

# Party Nominations and Female Electoral Performance: Evidence from Germany

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**Preliminary Draft - Comments Welcome**

## **Abstract**

What accounts for differences in electoral success between male and female candidates? We exploit features of the German mixed electoral system and a decomposition strategy to study the contribution of parties systematically nominating female candidates to run in districts where the party is less popular, and distinguish it from voter behavior (e.g., discrimination). Using a panel of all electoral districts in eleven federal elections (1983–2021), we document that the relative under-performance of female candidates nominated by the two largest parties can be explained by this systematic nomination behavior that adversely affects female candidates. Moreover, parties' nomination 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 candidate gender differences in vote shares. Our findings thus suggest that efforts to address female under-representation that focus on party gatekeepers may be more effective than those addressing voter behavior.

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# 1 Introduction

Around the world, women are underrepresented in politics. Only 26% of national parliament members worldwide are female. Amongst European countries, this figure is only 31%. This matters for substantive representation – in a variety of contexts, female politicians have been shown to advocate for different policies than their male colleagues (e.g., Brulé, 2020; Chattopadhyay and Duflo, 2004; Clayton and Zetterberg, 2018). It also matters for citizen-state interactions. More equitable representation has been shown to increase trust in government (e.g., Clayton, O’Brien and Piscopo, 2019).

What explains this political gender gap? In this paper, we study whether the relative under-performance of women is driven by parties’ nomination behavior, discrimination by voters, or female candidates differing from their male counterparts in characteristics valued by voters. We focus on the case of the German federal parliament (the Bundestag). Despite equitable gender attitudes,<sup>1</sup> only 35% of members of parliament elected in 2021 were women. Zooming in on the two historically largest parties, between 1983 and 2021, female district candidates running for the center-right CDU/CSU were on average 15.5 percentage points less likely to be elected than their male counterparts, compared to 10.3 percentage points for the center-left SPD.

We exploit a feature of German mixed electoral system: voters simultaneously cast separate “candidate votes” and “party votes” when electing members of parliament (MPs). We use the latter as a proxy for party popularity in a given electoral district. In doing so, we can quantify how much of the difference in average vote shares between male and female candidates (the “gender vote gap”) is driven by parties systematically nominating female candidates to run in districts where their party is less popular, and disentangle it from voters discriminating against female candidates or valuing characteristics more commonly found

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<sup>1</sup>In 2020, 90% of Germans consider gender equality to be a “very important” issue (Menasce Horowitz and Fetterlof, 2020).

in male candidates. Our method relies on a version of the Kitagawa-Oaxaca-Blinder decomposition, a method commonly used to study mean outcome differences between groups, which in our context allows us to decompose the gender vote gap between a component driven by party nominations and a component driven by voters' differential treatment of male and female candidates.

Using a panel of aggregate election results in all districts from eleven federal elections between 1983 and 2021, our decomposition allows us to construct the counterfactual gender vote gaps that would occur if male and female candidates were (on average) nominated to run in districts where their parties are equally popular (a "party nominations component") and separate it from a component that can be attributed to voters. Our decomposition can be applied separately and independently to each party and election year (e.g., focusing only on the SPD in 1998 or the Greens in 2021).

Our results indicate that parties' nomination behavior is the main driver of the gender vote gap. The overall relative under-performance of female candidates arises because the two main parties, the SPD and CDU/CSU, systematically nominate women to run in districts where the party is less competitive. For both parties, we find that the *entire* gender vote gap can be explained by differences in party popularity between places where male and female candidates are nominated. Moreover, party nominations can explain most of the variation in the gender vote gap across the six parties we study (e.g., why the Left has male candidates under-performing their female counterparts) and also variation across years within a party and (e.g., why the gender vote gap has become smaller for the CDU/CSU in recent elections).

These findings are in line with results from more descriptive methods. First, we examine nomination probabilities for female candidates. Consistent with the decomposition results, we find that women are less likely to be nominated to safe seats than men. Again, this effect is strongest for the CDU/CSU and SPD parties. Second, we calculate the simple difference between the vote share a candidate directly received and her/his party vote share

in the same district. This provides a measure of when voters split their tickets, most likely by deviating from their preferred party for the candidate choice due to strategic considerations (Spenkuch, 2018). We document that, while split-ticketing is substantial (i.e., larger parties obtain three to five higher higher vote shares in candidate votes than party votes), male and female candidates of the same party have similar differences between “candidate” and “party” vote shares, suggesting that voter discrimination plays a small role in explaining the gender vote gap.

Our paper is the first to provide a decomposition that allows to quantify the contribution of parties systematically nominating female candidates to “tougher” districts and distinguish it from other factors such as discrimination by voters and differences in background characteristics that correlate with candidate gender. While previous literature has identified that this party nomination behavior can contribute to gender vote gaps (e.g., Trimble and Arscott, 2003; Thomas and Bodet, 2013), it has not fully quantified its contribution and attempted to separate it from other explanations. Our paper thus also speaks to research on voter evaluations of female candidates (Lawless, 2004; Dolan, 2018; Stout and Kline, 2011), gendered differences in candidate selection (Niven, 1998; Krook, 2010; Cheng and Tavits, 2011) as well as the effect of other electorally relevant dimensions that correlate with candidate gender (Reeves and Smith, 2019; Palmer and Simon, 2010; Schwindt-Bayer, 2005; Anzia and Berry, 2011; Besley et al., 2017). On the methodological side, our paper points to the usefulness of the Kitagawa-Oaxaca-Blinder decomposition method to study representation. To our knowledge, the only other paper using this method in this context is Dancygier et al. (2015), who study the representation of immigrants in Sweden.

Moreover, our data spans four decades and allows us to provide new evidence on the dynamics of female electoral success over time, rather than snapshots, and explain how some parties that historically had substantial gender vote gaps have narrowed them in more recent elections. It also suggest that efforts to address female under-representation are better targeted at party gate-keepers that control nomination procedures than efforts targeting

voter’s attitudes, beliefs, or preferences. Lastly, our results have implications to how gender vote gaps should be analyzed and interpreted more generally. For example, an analyst (say, an academic or party strategist) that “naively” compared average vote shares for the CDU/CSU and SPD candidates might conclude that nominating male candidates (who on average perform better) is a sensible strategy to improve vote shares and probabilities of winning. However, our results indicate this is not necessarily true after taking into account that women are running in tougher districts.

## 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.

In a majoritarian electoral system, we can think of the process of selecting politicians as occurring in three stages.<sup>2</sup> First, candidates emerge: members of political parties declare their intention to run for office. Second, candidates are selected: parties decide which of these aspirants to place on the ballot. At times, this decision is made by party members in the constituency (in the form of primaries, caucuses, or member conventions), at times by the party leadership (party delegation). Third, voters choose among the candidates during the election. Below, we discuss factors that could result in the relative underperformance of female candidates at the ballot box during these three stages.

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<sup>2</sup>We are bracketing independent candidates, who are extremely rare in the setting we study (Höhne, 2020).

**Candidate emergence.** A large literature demonstrates that fewer women enter politics, in particular in majoritarian systems (Iversen and Rosenbluth, 2010). One explanation is the “double bind”: even when voters do not discriminate against female candidates, they expect them to be married and have children, which – in light of unequal care taking responsibilities – in turn may make it harder for them to focus on a full-time political career (Teele, Kalla and Rosenbluth, 2018). Other work suggests that women are less likely to be socialized and encouraged to be politically ambitious (Lawless and Fox, 2005; Fox and Lawless, 2014). Having a lower share of female candidates, however, does not explain why women receive fewer votes than men *conditional on being on the ballot*. Rather, we need to understand whether they enter and are nominated in different types of constituencies.

**Candidate selection.** Male party elites may be biased against women candidates, preferring candidates that are more like them (Niven, 1998). Indeed, male gatekeepers have been argued to disadvantage female aspirants in the United States (Niven, 1998), Canada Cheng and Tavits (2011), and the UK (Rasmussen, 1981). 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 where their party is weaker – so-called “sacrificial lambs” (Trimble and Arscott, 2003; Thomas and Bodet, 2013). Since party strength and the electoral success of direct candidates tend to be highly correlated, this would lead to a relative under-performance of female candidates.

**Election.** Finally, voter behavior may result in female underrepresentation in legislative bodies. First, voters may engage in taste-based discrimination against female candidates. 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) or – all else equal – an advantage of female candidates (Schwarz and Coppock, 2022; Teele, Kalla and Rosenbluth, 2018).

Second, 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; Schwindt-Bayer, 2005). 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. Such path dependency may be offset by the qualifications of female candidates. Recent research demonstrates that female candidates tend to be *more* qualified and skilled (Anzia and Berry, 2011; Besley et al., 2017).

In short, we identify three different mechanisms that may explain underperformance by female candidates in majoritarian elections: They may be nominated in constituencies where their parties are less competitive, voters may engage in taste-based discrimination, or gender may be correlated with other attributes voters dislike. 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 their personal characteristics enable women to win seats even in districts where their party is less competitive.

Our goal is to disentangle these three mechanisms. Doing so is typically hampered by our inability to 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 Electoral Rules and Candidate Selection in Germany

**Electoral Rules.** Germany is one of 32 countries worldwide with a mixed electoral system (*IDEA*, n.d.). On Election Day, each voter simultaneously casts two separate votes to elect members of parliament (MP). The first is the *candidate vote* (Erststimme) in a first-past-the-post election in single-member districts, similarly to the US House of Representatives. Each party fields at most one candidate per district and the most voted candidate in each electoral district becomes a MP. The second is the *party vote* (Zweitstimme), which is cast to a party in a closed-list proportional representation system: the number of party members elected to the Bundestag is roughly proportional to their national vote share. At least half of the Bundestag is elected via the party vote.<sup>3</sup>

**Advantages of the German Context for the Decomposition.** One of the core challenges in studying discrimination against female candidates is that we cannot observe counterfactuals (i.e. how voters in a given district would have cast their ballots had the candidate been male). The German mixed electoral system allows us to address this measurement issue since it simultaneously elicit two votes from each citizen. 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

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<sup>3</sup>The exact number of MPs elected to the Bundestag vary from one year to the other given the possibility of *overhang mandates* (Überhangmandate) that increase the number of MPs elected via the party vote to accommodate cases where a party's vote share in the party vote would entitle it to fewer seats than it won via the candidate vote. See Spenkuch (2018) for a more formal description. Parties also must clear a 5% vote share threshold to receive seats via the party vote.



characteristics, such as candidate gender, or by strategic voting considerations (Spenkuch, 2018). 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.

**Party Nominations and Candidate Selection Procedures.** Candidate selection for the district races is decentralized, with selection decisions taking place at the local level (Detterbeck, 2016). German electoral law stipulates that the selection of district candidates should occur at the local level in a sufficiently democratic manner. District candidates are selected by local party chapters—either through an election where all members of the local party branch vote (member convention), or through an election by delegates who were themselves elected by party members (party delegation). 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: central party organs have little formal or informal influence on district candidate selection (Reiser, 2020*b*) and nominations are a function of local party preferences (Detterbeck, 2016).

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, 2020*b*). Conventions are particularly uncompetitive for incumbents. Reiser (2011) shows that in 2009, over 90% of all elections for incumbent CSU/CSU and SPD members of parliament (MPs) seeking reelection were uncontested. For districts where the incumbent did not run again, more than half of all elections were uncontested. Among scholars working on candidate selection in Germany, the consensus is that the absence of competition for district candidacies is indicative of informal selection processes that occur prior to the nomination convention (Detterbeck, 2016; Reiser, 2011).

Further, the literature emphasizes that the key players during the informal stage of candidate selection are local party elites. In particular, Detterbeck (2016) discusses how elites use factional linkages to unite party members behind “their” candidate. As a result, aspiring candidates without elite support often drop out prior to the selection convention. This occurs either because they are explicitly discouraged from running, or because they realize that their chances of winning the nomination are slim. Although formal rules requires a democratic process of selecting candidates, prior research therefore 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.

While candidate selection procedures appear largely undemocratic, the format of selection conventions has been changing towards a, at least nominally, more inclusive approach. Given the larger selectorate, candidate selection in delegate conventions is often considered less ‘inclusive’ or ‘democratic’ than member conventions. Historically, delegate conventions were by far the most common selection method in Germany. More recently, member conventions are becoming more prevalent (Schüttemeyer and Sturm, 2005). However, the majority of candidates across all major German parties are still selected through delegate conventions (Reiser, 2020*b*). In 2009, 70% of all SMD candidates of the three largest parties were nominated through delegate conventions (Reiser, 2020*b*). Evidence presented by Reiser (2011) suggests that member conventions are not more competitive than delegate conventions.

As a result, Reiser (2011) arrives at a similar conclusion as Detterbeck (2016) – candidate selection often precedes conventions. In particular, local party elites still have considerable influence over who runs for candidacy. Potential candidates often 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 nominally become more democratic over time, local party elites

continue to command considerable influence over who gets selected, and pre-convention campaigning may often result in uncontested conventions.

Local party politics is still a male domain in Germany, especially in the center-right parties. While male and female party members report being about equally engaged in the lead-up to candidate selection (Höhne, 2020), women constitute the minority of members across all parties. Left of center, the share of female party members ranges from 40% for the Greens, over 36% for the Left, to 32% for the SPD. Right of center, it ranges from 26% for the CDU, 22% for the FDP, 20% for the CSU, to 17% for the AfD.<sup>4</sup> The share of women members across parties is very slowly increasing (Höhne, 2020).

## 4 Data

We use electoral results from the eleven most recent elections in Germany (1983–2021), combined with data on gender and party affiliation of all candidates. The source for the data is the Federal Returning Officer, who supervises elections on the federal level. Our unit of analysis is the electoral district (*Wahlkreis*). In the 2021 election, there were a total of 299 electoral districts (*Wahlkreise*).<sup>5</sup>

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

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<sup>4</sup>All figures from 2017, see Höhne (2020).

<sup>5</sup>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 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. The number of electoral districts changes over time in our sample (starting from 248 in 1980 it increases to 328 in 1990 following reunification, then reduces back to 299 in 2002 due to a redistricting reform).

measure the precise electoral performance of all candidates. We limit the sample to candidates of the six 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, the classical liberal FDP and the radical-right AfD.<sup>6</sup> In 2021, these six parties together obtained 91.3 percent of the party vote.

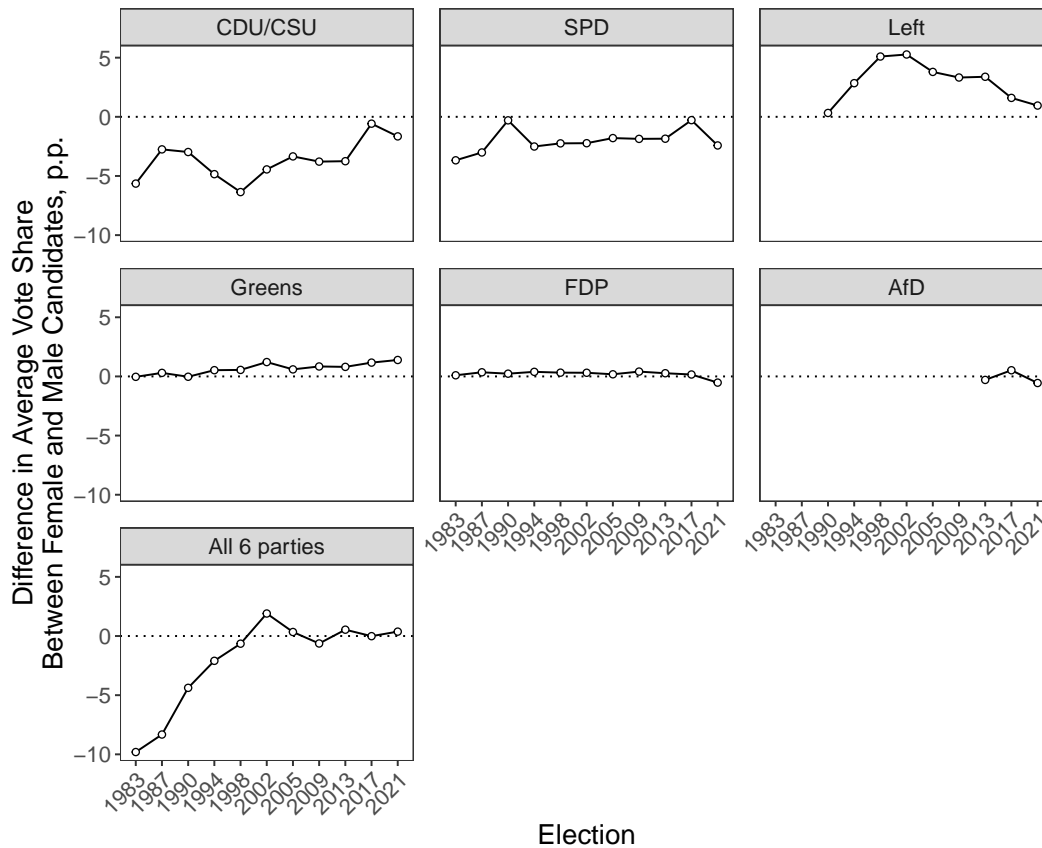
## 5 The Gender Vote Gap in Germany

We first present data on the simple gender vote gap, or the average vote share of female district candidates minus the average vote share of male district candidates. We calculate it separately by party and election year and present them on Figure 1. Among the two main parties, we observe that between 1983 and 2021 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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<sup>6</sup>The AfD first competed in 2013, and has been represented in parliament since 2017.

Figure 1: Average difference in electoral performance between female and male district candidates

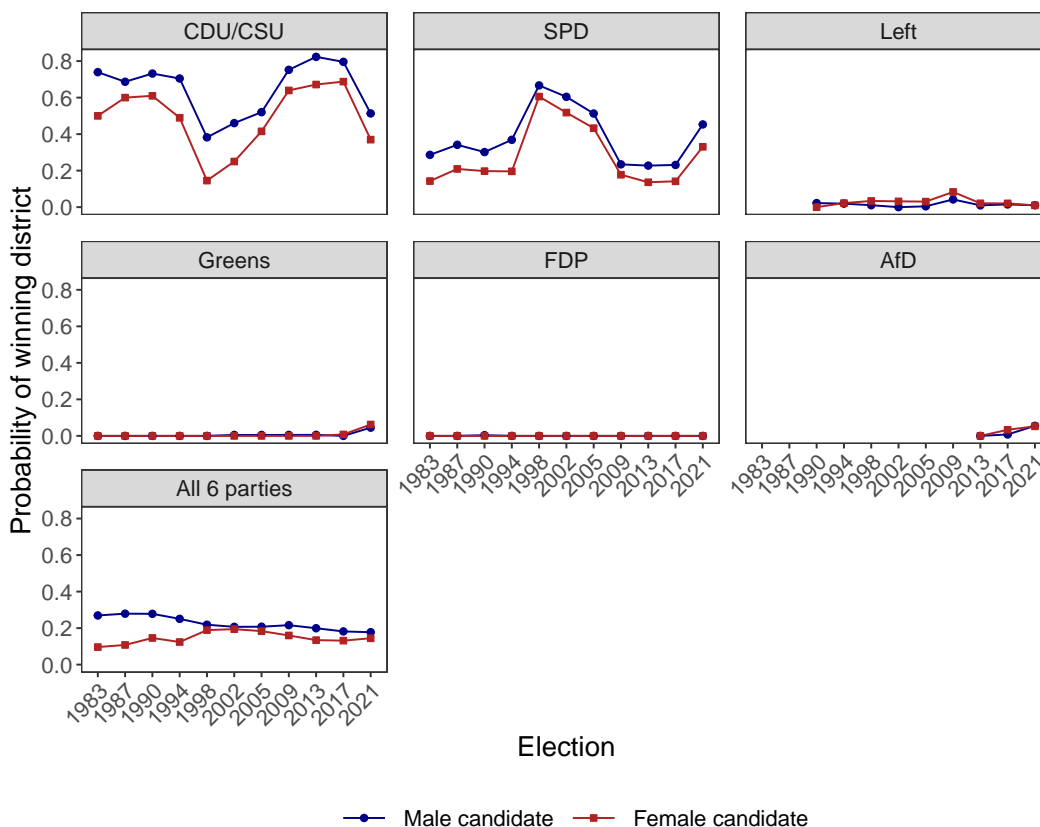


*Note:* The figure shows the percentage point difference in average vote shares between female and male candidates across eleven elections for six parties. We consider all elections between 1983 and 2021. Elections prior to 1990 are based on West Germany, excluding the GDR. The Left party did not exist in West Germany prior to 1990. We average over vote shares in electoral districts. The panel labeled “all 6 parties” includes all candidates from the six parties shown in the other panels. Negative values on the y-axis indicate that, on average, male candidates receive a larger vote shares 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 district candidates over time. For the CDU/CSU and SPD, female district candidates were, respectively, 15.5 and 10.3 percentage points less likely to be elected than their male counterparts in the period we studied. As is evident from the relatively flat lines hovering over zero, the four smaller parties studied here, the AfD, Left, Greens and FDP,

win very few district mandates.<sup>7</sup>

Figure 2: Probability of getting elected for female and male district candidates



*Note:* The figure shows the probability of winning the district for female and male candidates across ten elections for six parties. We consider all elections between 1983 and 2021. 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 “all 6 parties” includes all candidates from the six parties shown in the other panels.

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?

<sup>7</sup>While these four parties rarely elect district candidates via the candidate vote, they do obtain representation in the Bundestag via the party vote. For example, they obtained 41.4% of seats in the 2021 election.

## 6 Empirical Decomposition Strategy

To understand the mechanisms underlying the gender vote gap in Germany, we leverage the German mixed electoral system in combination with a standard Kitagawa-Oaxaca-Blinder decomposition, a method commonly used to study mean difference between two groups, particularly within labor economics.<sup>8</sup> We decompose overall gender vote gap into two parts: The contribution of political parties and the contribution of voters.

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 shares will 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 as follows. Using only female candidates, we can run:

$$CV_{idt}^W = \alpha^W + \beta^W PV_{idt}^W + \epsilon_{idt} \quad (1)$$

where  $CV_{idt}$  is the candidate vote share of candidate  $i$  in district  $d$  at election year  $t$ .  $PV_{idt}$  is the party list vote share of candidate  $i$ 's party in district  $d$  at election year  $t$ .

The same equation can be estimated using only male candidates:

$$CV_{idt}^M = \alpha^M + \beta^M PV_{idt}^M + \epsilon_{idt} \quad (2)$$

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<sup>8</sup>This method was first used by Kitagawa (1955) and later popularized by Oaxaca (1973) and Blinder (1973). For a comprehensive treatment and a survey of applications within economics, see Fortin, Lemieux and Firpo (2011).

Let  $\overline{CV^M}$  and  $\overline{CV^W}$  be the average candidate vote share of male and female candidates, 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).

The mathematical properties of 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:

$$\begin{aligned} \overline{CV^W} - \overline{CV^M} &= \alpha^W + \beta^W \overline{PV^W} - \alpha^M - \beta^M \overline{PV^M} = \\ &= \alpha^W + \beta^W \overline{PV^W} - \alpha^M - \beta^M \overline{PV^M} + \beta^W \overline{PV^M} - \beta^W \overline{PV^M} = \\ &= [\alpha^W - \alpha^M + (\beta^W - \beta^M) \overline{PV^M}] + \beta^W (\overline{PV^W} - \overline{PV^M}) \quad (3) \end{aligned}$$

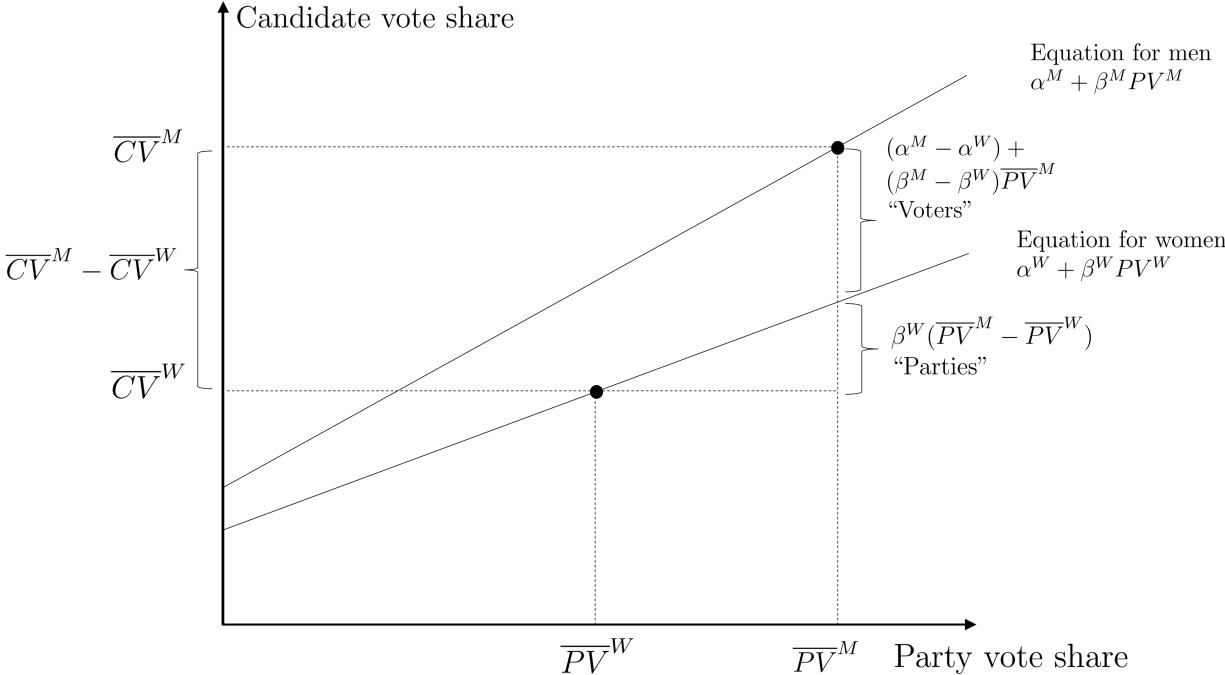
The term in brackets  $[\alpha^W - \alpha^M + (\beta^W - \beta^M) \overline{PV^M}]$  can thus be interpreted as the part of the differential performance between female and male candidates that is attributed to voters. More precisely, if voters are equally likely to cast a candidate vote that “differs” 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 the district candidate of party  $x$  when such candidate is a woman instead of a man. 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



**Decomposition Assumptions.** Before presenting decomposition results, we discuss two additional analyses supporting its underlying assumptions: linearity and the “direction of causality” between candidate votes and party votes.

First, our formulation assumes the relationship between candidate vote and party vote

share is linear. To make sure that this assumption is justified, we flexibly plot the relationship between party vote shares and candidate vote shares in Figure B8 and Figure B9. Overall, the relationship is not only linear but close to the 45-degree line. When we disaggregate the relation by parties and election years in Figure B9, we find that the FDP and the Left deviate somewhat from a perfectly linear relationship in some ranges of the relationship. However, the deviations are relatively small for those two parties, and all but absent for the other four. Therefore, we argue that the linear functional form which we specify above approximately captures the relationship between party and candidate vote shares.<sup>9</sup>

Second, it should be noted that our decomposition does not require equations (1) and (2) to have a causal interpretation. They quantify the relationship between candidate and party vote and allow us to predict average female candidate vote shares if women ran in districts with similar average party votes as men (see Figure 3) in a descriptive exercise. What is key to our interpretation is that party votes provide a suitable proxy for party preferences.

What would potentially complicate the interpretation of our decomposition would be if candidate gender had a causal impact on party votes (i.e., a party nominating a female candidate to a district caused a reduction in its party vote). While this is theoretically possible (e.g., voters may update their views on the party once they see the gender of its nominee), we provide evidence suggesting that candidate gender has little to no effect on party votes. We use a difference-in-differences framework exploiting that the fielding of new candidates sometimes mean the candidate gender switches between two elections, holding party and electoral district constant. The results are discussed in further detail on Appendix Section B.8.<sup>10</sup>

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<sup>9</sup>Note also that the relationship for the CDU/CSU and SPD are above the 45-degree line (implying they receive more candidate votes than party votes on average), while the opposite is true for the Greens and FDP. We return to this issue in more detail when discussing Figure 6 on Section 6.

<sup>10</sup>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.

## 7 Results: Decomposition of the Gender Vote Gap

The results of the decomposition analysis indicate that the difference in vote shares between male and female district candidates is driven by differences in party popularity in places where women candidates are nominated. Figure 4 presents the results from the decomposition analysis as a bar chart. The analysis (including the estimation of  $\alpha$ s and  $\beta$ s) is done separately for each party. The figure shows the respective contributions of the voters component ( $\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}$ ) and the party nominations component ( $\beta^W(\overline{PV^W} - \overline{PV^M})$ ) to the total gender vote gap. It pools data across eleven elections between 1983 and 2021.

Figure 4 indicates that essentially all the total difference in average vote shares between male and female candidates can be explained by the latter being systematically appointed to districts where they are less popular. As in Figure 1, we again observe that women candidates running for the CDU/CSU, SPD, and AfD parties generally perform worse than men, as can be seen from the negative "Total" term. For the Left, Greens, and FDP, the reverse is true. For all parties, the party contribution constitutes the largest part of the total differences in electoral performance. For example, in the case of the CDU/CSU, the difference between male and female candidates would be at most 0.17 percentage points if male and female candidates were nominated in equally competitive districts (i.e. if  $\overline{PV^W} = \overline{PV^M}$ ). This constitutes only 3% of the total gender vote gap that we observe. Note also that the party nominations component also accounts for female candidates outperforming their male counterparts in the case of the Left, Greens, and FDP. For these parties, women are (on average) nominated to districts where the respective party vote is larger.

Figure 5 visualizes the same three terms for each party over time.<sup>11</sup> It echoes the Figure 1, but adds the "party nominations" and "voters" component. For all six parties, the lines

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<sup>11</sup>The computation of the decomposition is performed separately for each year and party (i.e., for each party-year combination, Equations (1) and (2) are separately estimated and the appropriate "party" and "voter" terms calculated).

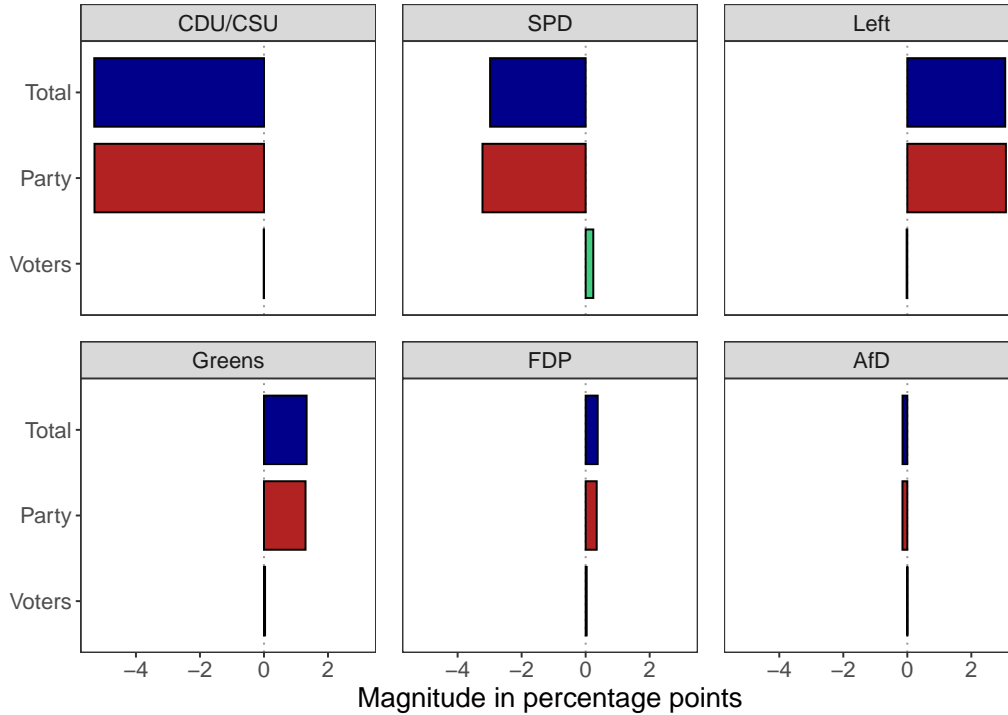
and markers indicating the party nomination term is virtually indistinguishable from the total gender vote gap. This indicates that almost all the variation in gender vote gaps across parties and years can be explained by whether female candidates are being nominated to districts where their party is less (or more) popular, compared to their male counterparts. We highlight that the time patterns are varied across parties. For example, there is an overall closing of the gap for the CDU/CSU, a rise and fall in the positive gap (women overperforming men) for the Left, as well as year-to-year variations for most parties. All these patterns can be accounted by variation in the party nominations component. The “voter” term always being close to zero for all parties is the decomposition counterpart of that: voter behavior conditional on the party vote share accounts for a negligible part of the gender vote gap.

Table C5 in the Appendix presents the results of the decomposition analysis in table format. In Appendix Tables C6 and C7, we show a more exhaustive version of the table, including all parameters discussed in Section 6.

**Differences in background characteristics.** As we discuss in section 2, the fact that female district candidates receive fewer votes than male candidates could be explained by differences in background characteristics. 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. We now investigate differences in candidate characteristics by gender.

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 (1983-2021). We merge this data with Treiman’s Standard International Occupational Prestige Scale (SIOPS) to

Figure 4: Pooled decomposition results

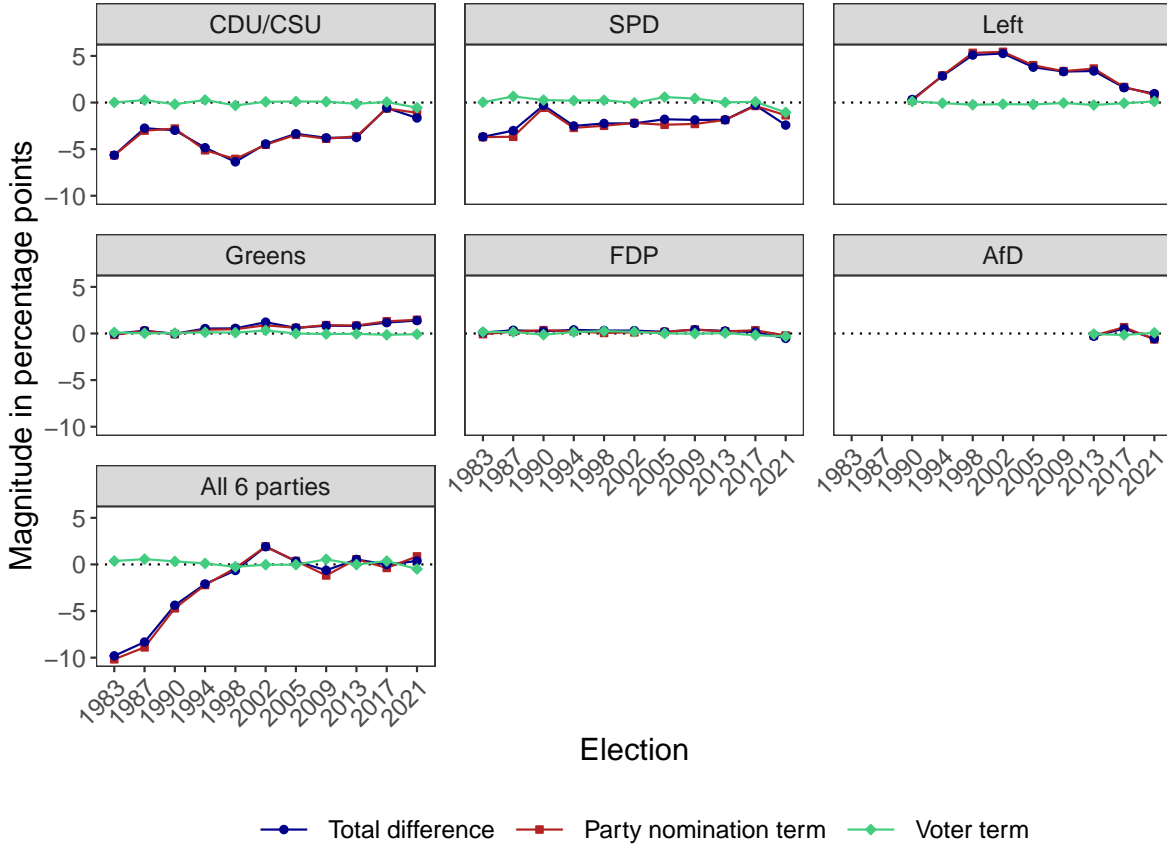


*Note:* The figure summarizes the results of the decomposition analysis outlined in section 6. We consider all elections between 1983 and 2021. Elections prior to 1990 are based on West Germany, excluding the GDR. The “Voters” bar is the  $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$  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.  $\overline{CV^W} - \overline{CV^M}$ .

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 B1 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

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 2021. The ‘Voter’ term equals  $[\alpha^W - \alpha^M + (\beta^W - \beta^M)PV^M]$ , representing the contribution of voters to the total gender vote gap. The ‘Party’ term is  $\beta^W(PV^W - PV^M)$ , representing the contribution of the parties. The ‘Total’ line is the total gender vote gap, i.e.  $\overline{CV}^W - \overline{CV}^M$ .

vote share serves as control. Figure B10 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 a final step, we re-run our main decomposition with these additional background characteristics. We additionally include the average age, occupational prestige and time in office for all other candidates in the district, which accounts for the possibility that female candidates face systematically different opponents. As shown in Figure C15 in the

appendix, our main findings are robust to including candidate and challenger characteristics as covariates – the nominations to weaker districts remain the main driver of the gender gap in electoral success. Based on this, we conclude that differences in politically relevant background characteristics are not the main driver of female-male differences in electoral performance.

## 8 Descriptive 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 at party nomination behavior by modeling candidate gender as a function of district competitiveness.

**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  $Y_{idt}^g = CV_{idt}^g - PV_{idt}^g$ . It directly measures how candidate  $i$  of gender  $g$  in district  $d$  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 district 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  $Y_{idt}^g$  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 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  $Y_{idt}$  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  $d$  for election  $t$ , we calculate  $PV_{idt} - PV_{jdt}^{Max}$ , where  $PV_{idt}$  is the party vote share for candidate  $i$ 's party. The variable  $PV_{jdt}^{Max}$  is the highest vote share among all remaining parties  $j \neq c$  in district  $d$  and election  $t$ . If candidate  $i$ 's party receives the most votes in district  $d$ , then  $PV_{idt} - PV_{jdt}^{Max}$  will be positive, and negative otherwise. We define district competitiveness as follows:

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

A district is a sure loss district if party  $p$  trails the winning party by more than  $i$  percentage points, while a safe seat is a district when party  $p$  wins the district (based on party vote) by a margin greater than  $i$ . The party vote shares and the candidate gender are mea-



sured 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  $i$ , 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  $d$  in election  $t$  is a woman. The previously defined district competitiveness measure  $C_{idt}$  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 two parties that exhibit the largest gender vote gaps: The CDU/CSU and the SPD. 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 of being nominated in competitive districts. For the CDU/CSU, the probability of being nominated in

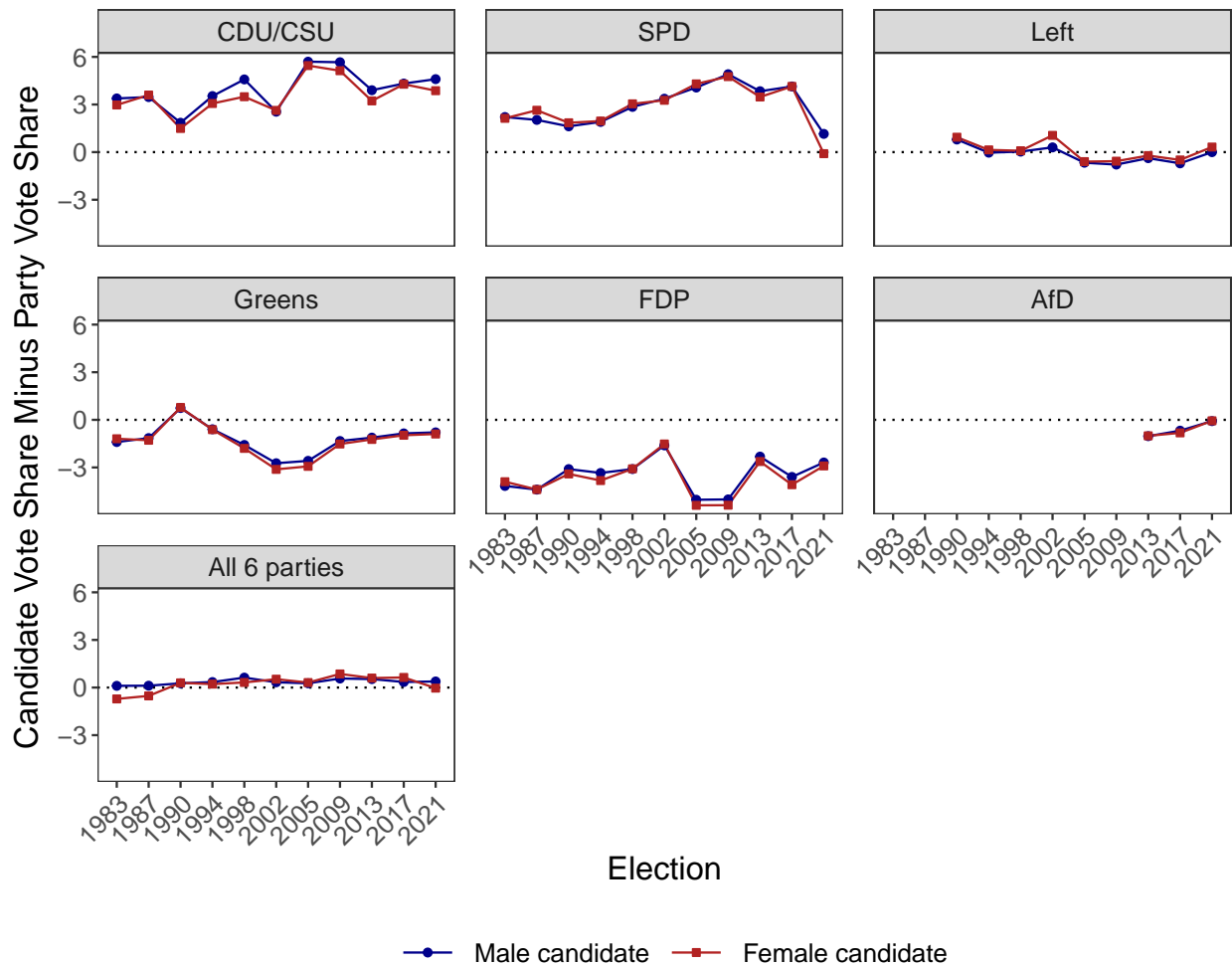
sure loss districts decreases over time. As a general pattern, we find that party nominations initially penalize female candidates. However, this pattern slowly disappears over time, mirroring the decline in the gender vote gap shown in Figure 1.

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

	Female candidate ( $c=5p.p.$ )						
	All parties	CDU/CSU	SPD	FDP	Greens	Left party	AfD
Safe seat (vs. competitive)	-0.067*** (0.015)	-0.030 (0.023)	-0.107*** (0.027)		0.056 (0.168)	-0.029 (0.111)	0.115 (0.146)
Sure loss (vs. competitive)	0.019 (0.015)	0.017 (0.024)	0.072** (0.025)	0.126*** (0.022)	-0.108 (0.080)	-0.075 (0.056)	-0.072 (0.087)
Party FE	Yes	No	No	No	No	No	No
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	15988	3,273	3,273	3,268	3,165	2,272	737
R-squared	0.089	0.270	0.257	0.168	0.158	0.218	0.537
Female candidate ( $c=10p.p.$ )							
Safe seat (vs. competitive)	-0.070*** (0.015)	-0.032 (0.022)	-0.128*** (0.030)	-0.074 (0.077)	0.101 (0.188)	0.120 (0.155)	0.144 (0.282)
Sure loss (vs. competitive)	0.018 (0.014)	0.037 (0.027)	0.093*** (0.026)	0.052 (0.072)	-0.127* (0.054)	-0.075 (0.051)	-0.064 (0.045)
Party FE	Yes	No	No	No	No	No	No
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	15,988	3,273	3,273	3,268	3,165	2,272	737
R-squared	0.089	0.270	0.257	0.168	0.159	0.219	0.538
Female candidate ( $c=15p.p.$ )							
Safe seat (vs. competitive)	-0.082*** (0.015)	-0.048* (0.022)	-0.145*** (0.033)		0.428*** (0.031)	0.360* (0.148)	
Sure loss (vs. competitive)	0.002 (0.014)	0.052 (0.036)	0.071* (0.029)	-0.038 (0.041)	-0.092 (0.049)	-0.077 (0.041)	-0.143* (0.061)
Party FE	Yes	No	No	No	No	No	No
District FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Election FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	15,988	3,273	3,273	3,268	3,165	2,272	737
R-squared	0.088	0.271	0.253	0.168	0.159	0.220	0.541

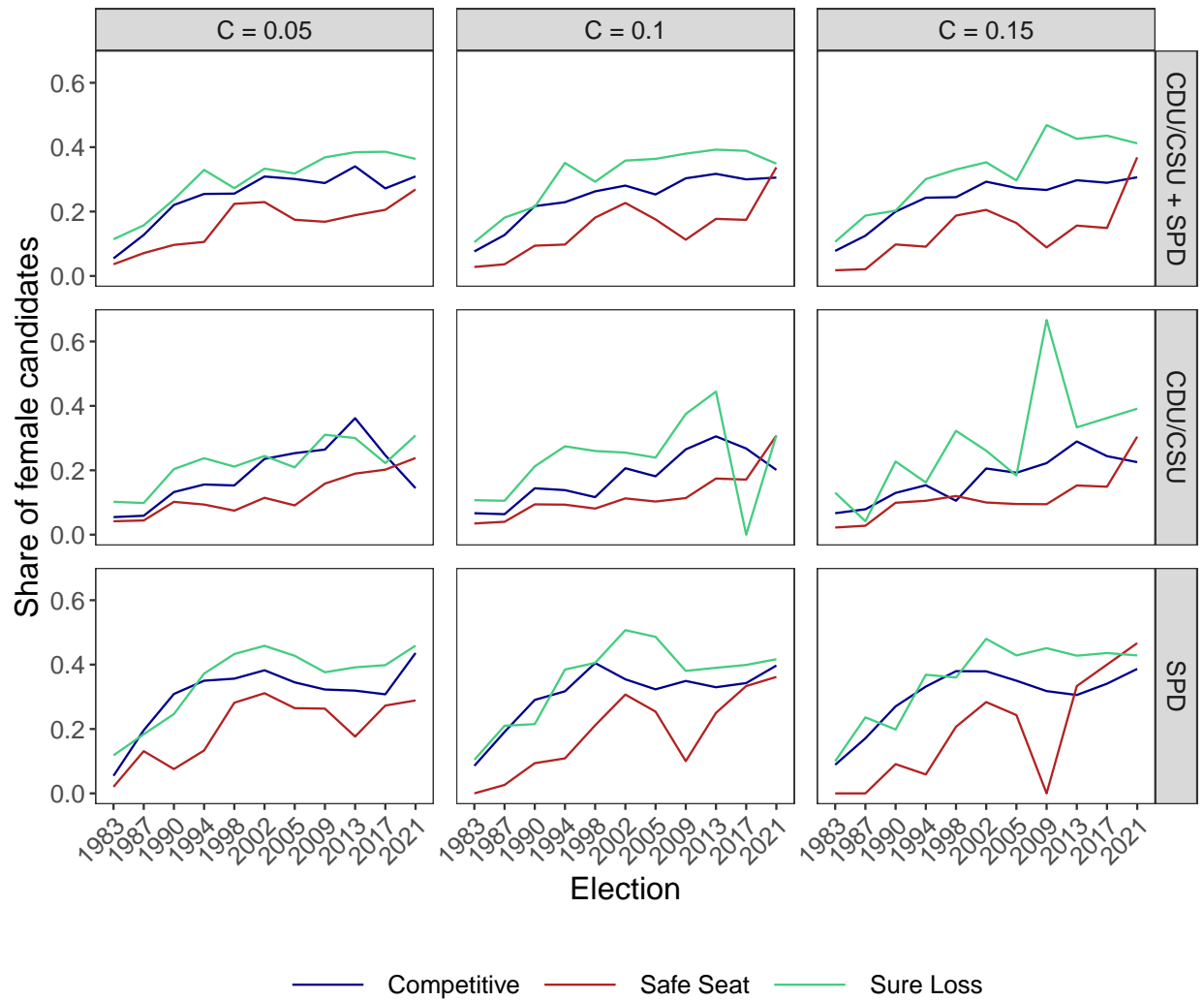
*Note:* OLS. The binary outcome variable takes value 1 if a female candidate is nominated by a party in a district, 0 otherwise. The unit of observation is a district-party-year combination. A district is a sure loss district if party  $i$  trails the winning party by more than  $c$  percentage points, 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 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 six parties. We consider all elections between 1983 and 2021. 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.

Figure 7: Likelihood of nominating a female district 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 2021. Elections prior to 1990 are based on West Germany, excluding the GDR.

## 9 Robustness and Alternative Explanations

In this section, we discuss five potential alternative explanations to our results: strategic voting, parties anticipating voter preferences, parties viewing male candidates as more competitive, bias against outsiders *per se*, and unequal aspirant entry. Note that one potential threat to the interpretation of our decomposition – candidate gender affecting the party votes – is discussed in Section 6 and Appendix B.8, where we test (and do not find evidence for) the appointment of female district candidates reduce their party votes.

First, we examine whether strategic voting affects our results. Since women are more often nominated in constituencies where their party is not a serious contender for the district mandate, voters may split their ticket strategically by voting for their preferred party in their party vote and for a more competitive candidate with their candidate vote in order to avoid wasting the latter. While it is not clear conceptually why these would generate the decomposition results we find, we further test if female vote shares are systematically harmed by strategic voting considerations using a strategy inspired by (Spenkuch, 2018). We test if the gap between candidate votes and party votes are larger for women, subsetting our sample to district candidates who are among the top two competitors in a district. Table B3 summarizes the results. We find no evidence that strategic voting considerations are stronger for women.

Second, it may be the case that parties strategically only nominate women in districts with more progressive gender norms and values, as they anticipate voters would otherwise punish their (female) candidate. *A priori*, it may appear that, if parties correctly anticipate that voters punish female candidates at the ballot box in certain places and if such gender norms are correlated with party votes, that would confound our decomposition results. However, this is unlikely to be the case since we observe similar nomination patterns across the two main parties. While it may be plausible that the conservative CDU/CSU is less

competitive in districts with more progressive attitudes, it is implausible for the center-left SPD. To further probe the sensitivity of our results to this issue, we include measures of gender equality as covariates in our decomposition analysis and show that our results hold. These are a gender equality index,<sup>12</sup> the share of women in full time employment, and the gender wage gap. While we do not have direct measures of voter attitudes towards female politicians disaggregated by district, we expect such voter attitudes to be correlated with realized gender equality. As can be seen in the bottom panel of Figure C15, our results are virtually unchanged after including these covariates. Lastly, while attitudes and beliefs about gender should change only slowly over time, we see temporal variation in the gender gaps in the data that we can explain with variation in nomination strategies.

Third, it is possible that parties simply nominate the strongest candidates in competitive races, and that those are more likely to be male. However, this would not explain why we see the highest share of male candidates in the safe districts (see Figure 7). Moreover, some parties such as the Left, FDP, AfD, and Greens are rarely competitive in district races, but our decomposition indicate that the “party component” is able to account for the evolution of gender vote gaps over time.

Fourth, the effects we uncover may not be about bias by local party chapters against women *per se*, but against outsiders or nontraditional candidates in general. To explore this hypothesis, we examine whether we see similar nomination patterns for younger candidates, who are presumably just beginning their party career, as for female candidates. As can be seen in Figure B7, we find no evidence that younger candidates are nominated in tougher districts, suggesting that the nomination behavior we observe is unique to women candidates.

Fifth, it may be the case that the effects we observe are due to unequal aspirant entry, with women not throwing their hats in the ring in more competitive nomination contests in the first place. As the chances of winning a seat increase, stronger candidates enter the

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<sup>12</sup>The gender equality index is calculated by the Federal Government according to EU guidelines. It includes measures of economic, political, educational, and health equality.

race, and potential female aspirants opt out of running, potentially against the wishes and best intentions of the local party leadership. While systematic data on potential candidates is difficult to obtain in Germany due to the decentralized nature of candidate nominations, we have suggestive evidence that unequal aspirant entry is unlikely to be driving results. Leveraging a survey conducted with over 4,800 active party members in 2016/2017, Höhne (2020) shows that female party members are no less engaged in local party activities. Since local engagement is a precondition for advancement within the party, Höhne (2020) concludes that the female under-representation in higher offices is not endogenous to a lack of effort or ambition among female party members.

## 10 Conclusion

How can we explain the fact that women continue being under-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 for the past 16 years, women constitute only 35% of Parliamentarians and 26% of the 299 directly elected district representatives. Using district level data spanning twelve elections between 1983 and 2021, we find that district candidates are not only more likely to be male, female district candidates also receive fewer votes than male candidates. This gender vote gap is driven by candidates from the two biggest parties, the center-left SPD and the center-right CDU/CSU. We then investigate its sources.

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 entirely 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 not find 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 district mandate in a district is out of reach (Reiser, 2020a).

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# Appendices

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# A Context

**Stimmzettel**  
für die Wahl zum Deutschen Bundestag  
im Wahlkreis 5 Kiel  
am 18. September 2005

**Sie haben 2 Stimmen**

<p><b>hier 1 Stimme</b></p> <p>für die Wahl eines <b>Wahlkreisabgeordneten</b></p> <p><b>Erststimme</b></p>	<p><b>hier 1 Stimme</b></p> <p>für die Wahl <b>einer Landesliste (Partei)</b></p> <p>- maßgebende Stimme für die Verteilung der Sitze insgesamt auf die einzelnen Parteien -</p> <p><b>Zweitstimme</b></p>
-----------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

1	<p><b>Dr. Bartels, Hans Peter</b> Angestellter Kiel Esmarchstraße 16</p>	<p><b>SPD</b></p> <p>Sozialdemokratische Partei Deutschlands</p>	<input type="radio"/>			<input checked="" type="radio"/>
2	<p><b>Dr. Murmann, Philipp</b> Geschäftsführer Heikendorf Hardenbergblick 3</p>	<p><b>CDU</b></p> <p>Christlich Demokratische Union Deutschlands</p>	<input type="radio"/>			<input checked="" type="radio"/>
3	<p><b>Müller, Klaus</b> Diplom-Volkwirt Kiel Wilhelminenstraße 29</p>	<p><b>GRÜNE</b></p> <p>BÜNDNIS 90/ DIE GRÜNEN</p>	<input type="radio"/>			<input checked="" type="radio"/>
4	<p><b>Blumenthal, Sebastian</b> Angestellter Kiel Hamburger Chaussee 46</p>	<p><b>FDP</b></p> <p>Freie Demokratische Partei</p>	<input type="radio"/>			<input checked="" type="radio"/>
5	<p><b>Thoroë, Björn</b> arbeitsuchend Kiel Feldstraße 97</p>	<p><b>DIE LINKE.</b></p> <p>Die Linkspartei, Schleswig-Holstein</p>	<input type="radio"/>			<input checked="" type="radio"/>
6	<p><b>Gutsche, Hermann</b> EDV-Berater Kiel Königstraße 22</p>	<p><b>NPD</b></p> <p>Nationaldemokratische Partei Deutschlands</p>	<input type="radio"/>			<input checked="" type="radio"/>
7	<p><b>Mrozewski, Oliver</b> Koch Altenholz Danziger Straße 5</p>	<p><b>FAMILIE</b></p> <p>FAMILIEN-PARTEI DEUTSCHLANDS</p>	<input type="radio"/>			<input checked="" type="radio"/>
			<input type="radio"/>			<input checked="" type="radio"/>

	<input type="radio"/>	<b>SPD</b>	<p><b>Sozialdemokratische Partei Deutschlands</b> Dr. Ernst Dieter Rossmann, Bettina Hagedorn, Franz Thönnies, Gabriele Höller-Olm, Sünke Rex</p>	1
	<input type="radio"/>	<b>CDU</b>	<p><b>Christlich Demokratische Union Deutschlands</b> Wolfgang Börsner, Dr. Ole Schröder, Anke Eymar, Otto Bernhardt, Gero Storzjahn</p>	2
	<input type="radio"/>	<b>GRÜNE</b>	<p><b>BÜNDNIS 90/DIE GRÜNEN</b> Gritje Böttin, Rainer Stenblock, Monika Reinold, Sebastian David Fricke, Erika von Kalben</p>	3
	<input type="radio"/>	<b>FDP</b>	<p><b>Freie Demokratische Partei</b> Jürgen Koppelin, Dr. Christel Happach-Kasan, Sebastian Blumenthal, Wolfgang Schnabel, Dr. Michaela Burk</p>	4
	<input type="radio"/>	<b>DIE LINKE.</b>	<p><b>Die Linkspartei, Schleswig-Holstein</b> Lutz Heilmann, Heidi Beutin, Wiebke Misdraß, Björn Thoroë, Brigitta Wendt</p>	5
	<input type="radio"/>	<b>NPD</b>	<p><b>Nationaldemokratische Partei Deutschlands</b> Uwe Schäfer, Jene Laska, Ingo Stawitz, Wolfgang Schimmel, Alfhild Hennig</p>	6
	<input type="radio"/>	<b>FAMILIE</b>	<p><b>FAMILIEN-PARTEI DEUTSCHLANDS</b> Matthias Kortim, Werner Lahann, Sabine Cavid, Hike Rohlfhagen, Bettina Kortim</p>	7
	<input type="radio"/>	<b>MLPD</b>	<p><b>Marxistisch-Leninistische Partei Deutschlands</b> Jakobus Fröhlich, Inge Marbach, Andrea Sibylle Hähner, Joachim Griesbaum, Maria Meyer</p>	8

Figure A1: German ballot

Note: The image shows a German ballot with the candidate vote on the left and the party vote on the right.

## B Additional Tables and Figures

### B.1 Electoral performance and candidate characteristics by gender and party, 1983–2021

Table B1: Electoral performance and candidate characteristics by gender and party, 1983–2021

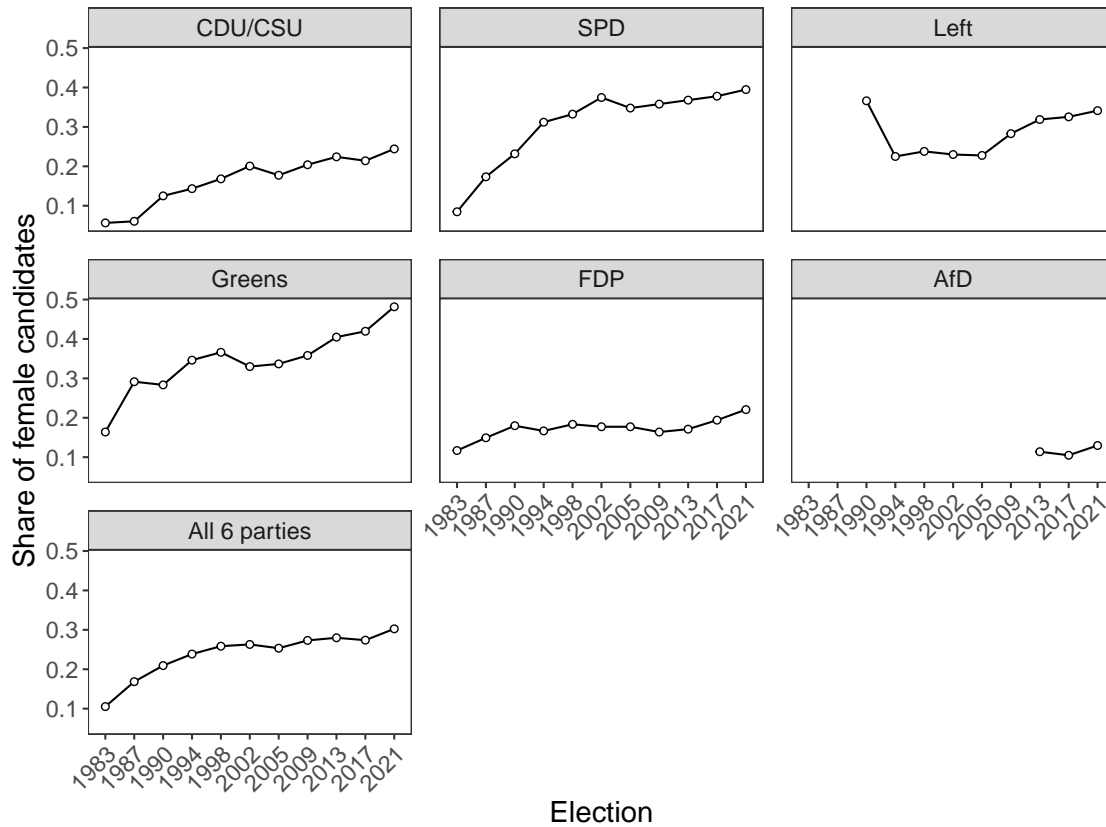
	All parties	CDU/CSU	SPD	Left	Greens	FDP	AfD
<b>Candidate vote</b>							
Male candidate	20.21	42.54	36.02	7.06	6.61	5.37	9.65
Female candidate	18.51	37.23	33.03	10.12	7.95	5.75	9.5
Full sample	19.79	41.65	35.09	7.91	7.08	5.44	9.63
<b>Party vote</b>							
Male candidate	19.85	38.61	33.16	7.32	7.86	8.84	10.17
Female candidate	18.17	33.55	30.09	10.15	9.33	9.37	10.02
Full sample	19.43	37.76	32.21	8.12	8.37	8.93	10.15
<b>SES (ISEI08, 0–100)</b>							
Male candidate	59.77	57.39	60.8	54.62	62.83	62.08	59.77
Female candidate	61.43	57.23	60.7	62.23	64.75	59.84	58.73
Full sample	60.18	57.37	60.77	56.75	63.5	61.69	59.65
<b>Age in years</b>							
Male candidate	46.88	49.71	48.25	46.13	42.32	45.54	52.17
Female candidate	46.39	49.19	48.48	46.26	43.73	44.93	48.85
Full sample	46.76	49.62	48.32	46.17	42.81	45.43	51.79
<b>Times elected previously</b>							
Male candidate	0.61	1.4	1.05	0.1	0.13	0.25	0
Female candidate	0.55	1.01	1	0.3	0.25	0.24	0
Full sample	0.59	1.34	1.03	0.15	0.17	0.25	0

*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 2021. The results are not weighted by district size.



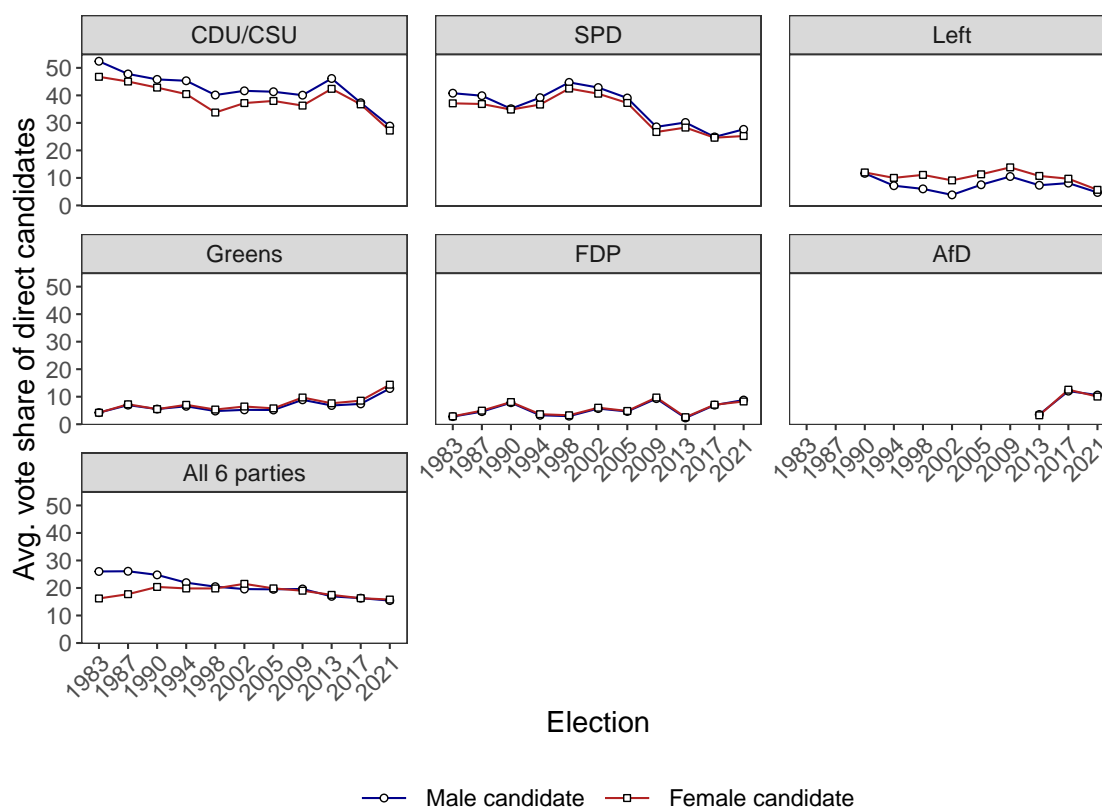
## B.2 Proportion of female candidates, 1983–2021

Figure B2: 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 2021. Elections prior to 1990 are based on West Germany, excluding the GDR. The panel labeled ‘all 6 parties’ includes all candidates from the six parties shown in the other panels.

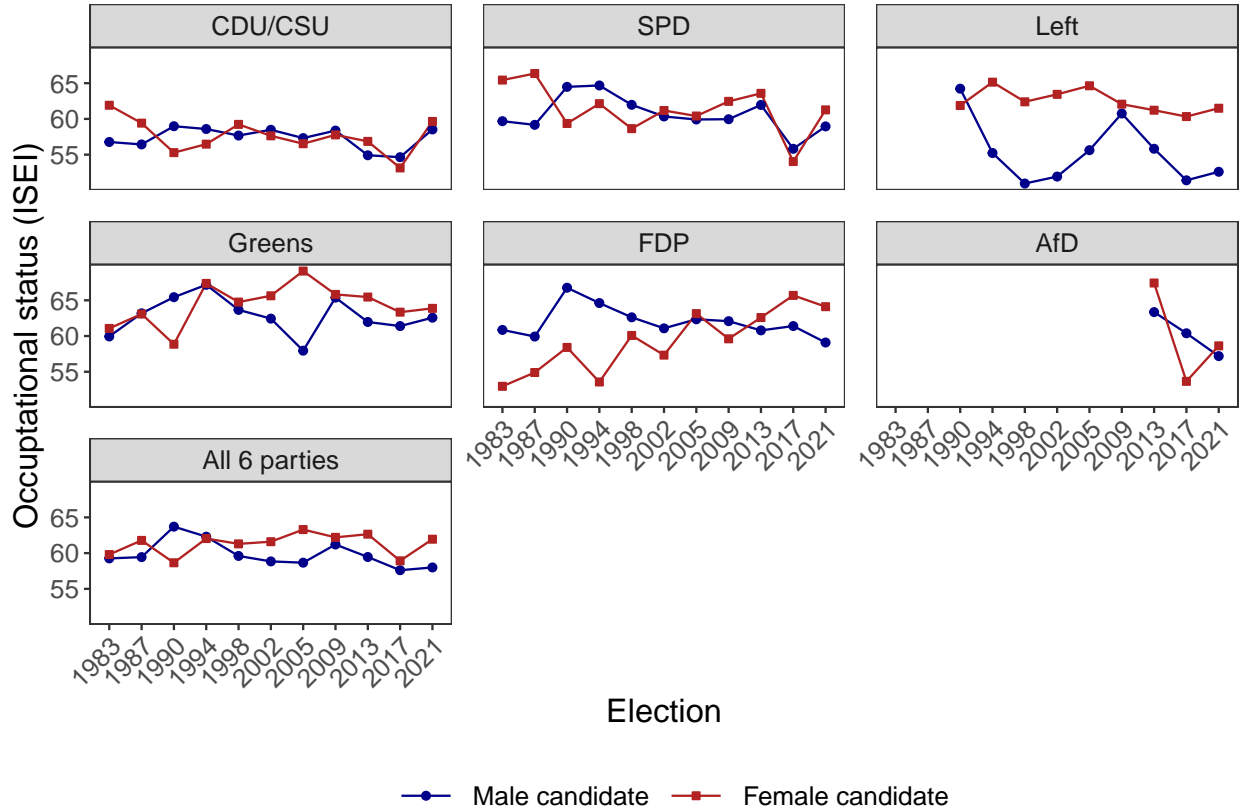
Figure B3: Candidate performance by gender and party



*Note:* The figure shows vote shares for male and female district candidates, across eleven elections for six parties. We consider all elections between 1983 and 2021. 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.

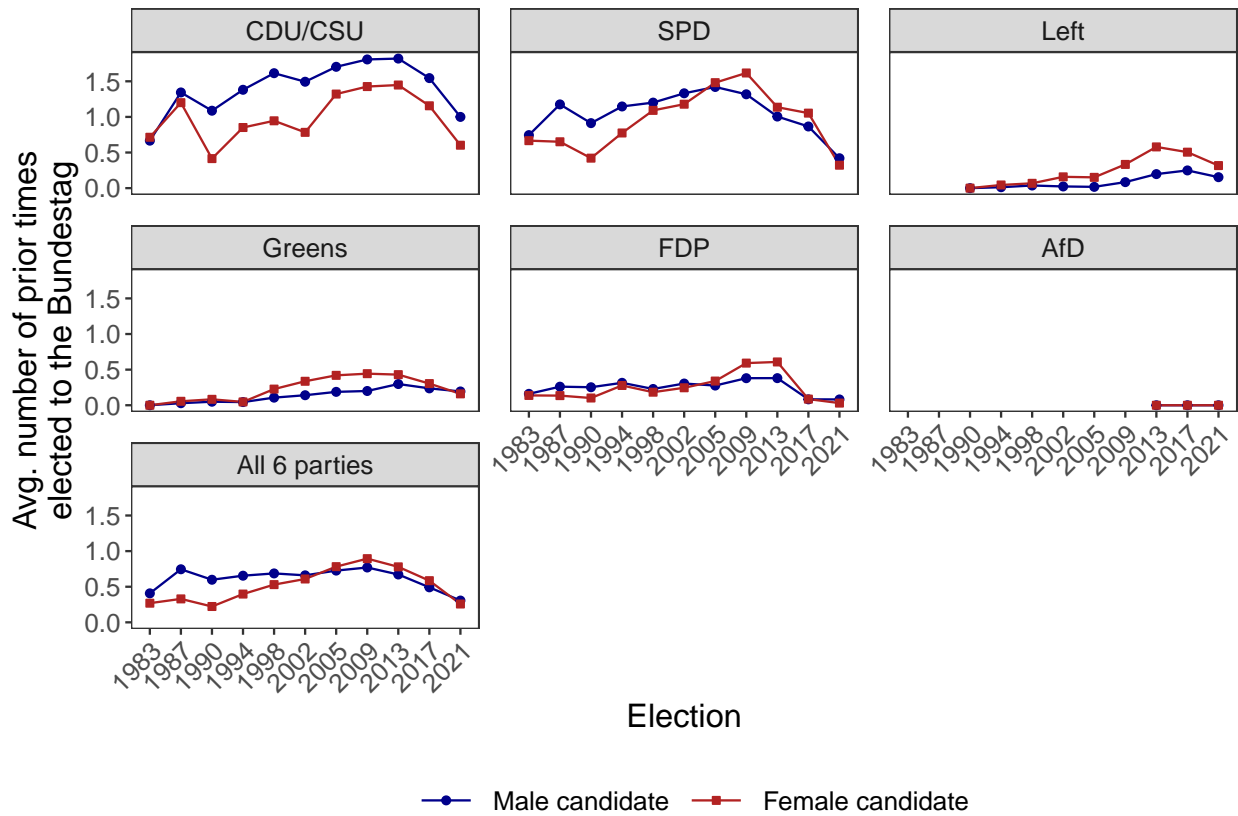
### B.3 Candidate characteristics by gender, party and election

Figure B4: Occupational status by gender and party



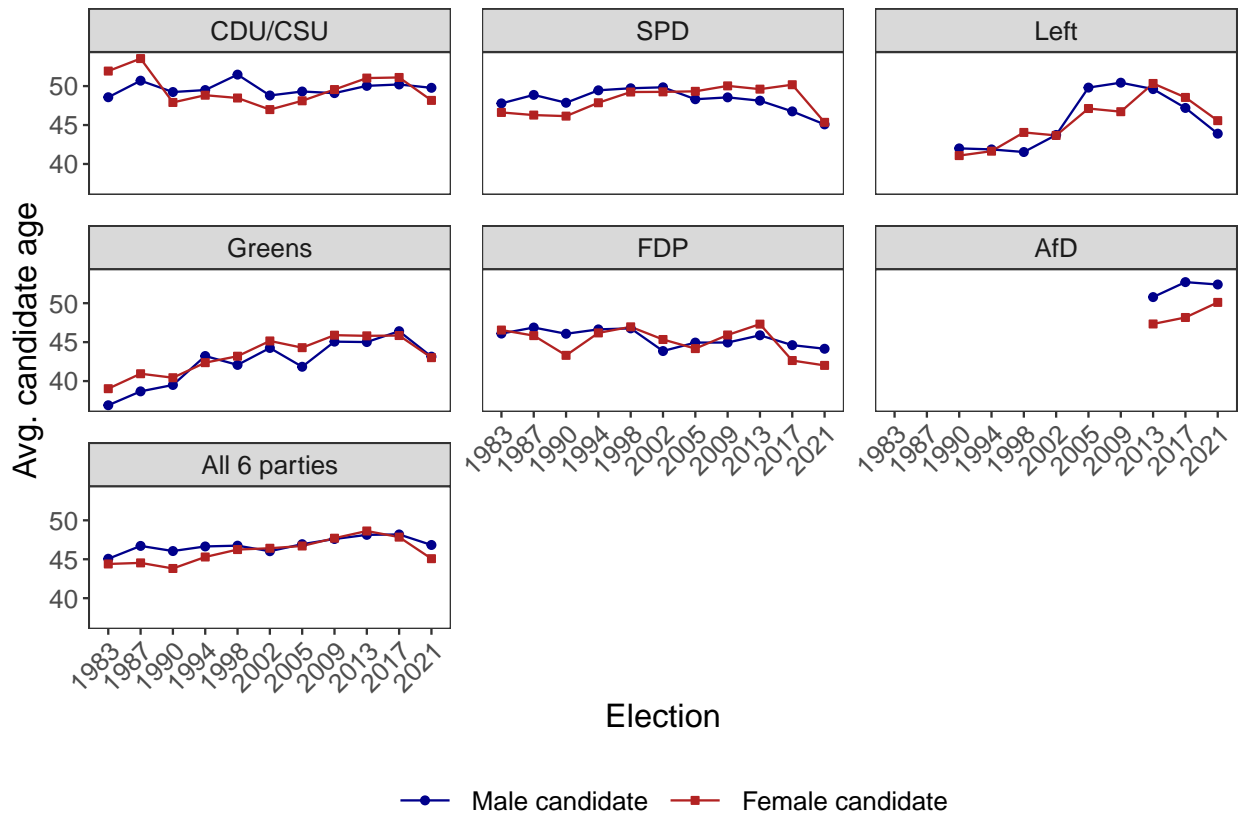
*Note:* The figure shows average occupational status for male and female district candidates, across eleven elections for six parties. We consider all elections between 1983 and 2021. Elections prior to 1990 are based on West Germany, excluding the GDR. The Left party did not exist in West Germany prior to 1990. We average over all electoral districts.

Figure B5: Times elected previously, by gender and party



*Note:* The figure shows average times elected to parliament previously, for male and female district candidates, across eleven elections for six parties. We consider all elections between 1983 and 2021. 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.

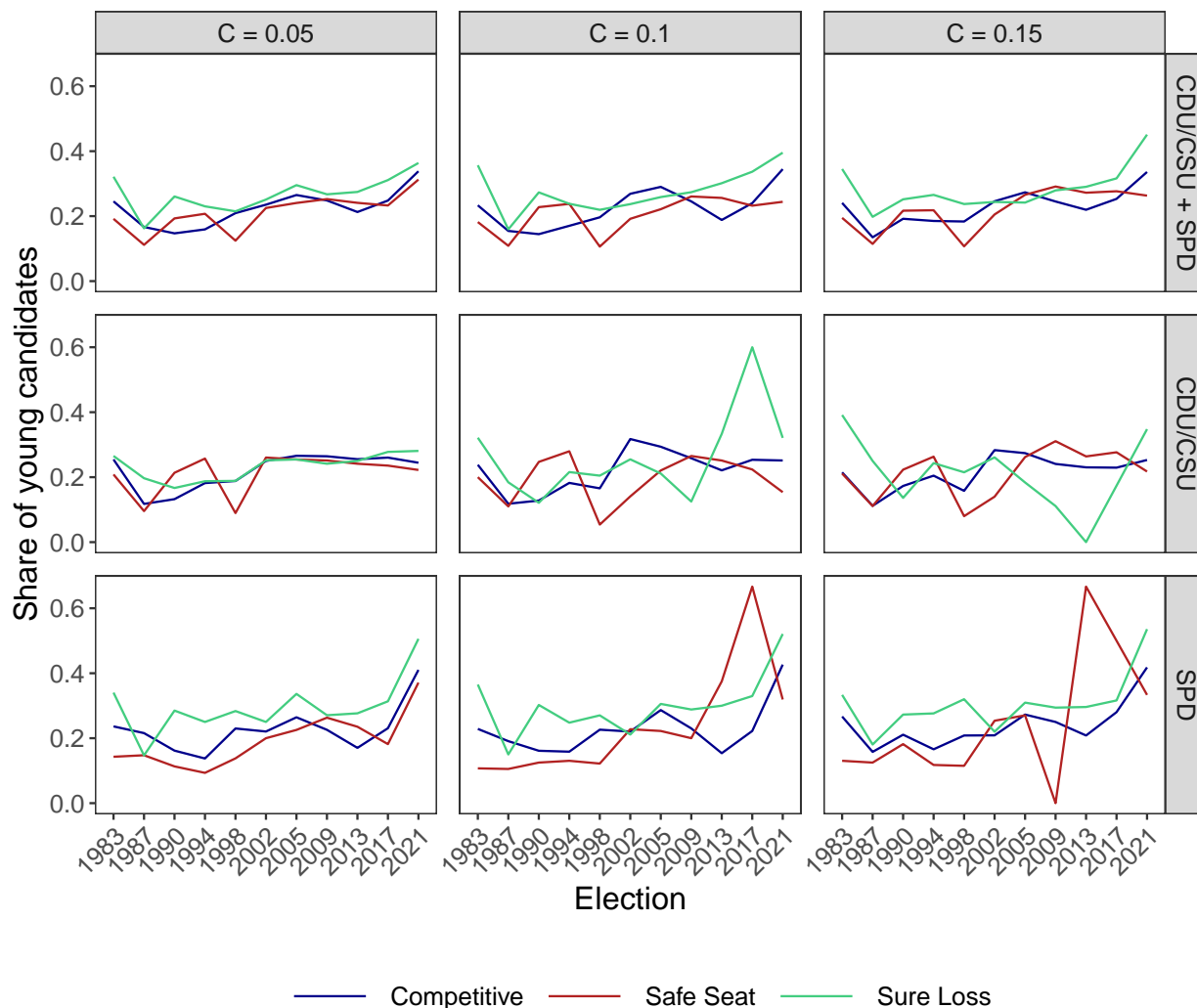
Figure B6: Candidate age, by gender and party



*Note:* The figure shows average candidate age, for male and female district candidates, across eleven elections for six parties. We consider all elections between 1983 and 2021. 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.

## B.4 Candidate age and district competitiveness

Figure B7: Likelihood of nominating a young district candidate by district competitiveness



*Note:* The figure shows the proportion of young district candidates by party, election, and district competitiveness. We consider all elections between 1983 and 2021. Elections prior to 1990 are based on West Germany, excluding the GDR. The definition of ‘young’ candidates is based on the bottom tercile of the candidate age distribution – young candidates are 42 or younger. We note that these patterns are very similar for the bottom quartile of the candidates age distribution, which includes candidates 39 and younger.

## B.5 Gap between candidate and party vote

Table B2: Vote gap betw. male and female candidates

	Vote gap (percentage points)						
	All parties	CDU/CSU	SPD	Left	Greens	FDP	AfD
Female candidate (0/1)	-0.107** (0.043)	-0.296*** (0.110)	-0.134 (0.102)	0.115* (0.070)	-0.120* (0.068)	-0.112 (0.078)	0.064 (0.079)
Party FEs	Yes	No	No	No	No	No	No
Election FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15,988	3,273	3,273	2,272	3,165	3,268	737
Prop. female candidates	0.25	0.17	0.31	0.28	0.35	0.17	0.12
Mean vote gap, male candidates	0.367	3.924	2.855	-0.268	-1.249	-3.468	-0.52
R <sup>2</sup>	0.604	0.404	0.426	0.437	0.410	0.474	0.726

*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

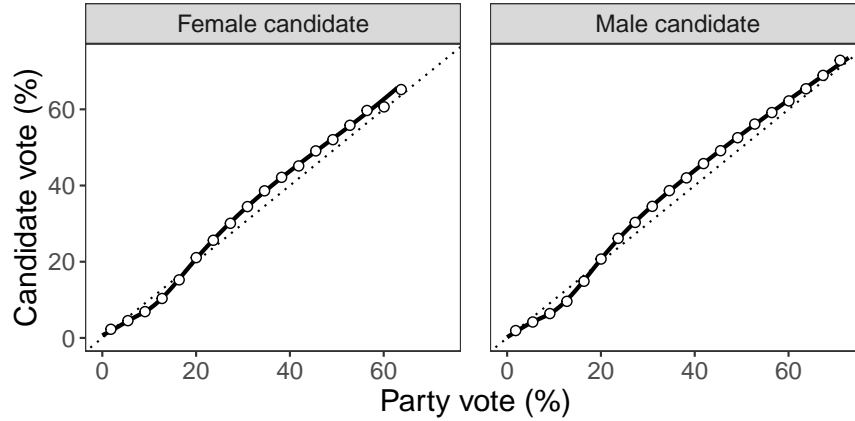
Table B3: Vote gap betw. male and female candidates conditional on candidate rank

	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)	-0.020 (0.283)	-0.291*** (0.077)	0.170 (0.379)	-0.200* (0.111)	-0.276 (0.322)	-0.186* (0.106)						
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	313	6,233	102	3,171	211	3,062						
Prop. female candidates	0.33	0.23	0.3	0.16	0.35	0.31						
Mean vote gap, male candidates	0.799	3.555	1.599	3.986	0.388	3.015						
R <sup>2</sup>	0.693	0.293	0.906	0.422	0.824	0.438						

*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. 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

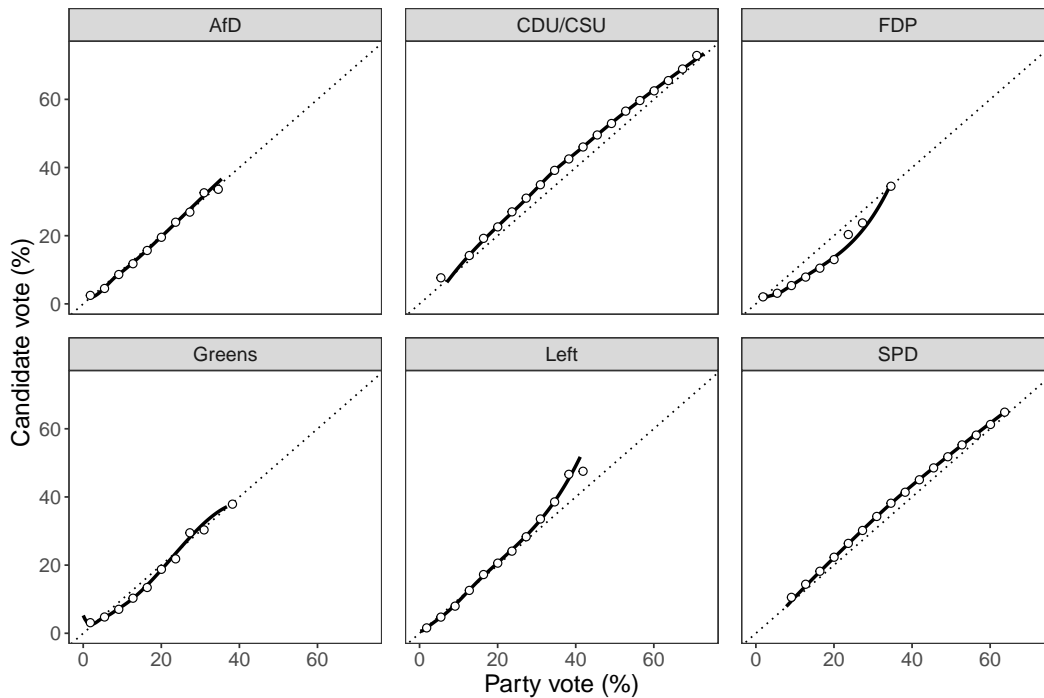
## B.6 Candidate and party vote shares

Figure B8: 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. We use a local polynomial regression to estimate the conditional mean of candidate vote shares as a function of party vote shares.

Figure B9: 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. We use a local polynomial regression to estimate the conditional mean of candidate vote shares as a function of party vote shares.



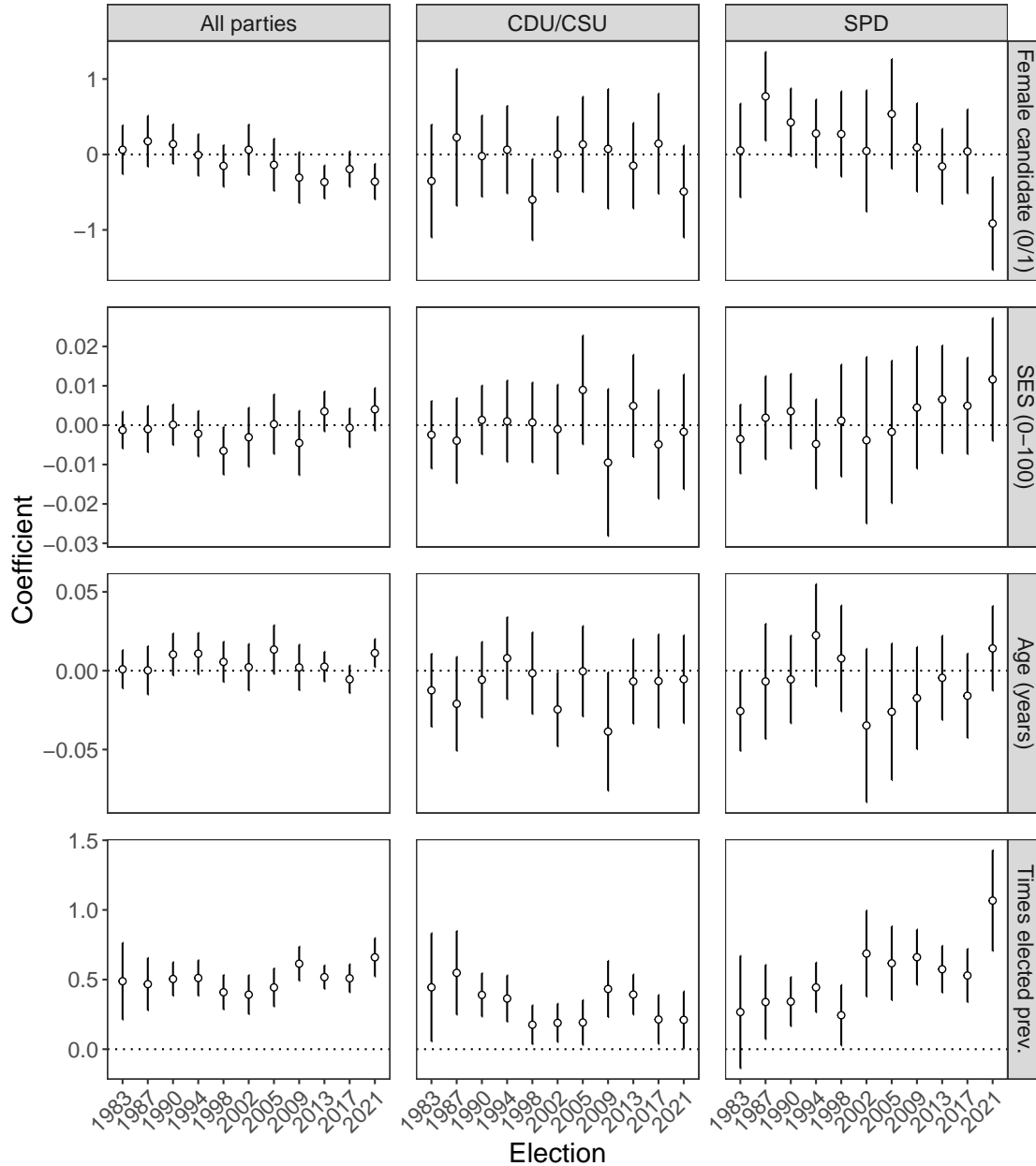
## B.7 Candidate vote share and candidate characteristics

Table B4: 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	1.009*** (0.002)	0.995*** (0.002)	1.084*** (0.006)	1.066*** (0.006)	1.087*** (0.008)	1.075*** (0.008)
Female candidate		-0.084** (0.042)		-0.070 (0.105)		0.022 (0.097)
SES (ISEI08)		-0.001 (0.001)		-0.004** (0.002)		0.003 (0.002)
Age		-0.0004 (0.002)		-0.018*** (0.005)		-0.001 (0.005)
Times elected prev.		0.540*** (0.018)		0.327*** (0.028)		0.514*** (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	15,988	15,988	3,273	3,273	3,273	3,273
R <sup>2</sup>	0.984	0.985	0.971	0.972	0.962	0.965

*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 B10: 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 B4 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.

## B.8 Candidate gender and party vote shares – difference-in-difference

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. In doing so, we utilize the fact that fielding new candidates sometimes means that the candidate gender changes from male to female between two elections, holding party and electoral district constant.

Due to a redistricting reform, we split the sample into two periods, 1980–1998 and 2002–2021. 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 when comparing districts across these two periods. We therefore split the sample, and report results separately for each time period.

For a given party during each time period, we then select consider all districts were either (i) a male candidates was fielded in all elections or (ii) a male candidate was replaced by a female candidates between any two consecutive elections.<sup>13</sup> This gives us a setting where the treatment (the entry of a female candidate) is staggered across elections. We therefore use the estimator proposed by Callaway and SantAnna (2021), which allows us to econometrically address issues related to the staggered nature of the treatment.

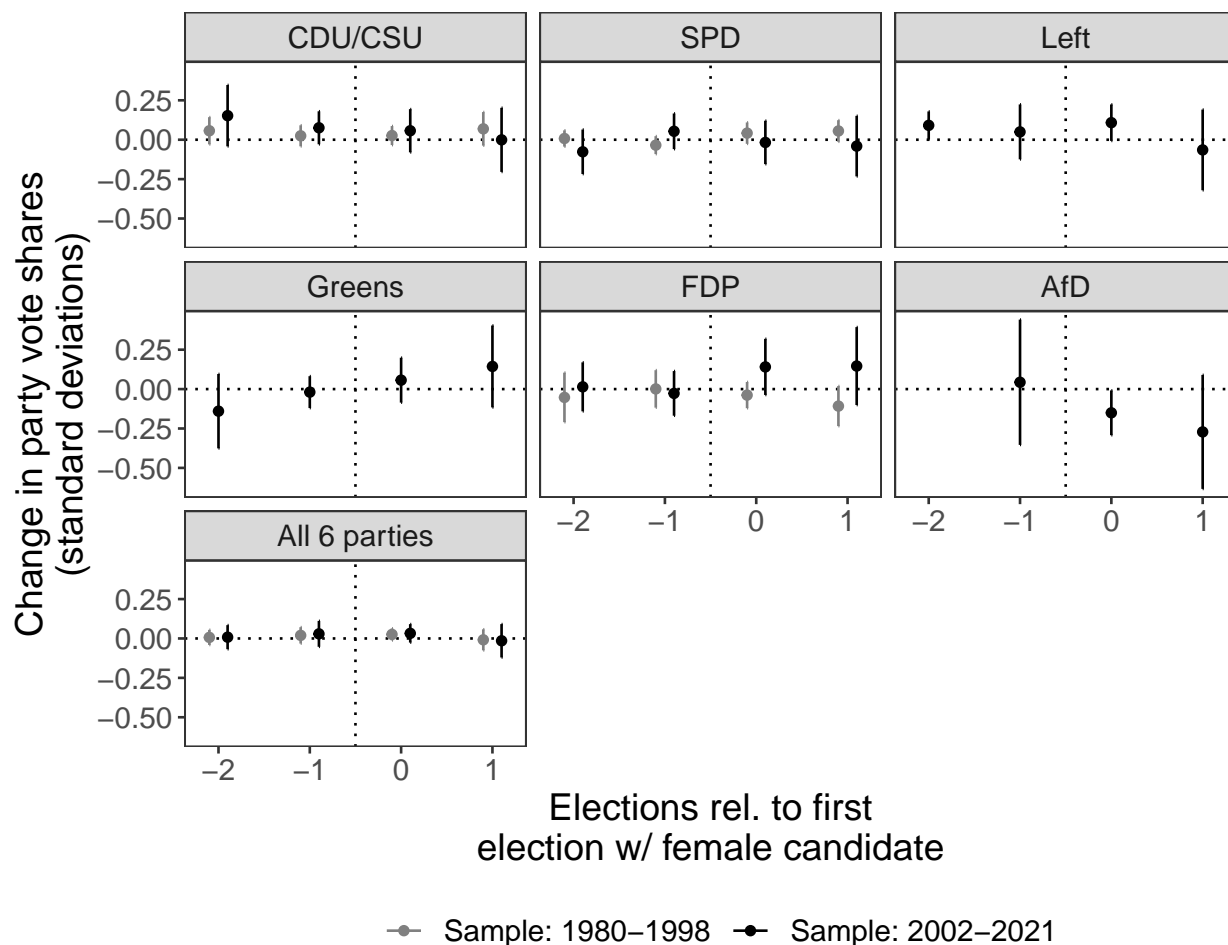
In figure B11, we present the results in an “event study” plot. Time zero represents the election where a switch from male to female candidate occurred, with the figure showing the effect on party vote shares relative to the two prior elections and the one election after the switch. Overall, the results give us little reason to assume the candidate gender has a causal effect on party vote shares. For the CDU/CSU, SPD, FDP and Greens, we observe small and insignificant changes in party vote shares after a woman replaces a male candidate. This holds both for the pre-2002 and the post-2002 period.<sup>14</sup> For the Left party and the AfD, estimates are noisier and we observe marginally significant results. The substantive magnitude of the effects we observe is small. Measured in percentage points, the estimates shown in figure B11 translate to an increase in party vote shares by 0.55 percentage points for the CDU/CSU, and a decrease of 0.16 percentage points for the SPD for the first period in which a female candidates runs. As a percentage of the average absolute election-on-election change in party vote shares, this equals 8.8% for the CDU/CSU, and -2.9% for the SPD.

---

<sup>13</sup>We additionally impose the condition that once a female candidate is nominated by a party in a given district, the candidate gender in all subsequent elections remains female.

<sup>14</sup>We note that we only present estimates for the CDU/CSU, FDP and SPD for the period prior to 2002, as the other parties fielded fewer or no candidates in these elections.

Figure B11: Difference-in-differences estimates of the effect of nominating a female candidate on party vote shares



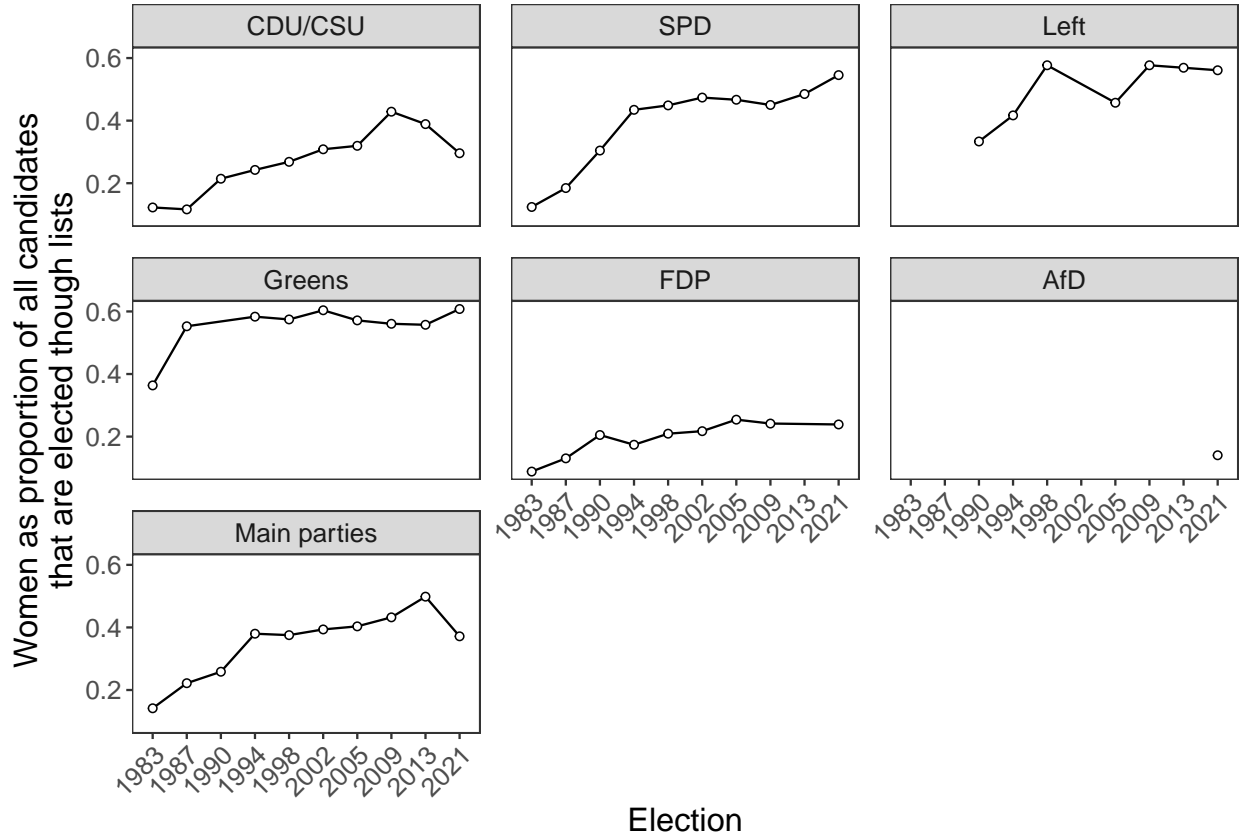
*Notes:* The figure shows estimates based on the estimator proposed by Callaway and SantAnna (2021). The outcome is the (standardized) party vote share for a given party. We present average effects conditional on the time of exposure to the treatment. The treatment is defined as the entry of a female district candidate after the previous candidate was a man. We present effect estimates in standard deviations. Negative values on the x-axis indicate elections prior to the the entry of the female candidate.

We also average these coefficients across all main parties, which is given in the bottom panel of figure B11, which similarly points to null effects.<sup>15</sup> Overall, the results presented in figure B11 indicate that candidate gender does not have a substantial effect on party vote shares.

<sup>15</sup>We note that this is based on averaging estimates across parties and periods. To calculate variances, we assume that period-party-specific estimates are independent – we note that a violation of this assumption would affect standard errors but not the averages across coefficients.

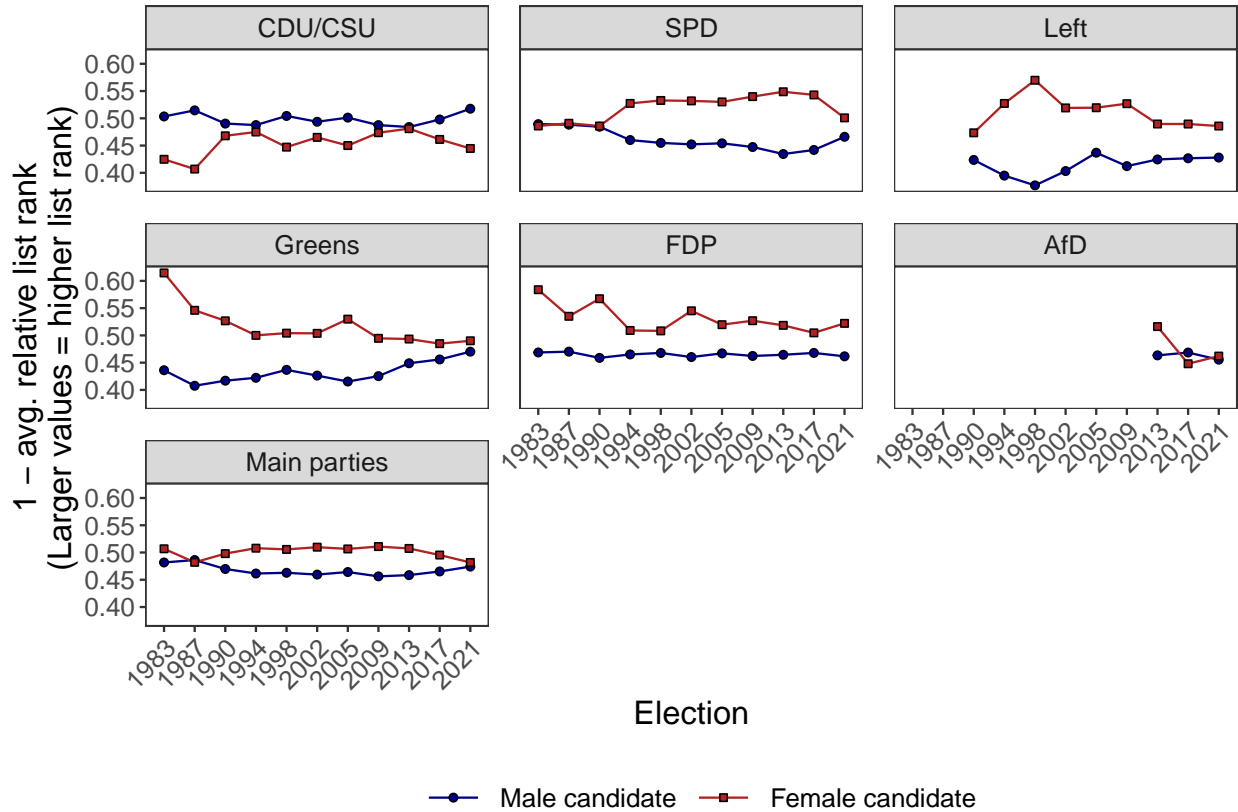
## B.9 Party list summary statistics

Figure B12: 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  $P(\text{Female candidate} | \text{Candidate enters parliament through list})$ ). 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 B13: Average relative list position by gender, party, and election



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  $R_{idt}$  of candidate  $i$  in election  $t$  and party  $p$  by the lowest possible list rank such that  $R_{idt}^{\text{relative}} = \frac{R_{idt}}{\max R_{idt}}$ . 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 ‘all 6 parties’ includes all candidates from the six parties shown in the other panels.

## C Additional Decomposition Results

Table C5: Decomposition Results

Party	Voters (p.p.)	Party (p.p.)	Total Gap (p.p.)
SPD	0.239	-3.224	-2.985
CDU/CSU	-0.008	-5.295	-5.303
Greens	0.034	1.298	1.332
FDP	0.032	0.345	0.377
Left	-0.021	3.080	3.059
AfD	0.003	-0.152	-0.149

*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 is 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 2021. 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 C6: Decomposition Results: Additional Detail

Party	$\alpha^W$	$\alpha^M$	$\beta^W$	$\beta^M$	$\overline{PV^M}$	$\overline{PV^W}$	$\overline{CV^M}$	$\overline{CV^W}$	Parties	Voters	Total
SPD	1.498	2.021	1.048	1.025	33.164	30.088	36.019	33.034	-3.224	0.239	-2.985
CDU/CSU	2.128	4.081	1.046	0.996	38.614	33.553	42.538	37.235	-5.295	-0.008	-5.303
Greens	-0.325	-0.422	0.887	0.895	7.862	9.326	6.613	7.946	1.298	0.034	1.332
FDP	-0.347	-0.833	0.651	0.702	8.840	9.370	5.372	5.749	0.345	0.032	0.377
Left	-0.948	-0.720	1.090	1.062	7.325	10.150	7.057	10.116	3.080	-0.021	3.059
AfD	-1.009	-0.912	1.048	1.039	10.170	10.025	9.650	9.501	-0.152	0.003	-0.149

*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 C7: Decomposition Results: By Year (1983–2021)

		$\alpha^F$	$\alpha^M$	$\beta^F$	$\beta^M$	$\overline{PV^M}$	$\overline{PV^F}$	$\overline{CV^M}$	$\overline{CV^F}$	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	28.56	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	24.90	24.61	-0.36	0.08	-0.28
2021	SPD	-4.18	-6.26	1.16	1.28	26.50	25.32	27.64	25.23	-1.36	-1.06	-2.42
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
2021	FDP	0.53	-0.73	0.69	0.83	11.47	11.17	8.79	8.27	-0.21	-0.31	-0.52
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	0.23	-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	10.20	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	-0.09	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
2021	Greens	-0.62	-1.35	0.98	1.04	13.77	15.27	12.98	14.37	1.47	-0.08	1.39
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	1.71	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	-4.44
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
2021	CDU/CSU	-0.55	0.33	1.19	1.18	24.26	23.33	28.85	27.20	-1.10	-0.55	-1.65
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
2021	Left	-1.42	-1.25	1.32	1.26	4.72	5.35	4.72	5.67	0.84	0.12	0.95
2013	AfD	0.16	-0.22	0.72	0.82	4.57	4.25	3.54	3.24	-0.23	-0.07	-0.30
2017	AfD	-1.17	-0.92	1.03	1.02	12.72	13.38	12.04	12.55	0.68	-0.15	0.52
2021	AfD	-1.01	-0.56	1.09	1.04	10.69	10.11	10.61	10.05	-0.63	0.07	-0.56
1983	All 6 parties	-2.96	-3.28	1.13	1.13	25.89	16.91	26.00	16.20	-10.18	0.37	-9.81
1987	All 6 parties	-3.41	-3.64	1.16	1.15	25.96	18.28	26.08	17.75	-8.90	0.57	-8.33
1990	All 6 parties	-1.06	-1.65	1.07	1.08	24.50	20.09	24.77	20.39	-4.71	0.33	-4.38
1994	All 6 parties	-2.15	-2.27	1.12	1.12	21.59	19.62	21.93	19.84	-2.21	0.11	-2.10
1998	All 6 parties	-2.45	-2.22	1.14	1.14	19.86	19.51	20.48	19.83	-0.39	-0.26	-0.65
2002	All 6 parties	-2.19	-1.53	1.13	1.10	19.27	20.98	19.61	21.51	1.93	-0.03	1.90
2005	All 6 parties	-4.76	-4.38	1.26	1.24	19.25	19.54	19.52	19.86	0.37	-0.03	0.34
2009	All 6 parties	-4.28	-4.93	1.28	1.29	19.07	18.15	19.64	19.01	-1.18	0.55	-0.63
2013	All 6 parties	-2.34	-2.09	1.17	1.16	16.42	16.89	16.96	17.49	0.55	-0.02	0.54
2017	All 6 parties	-3.34	-3.49	1.25	1.24	15.95	15.65	16.30	16.29	-0.38	0.36	-0.01
2021	All 6 parties	-1.49	-2.31	1.09	1.18	15.05	15.84	15.43	15.80	0.86	-0.49	0.37

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



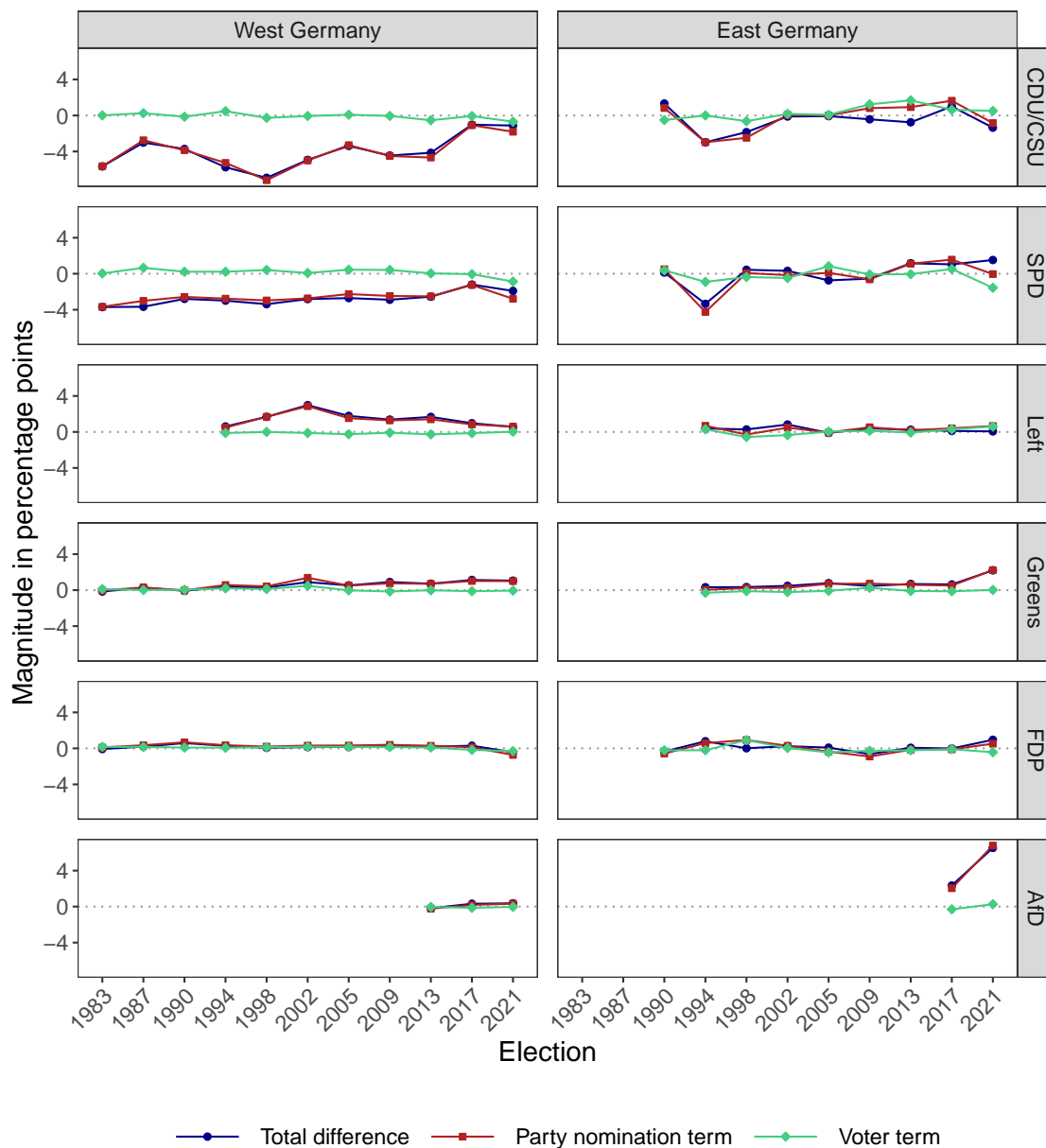
Table C8: Decomposition Results: By party and competitiveness

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 is 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 2021. 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.

## C.1 Decomposition results – East & West Germany

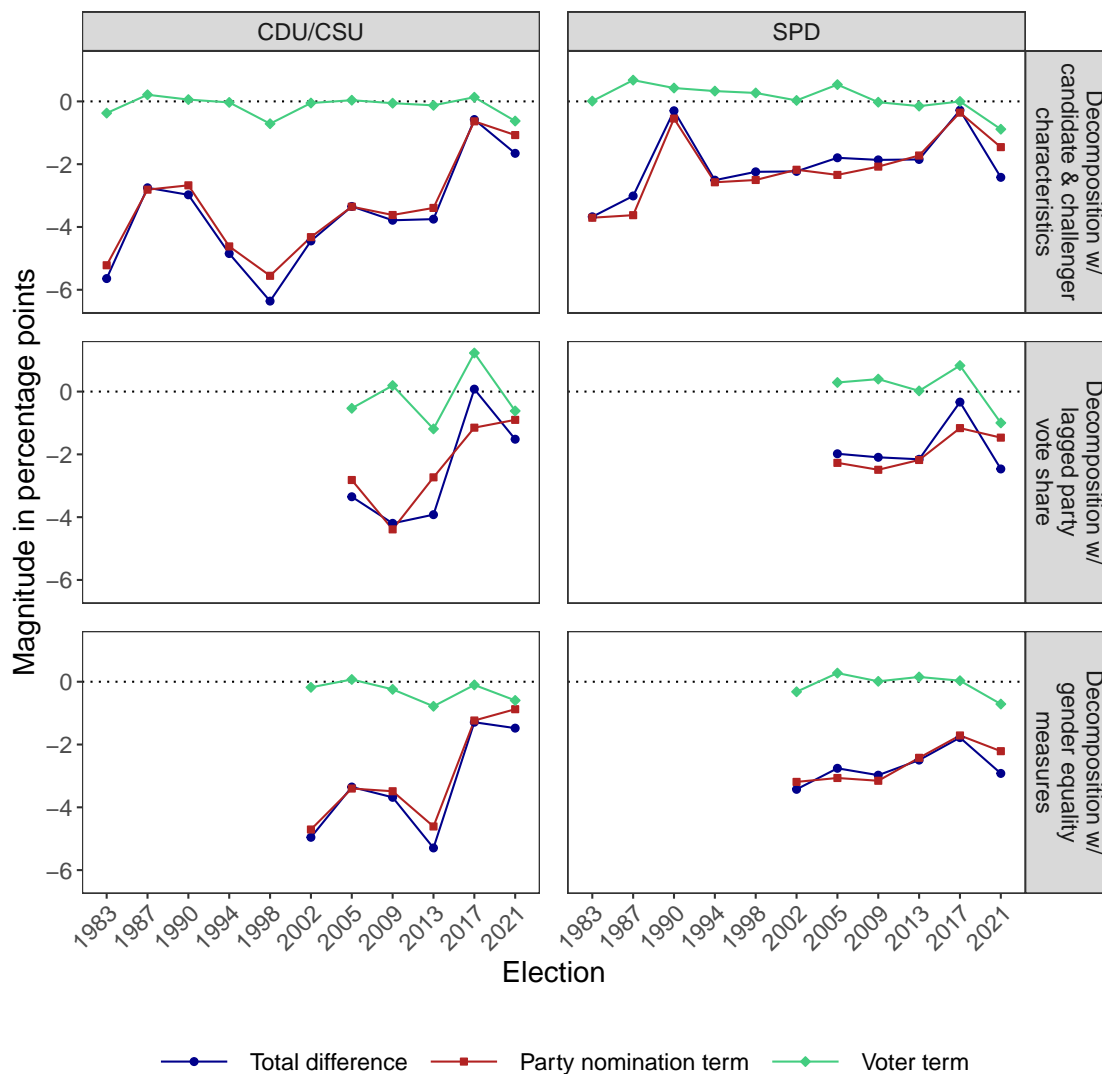
Figure C14: Decomposition results for East and West Germany



*Note:* The figure plots the party term, voter term and the total gender gap. We consider all elections between 1983 and 2021. The ‘Voter’ term equals  $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PVM}]$ , 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.

## C.2 Decomposition results – robustness

Figure C15: 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 2021. 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, a gender equality index (“Gleichstellungsindex”, 2013), the share of women in full time employment (2013), and the gender wage gap (2009). Since these controls were measured in either 2009 and 2013, we only include elections after 2000.

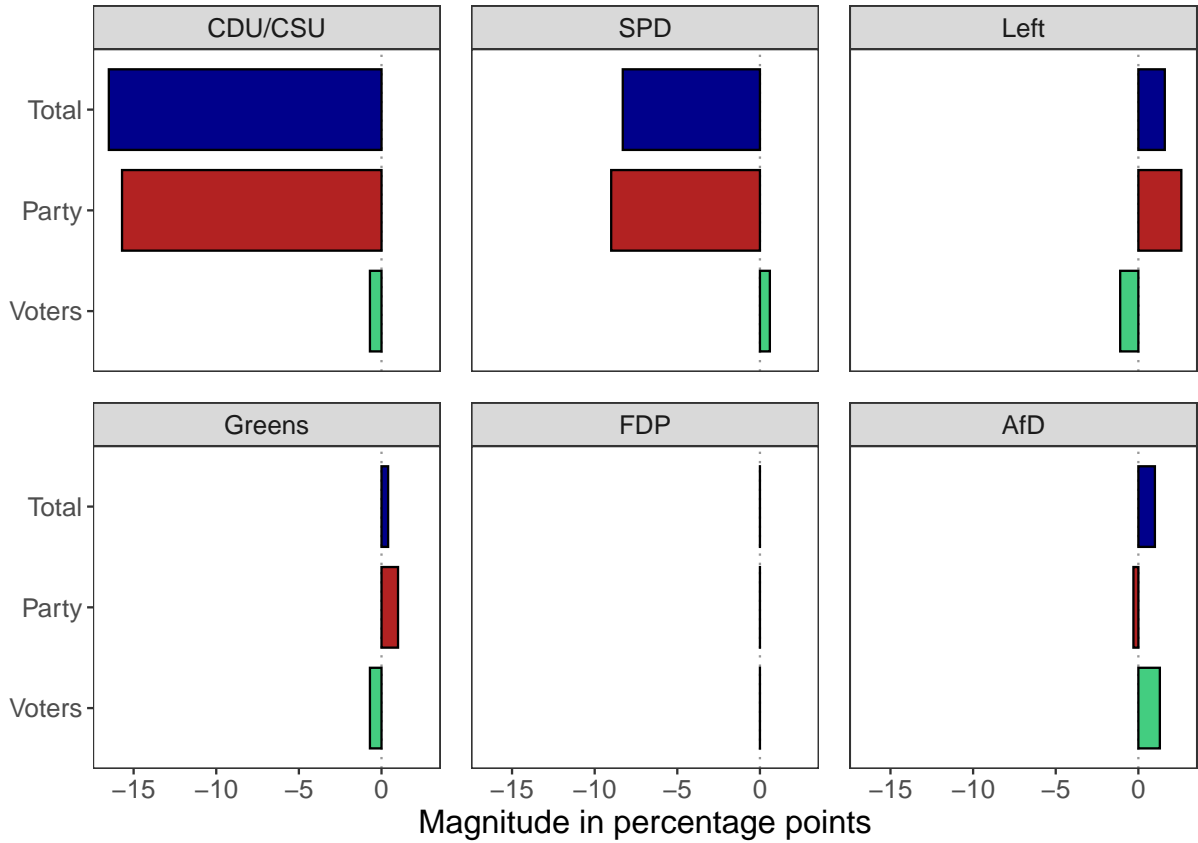
### C.3 Decomposition results – winning districts

Table C9: Decomposition Results – winning districts

Party	Voters	Party	Total Gap
SPD	0.006	-0.090	-0.083
CDU/CSU	-0.007	-0.157	-0.165
Greens	-0.007	0.010	0.004
FDP	0	0	0
Left	-0.011	0.026	0.016
AfD	0.013	-0.003	0.010

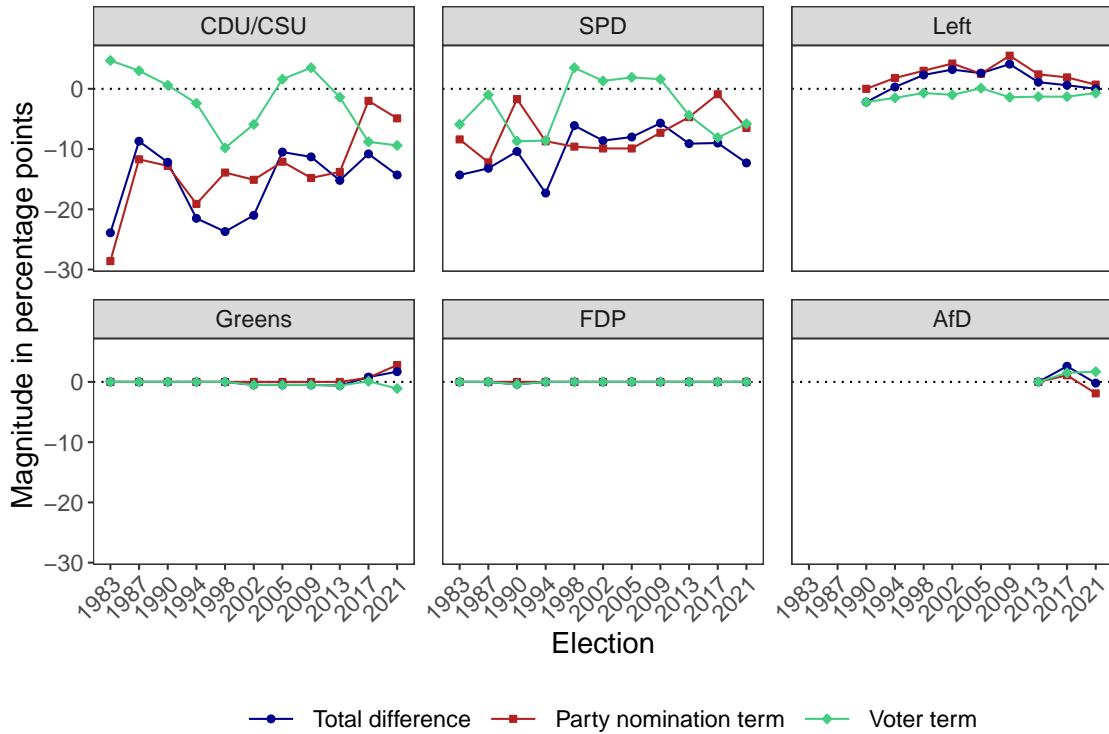
*Notes:* The table contains the results of the decomposition analysis outlined in section 6. Instead of the candidate vote share, we decompose the probability of winning the district. The first column is the  $[\alpha^W - \alpha^M + (\beta^W - \beta^M)\overline{PV^M}]$  term, representing the contribution of voters to the total gender election gap. The second column is 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 2021. 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 C16: 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 2021. 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 C9

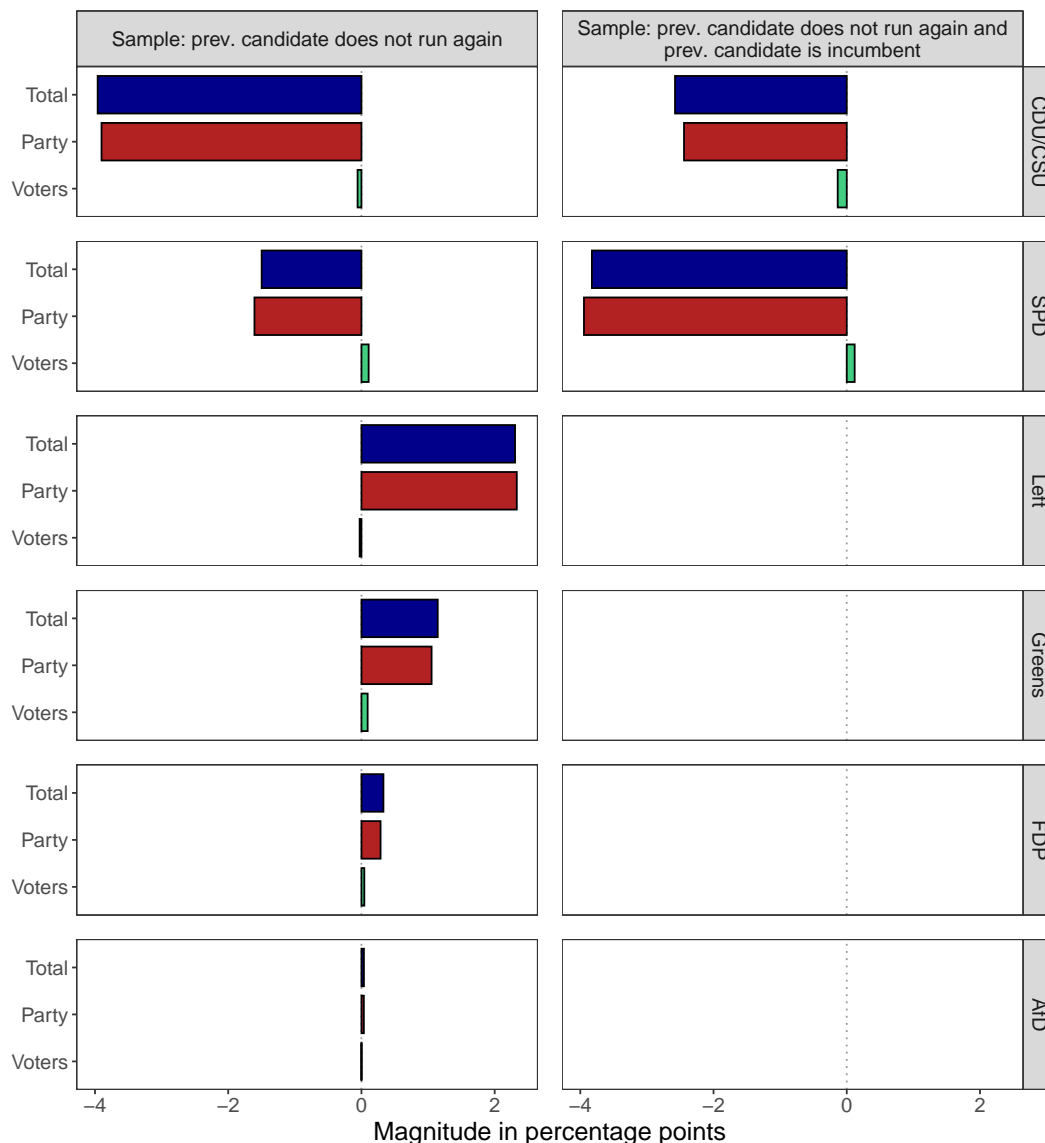
Figure C17: Main decomposition results for winning in districts



*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 2021. 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.  $\overline{P(\text{Win district})^W} - \overline{P(\text{Win district})^M}$ .

## C.4 Decomposition results – subsetting to open seats

Figure C18: 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 2021. 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 too 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.  $\overline{CV^W} - \overline{CV^M}$ .