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The Importance of Descriptive Representation & Cue-Taking in Free List Local Elections

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ABSTRACT

With this study, we add to the literature on cue-taking and descriptive representation by focusing on a local, low-information context. Specifically, we empirically analyse voting patterns in the 2024 municipal elections in Mannheim, Germany. In this election, a free-list ballot design allowed voters to distribute 48 votes among 508 candidates of multiple parties, making it an ideal case to study these prominent theories of vote allocation. First, we show that party affiliation, ballot position, and incumbency significantly predict vote totals as expected. Ballot cues indicating candidates' occupations and (to a limited extent) their gender additionally affect electoral outcomes. These findings complement previous experimental studies on ballot cues with observational research to better understand voter decision-making in complex real-world electoral settings. Using multilevel models, we further uncover a strong relevance of (geographical) representation and a home-district advantage in particular: Candidates receive about two-hundred per cent more votes in their own residential districts compared to their results in other districts. They also achieve substantially better results in districts with similar geographic location as their own. Lastly, voter age dynamics suggest that candidates benefit electorally when their age aligns with the demographic profile of the respective district.

Why do citizens choose some candidates over others? In this paper, we investigate how descriptive representation and ballot cues like perceived gender, profession, incumbency, and list position affected voters' candidate-level choices in the 2024 municipal elections in Mannheim, Baden-Württemberg. Our study adds important insights to existing literature on mechanisms such as cue-taking, satisficing, incumbency advantages, and descriptive voting patterns by focusing on a local-level, low-information, second-order election. It also analyses voting patterns in somewhat unusual free ballots. In

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this design, voters were asked to distribute a total of 48 votes among 508 potential candidates. They could vote for an entire party list or cast up to three votes for an individual candidate, and they could even vote for candidates from different parties.

Firstly, we evaluate overall patterns in vote attribution to candidates based on ballot cues indicating their gender and profession. Building on previous research on cue-taking (e.g. Conover and Feldman 1982; Jankowski 2016; Bowler and Nicholson 2019; Rudolph, Däubler, and Menzner 2022), we expect voters to use these characteristics as informational shortcuts to infer competences and political preferences. Concretely, we expect candidates with more prestigious occupations, a doctoral degree, males (females) in right-of-centre (left-of-centre) parties, and the perceived gender in the minority on the respective party list to have electoral advantages.

In line with existing literature, we also assume party labels (e.g. Green, Palmquist, and Schickler 2002) to be the most decisive cue for voters. Research on the impact of ballot positions (Miller and Krosnick 1998) and incumbency advantages (Carson, Sievert, and Williamson 2019) suggests that higher-placed candidates as well as members of the previous municipal council have a substantial electoral advantage. Consequently, we control for these three influences in all our models.

We test our cue-taking hypotheses using linear regression. All of our controls are indeed related to candidates' vote totals in the expected directions. We also find that both the displayed doctoral degrees and cues of high-prestige occupations are associated with increased vote totals. The gender-cues provide mixed results: For one, we find vote differences of male and female perceived candidates in left- and right-leaning parties to be in the hypothesised direction, but statistically insignificant. Still, the interaction term reveals that, in line with our general argument, female-perceived candidates fare significantly better in left-leaning compared to right-leaning parties.

Drawing on descriptive representation (Pitkin 1967) and place-based identity research (Jacobs and Munis 2023), we also argue that citizens should be more inclined to vote for candidates with shared characteristics. Specifically, since the ballot provides information on the candidates' district of residence, we expect voters to prefer candidates from their own districts and districts with shared characteristics such as a peripheral vs. central location.[1]

[1]We pre-registered both our theoretical arguments and hypotheses prior to the election (Schmid, Menzner, and Rettig 2024). Our pre-analysis plan also included a hypothesis regarding candidates' perceived ethnicity and the districts' share of citizens with a migration background. Assigning a perceived migration background based solely on a candidate's name would require very subjective judgments or automated tools. As stated in the README for the R-package rethnicity (Xie 2022) such a process comes with substantial ethical concerns. Predictions are never 100% correct and, with our limited sample size, some predictions could even be traced back to individuals in question. We decided to refrain from evaluating this hypothesis, but for transparency purposes, information about the underlying argument, operationalisations and results are still reported in the appendix (see online attachment).

Geographic representation has been studied mainly at the national and regional levels and less locally (Harjunen, Saarimaa, and Tukiainen 2023). We thus make an important contribution towards addressing this research gap. Using district-level data, we estimate multilevel models with candidate random intercepts to investigate whether and why candidates performed better or worse in specific districts. Our results strongly support the notion that local representation matters to voters as candidates receive two times more votes in their own residential district compared to their other district results. Even controlling for this home district bonus, candidates still fare better in the type of district (central or peripheral) that matches their residential district. This points towards a possible expectation by voters that, for example, also candidates from other peripheral districts are more likely to represent their own view as citizens living on the outskirts of the town.

Lastly, we leverage structural data about the voting districts' age composition to explore whether this influences the share of votes given to candidates based on their age. In line with a descriptive voting argument, younger candidates receive electoral boosts in younger districts, while older candidates attract most votes in older districts. These differences are especially pronounced for young candidates, whose expected votes decline substantially in relatively old districts.

Overall, our analyses strongly support the idea of descriptive voting behaviour and the importance of party cues, ballot position and incumbency status for electoral success. We complement existing experimental studies on gender and occupational cues (Rudolph, Däubler, and Menzner 2022; McDermott 2005) with observational data. Beyond this, there is robust support for a home district advantage, which is particularly beneficial to lesser-known candidates, and for a preference for candidates residing in similar areas to those of the electorate. These findings highlight the importance of local identity and shared characteristics, even in highly localised elections, and warrant further investigation.

Cue-Taking

People utilise information cues to draw inferences and make informed decisions with minimal cognitive effort (Bowler and Nicholson 2019; Zaller 1992). For vote choice, several researchers found that voters rely on readily available cues to make their voting decisions (e.g. Conover and Feldman 1982; Jankowski 2016; Kirkland and Coppock 2018). An attempt to reduce cognitive effort when making vote choices should especially be prevalent in second-order elections. Regarding the present case, we argue that few voters possess the knowledge to assign 48 direct votes to 508 possible candidates purely based on their knowledge about candidates' positions.

The least cognitively demanding strategy in this scenario is to vote for a whole party list. In practice, 42.4 per cent of total registered votes were assigned through this strategy (Stadt Mannheim 2024c). Conversely, a majority of votes were individually assigned, stressing that many citizens use the flexibility given to them by the free list design. In our models, we discount votes attributed via party lists and focus only on the second type of 'freely' distributed votes. Our insights are thus solely based on and indicative for behaviour of the subset of voters who freely assigned votes. For them, we expect various social characteristics of candidates that can be inferred from the ballot to serve as cues. They allow voters to develop ad hoc perceptions about candidates' issue positions (Arnesen, Duell, and Johannesson 2019) and cast their votes accordingly.

According to existing literature, party labels should be the most decisive cue for voters (Campbell et al. 1960; Däubler and Rudolph 2020; Green, Palmquist, and Schickler 2002; Kirkland and Coppock 2018). Further, ballot position should exert a strong influence on vote choice (Miller and Krosnick 1998; Däubler and Rudolph 2020). Voters might either see a higher ranking of politicians as an informational cue about their competency, or simply engage in satisficing. While both of these mechanisms benefit the highest-ranked candidates, recent evidence suggests a '(reversed) J-shaped curve' (Söderlund, von Schoultz, and Papageorgiou 2021). Last-ranked candidates could benefit either due to recency effects or protest votes against party leadership.

The relative unfamiliarity of the 508 candidates also raises the potential for incumbency advantages (Carson, Engstrom, and Roberts 2007, 2019). Council members are likely more well-known by the electorate than other candidates. The incumbency advantage might thus be even more consequential here with name recognition or politicians' inferred expertise as its main driver (Jankowski and Müller 2021; von Schoultz and Papageorgiou 2021). In summary, we always control for party affiliation, ballot position, and council incumbency below.

In H1a and H1b, the cue of interest is candidates' perceived gender.[2] From a cue-taking perspective, it is likely that most voters will perceive candidates as either male or female, which can be inferred by their first names and the gendered suffix of their occupational label ('-in' indicates female).[3] Especially in low-information elections, gender stereotypes substantially influence voting behaviour (McDermott 1998, 1997). We argue that the gender cue is conditional on the voters' political attitudes. Voters of left-leaning parties have been identified as more likely to vote for female candidates,

[2]Our analyses are targeted at candidates' *perceived* gender, as we do not know their self-identified gender. Crucially though, neither does the average voter.

[3]We explain the detailed coding procedure for perceived gender in the appendix (see online attachment).

while voters of right-leaning parties are more likely to vote for male candidates (Rudolph, Däubler, and Menzner 2022). Further, liberal voters and those concerned with social welfare and ethics issues are more likely to choose female candidates because of the candidate's gender cue (Rudolph, Däubler, and Menzner 2022; McDermott 1998). This pattern could result from voters' impression that a candidate aligns with their values of gender equality (Saltzer and McGrath 2022; Sanbonmatsu 2002). This warrants the following hypotheses:

H1a: Female-perceived candidates in left-of-centre parties have an electoral advantage over male-perceived candidates.

H1b: Male-perceived candidates in right-of-centre parties have an electoral advantage over female-perceived candidates.

Alternatively, a gender cue effect might depend on the overall gender distribution on the respective party list. In an experimental setting, Rudolph, Däubler, and Menzner (2022) show that voters strongly compensate for gender imbalances on open ballot lists by voting more frequently for the underrepresented gender. We thus also expect the gender distribution to moderate the effect of the candidates' gender cue. By re-evaluating this hypothesis, we test whether the authors' experimental finding replicates observationally in a much more complicated real-world setting.

H2: The stronger the imbalance of candidates' perceived gender on a party list, the stronger the electoral advantage for those candidates who are perceived to belong to the minority.

Further, candidates' occupations have been shown to significantly affect their electoral success (Mechtel 2014). Especially in low-information elections, voters use occupational labels on the ballot as informational shortcuts from which they infer the candidate's competence for office (McDermott 2005; Mechtel 2014). In the present case, candidates' occupation was displayed on the ballot, just behind their name. We thus expect that, on average, candidates with more prestigious occupations are perceived as especially competent and thus retain more votes than candidates in low prestige jobs.

H3: Candidates with more prestigious occupations have an electoral advantage.

Similarly, a positive effect of a doctoral degree on the candidate's vote share was found in prior research (Arnesen, Duell, and Johannesson 2019; Jankowski 2016; Mechtel 2014; Kelley and McAllister 1984). A doctoral degree indicated in front of candidates' last names potentially leads voters to perceive these candidates as especially intelligent and qualified for office.

H4: Candidates with a doctoral degree have an electoral advantage.

Descriptive Representation

For the following hypotheses, we additionally rely on the concept of descriptive representation (Pitkin 1967) as a driving factor behind the expected effects. Generally, citizens are expected to vote for candidates with shared characteristics. Shared characteristics often symbolise shared interests and beliefs for voters, and voters believe similar candidates will better represent them (e.g. Lowande, Ritchie, and Lauterbach 2019; Haider-Markel 2007; Arnesen, Duell, and Johannesson 2019).

The importance of this kind of descriptive representation to achieve substantive representation has since been demonstrated by multiple researchers (e.g. Lowande, Ritchie, and Lauterbach 2019; Haider-Markel 2007). Politicians engage especially in issues that are related to, or more salient to groups with which they share an identification, such as occupation or gender (Velimsky et al. 2024; Celis 2006; Wäckerle and Silva 2023). Legislators are also more likely to represent interests of shared identities (Boas and Smith 2019; Lowande, Ritchie, and Lauterbach 2019). Notably, Bailer et al. (2021) show that politicians are most responsive to the needs of the disadvantaged groups that they belonged to themselves at the beginning of their political career. All of this evidence points towards the fact that voting for someone with shared identities or traits in the municipal election at hand is beneficial for voters, as their own interests are more likely to be represented.

As we do not have access to individual level voting data, we evaluate the argument of descriptive voting on the meso-level, using disaggregated vote counts from each voting district in Mannheim. We expect that candidates obtain more votes in their own residential district, compared to their results in other districts. Importantly, candidates' residential districts were displayed on the ballot, thus serving as a potential cue to voters that the respective politician will be especially committed to represent interests from the voters' own neighbourhoods. These interests can include, but are not limited to, budgetary discussions about where to cut public spending or where to build new infrastructure such as public transport or schools. Alternatively, next to better local representation, personal connections can play a role on the local election level as voters and candidates from the same neighbourhoods are more likely to be familiar with one another (Harfst et al. 2023). Our theoretical expectation is supported by previous findings, showing that candidates received disproportionally more votes in their residential districts in Irish local (Jankowski 2016) and German federal (Schulte-Cloos and Bauer 2021) elections.

The relevance of geographic representation at the local level has recently been demonstrated by Harmening et al. (2025), who show that parties focus

on representing those districts where they receive the greatest electoral support. We argue, in turn, that voters are more willing to vote for candidates from their own district, because they could be anticipating them to be more aware of and responsive to this district's needs. Moreover, as residents themselves, the candidates will be equally affected by council decisions and, therefore, have a personal motivation to represent their own district (Harmening et al. 2025).

H5: Candidates have an electoral advantage within their own district.

Inference about issue positions based on geographical closeness could furthermore influence citizens' likelihood to vote for candidates from districts that are similar to their home district. Scholars have prominently theorised place-based identities and studied an urban-rural divide in politics that also influences citizens' voting considerations (Jacobs and Munis 2023; Ford and Jennings 2020). While previous research indicates that citizens vote for local candidates also as expression of their place-based and social identity (Schulte-Cloos and Bauer 2021), Velimsky et al. (2023) show that especially in a low-information context, the representation of preferences rather than a place-shared identity makes citizens vote for candidates who live in the same district.

We argue that even within the smaller scope of a city, issue salience and preferences can differ systematically between different types of districts. Similar to an urban-rural divide in national politics, we propose that the 300,000-inhabitant city of Mannheim can be credibly differentiated into centre vs. periphery districts (see Figure 1). We categorised the 17 districts into these binary indicators based on the geographical proximity and travel distance to the city centre (Table A4), the historical formation of today's Mannheim, and demographic differences (i.e. central districts are generally more densely populated, younger and have higher share of citizens with migration background (Table A3). For example, due to difference in geographical proximity, residents differ in their needs towards transport planning. Discussions about creating more bicycle streets at the expense of car drivers were a key issue in Mannheim's election. Furthermore, as the sociodemographic composition of central and periphery districts differ, issues like childcare or care for the elderly could be more salient in periphery districts. Hence, we propose:

H6a: Candidates from any periphery district have an electoral advantage within all periphery districts.

H6b: Candidates from any central district have an electoral advantage within all central districts.

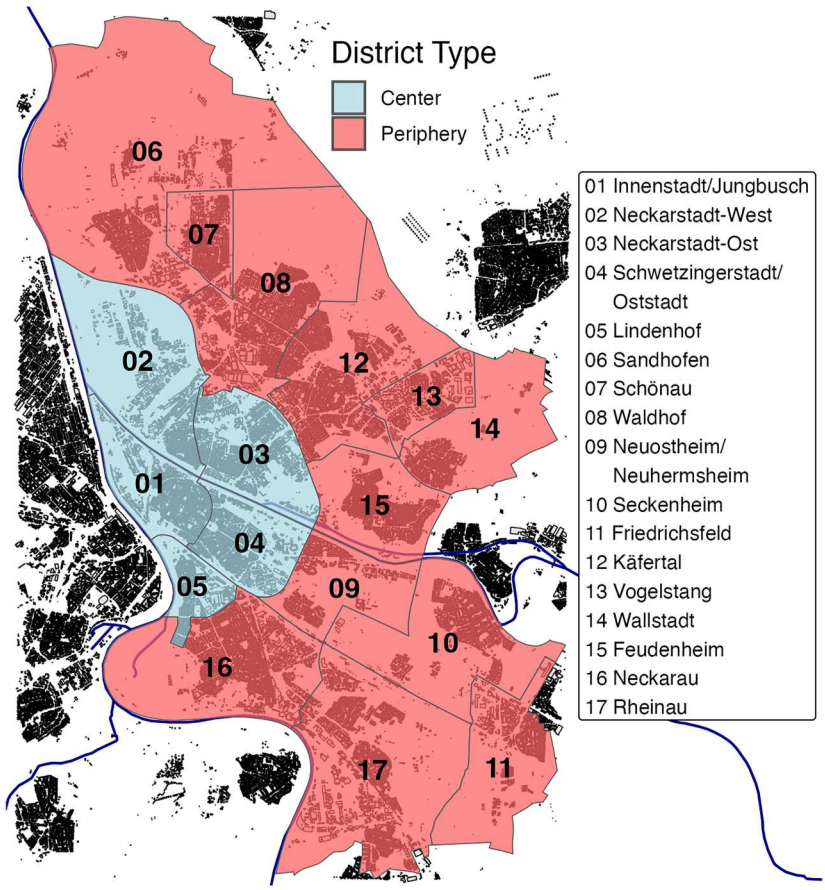

Figure 1. Central vs. peripheral voting districts. Layout of Mannheim, differentiating between central (blue) and peripheral (red) districts. Building and river structures obtained through the osmdata-package (Mark et al. 2017). The district border shapefile was provided by the City of Mannheim's 'Kommunale Statistikstelle'.

Exploring the Effects of Candidates' & Voters' Age

In addition to our confirmatory hypotheses, we aim to understand the impact of candidates' age on their vote share. While, in theory, information about candidates' age was publicly available, this information was not provided on the ballot. Because the cue effects of candidates' characteristics vary depending on whether they are listed on the ballot paper (Portmann 2022), we cannot assume the same direct cue-taking mechanism as before. However, age might still be inferred, for example from occupational labels ('Student'/'Pensioner') on the ballot, or from local election posters.

Lately, discussions about politicians' (exceedingly high) age have become more frequent in the political arena. There is also a growing literature focusing on the unequal descriptive representation of age groups, especially younger citizens (see Stockemer and Sundström (2023) for an overview). The present analysis investigates voting patterns in a case where voters are enabled to actively vote in a way that ensures a more representative age distribution amongst the elected. We want to explore whether citizens actually exercise this freedom.

Existing research on candidate age-related voting behaviour provides mixed results (Arnesen, Duell, and Johannesson 2019; Sevi 2021), so we abstain from posing confirmatory hypotheses and instead assess, in an exploratory manner, whether a certain candidate age or proximity between the average voter age and the candidate age increases the likelihood of electoral support.

Research Design

We use data from the 2024 municipal elections in Mannheim, Baden-Württemberg, Germany. Mannheim is a 300,000 inhabitant city with a highly socially and ethnically diverse population, with almost half of its residents having a migration background. The city is both a university city and an industrial hub. At 51.5 per cent, voter turnout was below the Baden-Württemberg city average (57 per cent) for local elections but is in line with other comparable cities such as Heilbronn or Pforzheim. Similar to the pattern in many large cities in Baden-Württemberg, the CDU (21.6%) narrowly beat out the previously strongest party, the Greens (20.1%), and the SPD (18.5%) in the election studied. The full voting results for the current and previous municipal election are reported in Table A5.

In the free list design employed, citizens can either vote for a whole party list or cast 48 direct votes with a maximum of three votes per candidate. Seats are then distributed in proportion to parties' overall vote shares. If Party A gets 12.5 per cent of the overall votes, the party thus receives six council seats (48 * 0.125). The six seats are then assigned to the candidates with the highest vote total within the party list. The ballot paper includes information about the candidates' occupations and districts of residence, in addition to their first and family names.

The electoral system with an open free list and the option of accumulating and deciding by ballot applies uniformly throughout Baden-Württemberg. Very similar electoral systems are used in four other German states, including Bavaria and Hesse. The results from Mannheim, therefore, go beyond a purely local case study and present interesting implications for other German local elections.

Due to its heterogeneous districts, which likely reflect varying interests, the 300,000 inhabitant city also lets us credibly examine a central-periphery divide on a local level. Mannheim's urban structure (Figure 1) features a separation between five central and twelve surrounding peripheral districts. Besides their location, centre and periphery districts differ notably in population density, average age, share of people with migration background, and travel time to the city centre. This division is explained in more detail in the appendix, along with the respective district data.

Taken together, the 2024 municipal elections in Mannheim provide an ideal case for testing our cue-taking and descriptive voting hypotheses, offering a multilayered yet typical example of municipal voting behaviour in a socially-diverse urban context.

Data

The voting data and candidates' incumbency status is publicly available from the City of Mannheim's data portal (Stadt Mannheim 2024c). Upon request, the City of Mannheim also provided us with a data set containing the candidate-specific information that was displayed on the ballots (names, residential districts, and occupations), as well as candidates' birth years. We further enrich this data using a publicly available measure of the average citizens' age in the seventeen voting districts (Stadt Mannheim 2024a).

A detailed overview of the operationalisation of our variables and every applied recoding step can be found in in the Appendix (see online attachment). In short, our dependent variable denotes the log of direct votes each candidate received, depending on model type either in total terms or split by voting districts. We use a log transformation as vote counts are highly skewed (see also Figure A4). Perceived gender, incumbency status, the possession of a doctoral degree, and left- vs. right-leaning party affiliation are all coded as binary indicators. The general party affiliation indicator constitutes a categorical measure corresponding to the 13 parties on the ballot. Occupational prestige is coded as a categorical indicator following recommended procedure by the International Labour Organization (2008). The list-based gender imbalance is coded as a numeric variable indicating deviations from a 50-50 gender split (i.e. 5.5 would represent 55.5 per cent male-perceived candidates). Candidates' position within the party lists, as well as their age, are considered both using a linear measure and a categorical one that cuts the respective distributions into equally-sized quintiles.

For the multilevel analysis, the average age, the number of eligible voters divided by 1,000, and the total given votes for each district divided by 10,000 are added as numeric variables. Further, a binary measure indicates whether a specific district is a candidates' own residential district or not. Lastly, we

group the seventeen districts into a binary indicator differentiating between central and peripheral districts (see Figure 1).

Modelling

We use simple OLS regressions to test the cue-taking hypotheses H1a through H4. To test the later descriptive representation hypotheses, we also turn to multilevel models that include a random intercept on the candidate level:

$$y_{ij} = \beta_0 + \beta_1 x_{ij} + \cdots + u_j + \epsilon_{ij}$$

Here, the outcome y_{ij} represents the log-transformed vote count of candidate j in district i. Additional to a set of predictors ($\beta_1 x_{ij} \ldots$) and the normally distributed residual error ($\varepsilon_{ij} \sim N\,(0,\, \sigma^2)$), this model contains u_j, which are the random intercepts of each candidate j. The random intercepts u_j are assumed to be normally distributed ($u_j \sim N\,(0,\, \sigma^2)$) and they capture all (un-)observed heterogeneity between candidates' results. In other words, this model accounts for differences in the overall popularity of candidates and the impact of their constant attributes that do not change between districts, including their party affiliation, ballot position, and incumbency status. Coefficients can thus be interpreted as to whether a predictor leads to a better or worse district vote count, compared to each candidate's own average district-level results, instead of the overall average of all candidates. We include fixed effects versions of our multilevel models in the appendix (Tables A9, A11, A14), which yield equivalent results.

Empirical Analysis

Descriptive Patterns

Table A6 summarises candidate attributes across party lists. Note, that four smaller parties did not nominate the full 48 candidates (e.g. Klimaliste with 16). Overall, around forty per cent of candidates were classified as female. While left-leaning parties (SPD, Greens and Linke) exhibit gender parity, right-leaning parties favour male-perceived candidates (e.g. CDU 58 per cent, FDP 73 per cent, AfD 81 per cent). Across 10 different parties, 31 of the 48 council incumbents stood for re-election, most running for the Greens (7) and SPD (6). The FDP, SPD, and Freie Wähler lists contained the highest numbers of doctoral degree holders

Roughly sixty per cent of all candidates worked in high-prestige occupations, though parties like the AfD (44%) and smaller ones had more mid-prestige candidates. Table A6 shows some type clear recruitment clusters, as the AfD, Freie Wähler, and FDP each draw between twenty and twenty-five

per cent of their candidates from single districts ('Neckarau', Schwetzingerstadt/Oststadt', 'Innenstadt/Jungbusch'). Lastly, larger parties (CDU, SPD, Greens, FDP) had more young candidates, while over one fourth of AfD, Freie Wähler, and Linke candidates belong to the oldest age group.

As mentioned above, 42.4 per cent of voters assigned a simple party-list vote. Greens and CDU received the most of these (over 10,000), followed by SPD and AfD (Figure A1). Conversely, the smaller and local parties profit most from the free list design (Figure A2), which suggests that they would fare much worse in a closed-list system.

Direct candidate vote counts ranged from 244 to 42,878, with an average of 5,830. Figure A3 breaks down freely attributed votes by 'Leitstimmzettel'. Voters had to choose one party's list (the Leitstimmzettel) to put into the ballot box even though they could write candidates of other parties in empty fields at the bottom of this list. The chosen party list likely reflects a voter's primary political preference. Most direct votes came from the candidate's own party list (e.g., Greens: 78.8%, CDU: 79.2%), suggesting voters largely allocate their votes freely within their preferred party. But, we also see evidence of ideological bloc voting: For example, SPD candidates receive 20.5 per cent of their direct votes from Greens Leitstimmzettel and both parties together account for one-third of direct Linke votes. Similarly, 27.4 (26.4) per cent of direct FDP (Freie Wähler) votes stem from CDU Leitstimmzetteln. Notably, cross-party voting for the AfD is rare. Only 8.4 per cent of their direct votes came from other parties Leitstimmzettel. This indicates a strong `Brandmauer' in voting behaviour as voters that predominantly favour another party only very rarely assigned votes to the AfD.

Establishing our Base Model

Next, we establish the importance of our standard control variables and justify the choice to log transform vote counts. Table A7 shows that all three controls, party affiliation, list position, and incumbency status strongly and significantly[4] correlate with candidates' direct votes regardless of whether they are log transformed or not.

To choose between both possible dependent variable (DV) operationalisations, Figure A4 presents their empirical distributions, QQ-plots for normality, and residual vs. fitted plots based on the final models in Table A7. We continue the analysis with the log-transformed DV, due to its closer resemblance of a normal distribution and less pronounced residual patterns. For interpretability, we generally express results as percentage changes in direct vote counts by taking exp(β)-1.

[4]Whenever we talk about statistical significance, we are referring to an α-level of 0.05.

Combined, the control variables account for around three quarters of the variation in candidates' direct vote counts, with party affiliation explaining the majority. Unsurprisingly, candidates of the CDU, SPD and Greens perform best. The baseline models further demonstrate that a categorical indicator of list positions more accurately captures ballot position impacts than a linear operationalisation. In line with previous findings (Söderlund, von Schoultz, and Papageorgiou 2021), the relationship follows a (reversed) J-shape. While being placed at the top is associated with the strongest electoral advantage, those placed in the last quintile perform slightly better than the quintile above them. In each subsequent model, we thus use the categorical version of ballot positions as control. Incumbency is associated with the strong electoral benefit we anticipated. In the combined model, an incumbent is predicted to gain about seventy per cent more direct votes than a non-incumbent.

The Partisan Gap in the Gender Effect

Moving on to our first hypotheses, once we add our standard control set (second model in Table 1), we find that female candidates are predicted to receive about eight per cent more votes than males. This corresponds to earlier findings in an experimental setting by Rudolph, Däubler, and Menzner (2022). The third model provides mixed evidence for our hypotheses H1a & H1b.[5] The significant interaction coefficients shows that, in the spirit of our hypotheses, candidates' gender has different implications based on their party type.

Being perceived as female compared to male on a left-leaning party list is associated with a fifteen per cent higher direct vote count, though this difference is not significant. Conversely, on right-leaning lists it is associated with seventeen per cent ($p < 0.1$) fewer votes. While the significant interaction coefficient reflects our underlying intuition, we find no significant evidence supporting gender-based advantages within party groups as hypothesised in H1a and H1b. Model 4 also shows, contrary to expectations and Rudolph, Däubler, and Menzner's (2022) results, that lists' gender-composition does not moderate the effect of perceived candidate gender. Thus, H2 is also not supported by the data.

The Effect of Occupational Prestige and Doctoral Degrees

Both prestige related cues – occupational labels and doctoral degrees – show the expected relationships in the bivariate models (first and third models in Table 2). This suggests that possessing a doctoral degree or holding a high prestige job could have been already beneficial in previous elections

[5]We do not control for party dummies in this and the fourth model as the coding of the left-right indicator and the gender-imbalance variable is already based on party affiliation.

Table 1. Models evaluating gender cues (H1a, H1b, H2).

	Baseline	Controls	Left-Right (H1a/b)	List gender-balance (H2)
Female	−0.034 (0.100)	0.078* (0.036)	0.142 (0.123)	0.111 (0.107)
Right-leaning			−0.404*** (0.108)	
%-point excess Men				0.012* (0.005)
Female × Right-Leaning			−0.328* (0.166)	
Female × %-Point Excess Men				−0.004 (0.008)
Constant	8.130*** (0.064)	10.005*** (0.071)	9.068*** (0.129)	8.664*** (0.124)
Controls		✓	✓ (no party dummies)	✓ (no party dummies)
Interaction Baseline			Left-Leaning	50% Male & Female
Adjusted R^2	0	0.88	0.33	0.28
Observations	508	508	508	508

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Linear regression models evaluating gender cues (H1a, H1b, H2). Dependent variable: Candidates' log transformed total direct vote count. Standard control set: Candidates' party affiliation (dummies), their ballot position (categorical, quintiles), and incumbency status (dummy).

(incumbency) or during party list creation (list position), which is now accounted for by our controls.

We find that candidates in occupations requiring the highest skill levels generally perform better than others, except for those in armed forces. Retired candidates get more penalised compared to students and pupils, and to unemployed candidates. While the models never show significant evidence comparing high- and low- skilled workers, the comparison with those in the armed forces and those who are unemployed also become insignificant in the controlled model. This is, at least in part, a function of occupation group sizes, which is why these results should not be overstated. Of the

Table 2. Models evaluating prestige cues (H3, H4).

	Occupation		Doctoral degree	
Occupation: Middle (2)	−0.511*** (0.116)	−0.111* (0.046)		
Occupation: Low (1)	−0.885 (0.457)	0.044 (0.173)		
Occupation: Armed Forces	1.437* (0.719)	0.223 (0.272)		
Occupation: No Work	−0.809* (0.343)	−0.010 (0.129)		
Occupation: Post Work	−1.549*** (0.169)	−0.470*** (0.067)		
Occupation: Pre Work	−0.384* (0.170)	−0.181** (0.067)		
Doctoral Degree			0.806*** (0.176)	0.181** (0.065)
Constant	8.389*** (0.058)	10.013*** (0.069)	8.051*** (0.050)	10.010*** (0.070)
Controls		✓		✓
Occupation Baseline	High (3/4)	High (3/4)		
Adjusted R^2	0.16	0.89	0.04	0.88
Observations	499	499	508	508

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

Linear models evaluating prestige cues (H3, H4). Dependent variable: Candidates' log transformed total direct vote count. Standard control set: Candidates' party affiliation (dummies), their ballot position (categorical, quintiles), and incumbency status (dummy).

508 candidates, only five work in jobs categorised in the lowest skill-group 1 and only two candidates are in the armed forces. Overall, however, the models show evidence generally in support of our hypothesis that candidates with high skill professions have an electoral advantage over others who are, for example retired (-37.5 per cent), are in 'middle'-skilled occupations (-10.5 per cent), or have not yet entered the labour market (-16.6 per cent). Moving on, candidates for whom a doctoral degree is mentioned on the ballot, on average, obtain 123.9 per cent more votes than those without. This difference declines strongly to a 19.8 per cent vote bonus when conditioning on party affiliation, incumbency and list-position. Still, there remains a statistically significant difference in voting results between (non-)degree holders, supporting H4.

Geographical Representation

We now move to the meso-level by investigating the district level results. On average, candidates received 343 direct votes per district. This average is, however, inflated by few high-achievers in large districts reaching up to 6403 direct votes, while the median result registers at only 157. For our models, we again use the logged version of the district-level results as dependent variable.

Table A8 in the online attachment presents multilevel models with candidate-level random intercepts. Beyond a bivariate specification, we estimate two controlled models, each including our standard controls and alternative measures of district size – the number of eligible voters and total votes cast. As shown in Figure 2, both yield nearly identical results: Compared to their other district results, predicted votes increase by roughly two hundred per cent in candidates' home-district. As candidates enjoy a significant and strong home-district advantage, we accept H5.

What drives these strong differences? Prior to the election, campaign posters of (top) candidates hung throughout the city regardless of their residential district. We thus propose the identified differences are unlikely driven predominantly by parties' purposeful advertising of local politicians. Personal connections within the district (i.e. friends or family) surely contribute to candidates' improved results in their home district to some extent. But, we argue that this is not enough to explain the large differences in obtained votes. Further, as the home district is candidate-invariant, the included random intercepts account for the possibility that candidates from specific districts might be generally more preferred by voters.

We finally run two additional models interacting the home district indicator once with incumbency and once with list positions (Table A8). We find that the electoral bonus, while still being present, is significantly weaker for incumbents and those positioned in the highest list quintile.

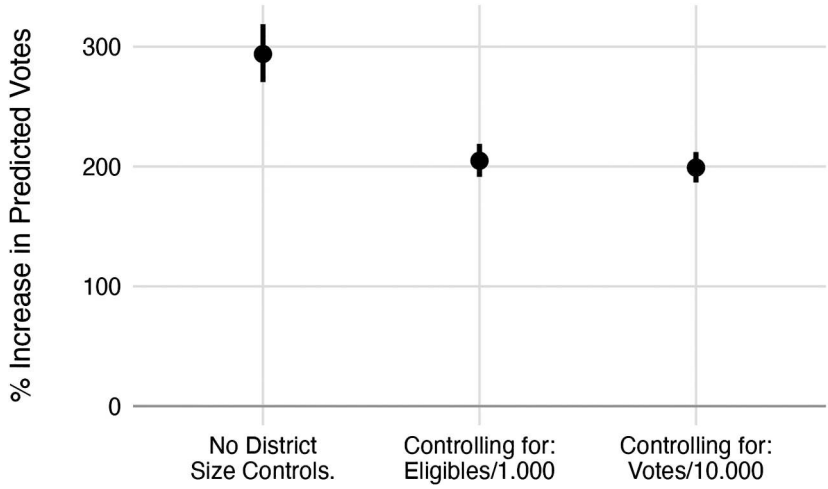

Figure 2. Home District Advantage. Percentage increase in predicted direct district votes if the district is candidates' home district vs. not. Based on coefficients from models 1–3 of Table A8.

Taken together, especially lesser-known candidates profit from a home district advantage. Without being able to explicitly test the different mechanisms, we thus argue that instead of name recognition, it is rather the provided district cue on the ballot that drives these differences.

Table A10 in the appendix (see online attachment) contains the models evaluating our periphery-centrality hypotheses (H6a, H6b). Throughout all models we find significant evidence in line with our hypotheses: Candidates from peripheral (central) district have an electoral advantage in other peripheral (central) districts. This relationship becomes substantially weaker, but stays significant, when additionally controlling for the previously identified home district advantage. We again also estimate models controlling for district size using the proxies presented above.

To ease interpretation, we visualise the results of our final, fully-controlled, model through post-estimation simulation using an observed value approach (King, Tomz, and Wittenberg 2000; Hanmer and Ozan Kalkan 2013). For this approach, four different scenarios are defined by setting the home and voting districts to each possible combination for all candidates, but leaving all other co-variate values as observed. The resulting point estimates are exponentiated to depict candidates' average predicted vote counts in these scenarios (Figure 3). Their confidence intervals span between the 2.5- and 97.5-percentile of the simulated values. This visualisation shows how, even controlling for a home district advantage, voters seem to prefer candidates who come from districts similar to their own. In both central and peripheral districts, candidates from matching districts are, on average, predicted to obtain about fifty

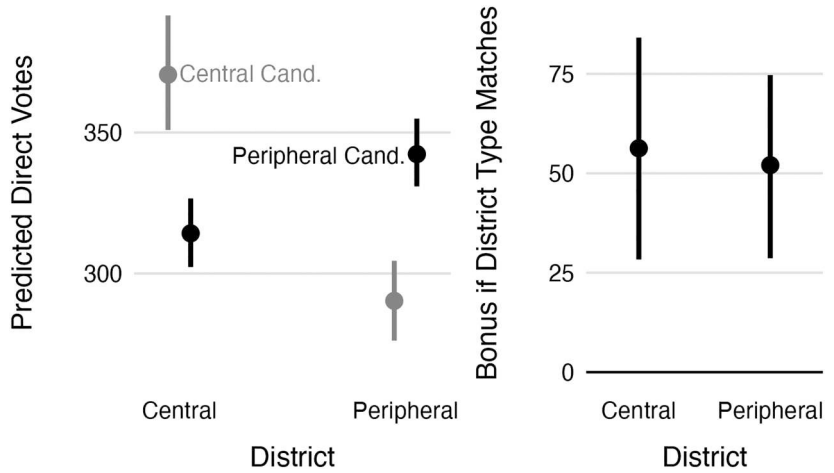

Figure 3. Simulated Direct District Votes depending on Central-Periphery Divide. Left Panel: Simulated direct votes in central vs. peripheral districts for candidates from central vs. peripheral districts, and their 95-per cent confidence intervals. Based on the 5th model in Table A10 and obtained via observed value simulation. Right Panel: Simulated difference in predicted votes in central and peripheral districts for candidates depending on their residential district type.

more votes (≈ one third of the median) than candidates from non-matching districts. This supports H6a and H6b.

Average District Age Shapes Impact of Candidate's Age

The exploratory models used to assess the overall impact of candidates' age on their direct vote count are presented in Table A12 (see online attachment). Seemingly, age does not have a linear relationship with candidates' votes. Contrary, we find that candidates perform significantly better, the closer they are to the average candidate age (i.e. 50.3). This effect is smaller in the controlled model. Here, being one year removed from the average age corresponds to about 0.5 per cent fewer votes, and being 20 years removed corresponds to about 9.5 per cent fewer votes.

Candidates from the central age quintile (48–56) receive over 36 per cent more votes than those from the youngest (18–33) quintile. The magnitude of this difference declines in the fully controlled models, but remains statistically significant. These results suggest that candidates aged 48–66 receive the most votes when controlling for party affiliation, incumbency status and list position.

Lastly, we investigate interactions between the average resident age in each district and candidates' age in Table A13 (see online attachment) using the same multi-level approach as before. The average district age

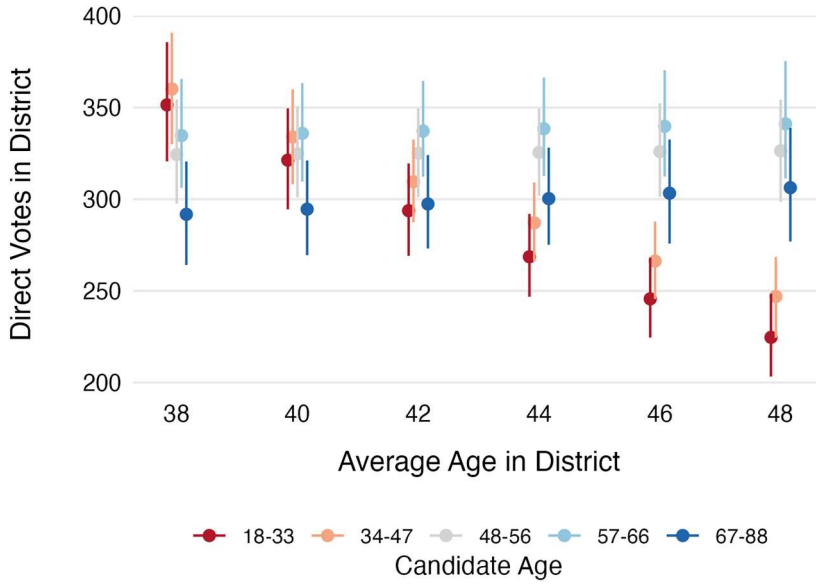

Figure 4. Simulated Direct Votes in Districts depending on Candidate Age and Average District Age. Simulated direct votes for candidates based on their age group and average district age, and their 95-percent confidence intervals. Based on the 4th model in Table A13 and obtained via observed value simulation.

ranges from 37.9 (Innenstadt/Jungbusch) to 48 years (Wallstadt). When interacting the average district age with the linear age measurement of candidates' age, we find significant evidence in line with a descriptive representation argument: Younger (older) candidates perform better in younger (older) districts.

Figure 4 visualises the results of the fully-controlled quintile-based interaction (fourth model) using the observed value simulation approach. As the average district age increases, the simulated votes for the three older age groups slowly increase, while the votes of the younger candidates decrease. In a recent publication, Kurz, Constantin Wurthmann, and Gross (2025), show that younger voters care most about being represented by politicians of their own age. Fittingly, our analysis suggests that the electoral fortune of the youngest candidates is most strongly impacted by voters' age. For example, 18–33 year old candidates, on average, are expected to receive 126 more votes in a hypothetical district with an average age of 38 (351) compared to one with an average age of 48 (225).

Discussion & Conclusion

First, our analysis reiterates the foundational relevance of party cues for vote choices (e.g. Green, Palmquist, and Schickler 2002). It underscores existing

research positing a reversed J-shaped effect of ballot position (Söderlund, von Schoultz, and Papageorgiou 2021) and incumbency advantages (Carson, Sievert, and Williamson 2019). Our findings echo Rudolph, Däubler, and Menzner's (2022) experimental study on gender cues, showing a slight preference for female candidates and varying effects of perceived gender between ideological camps. However, we do not find strong enough empirical evidence to support the idea that (fe)male candidates benefit in either left- and right-leaning parties and we find no evidence at all that the overall gender composition of party lists moderates this relationship.

While the former might be explained by the higher statistical efficiency of experimental designs, the later may reflect the greater complexity of real-world ballots. For instance, Rudolph, Däubler, and Menzner (2022) used a simplified ballot with 24 candidates over 6 parties, while the Mannheim ballot included 508 candidates over 13 parties. Voters could still want to balance gender representation but simply be overwhelmed by ballot complexity. This could be probed further by experimental research that also varies the complexity of ballots.

Echoing experimental results from the U.S. (McDermott 2005), occupational labels indicating higher skilled jobs and displayed doctoral degrees also benefit candidates' vote total. However, these differences strongly decline when adding our controls, which makes sense as degrees and jobs are obtained prior and can already affect candidates' selection into parties and placement on the ballot: For example, nearly all (38 & 40) of the two most successful parties' candidates (CDU & Greens) belong to the highest prestige group. Also, the share of doctoral degree holders is four times larger amongst incumbents than non-incumbents (6.5 vs. 1.6 per cent). In sum, candidates with higher prestige jobs are more likely to run for successful parties in the first place and that these characteristics might even have helped them in previous elections. Nevertheless, once candidates are appointed to the ballot, voters still seem to use these labels as independent cues to make their voting decision. Future research on this matter should thus jointly investigate the possibly reinforcing dynamic of parties' nomination logic and voters' reaction to these cues.

Contributing to descriptive voting literature, we importantly show that candidates receive significantly and substantially more votes in their own residential districts and, to a lesser extent, in districts similar to their own. While comparative patterns have been previously identified in federal elections (Schulte-Cloos and Bauer 2021), we show novel evidence for these place-based voting mechanisms in a very localised context. Our results show that the urban-rural divide which is prominent in national politics at least to some extent maps onto local elections as a division between city centre and periphery.

These findings also carry important practical implications for the proportional representation of districts in the municipal council. While 5.4 per cent of all eligible voters live in 'Neckarstadt-West', not a single candidate who resides in this district was elected to the council. Contrarily, eight candidates from 'Feudenheim' were elected, with only 4.7 per cent of all eligible voters living there. A key difference between the two districts lies in their turnout rate, which registered at only 31.1 per cent in 'Neckarstadt-West', but 70 per cent in 'Feudenheim'. Thus, candidates from the former district could likely not take advantage of the large home district electoral boost that candidates of the latter received.

We also uncover descriptive voting patterns in our explorative analysis of candidates' age: Older candidates exhibit an electoral advantage in districts with a higher age average while younger candidates receive an electoral boost in districts with a lower age average. Even though candidates' age was not indicated as a clear cue on the ballot, voters might still have inferred their age from the ballot through occupational labels such as 'student' or 'retired', visually inferred it from electoral posters, or relied on personal knowledge of specific candidates. In any case, our results support existing literature suggesting that voters are more likely to vote for candidates that are closer in age (Sevi 2021).

Overall, our analyses thus strongly corroborate previous insights regarding descriptive voting patterns and importantly show strong preferences for localised representation even in lower level elections. They also contribute to earlier findings regarding cue-based voting by focusing on a low-information setting with a high complexity. Doing so, we replicate multiple previous experimental findings, but also show that some effects, especially regarding candidates' gender, could not be identified through our observational data. This emphasises the need to further evaluate cue-based voting mechanisms in both experimental and observational settings, to draw holistic conclusions about their validity and relevance. To leverage the causal identification properties of experiments while improving external validity, we especially encourage experimental designs that include a variation of the open ballots' complexity and length.

Eventually, the strong evidence of preferences for local candidates raises questions about equal geographical representation on municipal councils – especially across those states using free ballots. If voters are strongly inclined to vote for candidates from their home districts, discrepancies in turnout can significantly impact the composition of these councils. For example, assuming that lower turnout rates manifest in districts that are younger, less educated, or have a higher share of migration backgrounds, this voting pattern can result in a systematic under representation of these parts of the public. In larger cities with significant differences in demographics and infrastructure between districts, this seems especially important. In light of these findings

on the election of councils, cities like Chicago, Montreal and Paris, which use district instead of at-large elections, are good examples of how to improve geographical representation.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Supplemental data and research materials

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