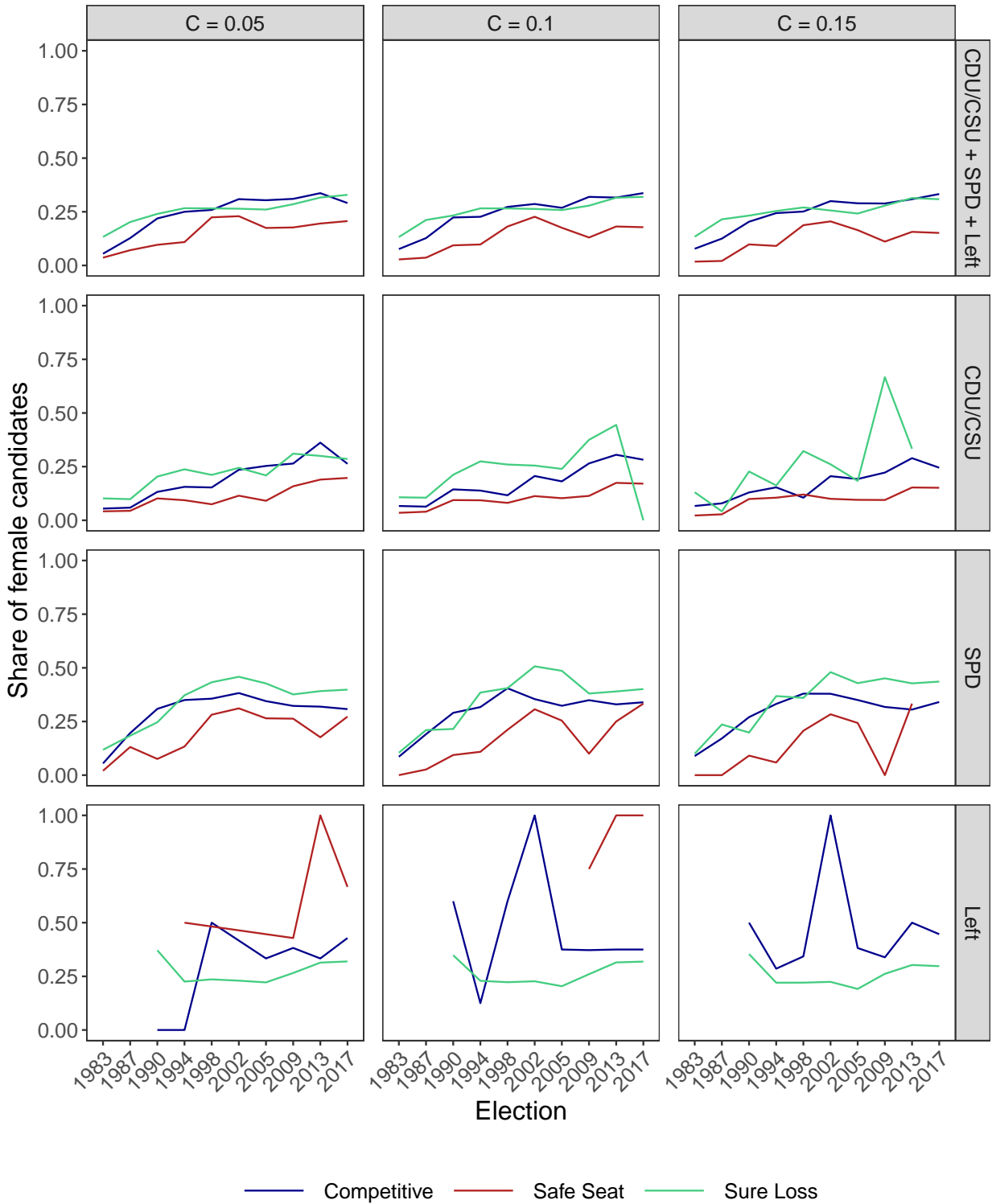
Note: The figure shows the proportion of female district candidates by party, election and district competitiveness. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR.

8 Discussion

In this section, we examine two alternative explanations, systematic differences in candidate qualifications by gender and strategic voting.

As we discuss in section 5, the fact that female direct candidates receive fewer votes than their male colleagues could in principle be explained by omitted variable bias: if other characteristics voters care about, such as education and political experience, systematically vary by gender, we may mis-attribute observed differences in candidates' vote shares to gender discrimination, when they are really driven by, say, a preference for more experienced candidates. Since such omitted variable bias would look like voter discrimination, and voter behavior is not driving differences in vote shares, this is less of a concern. Nevertheless, we investigate differences in candidate characteristics by gender below.

While comprehensive data on candidate (as opposed to delegate) characteristics is difficult to obtain, we leverage three variables to assess the qualifications of male and female candidates. First, the federal elections office provides data on the occupation of each candidate at the time of the election for our entire period of observation (1983-2017). We merge this data with Treiman's Standard International Occupational Prestige Scale (SIOPS) to obtain the occupational prestige score for each candidate. Second, we calculate age from the year of birth, which is included in the official candidate data. Third, we calculate time in office–which is often viewed as an important proxy of experience, and argued to be correlated with competence–by merging candidate names to those of elected Parliamentarians.

Table A1 presents summary statistics on candidate characteristics. Overall, female candidates have more prestigious occupations (slightly less so in the center-right parties, the CDU-CSU and FDP), are of the same age, and–unsurprisingly, in light of our results–have held office for fewer terms. To more systematically address whether marginal differences in candidate characteristics are correlated with electoral success, we regress candidate vote share on gender, occupational prestige, age, and the number of terms held office. Party vote share serves as control. Figure A5 summarizes the results. The only characteristics consistently correlated with vote share is prior experience in office (positive). Thus, to the extent that candidate characteristics lower female vote shares, this is likely the result of party behavior in past elections. As shown in Figure B9, our main findings are robust to including candidate characteristics as covariates.

Another alternative explanation for our finding that female direct candidates in the two main parties receive fewer votes than their male colleagues is strategic voting: If women

are more often nominated in constituencies where their party is not a serious contender for the direct mandate, voters may split their ticket strategically by voting for their preferred party in their *Zweitstimme* (the party vote) and for a more competitive candidate with their *Erststimme* (the candidate vote) in order to avoid wasting the latter. To test for this, we use the strategy employed in (Spenkuch, 2018), and subset our sample to direct candidates who are among the top two competitors in a district. Table A3 summarizes the results. We find no evidence that such strategic voting is driving the gender vote gap.

9 Conclusion

How can we explain the fact that women continue being represented in many Parliaments around the world? We examine the case of Germany, where despite ranking in tenth place globally in terms of egalitarian gender opportunities (Forum, 2020) and a popular female chancellor, women constitute only 31% of Parliamentarians. Using district level data spanning eleven elections between 1983 and 2017, we find that female direct candidates receive fewer votes than male candidates. This is driven by candidates from the two biggest parties, the center-left SPD and the center-right CDU/CSU. We then investigate the sources of this political gender gap.

Female under-performance at the ballot box may be due to three reasons: First, voters may discriminate against female candidates. Second, parties could systematically nominate female candidates to districts where the party is weaker. Third, female candidates may perform worse on other dimensions voters care about, such as for example competence, occupational prestige, or experience in office. As so often, the crucial inference problem is that we cannot observe the counterfactual: we do not know how a male candidate would have performed in places where a woman is nominated, and vice versa. Given the unique nature of the German electoral system, we use the party vote share as a proxy for true voter preferences, regardless of gender, and use a decomposition approach from labor economics to disentangle whether the gender vote gap is due to voter or party behavior.

We find evidence for party discrimination, but not for voter discrimination. Nomination to districts where the party is weaker accounts for the relative under-performance of female candidates for the two largest parties. For the smaller FDP, Left, and Green parties, we find that female candidates tend to receive more votes than male candidates. Likewise, this is driven by nominations to districts where their parties receive more support. We do find not evidence suggesting that the gender vote gap is driven by omitted variable bias or strategic voting. We conclude that party nomination strategies account for the largest part

of the gender vote gap in Germany. Our findings are consistent with qualitative evidence suggesting that German parties pay greater attention to considerations such as gender parity when the direct mandate in a district is out of reach (Reiser, 2020*a*).

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Appendices

A Additional Tables and Figures

## A.1 Electoral performance and candidate characteristics by gender and party, 1983–2017

Table A1: Electoral performance and candidate characteristics by gender and party, 1983–2017

	All parties	CDU/CSU	SPD	Left	Greens	FDP
			Candidate vote			
Male candidate	21.21	43.78	36.75	7.37	6.1	5.05
Female candidate	19.08	38.77	34.06	10.96	6.98	5.42
Full sample	20.69	42.97	35.94	8.34	6.39	5.11
			Party vote			
Male candidate	20.8	39.91	33.75	7.68	7.38	8.59
Female candidate	18.66	35.12	30.71	11.06	8.44	9.13
Full sample	20.28	39.14	32.83	8.59	7.73	8.68
			SES (ISEI08, 0–100)			
Male candidate	59.92	57.29	60.97	54.9	62.85	62.36
Female candidate	61.38	56.86	60.63	62.37	64.89	59.28
Full sample	60.28	57.22	60.86	56.92	63.53	61.84
			Age in years			
Male candidate	46.69	49.7	48.53	46.44	42.25	45.67
Female candidate	46.59	49.34	48.89	46.39	43.84	45.31
Full sample	46.66	49.64	48.64	46.42	42.78	45.61
			Times elected previously			
Male candidate	0.71	1.54	1.17	0.09	0.13	0.28
Female candidate	0.64	1.15	1.14	0.31	0.29	0.27
Full sample	0.69	1.48	1.16	0.15	0.19	0.28

Notes: Candidate and party vote shares as well as candidate characteristics, split by party and candidate gender. Each cell is the average given a party / gender combination. The summary stats are based on district-level results from all federal elections between 1983 and 2017. The results are not weighted by district size.

A.2 Proportion of female candidates, 1983–2017

Figure A1: Proportion of female candidates over time
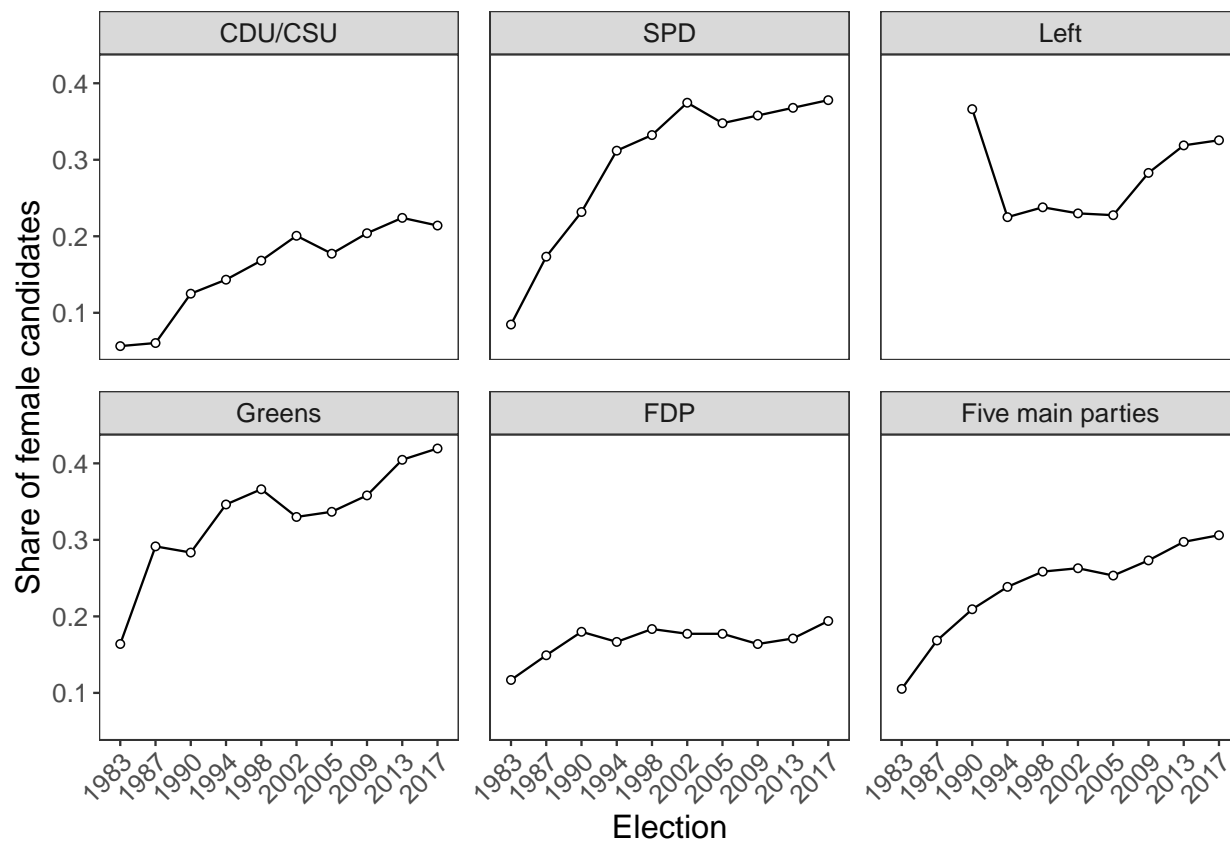
Note: The figure shows the proportion of female district candidates by party and election. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. The panel labeled 'five main parties' includes all candidates from the five parties shown in the other panels.

Figure A2: Candidate performance by gender and party
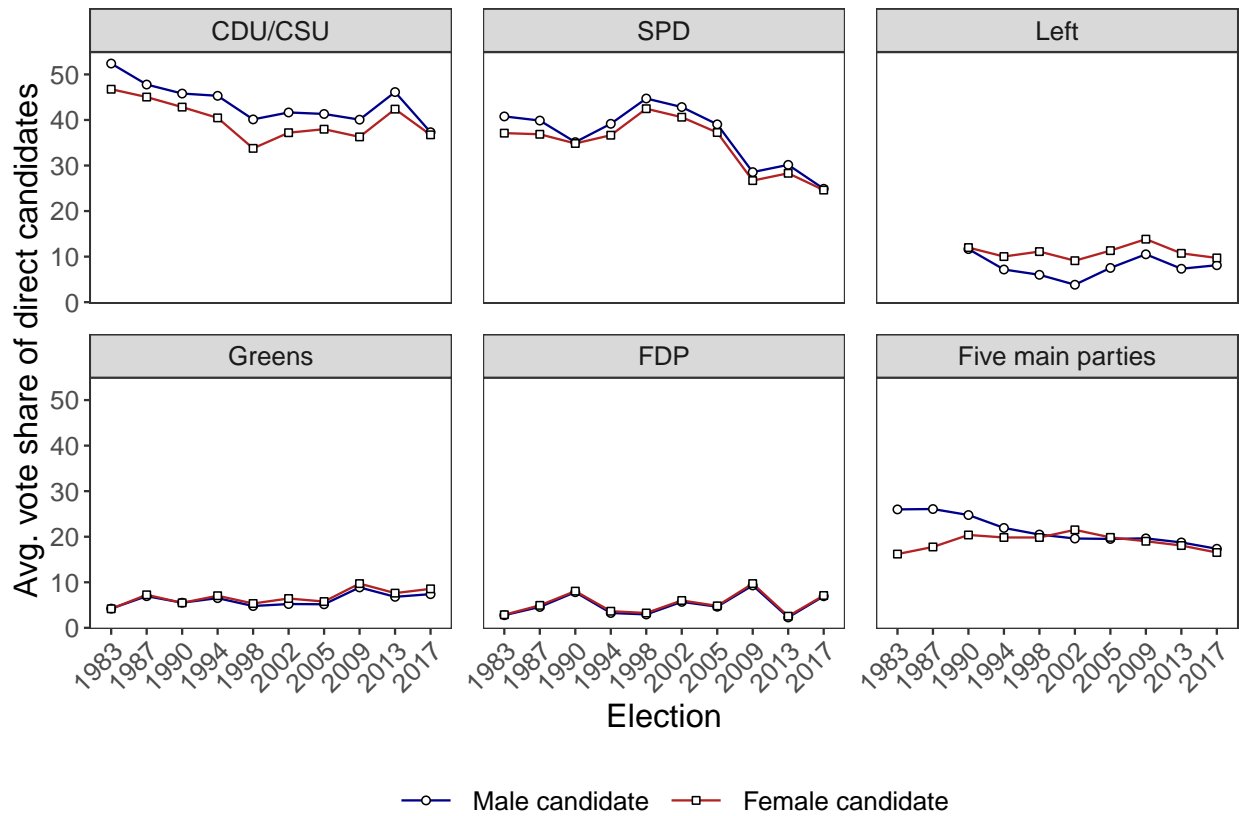
Note: The figure shows vote shares for male and female district candidates, across eleven elections for five parties. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. The Left party did not exist in West Germany prior to 1990. We average over all electoral districts.

A.3 Gap between candidate and party vote

Table A2: Vote gap betw. male and female candidates

	Vote gap (percentage points)					
	All parties	CDU/CSU	SPD	Left	Greens	FDP
Female candidate (0/1)	−0.067	−0.256**	−0.048	0.119	−0.110	−0.102
	(0.047)	(0.116)	(0.108)	(0.075)	(0.070)	(0.084)
Party FEs	No	Yes	No	No	No	No
Election FEs	Yes	Yes	Yes	Yes	Yes	Yes
District FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	13,759	2,974	2,974	1,976	2,866	2,969
Prop. female candidates	0.25	0.16	0.3	0.27	0.33	0.17
Mean vote gap, male candidates	0.41	3.863	3.003	-0.304	-1.286	-3.542
R^2	0.622	0.428	0.397	0.444	0.450	0.488

Notes: Standard errors are displayed in parentheses. The dependent variable is the candidate vote minus party vote. Positive coefficients indicate that female candidates receive more votes than their party, relative to men. ***$p < .001$; **$p < .01$; *$p < .05$

Table A3: Vote gap betw. male and female candidates conditional on candidate rank

	Vote gap (percentage points)					
	CDU/CSU and SPD		CDU/CSU		SPD	
	Cand. 3rd or worse	Cand. 1st or 2nd	Cand. 3rd or worse	Cand. 1st or 2nd	Cand. 3rd or worse	Cand. 1st or 2nd
Female candidate (0/1)	0.011	−0.212***	0.204	−0.132	−0.269	−0.105
	(0.303)	(0.079)	(0.400)	(0.115)	(0.389)	(0.110)
Party FEs	Yes	Yes	No	No	No	No
Election FEs	Yes	Yes	Yes	Yes	Yes	Yes
District FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	215	5,733	61	2,913	154	2,820
Prop. female candidates	0.31	0.23	0.34	0.16	0.3	0.3
Mean vote gap, male candidates	0.929	3.558	0.786	3.913	0.982	3.114
R^2	0.649	0.312	0.887	0.449	0.705	0.428

Notes: Standard errors are displayed in parentheses. The dependent variable is the candidate vote minus party vote. Positive coefficients indicate that female candid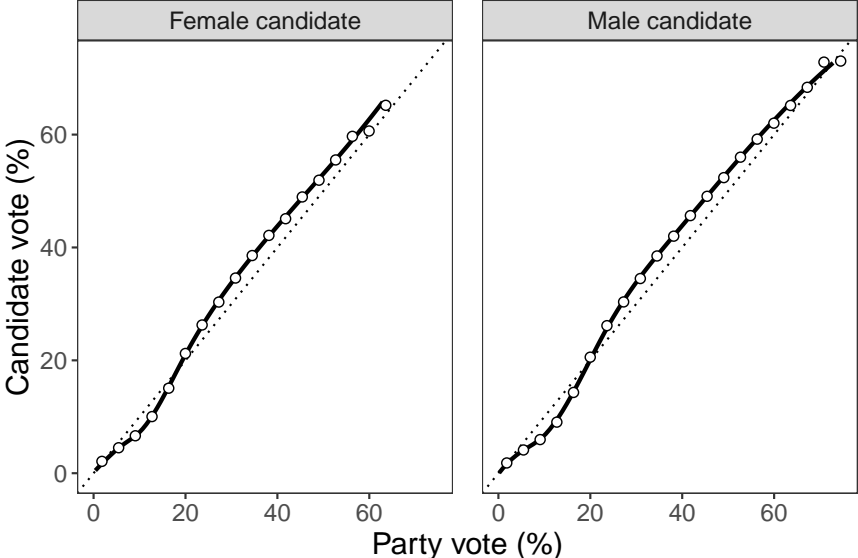ates receive more votes than their party, relative to men. We subset the data conditional on the rank that a given candidate achieves in his or her electoral district. ***$p < .001$; **$p < .01$; *$p < .05$

A.4 Candidate and party vote shares

Figure A3: Candidate and party vote shares

Notes: Party and Candidate vote shares. Circles represent conditional means of candidate vote shares. We plot the relationship for female and male candidates separately. The dotted line has slope one and intercept zero. The panel labeled 'five main parties' includes all candidates from the five parties shown in the other panels.

Figure A4: Candidate and party vote shares by party
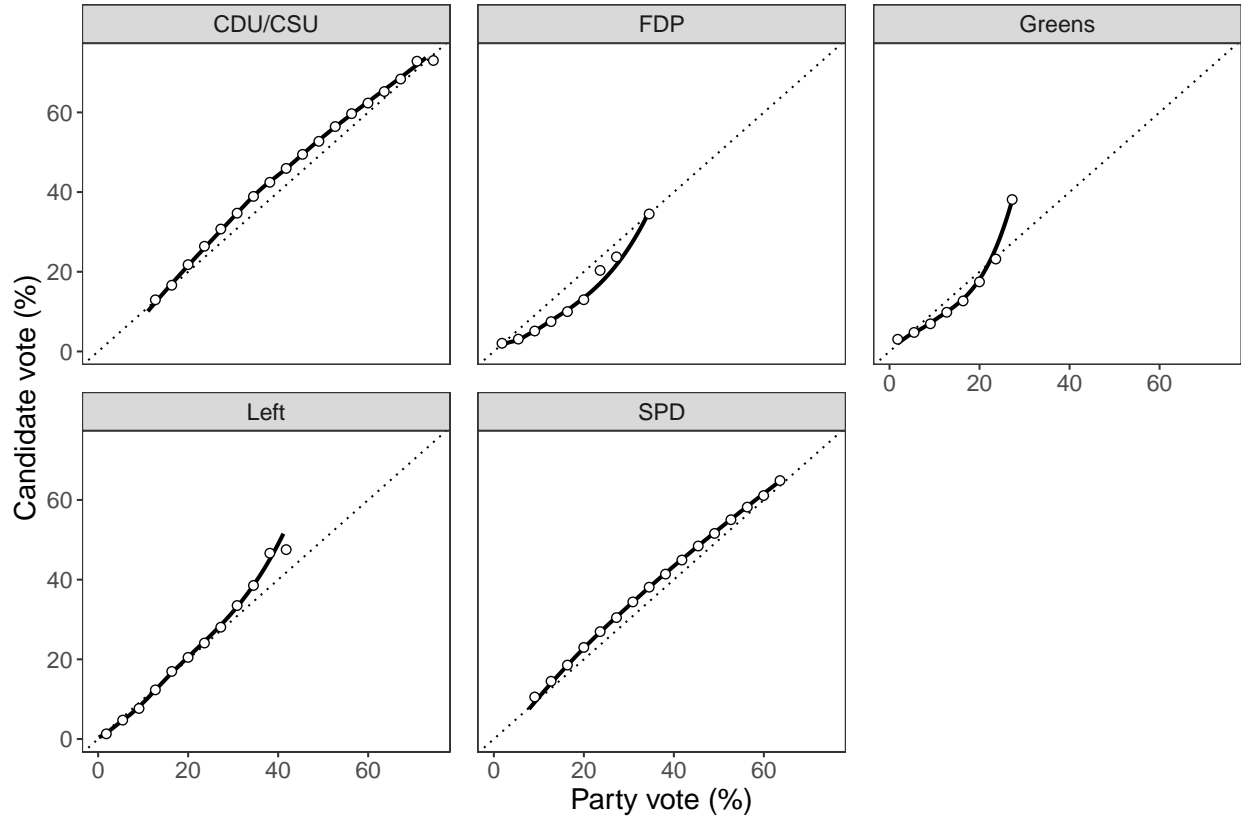
Notes: Party and candidate vote shares conditional on candidate party. Circles represent conditional means of candidate vote shares. The dotted line has slope one and intercept zero.
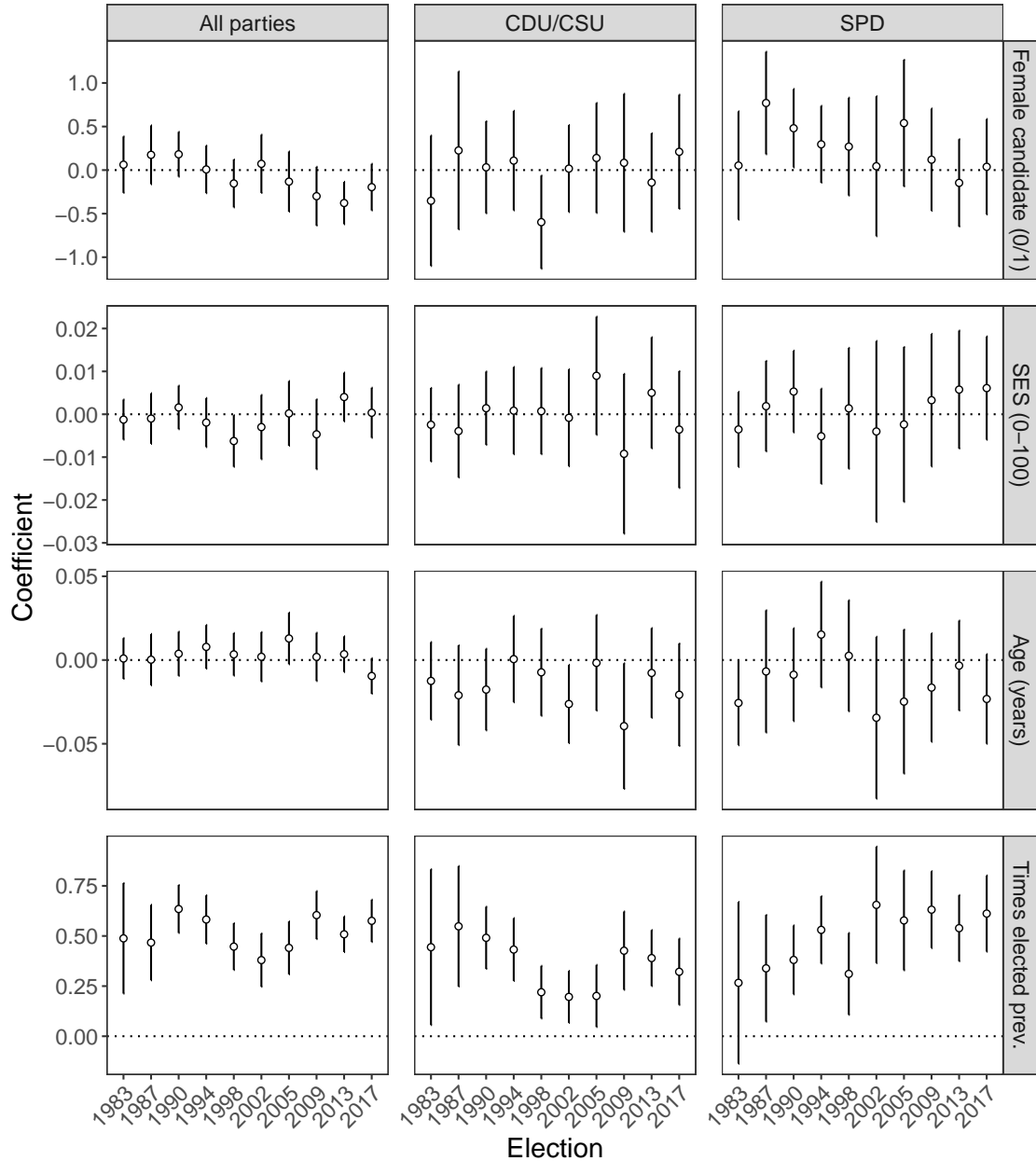
A.5 Candidate vote share and candidate characteristics

Table A4: Candidate vote share and candidate characteristics

| | Candidate vote share (%, 0-100) | | | | | |
| | All parties | | CDU/CSU | | SPD | |
	(1)	(2)	(3)	(4)	(5)	(6)
Party vote share (%, 0-100)	0.998***	0.985***	1.084***	1.062***	1.084***	1.072***
	(0.003)	(0.003)	(0.006)	(0.006)	(0.008)	(0.008)
Female candidate (0/1)		−0.043		0.007		0.120
		(0.046)		(0.109)		(0.102)
SES (ISEI08, 0-100)		−0.001		−0.004*		0.002
		(0.001)		(0.002)		(0.002)
Age (years)		−0.005**		−0.024***		−0.012**
		(0.002)		(0.005)		(0.006)
Times elected prev.		0.532***		0.366***		0.542***
		(0.018)		(0.028)		(0.036)
Electoral District FE	Yes	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Party FE	Yes	Yes	No	No	No	No
Observations	13,759	13,759	2,974	2,974	2,974	2,974
R^2	0.985	0.986	0.969	0.971	0.962	0.966

Notes: Standard errors are displayed in parentheses. The dependent variable is the candidate vote share. The independent variables are party vote share, candidate gender, socio-economic status (based on the ISEI08 measures), candidate age in years and the number of times the candidate previously served in parliament. Both candidate and party vote shares are measured in percent on a scale from 0–100. A coefficient of one for the party vote share means that one additional percentage point of party vote shares is associated with one additional percentage point of candidate vote share. The first two columns show results for all parties, which include all five major parties. ***$p < .001$; **$p < .01$; *$p < .05$

Figure A5: Effects of candidate characteristics on candidate vote shares

Notes: The figure shows coefficients from regression candidate vote share on party vote share in the same district, as well as four candidate characteristics. We re-estimate models 2, 4 and 6 from table A4 separately for each election and then show the coefficients by year and party. The independent variables are party vote share (percentage points), candidate gender, socio-economic status (based on the ISEI08 measures), candidate age in years and the number of times the candidate previously served in parliament. Since we do not have candidate data for the period prior to 1980, the 'times elected' variable is truncated from above for the first few elections in the 1980s. We therefore note that caution should be exercised when examining over-time changes in the coefficients, as the range of the variable changes. We omit the party vote share coefficients. Vertical bars represent 95% confidence intervals.

A.6 Candidate gender and party vote shares

In this section, we analyze whether party vote shares are affected by the gender of the district candidate that is nominated in a given district. We do so via a two-way fixed effects analysis of the following form:

$$PV_{it} = \gamma_i + \delta_t + \tau X_{it} + \varepsilon_{it}$$

For district i in election t, we regress the party vote share of the gender of the candidate of that same party. If the candidate is female in election t in district i, then $X_{it} = 1$, and $X_{it} = 0$ otherwise. We include fixed effects for electoral districts and elections.

We only run this analysis for the five most recent elections starting in 2002. Between 1998 and 2002, a large number of districts were renamed. This makes it harder to assign unambiguous district identifiers that do not change over time. For the period after the 1998 election, we are much more certain that district identifiers correctly refer to the same district in all elections. We therefore limit the analysis to the five election between 2002 and 2017. In addition, we only consider districts–party combinations that either always have a male direct candidate or switch from male to female at some point.

Table A5: Effect of candidate gender on party vote share, 2002–2017

	Party vote share (percentage points)					
	All Parties	CDU/CSU	SPD	Left	Greens	FDP
	(1)	(2)	(3)	(4)	(5)	(6)
Female candidate	0.487	1.474	−0.100	0.855*	0.746	1.089***
	(0.490)	(1.044)	(0.756)	(0.448)	(0.524)	(0.368)
District-Party FE	Yes	No	No	No	No	No
District FE	No	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,714	1,010	685	672	488	859
R^2	0.897	0.778	0.915	0.887	0.756	0.894

Notes: The treatment is candidate gender in a given district-election-party cell. The outcome is vote share for the candidate's party in the second (PR) vote. We only consider districts that either never have a female candidate, or switch from a male to a female candidate and never switch back. The sample is limited to the five most recent elections (2002–2017). SEs clustered at the district-party level (model 1) or at the district level (all other models). *p<0.1; **p<0.05; ***p<0.01

Table A6: Effect of candidate gender on party vote share, 1983–1998

	Party vote share (percentage points)					
	All Parties	CDU/CSU	SPD	Left	Greens	FDP
	(1)	(2)	(3)	(4)	(5)	(6)
Female candidate	1.977***	0.961**	0.265	0.312	0.223	−0.276
	(0.286)	(0.402)	(0.349)	(0.409)	(0.196)	(0.258)
District-Party FE	Yes	No	No	No	No	No
District FE	No	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,169	1,556	1,427	376	720	1,090
R^2	0.968	0.949	0.959	0.989	0.880	0.801

Notes: The treatment is candidate gender in a given district-election-party cell. The outcome is vote share for the candidate's party in the second (PR) vote. We only consider districts that either never have a female candidate, or switch from a male to a female candidate and never switch back. The sample is limited to all elections from 1983 to 2002. SEs are clustered at the district-party level (model 1) or at the district level (all other models). *p<0.1; **p<0.05; ***p<0.01
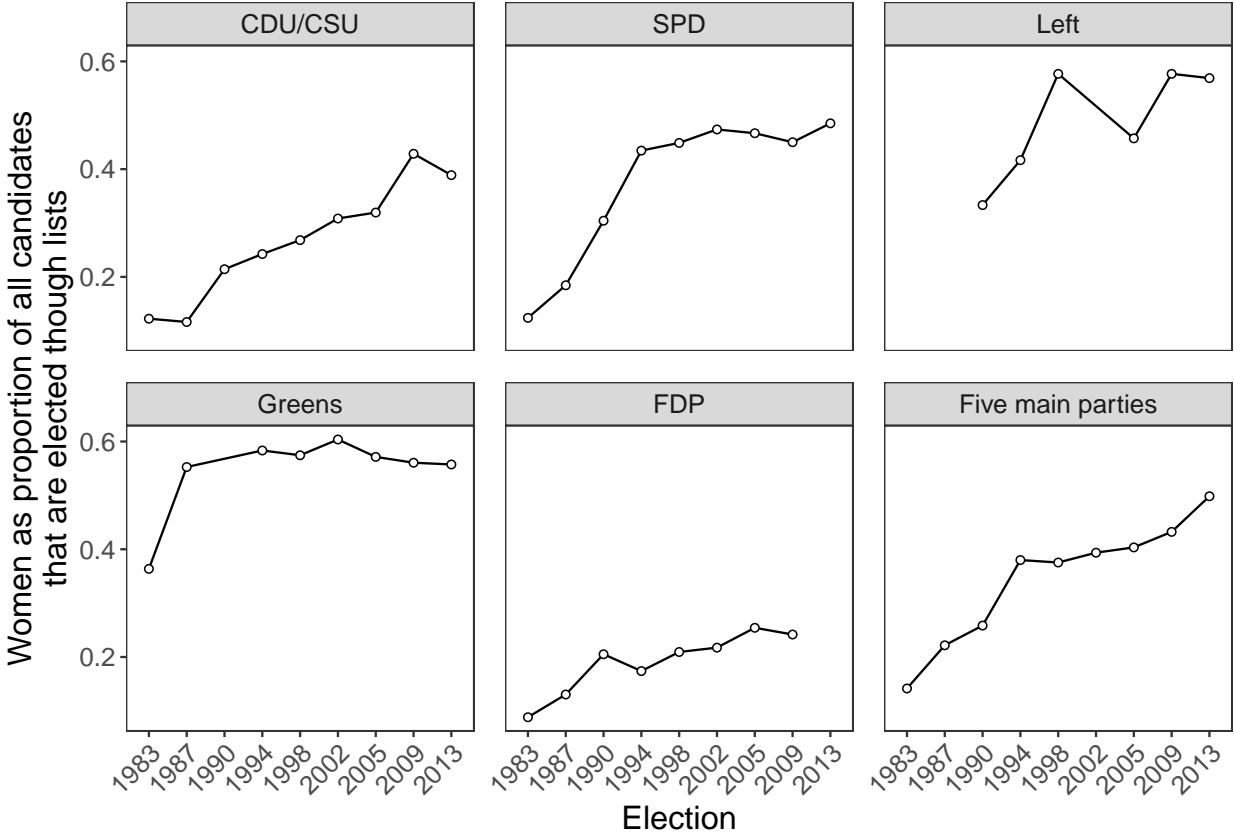
A.7   Party list summary statistics

Figure A6: Likelihood of getting elected through party lists for women

Notes: The plot shows the number of women candidates who enter parliament through their party list, as a share of all candidates from the indicated party that enter parliament through party lists (this equals P(Female candidate|Candidate enters parliament through list)). Entering parliament through party lists is defined as (i) being in any list position higher or equal to the position of the lowest-ranked candidate on the list who enters parliament and (ii) not winning a district, for those candidates that are on list and run in districts.

Figure A7: Average relative list position by gender, party, and election

Male candidate   Female candidate
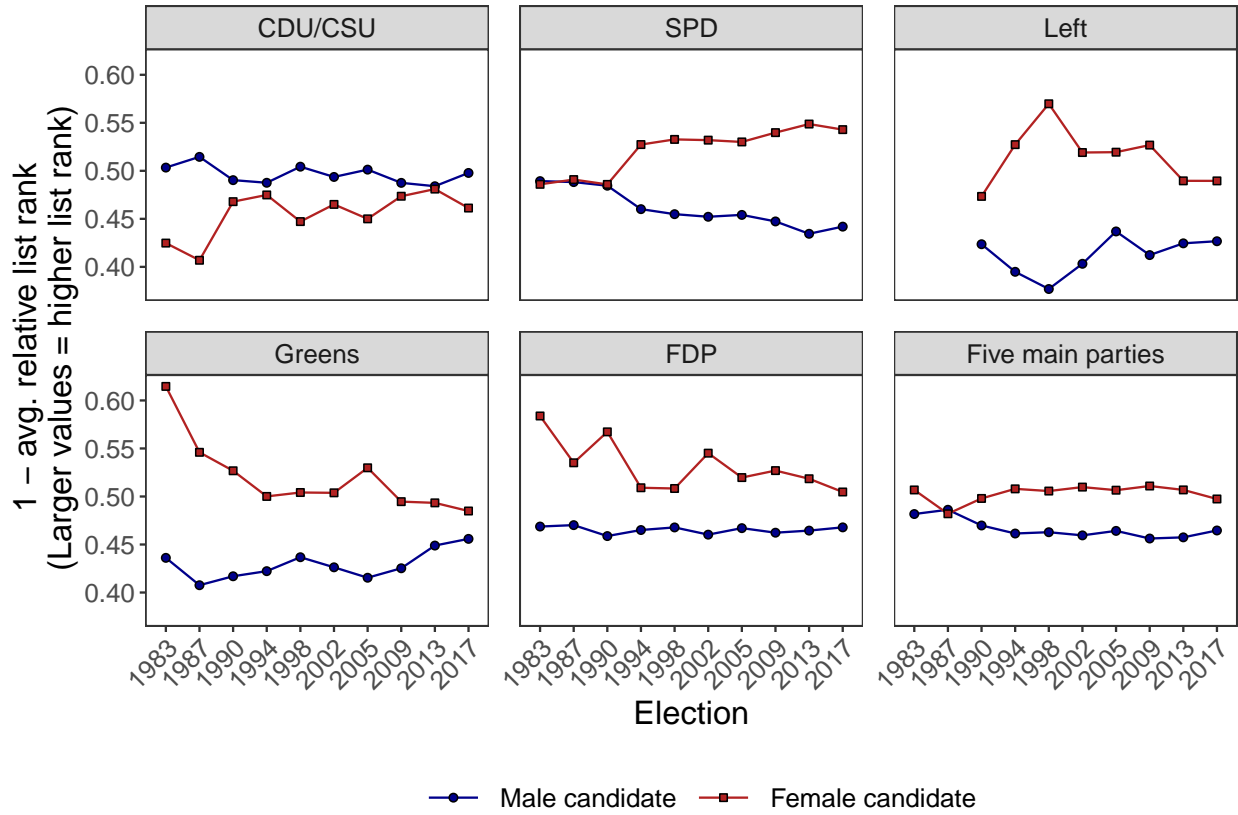
Notes: The plot shows 1 - average relative list rank for female and male candidates separately, for all elections since 1983. Since state party lists differ in lengths, we normalize the candidate position by dividing the list rank R_{ipt} of candidate i in election t and party p by the lowest possible list rank such that $R_{ipt}^{\text{relative}} = \frac{R_{ipt}}{\max R_{ipt}}$. We reverse this scale such that a value of one indicates the highest list rank, and a value of zero indicates that a candidate is at the bottom of the state party list. The panel labeled 'five main parties' includes all candidates from the five parties shown in the other panels.

B Additional Decomposition Results

Table B7: Decomposition Results

Party	Voters (p.p.)	Party (p.p.)	Total Gap (p.p.)
SPD	0.405	-3.093	-2.688
CDU/CSU	0.028	-5.034	-5.006
Greens	0.082	0.804	0.886
FDP	0.031	0.339	0.370
Left	-0.117	3.699	3.582

Notes: The table contains the results of the decomposition analysis outlined in section 6. The first column is the $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$ term, representing the contribution of voters to the total gender vote gap. The second column in the $\beta^W(\overline{PV^W} - \overline{PV^M})$ term, representing the contribution of the parties. The final column is the total gender vote gap, i.e. $\overline{CV^W} - \overline{CV^M}$, which is also the sum of the second and third columns. Positive values in the fourth columns indicate that women candidates are more successful than male candidates. The unit of observation is the electoral district. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. Across all district-party-year combinations, about 23% of candidates are women.

Table B8: Decomposition Results: Additional Detail

Party	α^W	α^M	β^W	β^M	$\overline{PV^M}$	$\overline{PV^W}$	$\overline{CV^M}$	$\overline{CV^W}$	Parties	Voters	Total
SPD	2.707	2.663	1.021	1.010	33.745	30.715	36.749	34.061	-3.093	0.405	-2.688
CDU/CSU	1.910	3.886	1.050	0.999	39.914	35.118	43.777	38.770	-5.034	0.028	-5.006
Greens	0.542	0.086	0.763	0.814	7.381	8.435	6.095	6.982	0.804	0.082	0.886
FDP	-0.268	-0.679	0.623	0.667	8.591	9.134	5.049	5.419	0.339	0.031	0.370
Left	-1.149	-0.766	1.095	1.060	7.677	11.056	7.374	10.956	3.699	-0.117	3.582

Notes: The table shows detailed decomposition results for all elections since 1983. The 'Voters' term is $\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}$ and the 'Parties' term is $\beta^W(\overline{PV^W} - \overline{PV^M})$. Elections prior to 1990 are based on West Germany, excluding the GDR.

Table B9: Decomposition Results: By Year (1983–2017)

		α^F	α^M	β^F	β^M	$\overline{PV^M}$	$\overline{PV^F}$	$\overline{CV^M}$	$\overline{CV^F}$	Party	Voters	Total
1983	SPD	1.04	0.99	1.03	1.03	38.58	34.98	40.78	37.11	-3.71	0.03	-3.67
1987	SPD	2.14	1.82	1.01	1.00	37.84	34.23	39.88	36.86	-3.67	0.66	-3.01
1990	SPD	-0.44	-0.19	1.07	1.05	33.52	32.99	35.14	34.84	-0.56	0.26	-0.30
1994	SPD	-0.09	0.84	1.06	1.03	37.26	34.70	39.16	36.66	-2.71	0.20	-2.51
1998	SPD	2.17	1.48	1.02	1.03	41.87	39.43	44.72	42.47	-2.49	0.25	-2.24
2002	SPD	2.12	2.85	1.03	1.01	39.48	37.34	42.84	40.61	-2.19	-0.03	-2.23
2005	SPD	-1.44	-2.04	1.17	1.18	34.97	32.95	39.04	37.25	-2.38	0.58	-1.80
2009	SPD	-2.70	-1.21	1.34	1.26	23.65	21.93	28.55	26.69	-2.29	0.43	-1.86
2013	SPD	-2.97	-1.48	1.26	1.20	26.31	24.82	30.15	28.30	-1.87	0.02	-1.85
2017	SPD	-1.32	-1.56	1.27	1.27	20.76	20.48	24.89	24.61	-0.36	0.08	-0.28
1983	FDP	0.003	-0.16	0.42	0.42	6.94	6.77	2.78	2.87	-0.07	0.17	0.10
1987	FDP	-0.26	-0.09	0.56	0.52	8.98	9.32	4.58	4.93	0.19	0.16	0.35
1990	FDP	0.38	-2.11	0.67	0.91	10.93	11.47	7.83	8.06	0.36	-0.13	0.23
1994	FDP	1.64	1.39	0.27	0.28	6.61	7.47	3.26	3.65	0.23	0.15	0.39
1998	FDP	1.99	1.15	0.20	0.30	6.04	6.34	2.94	3.26	0.06	0.26	0.32
2002	FDP	1.77	1.36	0.56	0.59	7.31	7.53	5.70	6.01	0.12	0.18	0.31
2005	FDP	1.54	1.34	0.32	0.34	9.68	10.21	4.64	4.82	0.17	0.01	0.18
2009	FDP	1.48	1.65	0.55	0.54	14.32	15.09	9.31	9.72	0.42	-0.01	0.41
2013	FDP	0.52	0.42	0.39	0.41	4.60	5.18	2.29	2.56	0.23	0.04	0.27
2017	FDP	1.19	0.98	0.53	0.56	10.53	11.19	6.94	7.10	0.34	-0.18	0.16
1983	Greens	0.83	0.89	0.62	0.59	5.61	5.37	4.21	4.18	-0.15	0.12	-0.03
1987	Greens	1.74	1.11	0.65	0.72	8.10	8.54	6.95	7.25	0.28	0.02	0.30
1990	Greens	0.30	0.85	1.10	0.98	4.77	4.71	5.51	5.49	-0.07	0.04	-0.03
1994	Greens	1.51	0.91	0.72	0.79	7.12	7.67	6.52	7.05	0.40	0.13	0.53
1998	Greens	1.05	0.11	0.60	0.74	6.37	7.14	4.79	5.34	0.46	0.09	0.55
2002	Greens	1.14	0.49	0.55	0.60	7.96	9.56	5.22	6.43	0.89	0.33	1.21
2005	Greens	0.24	-0.84	0.64	0.78	7.76	8.70	5.17	5.77	0.60	-0.004	0.60
2009	Greens	-0.07	-1.46	0.87	1.01	10.21	11.23	8.87	9.71	0.90	-0.06	0.84
2013	Greens	-0.56	-1.81	0.92	1.09	7.93	8.85	6.81	7.62	0.85	-0.04	0.81
2017	Greens	-1.15	-0.59	1.02	0.97	8.25	9.53	7.39	8.56	1.31	-0.14	1.17
1983	CDU/CSU	-0.62	2.96	1.08	1.01	49.01	43.78	52.40	46.75	-5.66	0.02	-5.64
1987	CDU/CSU	1.70	3.82	1.05	0.99	44.31	41.43	47.78	45.03	-3.01	0.26	-2.75
1990	CDU/CSU	-1.33	0.39	1.07	1.03	43.95	41.34	45.80	42.83	-2.79	-0.18	-2.98
1994	CDU/CSU	-3.28	0.43	1.17	1.07	41.77	37.40	45.31	40.46	-5.12	0.27	-4.85
1998	CDU/CSU	-0.99	2.14	1.15	1.07	35.55	30.28	40.13	33.77	-6.05	-0.31	-6.36
2002	CDU/CSU	2.64	3.91	1	0.96	39.10	34.57	41.65	37.20	-4.53	0.08	-4.45
2005	CDU/CSU	1.67	2.08	1.12	1.10	35.62	32.52	41.32	37.98	-3.46	0.12	-3.35
2009	CDU/CSU	-0.91	0.44	1.19	1.15	34.41	31.16	40.07	36.29	-3.88	0.10	-3.79
2013	CDU/CSU	-3.66	-1.87	1.18	1.14	42.23	39.15	46.13	42.38	-3.62	-0.13	-3.75
2017	CDU/CSU	-1.70	-2.69	1.18	1.21	32.99	32.46	37.31	36.74	-0.64	0.06	-0.58
1990	Left	-0.54	-0.76	1.13	1.14	10.87	11.05	11.66	11.99	0.21	0.12	0.33
1994	Left	-0.74	-0.59	1.09	1.08	7.21	9.88	7.17	10.02	2.91	-0.06	2.85
1998	Left	-0.54	-0.38	1.06	1.07	5.98	11.02	6.01	11.11	5.33	-0.23	5.10
2002	Left	-0.60	-0.18	1.21	1.13	3.54	8.05	3.84	9.11	5.44	-0.17	5.27
2005	Left	-1.48	-0.94	1.07	1.03	8.19	11.91	7.52	11.32	4.00	-0.21	3.80
2009	Left	-1.78	-1.42	1.08	1.06	11.30	14.41	10.51	13.84	3.37	-0.05	3.32
2013	Left	-1.66	-1.45	1.13	1.14	7.72	10.94	7.34	10.72	3.65	-0.26	3.38
2017	Left	-2.58	-1.97	1.20	1.14	8.82	10.21	8.11	9.71	1.67	-0.07	1.60

Notes: The table shows detailed decomposition results for all elections since 1983. The 'Voters' term is $\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}$ and the 'Parties' term is $\beta^W(\overline{PV^W} - \overline{PV^M})$. Elections prior to 1990 are based on West Germany, excluding the GDR.

Table B10: Decomposition Results: By party and competitiveness

Party	District type	C=0.05				C=0.1				C=0.15			
		Voters	Party	Total	N	Voters	Party	Total	N	Voters	Party	Total	N
SPD	Competitive	0.530	-2.024	-1.495	720	0.597	-2.185	-1.588	1394	0.357	-2.096	-1.739	1939
SPD	Safe seat	0.096	-3.954	-3.858	821	-0.311	-3.023	-3.334	531	0.148	-2.661	-2.513	350
SPD	Sure loss	0.491	-1.047	-0.556	1587	0.349	-0.918	-0.569	1203	0.494	-1.432	-0.938	839
CDU/CSU	Competitive	0.063	-2.591	-2.528	688	-0.057	-2.577	-2.634	1357	-0.036	-2.785	-2.821	1900
CDU/CSU	Safe seat	-0.088	-4.434	-4.522	1549	-0.059	-4.028	-4.087	1157	0.007	-4.229	-4.222	792
CDU/CSU	Sure loss	-0.080	-2.428	-2.508	829	0.125	-2.031	-1.906	552	0.029	-2.541	-2.512	374
Left	Competitive	-2.093	3.621	1.528	59	0.109	-0.434	-0.325	135	0.326	0.374	0.700	233
Left	Safe seat	0.652	-0.307	0.345	14								
Left	Sure loss	-0.097	3.335	3.238	1691	-0.102	2.952	2.850	1624	-0.135	2.524	2.389	1529

Notes: The table contains the results of the decomposition analysis outlined in section 6. The first column is the $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$ term, representing the contribution of voters to the total gender vote gap. The second column in the $\beta^W(\overline{PV^W} - \overline{PV^M})$ term, representing the contribution of the parties. The third column is the total gender vote gap, i.e. $\overline{CV^W} - \overline{CV^M}$, which is also the sum of the second and third columns. Positive values in the fourth columns indicate that women candidates are more successful than male candidates. The unit of observation is the electoral district. We consider all elections between 1983 and 2017. We split the sample according to the competitiveness categories outlined in the main body of the paper. We run the same analyses for three different competitiveness cutoffs, as indicated in the first line of the table. Elections prior to 1990 are based on West Germany, excluding the GDR.
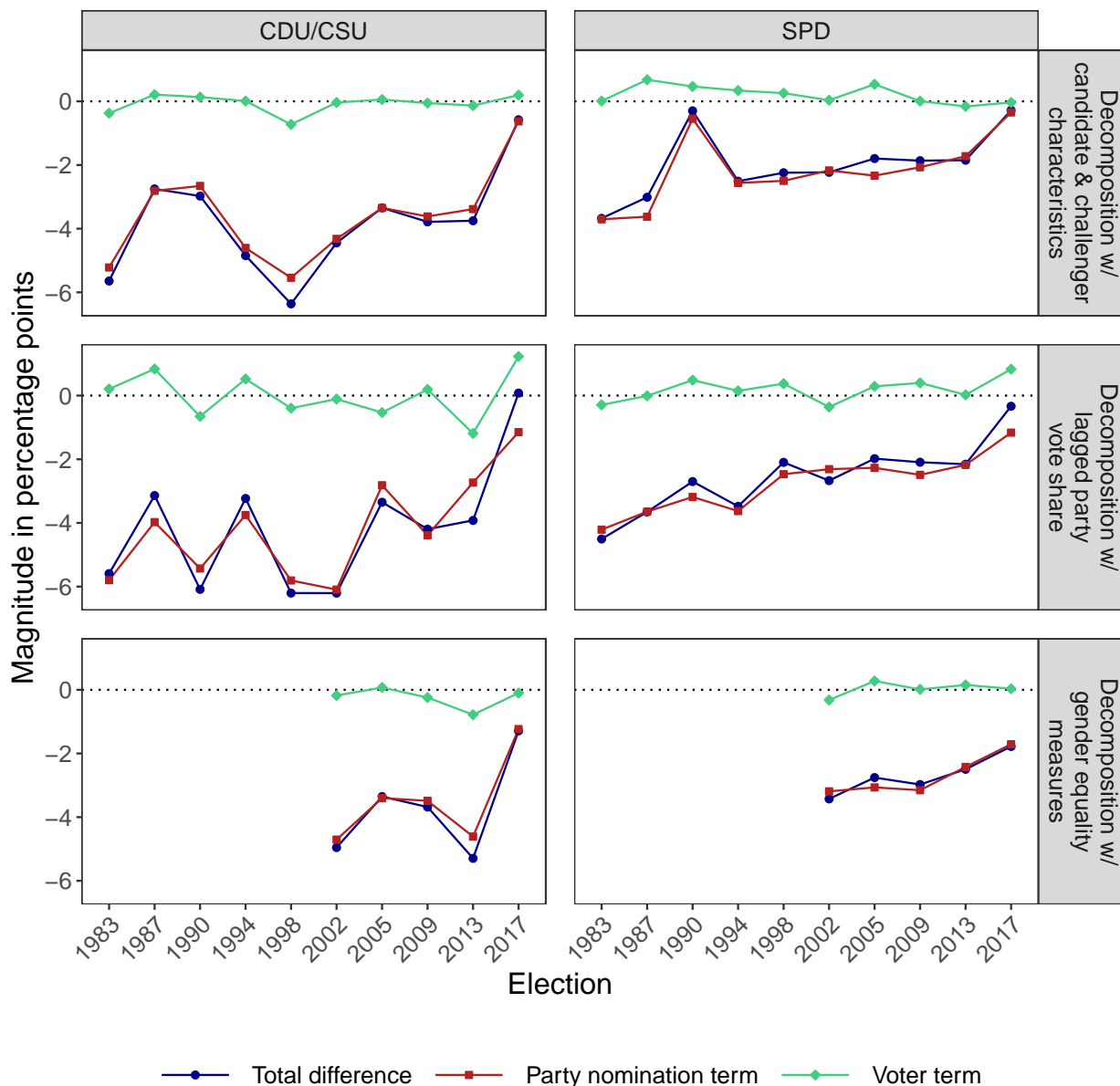
B.1 Decomposition results – East & West Germany

Figure B8: Decomposition results for East and West Germany
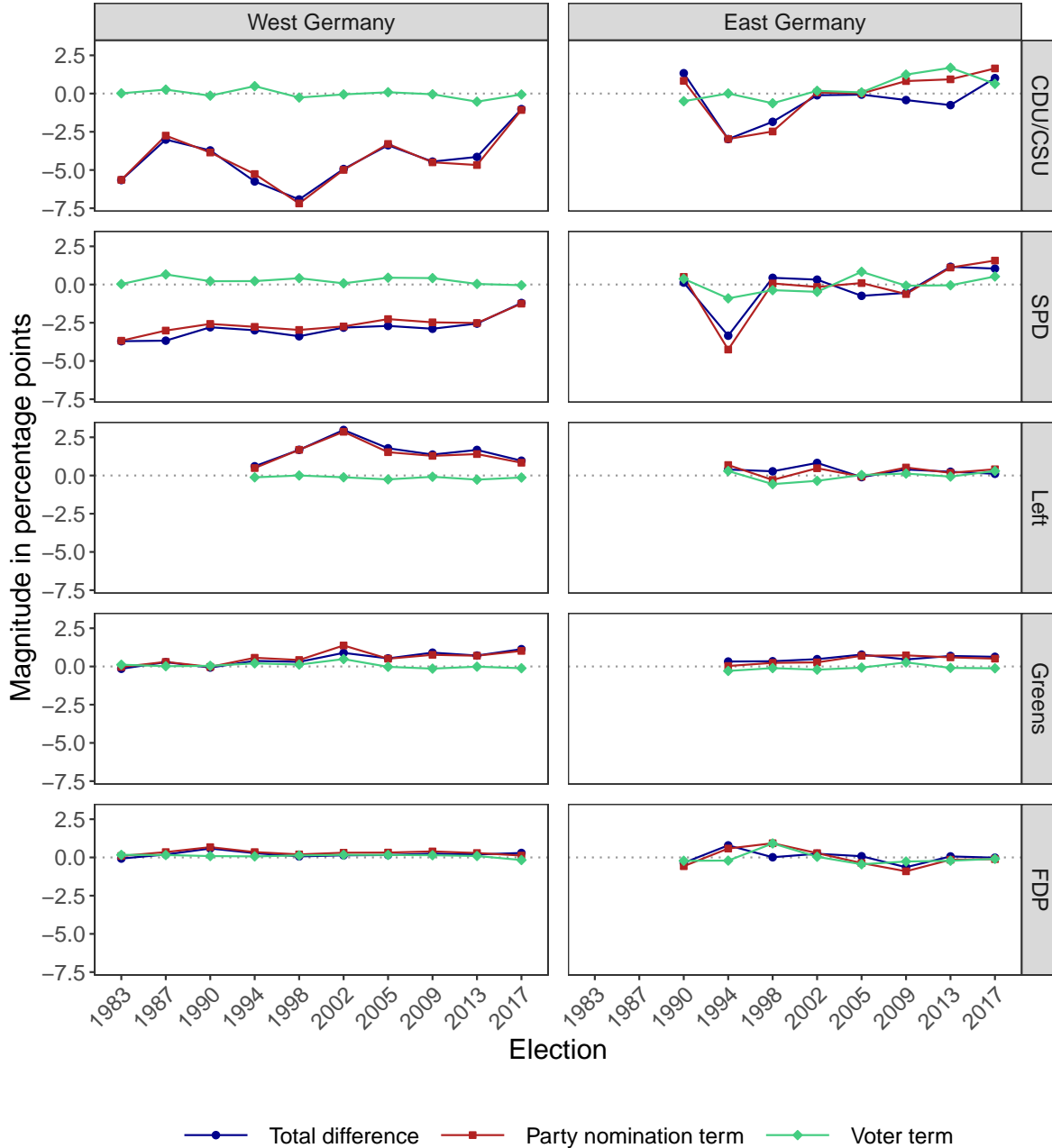
Note: The figure plots the party term, voter term and the total gender gap. We consider all elections between 1983 and 2017. The 'Voter' term equals $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$, representing the contribution of voters to the total gender vote gap. The 'Party' term is $\beta^W(\overline{PV^W} - \overline{PV^M})$, representing the contribution of the parties. The 'Total' line is the total gender vote gap, i.e. $\overline{CV^W} - \overline{CV^M}$. We split the sample into East and West Germany.

B.2 Decomposition results – robustness

Figure B9: Decomposition results with additional covariates and lagged party vote share

Note: The figure plots the party term, voter term and the total gender gap. We consider all elections between 1983 and 2017. The 'Voter' term equals $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$, representing the contribution of voters to the total gender vote gap. The 'Party' term is $\beta^W(\overline{PV^W} - \overline{PV^M})$, representing the contribution of the parties. The 'Total' line is the total gender vote gap, i.e. $\overline{CV^W} - \overline{CV^M}$. The two row panels are based on a decomposition with additional controls for candidate and challenger characteristics. The middle row panels use party vote share from the previous election, rather than the current one. The bottom row panels include controls for gender equality measures at the district level. Since these controls were measured in either 2009 and 2013, we only include elections after 2000.
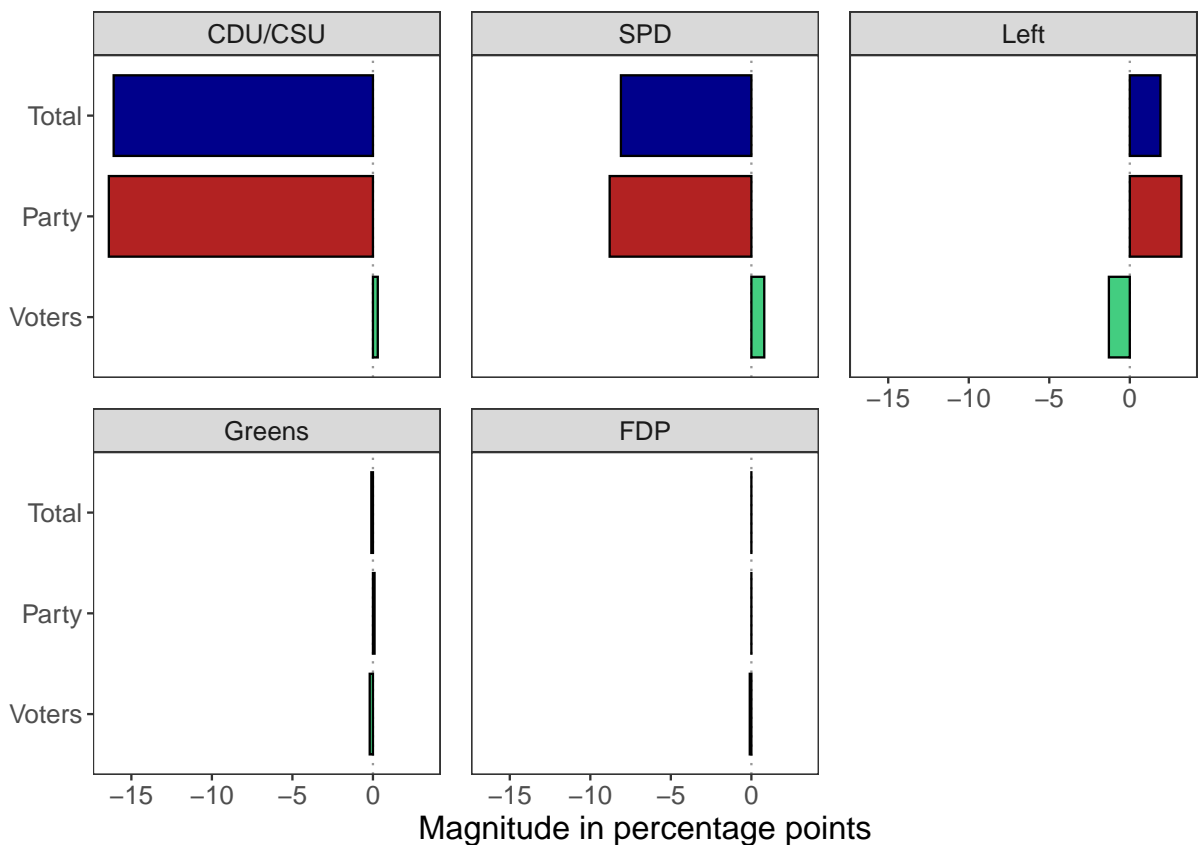
B.3 Decomposition results – winning districts

Table B11: Decomposition Results – winning districts

| Party	Voters	Party	Total Gap
SPD	0.008	-0.088	-0.081
CDU/CSU	0.003	-0.164	-0.161
Greens	-0.002	0.001	-0.001
FDP	-0.001	0	0
Left	-0.013	0.032	0.019

Notes: The table contains the results of the decomposition analysis outlined in section 6. Instead of the candidate vote share, we decompose the probability of winning the district. The first column is the $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$ term, representing the contribution of voters to the total gender election gap. The second column in the $\beta^W(\overline{PV^W} - \overline{PV^M})$ term, representing the contribution of the parties. The final column is the total gender election gap, i.e. $\overline{CV^W} - \overline{CV^M}$, which is also the sum of the second and third columns. Positive values in the fourth columns indicate that women candidates are more successful than male candidates. The unit of observation is the electoral district. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. Across all district-party-year combinations, about 23% of candidates are women.

Figure B10: Pooled decomposition results for winning in districts

Note: The figure summarizes the results of the decomposition analysis outlined in section 6. Instead of the candidate vote share, we decompose the probability of winning the district. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. The 'Voters' bar is the $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$ term, representing the contribution of voters to the total gender election gap. The 'Party' bar is the $\beta^W(\overline{PV^W} - \overline{PV^M})$ term, representing the contribution of the parties. The final 'Total' bar is the total gender election gap, i.e. $\overline{P(\text{Win district})^W} - \overline{P(\text{Win district})^M}$. Exact quantities are given in table B11

Figure B11: Main decomposition results for winning in districts
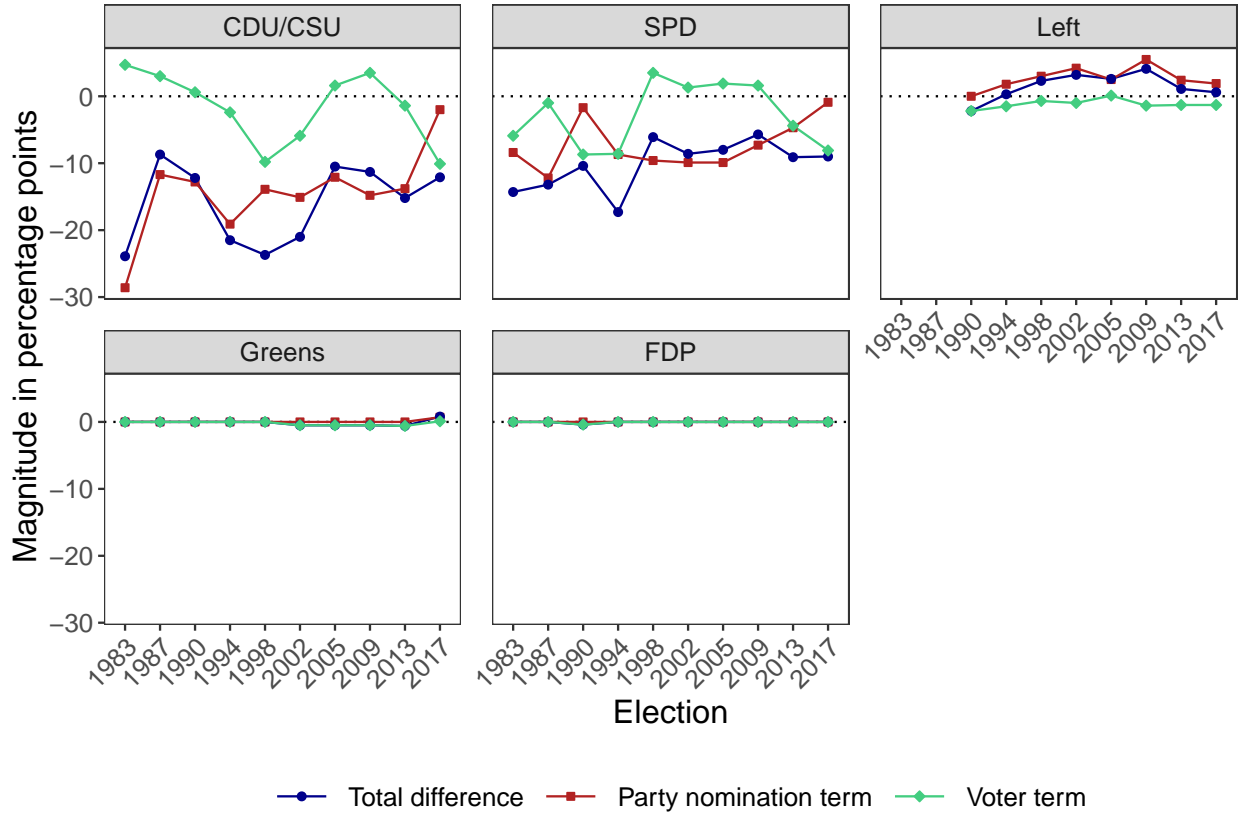
Note: The figure plots the party term, voter term and the total gender gap. Instead of the candidate vote share, we decompose the probability of winning. We consider all elections between 1983 and 2017. The 'Voter' term equals $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$, representing the contribution of voters to the total gender vote gap. The 'Party' term is $\beta^W(\overline{PV^W} - \overline{PV^M})$, representing the contribution of the parties. The 'Total' line is the total gender election gap, i.e. $\overline{P(\text{Win district})^W} - \overline{P(\text{Win district})^M}$.

B.4 Decomposition results – subsetting to open seats

Figure B12: Pooled decomposition results for the subset of open seats (using two definitions)
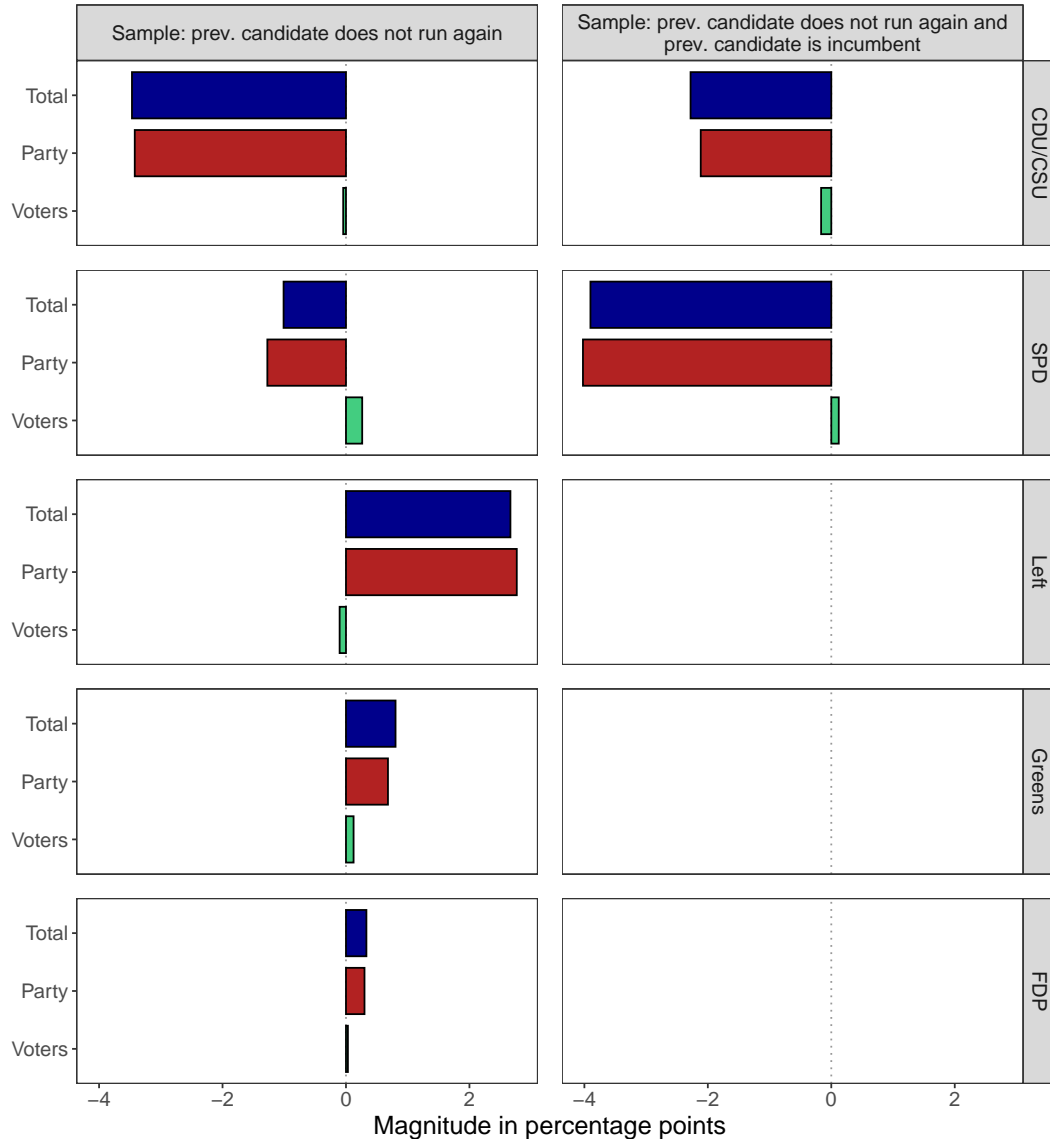
Note: The figure summarizes the results of the decomposition analysis outlined in section 6. We consider all elections between 1983 and 2017. Elections prior to 1990 are based on West Germany, excluding the GDR. We use two samples, (i) the set of district-party-elections where the candidates previously fielded does not run again and (ii) the set of district-party-elections where the candidate previously fielded does not run again and the previous candidate was the incumbent, i.e. won the district in the previous election. For set (ii), we only consider the CDU/CSU and SPD parties, since there are to few or no observations for the remaining parties. The 'Voters' bar is the $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$ term, representing the contribution of voters to the total gender vote gap. The 'Party' bar is the $\beta^W(\overline{PV^W} - \overline{PV^M})$ term, representing the contribution of the parties. The final 'Total' bar is the total gender vote gap, i.e. $\overline{CV^W} - \overline{CV^M}$.

C Procedures for Direct Candidate Selection in Germany

Although formal rules requires a democratic process of selecting candidates, prior research suggests that local party members often have little influence on candidate selection, with delegate elections often serving as a rubber stamp for the decisions of local party elites. In the literature, candidate selection in delegate conventions has often been called less 'inclusive' or 'democratic' than member convention. Historically, delegate conventions were by far the most common selection method. More recently, parties have tended towards the more democratic method of member conventions. Schüttemeyer and Sturm (2005) document the increasing prevalence of member conventions until 2002. Reiser (2020b), however, shows that this trend has not continued since, as the majority of candidates across all major parties are still selected through delegate conventions. In 2009, 70% of all SMD candidates of the the three largest parties were nominated through delegate conventions. Strikingly, three quarters of all elections were uncontested. i.e. delegates or members commonly cannot choose between different potential nominees. As a result, Reiser argues that the more crucial step of the candidate selection procedures therefore happens prior to conventions; in particular, that (1) local party elites still have considerable influence over who runs for candidacy, and (2) potential candidates learn of their chances during pre-convention campaigning, which may lead to an uncontested convention if a clear consensus candidate emerges during campaigning. Taken together, prior research suggests that, while relatively independent of influence from the national party leadership, local candidate selection procedures are not as democratic as the election law stipulates. While nomination procedures have become more democratic over time time, local party elites continue to command considerable influence over who gets selected, and pre-convention campaigning may often result in uncontested conventions.