

Full length article

How does information affect vote choice in open-list PR systems? Evidence from a survey experiment mimicking real-world elections in Switzerland [☆]

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ABSTRACT

List proportional representation with candidate voting can facilitate policy representation in multiple dimensions. However, candidates with deviating positions may not benefit if cues such as shared socio-demographics drive candidate choice instead. Does this use of cues reflect a lack of policy-related information or a preference for descriptive representation? We study this question in a real-world context, using a survey-embedded experiment that emulates actual vote choice shortly after the 2019 Swiss elections. We vary the level of information on candidates' policy positions in zero, one or two dimensions (left-right, environment). Our results show that spatial proximity voting increases with better information on the secondary (but not the first) dimension, indicating that information can improve the alignment of (environmental) policy views between voters and candidates. In turn, same-gender and same-age voting slightly decreases when more information is available. The preference for local candidates remains strong. Our results inform debates regarding citizens' preferences for different types of representation and how electoral systems moderate their expression.

Unlike single-seat-district or closed-list electoral systems, the widely used preferential-list proportional representation (PLPR) systems give voters the opportunity to support individual politicians independently from choosing a party (Gallagher and Mitchell, 2005; Renwick and Pilet, 2016; Rudolph and Däubler, 2016):¹ In principle, this feature of the electoral system facilitates policy representation when there are multiple dimensions, since voters can support an individual candidate sharing their view on issues that cut across the main axis of party competition. Results of survey experiments (Blumenau et al., 2017; Bräuninger et al., 2022) suggest that citizens do take into account the positions of individual candidates and may even switch parties when lists are open rather than closed. In addition, there is real-world empirical evidence that vote-seeking parties diversify their lists by nominating

candidates with more heterogeneous issue positions (Matakos et al., 2024; Tromborg, 2019, 2020).

On the other hand, studies of candidate performance in actual PLPR elections suggest that politicians with positions deviating from the party line do not benefit (van Erkel, 2023) or even perform worse than their colleagues on aggregate (Folke and Rickne, 2020; Isotalo et al., 2020; von Schoultz and Papageorgiou, 2021; Isotalo et al., 2022). This finding is compatible with existing work on both personal vote-seeking behavior by politicians, which focuses on non-policy forms of representation (André et al., 2014),² and on candidate voting by citizens, which emphasizes the informational challenges voters face (Coffé and von Schoultz, 2021). In addition to following the party-determined list

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¹ In this paper, we do not consider whether variation in list flexibility within the PLPR family may affect candidate voting behavior. We speak of open lists in the sense of any non-closed lists but acknowledge that the voter calculus may be different if candidate voting affects intra-party seat allocation less strongly.

² See also Riera and Cantú (2022), who report that left-right proximity voting is weaker under candidate-centered electoral systems.

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ranking (e.g., Blom-Hansen et al., 2016; Faas and Schoen, 2006; Lutz, 2010; Däubler and Rudolph, 2020), voters in PLPR systems tend to support candidates who share socio-demographic factors like gender (e.g., Holli and Wass, 2010; Kukołowicz, 2013; Giger and Lefkofridi, 2014; Golder et al., 2017; Marien et al., 2017; van Erkel, 2019) or the place of residence (Jankowski, 2016; van Erkel, 2019).³

This raises two interrelated questions: in actual PLPR elections, is it a lack of information on individual policy positions that prevents voters from selecting a candidate who closely matches their views? Or does choosing candidates with shared characteristics reflect a genuine preference for descriptive representation (Arnesen et al., 2019)?

We examine these questions in the context of environmental politics. Not least due to climate change, questions concerning the adequate scope of environmental protection measures are gaining in political importance (Kenny, 2021). At the same time, this issue dimension creates challenges for policy representation at the party level since it does not necessarily coincide with the dominant axis of political competition (Green-Pedersen, 2007; Spoon et al., 2014; Hooghe et al., 2002; Carter et al., 2018), also from the perspective of voters (Kenny and Langsæther, 2023). In addition, policy representation on the environmental dimension has two interesting links with descriptive representation. First, the politics of the ‘green transition’ can create conflict between urban and rural areas, with the latter incurring a larger share of the associated costs (Stokes, 2016; Arndt et al., 2022). Voting for local candidates may also reflect a motivation to elect politicians who represent place-based interests in this conflict. Second, some socio-demographic groups – especially women and younger citizens – tend to have more pro-environmental views (Gifford and Nilsson, 2014) but are disadvantaged in terms of relative numbers in most legislative bodies (Inter-Parliamentary Union, 2021b,a). Together, these patterns make it particularly interesting to examine how rural, female, and younger voters value policy representation on the environmental dimension compared to descriptive representation overall.⁴

On the theoretical side, we focus on the role of policy-related information in candidate voting. Assuming that the knowledge about the policy positions of individual candidates is low, we expect such policy-related information to increase the degree of spatial proximity voting. This effect should be larger for the environmental dimension than for the left–right axis due to less ex-ante knowledge and higher levels of intra-party heterogeneity on the secondary dimension. Also, we expect that the information on policy positions reduces the attractiveness of ‘matching candidates,’ i.e., candidates who share socio-demographic characteristics. The extent to which this happens will reflect how strongly voters value policy representation in comparison with descriptive representation.

Our empirical evidence comes from an experiment embedded in a population-representative survey in which we vary information about policy positions while emulating an actual PLPR choice. To maximize ecological validity, we conducted it shortly after a real-world parliamentary election – in Switzerland, in 2019 – using mock ballots with party labels and actual politicians. In the studied election, environmental issues played a very strong role (Bernhard, 2020). At the same time, record numbers of women (42.0% compared to 32.0% four years earlier) (BfS, 2021) and candidates aged 40 years or younger (25.4% compared to 20.1%) (Bundesversammlung, 2021) were elected to the National Council, the lower chamber of the Swiss parliament.

³ From a supply-side perspective, candidates are more likely to have local ties when personal vote-seeking incentives are stronger (Shugart et al., 2005).

⁴ A link between the under-representation of younger generations and slow responses to climate change has also been postulated in public discourse, for example as part of the “OK boomer” meme (Sundström and Stockemer, 2021, 195). “OK Boomer” was ranked second behind “Klimajugend” (climate youth) in the list of the (German-language) ‘words of the year’ in Switzerland in 2019, the context of our experiment (see <https://www.zhaw.ch/de/linguistik/wort-des-jahres-schweiz/#c111775>).

Randomly exposing some survey participants to information about candidates’ actual positions on the general left–right and/or the environmental policy dimension (information on the positions comes from candidate replies for a voting advice application) allows us to infer to which extent spatial proximity voting increases and preferences for alike candidates (in terms of gender, age, and place of residence) decrease, compared with a control group.

We find that providing information about candidate positions considerably increases spatial proximity voting for the environmental dimension (but only marginally for the left–right dimension). Even in a favorable context like Switzerland in 2019, where the secondary dimension of interest was highly salient, citizens seem not to know much about the policy views of individual candidates. We also observe that preferences for matching candidates decrease with policy information, although the patterns here are more complex. While citizens become less inclined to vote for candidates who share the same gender or a similar age if information about environmental (but not left–right) positions is increased, voters’ preferences for local candidates remain strong in the presence of any type of policy information.

Our findings, which are based on an experimental design that refers to a real-world election context, show that the availability of information is crucial for reaching better policy representation in PLPR systems. The salient secondary dimension of environmental politics becomes more influential for vote choice if citizens know where to locate parties and candidates. Our study also ties in with other literature suggesting that more attention should be paid to which aspects of representation citizens themselves are interested in (Cowley, 2013; Wolkenstein and Wrátil, 2021). From a practical perspective, while efforts of improving descriptive representation are of course important, the question of how to facilitate policy representation should not be neglected.

1. Information on policy positions and candidate voting

In a PLPR system, citizens can choose among candidates within parties. The opportunity to choose from several candidates of the same party should make it easy for voters to take into account candidate features, including socio-demographic characteristics but also candidate-specific policy positions (Blumenau et al., 2017; Bräuninger et al., 2022). However, citizens’ knowledge about the individual candidates may, in practice, not go beyond the information provided on the ballot papers (Brockington, 2003). Therefore, it is not surprising that we frequently observe a preference for candidates who share the voters’ characteristics (for the PLPR context, e.g., Holli and Wass, 2010; Jankowski, 2016; Kukołowicz, 2013; van Erkel, 2019). What we do not know is whether this pattern reflects simply a lack of other, including policy-related information, or a genuine preference for descriptive representation. Put differently, the question is what would happen if citizens knew more about the policy positions of candidates.

Spatial proximity is a core component in explaining voting decisions (Downs, 1957; Adams et al., 2005). At the same time, making a vote choice based on distance in the policy space is cognitively demanding. This is reflected in findings that spatial proximity voting is more common among more sophisticated (educated, knowledgeable, or informed) voters (Tomz and Houweling, 2008; Jessee, 2010; Lau et al., 2014; Singh and Roy, 2014; Tiemann, 2022). Hence, assuming that there are indeed knowledge gaps ex-ante and that citizens care about voting for a candidate whose views are close to their own, spatial proximity should become more important for vote choice when more information about policy positions is available. A priori, some people do not know anything about the positions and, therefore, cannot take them into account. Others may have some knowledge but feel uncertain about the exact locations in the policy space; better information enables this group to consider policy congruence with greater confidence. This expectation can be summarized as:

H1: Providing information on candidates’ policy positions increases the extent of spatial proximity voting.

The magnitude of such information effects should depend on the degree of prior knowledge (e.g., Fowler and Margolis, 2014; Presberger et al., 2023). They will be smaller if citizens already have a good understanding of actors' locations on a policy dimension. Hence, we would expect that information provision leads to bigger effects on a secondary dimension (like environmental protection) than for the primary dimension of political competition. To begin with, voters should have a good understanding of where parties are located on the left-right axis (e.g., Van der Brug and Van der Eijk, 1999; Vegetti et al., 2017). While knowledge of the positions of individual candidates is likely limited, this is less relevant on a primary dimension since within-party heterogeneity of positions is also not as pronounced (Tromborg, 2019). In contrast, on a secondary dimension like the one related to environmental protection, citizens may already struggle to locate the parties (Thomassen, 2012; Dahlberg and Hartevelde, 2016; Banducci et al., 2017; Dejaeghere and Van Erkel, 2017).⁵ The positions of parties that attach less importance to the policy area may be less clearly developed and are less often communicated. In addition, there will be more within-party variation in policy views. Weaker sorting of politicians into parties (or pruning by selectors) on secondary dimensions leads to more heterogeneous views within the candidate field (Carroll and Kubo, 2019; Tromborg, 2019) – as we illustrate below in Fig. 1, we also do find this to be the case for candidates in the Swiss national election. This yields the second expectation:

H2: The effect posited in H1 – that information on candidates' policy positions increases the extent of spatial proximity voting – is stronger for secondary dimensions (like environmental policy) than for the left-right dimension.

Another question is what will happen to the support of alike candidates once citizens have more information about policy positions. As a starting point, it is useful to reflect upon different possible mechanisms behind such a choice. The motivation may be psychological (and non-instrumental), in the sense that a voter may hold positive feelings toward an in-group candidate (Plutzer and Zipp, 1996, 33). In contrast, a matching candidate may also be seen as more likely to possess valuable character traits, such as honesty, dedication (Campbell et al., 2019), or trustworthiness (Gay, 2002). Such candidate valence factors may also subsume that a politician from the voter's geographic area will be better equipped to represent that area's material interests (e.g., by allocating particularistic goods (Eulau and Karpis, 1977; Golden and Min, 2013)). Finally, voters may have a preference for balanced descriptive representation at the aggregate level (Cowley, 2013; Campbell and Heath, 2017; Wäckerle, 2023).

Given this wide range of possible motivations, it is, of course, possible that voters continue to support candidates who are “like them”, even if additional information on their policy positions becomes available. However, we expect that voting for matching candidates will become less relevant in any of the following three circumstances. First, candidate similarity (in addition to list rank) may be the only cue that citizens can use in practice if they lack any further information about candidates. Once policy-related information is provided, it readily replaces similarity as a decision-making criterion. Second, common characteristics may serve as proxies for shared policy views (Arnesen et al., 2019; Jones, 2016; Däubler et al., 2021) in the first place. In the sense of a similarity heuristic, voters choose a candidate who is like them since they hope that this candidate is more likely to hold

⁵ Analyzing survey data from the Swiss Election Study of 2019 (Selects, 2024; Bernhard et al., 2021), Appendix Section A.8 suggests that for the five main national parties, Swiss voters seem to show comparable levels of knowledge on party positions for left-right and the environment. However, these results could be affected by the different ways in which these questions are asked, and patterns could be different for smaller parties.

policy views close to their own.⁶ With information on policy positions becoming available, the need for a proxy disappears. Third, citizens may value both descriptive representation and policy congruence with the candidate. However, if the set of candidates to choose from (within the preferred party) is small, it may not be possible to find a candidate who delivers both. If voters more often favor spatial proximity to descriptive representation when facing such a trade-off, voting for similar candidates will also become less prevalent if the information on candidates' positions is directly available. Hence, as long as any of these three mechanisms prevail over a preference for descriptive representation as such, we expect:

H3: Providing information on candidates' policy positions reduces the attractiveness of candidates who match the voter in socio-demographic characteristics.

Answering the counterfactual question of whether voting behavior would change if citizens were better informed is notoriously difficult (Rapeli, 2018). We experimentally vary the available information about candidate policy positions. This will allow for a direct test of the three hypotheses concerning the choice of candidates in a PLPR context.

2. Context: Environmental politics and the swiss “climate” election of 2019

In elections to its National Council, the lower chamber of the parliament, Switzerland generally uses a PLPR electoral system (Vatter, 2016, 73–75). The number of votes corresponds to district magnitude and, in 2019, varies from one (six cantons and half-cantons with small population sizes) to thirty-five (in Zurich).⁷ The electoral rules allow the expression of preferences in a very flexible way. Voters can cast a list vote, they can vote for candidates from more than one list (panachage), and individual candidates can be assigned one or two votes. While parties present ranked lists, post-electoral seat allocation within parties is based on preference votes alone.⁸ The flexibility provided by the electoral rules is also used by many voters in practice. In the official panachage statistics by the National Statistical Office, 44.97% of valid ballots consist of a party list as given, 43.47% of an altered party list, and 8.55% of self-created lists that do not have the name of one party on them (BfS, 2020).

While questions of environmental protection have been part of the Swiss political agenda for a number of decades, they have recently gained in public salience. Following a party split in the mid-2000s, Switzerland now has two major environmental parties, the Green Party of Switzerland (GPS) and the Green-Liberal Party (GLP). In terms of policy positions, a major difference is that the former is economically left-leaning while the latter promotes centrist economic positions (Bakker et al., 2020). In the national election of 20 October 2019, environmental and climate topics played a crucial role (Bernhard, 2020). The Swiss

⁶ The belief that candidates resembling oneself also share the same policy views may have different sources. For example, this can be based on empirical associations, be inferred from direct interaction with alike persons, or from their description in the media. Another possible mechanism is projection. If voters (for non-policy reasons) have positive feelings towards candidates who share their socio-demographic background, a desire for cognitive consistency would suggest ascribing them policy views close to one's own (Krosnick, 2002, 116). Such assimilation effects are well-documented for the perception of party positions (e.g. Grand and Tiemann, 2013; Samuel et al., 2001), and may also apply at the candidate level. Regardless of the source, note that it will be sufficient if citizens believe that common features predict common views. It is not necessary that such beliefs are correct (Dancey and Sheagley, 2013).

⁷ The cantons that are single-member districts use a plurality system. The surveys administered there did not embed the experiment.

⁸ The Swiss electoral system also allows for list combinations (apparentement), and parties make use of this in a particular way: They often field several lists, which present candidates from certain segments of society separately (e.g., by age; by profession; etc.).

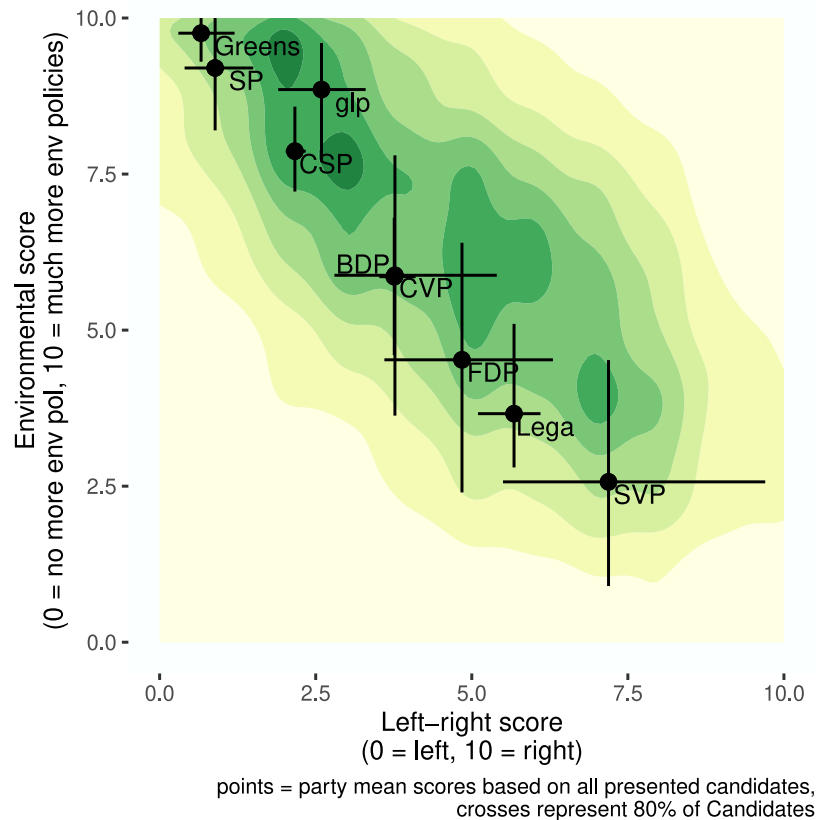


Fig. 1. Distribution of citizens (density), parties (points), and candidates (crosshairs) in the two-dimensional space.

Radio and Television (SRF) afterward referred to it as the “Climate Election” (SRF, 2019). The two environmental parties polled 21% of the vote, leading one of the most-read Swiss quality newspapers, *Neue Zürcher Zeitung*, to declare a “Green Triumph” (Hehli and Thelitz, 2019). The continuing salience of the topic was also evident in three controversial referendums (on CO₂-emissions, on the use of pesticides, and on drinking water quality) in June 2021.

From the perspective of political representation, environmental protection is a particularly interesting dimension because it is not that well aligned with the main (left–right) axis of competition. In Fig. 1, the density contours display the distribution of citizens in a two-dimensional space with a left–right and an environmental dimension.⁹ The points represent the mean party positions and the crosshairs the middle 80% of candidate positions (for the set of candidates included in the experiment, see below). The graph points out that the positions of citizens are not that strongly correlated (–0.55). While the mean party positions are more strongly associated, we can see that especially the parties in the center and right of the spectrum include candidates with quite dissimilar views on environmental protection. This bears two implications for our analysis. First, it is hard to pin down what these parties stand for in the area of environmental politics. Second, it is worthwhile to know the positions of individual candidates since it will make it easier for some voters to find spatially proximate candidates.

3. Research design

The research design for our study relies on a population-representative survey experiment. This allows us to maximize internal and external validity (Mutz, 2011): the former by experimentally manipulating whether ballots inform about candidate policy positions on one

or two dimensions (or not at all); the latter by working with an address-based random draw of the population, which is shown electoral ballots mimicking those from the national elections that occurred just a few weeks earlier.

Closely related survey experimental work has often run conjoint experiments asking participants to choose between just two candidate profiles. With full randomization of party labels and policy positions, this can lead to combinations that are very rare in real life, reducing the external validity of the design (De la Cuesta et al., 2022). Some studies have thus chosen not to include party labels (for example Arnesen et al., 2019), but this raises the risk of violating information equivalence (Dafoe et al., 2018).

Our approach instead takes a given party list, including candidates’ socio-demographic background, and varies the amount of information respondents have on those candidates’ policy positions at the ballot level. Compared to previous work that presented party lists with fictitious candidates (e.g. Bräuninger et al., 2022; Blumenau et al., 2017), we show real candidates from a real election with their real policy positions and therefore have higher confidence that our results allow direct conclusions about real-world voting behavior.

3.1. Data

The experiment was embedded in the fourth wave of the Swiss Environmental Panel (Rudolph et al., 2020a), whose fieldwork was conducted between November 18th, 2019 and February 2020 (the vast majority of respondents completed the survey in December 2019).¹⁰ The survey was fielded in dual mode; respondents were first asked

⁹ The subsequent section describes the operationalization in detail.

¹⁰ Replication data and code to reproduce the analyses is available at the Harvard Dataverse via [doi:10.7910/DVN/DD3QQN](https://doi.org/10.7910/DVN/DD3QQN).

Table 1
Information presented to candidates in the survey experiment.

Group	Ballot info
1	Party, name, age, residence, list position
2	Party, name, age, residence, list position + environmental position
3	Party, name, age, residence, list position + left–right
4	Party, name, age, residence, list position + left–right + environmental position

to take part in the survey online and later sent a printed questionnaire together with a second invitation letter.¹¹ Appendix Section A.1 describes the ethics of our study on human subjects. The sample of invitees is a random draw of the Swiss resident population, and hence population-representative. As noted in Rudolph et al. (2020b) overall survey take-up¹² is not strongly related to socio-demographics. As we subset the sample to those eligible to vote, living in cantons that use OLPR, we also show in Appendix Section A.3 that the respondents of the experiment do not differ from this subset of the population. We are therefore confident that we report results that speak for the general Swiss population. Similarly, vote choice by survey respondents is by and large comparable to aggregate electoral results (see Appendix Table A.1). Note that while the sampling included non-citizen Swiss residents, we base our results on Swiss citizens who are eligible to vote. As this article is concerned with vote choice in open lists, we did not field the experiment to voters in cantons that use single-member districts or lists with just two candidates.¹³ Overall, we work with 6268 respondents and hence have a well-powered study.

3.2. Experimental design

In our study, we experimentally vary the information regarding candidates' policy positions. We place a strong emphasis on ecological validity, i.e., we designed ballots in a way that the decision-making task of participants closely resembles a real-world vote choice under PLPR, with regard to three key aspects. This concerns, first of all, timing: We conducted the experiment shortly after the Swiss 2019 elections, which took place on October 20th, i.e., in a still politicized environment, where the experience of the electoral campaigns and the exposure to candidates was recent. Secondly, we showed respondents a ballot with real candidates matched to the electoral district (the canton) in which they reside. We include all information that voters in Switzerland usually see on their ballots (name, i.e. also gender, party affiliation, residence, age, list position). Voting behavior can hence rely on the standard set of cues available to voters in the voting booth (Brockington, 2003; Shugart et al., 2005; Lutz, 2010).¹⁴ Thirdly, in line with the complex Swiss electoral system that provides for panachage and cumulative voting, we allow respondents to split their votes (three votes to up to three candidates) or give up to two votes per candidate (just as in the real elections). Appendix Section A.4 gives a descriptive overview of the voting behavior of our respondents by party, including panachage and cumulative voting, which shows that respondents make ample use of these options, just as they do in real-world elections. Hence, compared to other survey-experimental studies with fictitious ballots (e.g. Blumenau et al., 2017; Bräuninger et al., 2022), we estimate effects from a survey environment with very

¹¹ Note that this study was not preregistered. However, information on the full survey instrument, including the experimental variation induced by the researchers and potential dependent and independent variables, as well as the full survey data, are available to the scientific public at [doi:10.23662/FORS-DS-1220-1](https://doi.org/10.23662/FORS-DS-1220-1).

¹² Wave 1 response rate: 32.3%; of which 61.4% (n=2957) participated in wave 4. Wave 4 coincided with a panel refreshment (n=7803).

¹³ Appenzell Innerrhoden, Appenzell Ausserrhoden, Glarus, Nidwalden, Obwalden, and Uri (less than 3% of respondents).

¹⁴ Prior (sub)national political experience, another potentially available cue (Portmann, 2022), is only printed on ballots in a few cantons.

high ecological validity, which should closely mirror real-world voting behavior.

In order to keep the level of information presented to respondents and the survey time manageable, we simplified the ballots somewhat: respondents are shown a reduced set of parties – only the six largest parties of their canton – and within those, candidates from the main list. We also limit each list to three candidates and do not introduce appointments (list connections) between different lists/parties to respondents. Nevertheless, we display 18 candidates, clustered in six parties, to each respondent, and hence present them with a complex choice set. Importantly, the displayed candidates are an idiosyncratic random draw from all main party list candidates. We thus base our results on a broad set of real-world candidates and observe candidate choice over the competitive range of the 2019 Swiss national parliamentary election. The procedure for the random draw of candidates is described in detail in Appendix Section A.5.

Our main experimental treatment concerns variation in the ballot presented to respondents, with four experimental conditions (see Table 1). In the control arm (group 1), respondents see only standard information as printed on the real-world ballot. Under treatment, we reveal the environmental policy position of all candidates to group 2 via a visual scale and printed text. In group 3, we show, in a similar manner, the left–right position of all candidates. In group 4, we simultaneously display both the environmental policy and the left–right position of the candidates. Fig. 2 presents an exemplary ballot from the fourth experimental group. Smartvote, a non-profit organization that runs Switzerland's main vote-advice application (see also Fivaz and Nadig, 2010; Ladner et al., 2012; Pianzola et al., 2019; Benesch et al., 2023), provides information on candidates' policy positions.¹⁵ 85% of all political candidates for the National Council filled out their survey on policy positions, among which are the vast majority of main party list candidates.

3.3. Operationalization of candidate and respondent policy positions

The environmental policy position of candidates is taken from the Smartvote voting advice application and based on policy questions linked to the environmental dimension. We list the underlying items in Appendix Table A.1. For respondents, we directly replicate the Smartvote approach based on the inclusion of a subset of the Smartvote items in our questionnaire.¹⁶

Concerning the left–right position of candidates, we similarly draw on a scale provided by Smartvote. It is mainly but not exclusively based on policy questions about economic distribution, protection of private property, the welfare state, and taxation of income and wealth.¹⁷ Participants in the experiment report their left–right position on a standard 11-point scale (wording in Appendix Section A.2).

We recode both the environmental and the left–right dimension to a 0–10 range for respondents and candidates; candidate positions are

¹⁵ See <https://www.smartvote.ch>.

¹⁶ Smartvote's candidate scores rely on the long version of the policy questionnaire; Smartvote also provides a "short version" for rapid assessment (which we use in the population survey). Scores based on the full and the shortened instrument correlate very highly (0.94) for candidates.

¹⁷ It represents the first dimension of a correspondence analysis of all policy questions included in Smartvote, see https://sv19.cdn.prismic.io/sv19%2Ffcff287e-aa5e-4f5c-ae46-f3d53d6e0b30_methodology_smartmap_de.pdf.

Party and candidates (age, place of residence)	Politically left: 0 -	Environm. protection:	Your	
	Politically right: 10	No expansion: 0 - Strong expansion: 10	3 votes	
PLR.Les Libéraux-Radicaux / FDP.Die Liberalen				
1. Olivier Français (64, Lausanne)	4.8 <input type="checkbox"/>	4.5 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Laurent Wehrli (54, Glion)	4.1 <input type="checkbox"/>	5.5 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Florence Bettschart-Narbel (45, Lausanne)	4.2 <input type="checkbox"/>	3.3 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Les Verts / Grünen				
2. Daniel Brélaz (69, Lausanne)	1.2 <input type="checkbox"/>	9.3 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Léonore Porchet (30, Lausanne)	0.4 <input type="checkbox"/>	10.0 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Pascal Gemperli (41, Morges)	1.3 <input type="checkbox"/>	10.0 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
vert'libéraux / grünliberale				
1. Isabelle Chevalley (47, St-George)	3.3 <input type="checkbox"/>	7.5 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Claire Richard (60, Chigny)	2.5 <input type="checkbox"/>	7.7 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Patrick Vallat (55, Gland)	3.3 <input type="checkbox"/>	6.1 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parti suisse du Travail / Partei der Arbeit				
1. Bernard Borel (67, Aigle)	0.7 <input type="checkbox"/>	8.8 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Carole Castillo (51, Renens)	1.7 <input type="checkbox"/>	8.0 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Zakaria Dridi (18, Le Mont sur Lausanne)	0.6 <input type="checkbox"/>	8.6 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Union démocratique du centre / Schweizerische Volkspartei				
2. Michaël Buffat (40, Vuarrens)	7.1 <input type="checkbox"/>	2.1 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Jacques Nicolet (54, Lignerolle)	5.5 <input type="checkbox"/>	3.5 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Jocelyn Canope (53, Payerne)	5.2 <input type="checkbox"/>	3.8 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parti socialiste / Sozialdemokratische Partei				
2. Samuel Bendahan (39, Lausanne)	0.7 <input type="checkbox"/>	9.8 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Brigitte Crottaz (62, Epalinges)	0.9 <input type="checkbox"/>	9.5 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Yassin Nour (30, Pully)	0.9 <input type="checkbox"/>	9.5 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Fig. 2. Exemplary presentation of a ballot with revealed left–right and environmental policy position of candidates (experimental group 4) in the paper questionnaire subsample (header translated). Respondents indicate their vote by placing 1–3 crosses in the tick boxes on the right.

also visually and textually presented to respondents in this manner (see Fig. 2). The absolute distance between both positions is used as the core independent variable to explain respondents’ vote choice. As shown in Appendix Figures A.4 and A.5, the experimental design ensured that almost all respondents select from a choice set including at least one candidate who is spatially proximate to the respective dimension. Appendix Section A.2 reports the operationalization or question wording of all the explanatory variables we use.

3.4. Estimation strategy

For statistical modeling, we start from a random utility maximization framework. The utility of voter i derived from (candidate) option j consists of a valence component v_{ij} , weighted absolute policy distances on the two dimensions, and an error term:¹⁸

$$u_{ij} = v_{ij} - \beta_1 |x_{1i} - z_{1j}| - \beta_2 |x_{2i} - z_{2j}| + \epsilon_{ij} \quad (1)$$

The valence part v_{ij} consists of several sub-components. We are especially interested in the contributions of indicator variables that equal one if voter i matches candidate j in terms of age, gender, and place of residence. In addition, valence will also include party identification (specific to combinations of i and candidates j from the same party), candidate features like list rank, and party dummies (to capture overall differences in party valence). The candidates presented on the ballot are the choice alternatives, and we explain vote choice via attributes of these alternatives and variables capturing the relationship between respondents and alternatives.

In our setting, respondents can either give two votes to one candidate and assign the remaining vote to another candidate, or they can allocate one vote to up to three candidates. In essence, respondents provide us with a candidate ranking, but we observe ties if there are several candidates who received one vote by the same respondent (and also for any candidates who were not chosen, but this is less consequential).

¹⁸ For simplicity, the notation ignores the fact that the set of $J = 18$ candidates varies across cantons.

We use a rank-ordered logit model (Allison and Christakis, 1994) to estimate the underlying utility function from the ranked choice data. This follows from assuming that the error terms ϵ_{ij} in Eq. (1) follow a Gumbel distribution, like in the conditional logit model (McFadden et al., 1973; Thurner, 2000), and that the most preferred alternative is ranked first, following by the best among the remaining ones, and so on. We use the exact marginal likelihood approach (Allison and Christakis, 1994, 206-208) for ties, which considers all possible orderings of candidates who received exactly one vote. Standard errors are bootstrapped (500 replications) for most models and clustered by respondents.¹⁹

The attributes we use are the presented ballot information on candidates’ party affiliation, gender, age, place of residence, display position (first, second, or third on the survey ballot), and rank on the real-world party list as well as the experimentally revealed candidate and party policy positions. We also include indicators on whether candidates’ party affiliation and socio-demographic characteristics match the respondents’ own characteristics (e.g., we code a binary gender match if respondent and candidate gender align; a similar approach is taken for municipality (zip codes align), age (within range of up to 5 years; within range of 6–10 years) and party identification). We additionally let party dummies enter the model to capture baseline differences in valence.

To measure proximity in policy space, we use the absolute difference between the respondent’s and the candidates’ policy positions on each dimension (left–right and environmental). This proximity measure is included for all experimental conditions, including the control group. While the candidate positions are not displayed to the control group, its spatial proximity term reflects the baseline level of policy voting based on ex-ante knowledge. For the control group, we can think of the “true” spatial proximity term that we include in the model as a noisy measure

¹⁹ As bootstrapped standard errors are computationally very intensive for a large sample like ours, some supplementary analyses use standard errors derived from asymptotic theory (indicated in table notes). For our main models, we ascertained that both approaches lead to similar standard errors.

of citizens' individual (and erroneous) perceptions of policy distance. After the treatment brings perceptions in line with "true" distances, vote choices more clearly reflect these "true" patterns of proximity (cp. Calvo et al., 2014, 98). In addition, there is a "psychological" effect. With the information provided, citizens can more confidently rely on spatial proximity in their choice, and its weight in the utility function should increase. To capture the effect of the experimentally revealed policy positions, we employ split sample regressions that estimate the above-mentioned model for each of the four experimental groups. We report formal tests for the statistical significance of differences between model 1 (control group) and treatment groups (Models 2–4) by interacting (for all respondents) treatment group status (i.e., information provision) with all other variables.

4. Results

4.1. Candidate-level policy distance explains vote choice, and more strongly so with information on policy positions provided

Fig. 3 presents results from the test of H1 and H2, focusing on spatial proximity voting: how candidates' left–right (left panel) and environmental (right panel) policy scores affect vote choice, given these are displayed to voters (models 2, 3, 4) or not (model 1, control group). In the upper two panels, the graph displays the change in the predicted probability of preferring a candidate when the candidate's distance is increased by one point on the 0–10 scale for the left–right dimension (left side) and the environmental dimension (right side).²⁰ The bottom two panels display the difference between the control group and the three treatment group coefficients.

As can be seen from the upper panels, a one-point increase in the distance leads to a decrease in choice probabilities irrespective of dimension and treatment condition, controlling for a wide array of additional factors (see Appendix Table A.3, candidate, and respondent party ID, ballot order, and gender, age, and residency of the candidate in relation to the respondent). In particular, this implies that already in the control condition (left-most coefficient within each panel), when candidates' policy positions are *not* communicated to voters, spatial proximity matters. Also respondents in the control group have some understanding of their distance to the choice alternatives, and at least implicitly choose on this basis. Predictive spatial proximity effects are substantial for both dimensions but stronger for distances in the left–right (about –0.8 percentage points per unit increase in distance) compared to the environmental dimension (about –0.4 percentage points per unit increase in distance).²¹

Next, we turn to the question of how the weight of spatial proximity in vote choice changes with information provision: if the policy standpoints of candidates are revealed to respondents, does this cause an increase in the penalty implied by the policy distance term? In the bottom two panels, we see that citizens indeed react to the treatment. When the exact policy position of candidates is displayed, and citizens can gauge the distance of candidates to them personally more precisely, they react more strongly to distance. However, for the left–right dimension, the differences to the control group are small when respective information is provided (see lower left panel, the two right-most coefficients), and the confidence intervals cover zero. For the environmental dimension, the relative increase in spatial proximity

²⁰ We change the value for one of the 18 candidates shown to respondents at a time and then take averages across candidates. Hence, the difference is always relative to a baseline probability of $1/18 \approx .056$.

²¹ It is possible that the smaller utility weight of spatial proximity for the environmental dimension is influenced by the fact that the policy distance uses scores calculated from specific policy questions rather than a self-placement as for the left–right dimension. However, we believe the difference is largely substantive in nature.

voting compared to the control group is substantial, and the confidence intervals exclude zero. This is the case both when showing respondents only the environmental position (lower right panel, left-most coefficient; then, a one-point increase in distance leads to about a 0.2 percentage point additional decrease in choice probabilities, i.e., citizens react about 50% more strongly to distance), and when showing it in combination with the left–right position (see lower right panel, right-most coefficient; at similar substantive size). Note also that we observe some crowding out for the left–right dimension: when only displaying information on the environment, citizens react less to distance on the first dimension (lower left panel, left-most coefficient; borderline significant result); for the environment, no corresponding picture emerges.²²

Taken together, this provides evidence for H1 – that providing information on candidates' policy positions increases the extent of spatial proximity voting – though we have to note that the influence of spatial proximity voting is already strong at baseline and does not increase much for the core dimension of politics in Switzerland, left–right. We see clear evidence for H2: the effect posited in H1 is stronger for the secondary dimension of environmental policy than for the left–right dimension.

4.2. Policy position information decreases the use of matching based on socio-demographic cues

We now turn to the question of how the provision of policy position information changes the support for candidates who resemble the voter in terms of socio-demographic variables, i.e., whether we observe a trade-off between substantive and descriptive representation (H3). Similar to the previous graph, Fig. 4 illustrates how the predicted preference for "matching" candidates changes when information on policy positions becomes available.²³

Turning to the upper panel and the control group condition (left-most coefficients), we observe that descriptive cues are important for vote choice: the probability of being preferred increases by about 1 percentage point for a candidate of the same gender, by a similar amount for a candidate in the same age group (≤ 5 yrs.), and most strongly for a candidate with the same place of residency (3 percentage points).

The informational treatments tend to reduce the weight of a match in the utility function. Looking at the changes in the vote bonus for matching candidates caused by the treatment (bottom row of the graph), we can see that seven out of the nine differences (and six out of six for gender and age) have a negative mean. The strongest effect can be found for the effect of environmental policy information on the preference for candidates of a similar age. Respondents prefer such candidates in the control group, but when only the environmental policy score is presented, the vote bonus becomes very small and statistically insignificant. The confidence interval for this difference (left entry in the middle panel of the bottom row) just about covers zero. It is interesting to note that this effect is less pronounced for the

²² As discussed in more detail in Appendix Section A.7, we can also model to which extent the provision of information affects the weight of the distance to the party versus that of the distance to the candidate. The results suggest that on the environmental dimension, the treatment affects both aspects, whereas on the left–right dimension, it is confined to candidate positions. In addition, while some candidate deviations from the party line may be discounted, voters clearly do not consider them to be irrelevant.

²³ In this simulation, we compare choice probabilities in the situation when a candidate shares the characteristic of the respondent to the situation when (s)he does not. Again, we do this for 1 of the 18 candidates at a time and then take the mean across candidates. Here, the baseline probability is not always the same, but we are mainly interested in the differences across randomized treatment groups for a given candidate/voter characteristic.

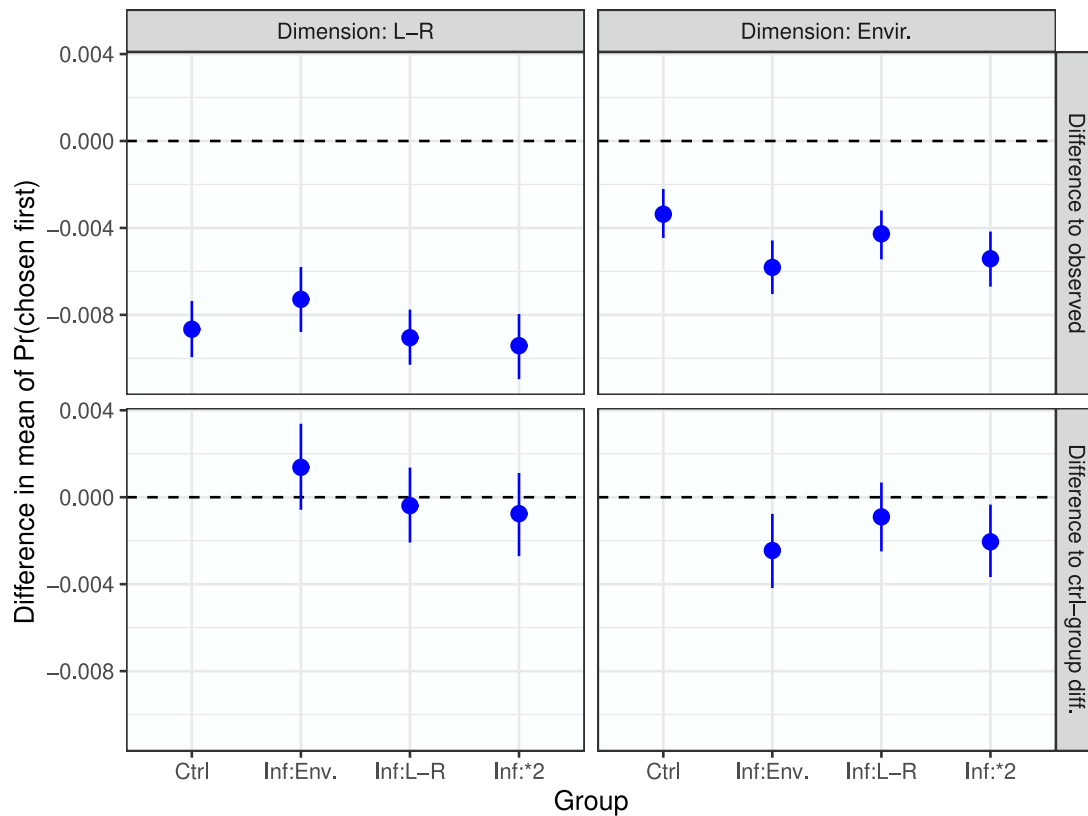


Fig. 3. Changes in the prediction of the candidate chosen by candidate attribute level (policy distance candidate-voter on left–right dimension [left panel] and environmental dimension [right panel]) and treatment group (x-axis, control group; environmental policy score displayed; left–right policy score displayed; both displayed). 95% confidence intervals displayed. Based on coefficients from a rank-ordered logistic choice model of outcome (candidate choice) on candidate attributes within the treatment groups (see Appendix Table A.3).

treatment showing positions in both dimensions when candidates of a similar age retain their bonus.

In summary, we find some evidence in support of Hypothesis 3, which states that the provision of policy position information reduces the support of candidates who share the same socio-demographic background. We can interpret this as an indication that voters with better information about candidate positions switch demand from descriptive to policy representation. However, we cannot statistically distinguish the coefficients for age and gender matches between the control and treatment groups. This is potentially due to insufficient statistical power. Note that we present respondents with real-world lists from an election that took place just one month earlier. Hence, respondents may have additional information from the actual campaign at their disposal, and compared to survey experiments with fictitious candidates, power demands for treatment effects are likely higher in our setup. Last, we find that the preference for hometown candidates remains strong regardless of the policy information provided.

Detailed results are presented in Appendix Table A.3, estimated by treatment condition. These also allow us to briefly discuss the evidence for correlates of vote choice (i.e., the standard information displayed on real-world ballots), which, as expected, matters greatly for candidate choice: we find statistically significant associations for all cue indicators. Respondents in the control group are more likely to choose candidates who come from the same municipality, have the same gender, or have a similar age. The predictive effects of sharing the same gender (odds ratio of 1.18; information on odds ratios calculated from the logit coefficients are presented in Appendix Table A.4) or age (1.20) are of a size comparable to (prior knowledge of) a one-point distance on the left–right dimension. The preference for a candidate with the same place of residence is even stronger (odds ratio of 1.69).

As expected, a match in party identification sees a very strong association with choice, increasing the odds of voting for a candidate

by a factor of 4.03. List order also has a relevant influence: both a lower place on the survey ballot and the display of a lower actual list position imply a penalty for these candidates, with the odds of choosing low-displayed or low-ranked candidates decreasing by up to 50%. Finally, there are unobserved differences with regard to party valence. Relative to the SVP (baseline category), choosing candidates from the SP, FDP, CVP, GP, glp, and CSP is more likely, and for those from BDP and PdA less likely.

4.3. Policy information leads to a stronger reduction in matching in specific subgroups

Finally, we explore whether particular subgroups of the population drive the decrease in preference for descriptive representation due to information provision. Appendix Table A.5 shows that the shift away from candidates with shared characteristics does not occur for all voters equally. Rather, when distinguishing subgroups of respondents by gender, age, and rurality, we see that it is female voters who are significantly more likely to rely on gender cues in the control group and consequently reduce their reliance on cues more strongly (although not statistically significant) with the informational treatment, predominantly with the environmental (and the combined) treatment.²⁴ A similar pattern appears for age matches: it is young voters who use age cues significantly more strongly in the control group but less so (to the point of non-significance, although the interaction effects are

²⁴ Information on the statistical significance of the differences between models is based on Table A.6 which reports results from one model for all respondents, while interacting the treatment group information with all other variables.

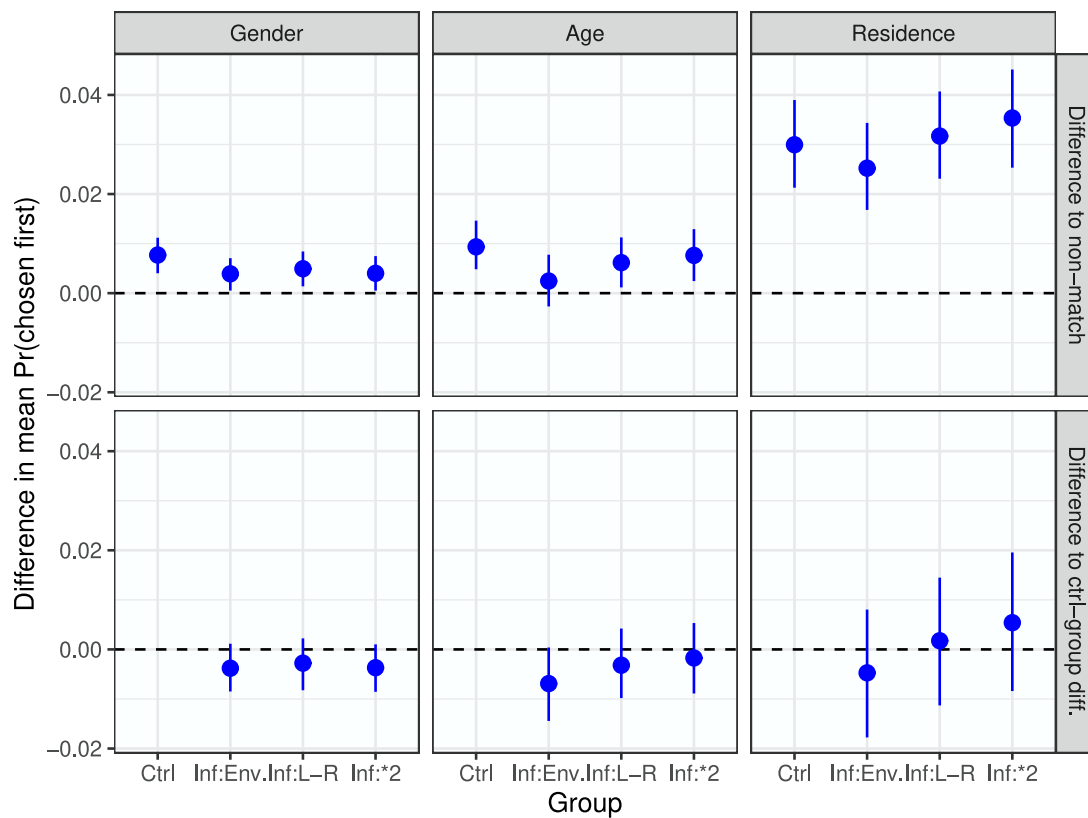


Fig. 4. Changes in the prediction of the candidate chosen by candidate attribute (candidate gender matching respondent (left panel); candidate age ≤ 5 yrs. matching respondent (mid panel); candidate residency matching respondent (right panel)) and treatment group (x-axis, control group; environmental policy score displayed; left-right policy score displayed; both displayed). 95% confidence intervals displayed. Based on coefficients from a rank-ordered logistic choice model of outcome (candidate choice) on candidate attributes within the treatment groups (see Appendix Table A.3).

not significant) with the informational treatment. Regarding locality matches, reliance on cues stays strong in the treatment groups, but it also slightly decreases for all three groups (urban, periurban, rural) with the environmental treatment. For the left-right and joint treatment, we find mixed effects, with some groups showing weaker but others stronger preferences for candidates from the same area. None of these differences are statistically significant. Hence, the provision of information seems to reduce preferences for alike candidates, especially among traditionally under-represented groups, namely female and young voters.

5. Conclusion

We have examined how the survey-experimental provision of real-world information on actual candidates' positions on the environmental and left-right dimensions affects vote choice in a PLPR context. Drawing on a large population-representative sample just weeks after the 2019 Swiss federal elections, our experiment emulated real-world vote choice, contributing causal evidence with high ecological validity to a literature mostly based on survey experiments with fictitious candidates or observational data. Our study produced two main findings. First, in line with our expectations, information on policy positions increases spatial proximity voting on the environmental policy dimension. Information revelation induces little change in spatial proximity voting on the left-right dimension; there, policy distances already matter in the control group (which did not receive any information on policy positions). Second, voters are more likely to support candidates who share their gender, age, and especially their place of residence. This pattern is stronger for women, young people, and citizens from rural areas. The preference for same-gender or same-age candidates becomes somewhat weaker with more information on policy positions, while

that for hometown candidates persists. This suggests that female and young voters, two groups traditionally associated with support for descriptive representation (Sevi, 2021; Rudolph et al., 2022), might in part follow descriptive cues as a stand-in for policy proximity (Däubler et al., 2021).

The findings show that even in a context where a second policy dimension is highly salient, like the environmental dimension in the Swiss elections of 2019, additional information can produce a better alignment of policy views between voters and candidates. Even more, this indicates that lack of information is a barrier to the selection of politicians in line with population preferences on the environmental policy dimension. More generally, less-than-perfect information indeed seems to constitute an obstacle to the full realization of choice opportunities under PLPR. If people were better informed about candidate and party positions on the cross-cutting dimension, here, environmental policy, this information would become more influential in their vote choice. This result also complements some earlier findings regarding the causal effects of Voting Advice Applications (VAA). Also, for our case, Switzerland, Pianzola et al. (2019) find that VAA users report a larger consideration set of parties than non-users, and Benesch et al. (2023) infer that the availability of VAAs promotes ticket-splitting. Together with our findings, these results suggest that information on policy positions, as provided by VAAs, can improve policy congruence. Even in a multi-dimensional policy space, citizens can process and make good use of such information.

Our findings provide a counterpoint to several studies based on aggregate-level candidate vote data, which suggest the absence of an electoral bonus (van Erkel, 2023) or even the presence of a malus (Folke and Rickne, 2020; Isotalo et al., 2020; von Schoultz and Papageorgiou, 2021; Isotalo et al., 2022) for candidates with deviating positions. There are several potential explanations for this discrepancy, which

include cross-country differences or unobserved confounding in the aggregate studies. Our approach has the advantage that it is based on experimental evidence at the micro-level and that it can take into account voter-candidate distance for each dyad.

We also found that Swiss citizens like to support candidates who share their socio-demographic characteristics. The fact that these preferences are only somewhat (gender, age) or not at all (place of residence) reduced as further policy information becomes available suggests that voters indeed attach utility to similarity – hence, similarity is more than just a shortcut for shared policy views. Comparing the relative weight given to candidate similarity across features is worthwhile since it tells us something about citizens' own preferences regarding representation (Cowley, 2013; Wolkenstein and Wrátil, 2021). Same-gender and same-age voting is due to young and female voters, two groups that are traditionally underrepresented. Hence, these groups likely make use of the candidate vote to achieve better descriptive representation, be it with or without knowledge on (some) policy positions of candidates – while we also note that young and female voters swap part of their voting for candidates of matching age or gender with voting for candidates of closer spatial proximity. It is striking that the strong preference for local candidates, which is observable in both urban and rural settings (but stronger in the latter), is hardly affected by policy information. We know comparatively little about the reasons behind this preference (Campbell et al., 2019). Its robustness to the provision of additional information makes the call for further research into it even more relevant, also because addressing climate change may create political tensions between urban and rural areas (Stokes, 2016; Arndt et al., 2022). The representation of local interests – beyond overall policy differences regarding the adequate scope of environmental protection – possibly exacerbates such political divides.

CRedit authorship contribution statement

Franziska Quoß: Writing – review & editing, Writing – original draft, Visualization, Supervision, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Lukas Rudolph:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Thomas Däubler:** Writing – review & editing, Writing – original draft, Visualization, Supervision, Software, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

Data availability

Data is available to the scientific public via <https://doi.org/10.23662/FORS-DS-1220-1>.

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Declaration of competing interest

The authors declare none.

Appendix A. Supplementary data

Supplementary material related to this article can be found online at <https://doi.org/10.1016/j.electstud.2024.102837>.

References

- Adams, James, Merrill, III, Samuel, Grofman, Bernard, 2005. *A Unified Theory of Party Competition*. Cambridge University Press, Cambridge.
- Allison, Paul D., Christakis, Nicholas A., 1994. Logit models for sets of ranked items. *Sociol. Methodol.* 24, 199–228.
- André, Audrey, Depauw, Sam, Shugart, Matthew S., 2014. The effect of electoral institutions on legislative behavior. In: Martin, Shane, Saalfeld, Thomas, Ström, Kaare (Eds.), *The Oxford Handbook of Legislative Studies*. Oxford University Press, Oxford.
- Arndt, Christoph, Halikiopoulou, Daphne, Vrakopoulos, Christos, 2022. The centre-periphery divide and attitudes towards climate change measures among Western Europeans. *Environ. Politics* 32 (3), 381–406.
- Arnesen, Sveinung, Duell, Dominik, Johannesson, Mikael Poul, 2019. Do citizens make inferences from political candidate characteristics when aiming for substantive representation? *Elect. Stud.* 57, 46–60.
- Bakker, Ryan, Hooghe, Liesbet, Jolly, Seth, Marks, Gary, Polk, Jonathan, Rovny, Jan, Steenbergen, Marco, Vachudova, Milada Anna, 2020. 2019 Chapel Hill Expert Survey. Version 2019.1. University of North Carolina, Chapel Hill, Chapel Hill, NC, Available on [chesdata.eu](https://cheshdata.eu).
- Banducci, Susan, Giebler, Heiko, Kritzing, Sylvia, 2017. Knowing more from less: How the information environment increases knowledge of party positions. *Br. J. Political Sci.* 47 (3), 571–588.
- Benesch, Christine, Heim, Rino, Schelker, Mark, Schmid, Lukas, 2023. Do voting advice applications change political behavior? *J. Polit.* 85 (2), 684–700.
- Bernhard, Laurent, 2020. The 2019 Swiss federal elections: the rise of the green tide. *West Eur. Politics* 43 (6), 1339–1349.
- Bernhard, Laurent, Lauener, Lukas, Scaperrotta, Laura, Tresch, Anke, 2021. Selects 2019 post-election survey [dataset]. <http://dx.doi.org/10.23662/FORS-DS-1179-2>, FORS.
- BfS, 2020. Nationalratswahlen: Typen von Wahlzetteln. Swiss Federal Statistical Office, URL: <https://www.bfs.admin.ch/bfs/de/home/statistiken/politik/wahlen/eidgenossische-wahlen/nationalrat/panaschierstatistik.assetdetail.12047666.html>.
- BfS, 2021. Nationalratswahlen: Mandatsverteilung nach Parteien und Geschlecht. Swiss Federal Statistical Office, URL: <https://www.bfs.admin.ch/asset/de/28765018>.
- Blom-Hansen, Jens, Elklit, Jørgen, Serritzlew, Søren, Villadsen, Louise Riis, 2016. Ballot position and election results: Evidence from a natural experiment. *Elect. Stud.* 44, 172–183.
- Blumenau, Jack, Eggers, Andrew C., Hangartner, Dominik, Hix, Simon, 2017. Open/closed list and party choice: Experimental evidence from the UK. *Br. J. Political Sci.* 47 (4), 809–827.
- Bräuninger, Thomas, Däubler, Thomas, Huber, Robert A., Rudolph, Lukas, 2022. How open lists undermine the electoral support of cohesive parties. *Br. J. Political Sci.* 52 (4), 1931–1943.
- Brockington, David, 2003. A low information theory of ballot position effect. *Political Behav.* 25 (1), 1–27.
- Bundesversammlung, 2021. Zahlen zu den Ratsmitgliedern. Die Bundesversammlung – Das Schweizer Parlament. URL: <https://www.parlament.ch/de/%C3%BCber-das-parlament/fakten-und-zahlen/zahlen-ratsmitglieder>.
- Calvo, Ernesto, Chang, Kiyoung, Hellwig, Timothy, 2014. Beyond assimilation and contrast: Information effects, ideological magnification, and the vote. *Elect. Stud.* 36, 94–106.
- Campbell, Rosie, Cowley, P., Vivyan, Nick, Wagner, M., 2019. Why friends and neighbors? Explaining the electoral appeal of local roots. *J. Polit.* 81 (3), 937–951.
- Campbell, Rosie, Heath, O., 2017. Do women vote for women candidates? Attitudes toward descriptive representation and voting behavior in the 2010 British Election. *Politics Gen.* 13 (2), 209–231.
- Carroll, Royce, Kubo, Hiroki, 2019. Measuring and comparing party ideology and heterogeneity. *Party Politics* 25 (2), 245–256.
- Carter, Neil, Ladrech, Robert, Little, Conor, Tsagkroni, Vasiliki, 2018. Political parties and climate policy. *Party Politics* 24 (6), 731–742.
- Coffé, Hilde, von Schoultz, Åsa, 2021. How candidate characteristics matter: Candidate profiles, political sophistication, and vote choice. *Politics* 41 (2), 137–155.
- Cowley, Philip, 2013. Why not ask the audience? Understanding the public's representational priorities. *British Politics* 8 (2), 138–163.
- Dafoe, Allan, Zhang, Baobao, Caughey, Devin, 2018. Information equivalence in survey experiments. *Political Anal.* 26 (4), 399–416.
- Dahlberg, Stefan, Hartevel, Eelco, 2016. Left-right ideology as an inferential device in multiparty systems: Can citizens overcome low information by imputing parties' policy positions? *Elect. Stud.* 42, 175–187.
- Dancey, Logan, Sheagley, Geoffrey, 2013. Heuristics behaving badly: Party cues and voter knowledge. *Am. J. Political Sci.* 57 (2), 312–325.
- Däubler, Thomas, Quoß, Franziska, Rudolph, Lukas, 2021. Do citizens use sociodemographic characteristics as cues to infer candidate issue positions? *Swiss Political Sci. Rev.* (4), 731–753.
- Däubler, Thomas, Rudolph, Lukas, 2020. Cue-taking, satisficing, or both? Quasi-experimental evidence for ballot position effects. *Political Behav.* 42 (2), 625–652.
- De la Cuesta, Brandon, Egami, Naoki, Imai, Kosuke, 2022. Improving the external validity of conjoint analysis: The essential role of profile distribution. *Political Anal.* 30 (1), 19–45.

- Dejaeghere, Yves, Van Erkel, Patrick, 2017. The importance of issue-ownership and salience for voters' knowledge of parties' issue positions. *Elect. Stud.* 46, 15–25.
- Downs, Anthony, 1957. *An Economic Theory of Democracy*. Harper and Row, New York.
- Eulau, Heinz, Karps, Paul D., 1977. The puzzle of representation: Specifying components of responsiveness. *Legislative Stud. Q.* 2 (3), 233–254.
- Faas, Thorsten, Schoen, Harald, 2006. The importance of being first: Effects of candidates' list positions in the 2003 Bavarian state election. *Elect. Stud.* 25 (1), 91–102.
- Fivaz, Jan, Nadig, Giorgio, 2010. Impact of voting advice applications (VAAs) on voter turnout and their potential use for civic education. *Policy Internet* 2 (4), 167–200.
- Folke, Olle, Rickne, Johanna, 2020. Who wins preference votes? An analysis of party loyalty, ideology, and accountability to voters. *J. Theor. Politics* 32 (1), 11–35.
- Fowler, Anthony, Margolis, Michele, 2014. The political consequences of uninformed voters. *Elect. Stud.* 34, 100–110.
- Gallagher, Michael, Mitchell, Paul (Eds.), 2005. *The Politics of Electoral Systems*. Oxford University Press, Oxford.
- Gay, Claudine, 2002. Spirals of trust? The effect of descriptive representation on the relationship between citizens and their government. *Am. J. Political Sci.* 46 (4), 717–732.
- Gifford, Robert, Nilsson, Andreas, 2014. Personal and social factors that influence pro-environmental concern and behaviour: A review. *Int. J. Psychol.* 49 (3), 141–157.
- Giger, Nathalie, Lefkofridi, Zoe, 2014. Salience-based congruence between parties & their voters: The Swiss case. *Swiss Political Sci. Rev.* 20 (2), 287–304.
- Golden, Miriam, Min, Brian, 2013. Distributive politics around the world. *Annu. Rev. Political Sci.* 16 (1), 73–99.
- Golder, Sona N., Stephenson, Laura B., der Straeten, Karine Van, Blais, André, Bol, Damien, Harfst, Philipp, Laslier, Jean-François, 2017. Votes for women: electoral systems and support for female candidates. *Politics Gend.* 13 (1), 107–131.
- Grand, Peter, Tiemann, Guido, 2013. Projection effects and specification bias in spatial models of European Parliament elections. *Eur. Union Politics* 14 (4), 497–521.
- Green-Pedersen, Christoffer, 2007. The growing importance of issue competition: The changing nature of party competition in Western Europe. *Political Stud.* 55 (3), 607–628.
- Hehli, Simon, Thelitz, Nikolai, 2019. Totaler Umweltschutz, kein Rentenalter 67, Cannabis-Freigabe – so schlägt sich der grüne Triumph im Nationalrat nieder. *Neue Züricher Zeitung*. URL: <https://www.nzz.ch/schweiz/wahlen-2019-so-tickt-das-neue-parlament-ld.1516802>.
- Holli, Anne Maria, Wass, Hanna, 2010. Gender-based voting in the parliamentary elections of 2007 in Finland. *Eur. J. Political Res.* 49 (5), 598–630.
- Hooghe, Liesbet, Marks, Gary, Wilson, Carole J., 2002. Does left/right structure party positions on European integration? *Comp. Political Stud.* 35 (8), 965–989.
- Inter-Parliamentary Union, 2021a. *Data on Age: By Country*. IPU Parline - Global data on national parliaments, URL: <https://data.ipu.org/age-brackets>.
- Inter-Parliamentary Union, 2021b. *Monthly Ranking of Women in National Parliaments*. IPU Parline - Global data on national parliaments, URL: <https://data.ipu.org/women-ranking?month=12&year=2021>.
- Isotalo, Veikko, Heliäki, Theodora, Mattila, Mikko, von Schoultz, Åsa, 2022. When does ideology matter? Party lists, personal attributes and the effect of ideology on intra party success. *Eur. J. Political Res.* 62 (4), 1257–1279.
- Isotalo, Veikko, Mattila, Mikko, von Schoultz, Åsa, 2020. Ideological mavericks or party herd? The effect of candidates' ideological positions on intra-party success. *Elect. Stud.* 67, 102187.
- Jankowski, Michael, 2016. Voting for locals: Voters' information processing strategies in open-list PR systems. *Elect. Stud.* 43, 72–84.
- Jessee, Stephen A., 2010. Partisan bias, political information and spatial voting in the 2008 presidential election. *J. Polit.* 72 (02), 327–340.
- Jones, Philip Edward, 2016. Constituents' responses to descriptive and substantive representation in congress. *Soc. Sci. Q.* 97 (3), 682–698.
- Kenny, John, 2021. The evolution of environmental concern in Europe. In: Franzen, Axel, Mader, Sebastian (Eds.), *Research Handbook on Environmental Sociology*. Edward Elgar Publishing.
- Kenny, John, Langsæther, Peter Egge, 2023. Environmentalism as an independent dimension of political preferences. *Eur. J. Political Res.* 62 (4), 1031–1053.
- Krosnick, Jon A., 2002. The challenges of political psychology: Lessons to be learned from research on attitude perception. In: Kuklinski, James H. (Ed.), *Thinking About Political Psychology*. Cambridge University Press, Cambridge, pp. 115–152.
- Kukolowicz, Paula, 2013. Do voters read gender? Stereotypes as voting cues in electoral settings. *Pol. Sociol. Rev.* 182 (2), 223–238.
- Ladner, Andreas, Fivaz, Jan, Pianzola, Joëlle, 2012. Voting advice applications and party choice: evidence from Smartvote users in Switzerland. *Int. J. Electron. Gov.* 5 (3–4), 367–387.
- Lau, Richard R., Patel, Parina, Fahmy, Dalia F., Kaufman, Robert R., 2014. Correct voting across thirty-three democracies: A preliminary analysis. *Br. J. Political Sci.* 44 (2), 239–259.
- Lutz, Georg, 2010. First come, first served: the effect of ballot position on electoral success in open ballot PR elections. *Representation* 46 (2), 167–181.
- Marien, Sofie, Schouteden, Anke, Wauters, Bram, 2017. Voting for women in Belgium's flexible list system. *Politics Gend.* 13 (2), 305–335.
- Matakos, Konstantinos, Savolainen, Riikka, Troumpounis, Orestis, Tukiainen, Janne, Xeferis, Dimitrios, 2024. Electoral institutions and intraparty cohesion. *J. Political Econ. Microecon.* forthcoming.
- McFadden, Daniel, et al., 1973. Conditional logit analysis of qualitative choice behavior. In: Zarembka, Paul (Ed.), *Frontiers in Econometrics*. Academic Press, New York.
- Mutz, Diana C., 2011. *Population-Based Survey Experiments*. Princeton University Press.
- Pianzola, Joëlle, Trechsel, Alexander H., Vassil, Kristjan, Schwerdt, Guido, Michael Alvarez, R., 2019. The impact of personalized information on vote intention: Evidence from a randomized field experiment. *J. Polit.* 81 (3), 833–847.
- Plutzer, Eric, Zipp, John F., 1996. Identity politics, partisanship, and voting for women candidates. *Public Opin. Q.* 60 (1), 30–57.
- Portmann, Lea, 2022. What makes a successful candidate? Political experience and low-information cues in elections. *J. Polit.* 84 (4), 2049–2063.
- Presberger, David, Quöß, Franziska, Rudolph, Lukas, Bernauer, Thomas, 2023. Factual information on the environmental impacts of consumption abroad increases citizens' problem awareness, but not support for mitigating such impacts. *Environ. Sci. Policy* 146, 101–112.
- Rapel, Lauri, 2018. Does sophistication affect electoral outcomes? *Gov. Oppos.* 53 (2), 181–204.
- Renwick, Alan, Pilet, Jean-Benoit, 2016. *Faces on the Ballot*. In: *The Personalization of Electoral Systems in Europe*. Oxford University Press, Oxford.
- Riera, Pedro, Cantú, Francisco, 2022. Electoral systems and ideological voting. *Eur. Political Sci. Rev.* 14 (4), 463–481.
- Rudolph, Lukas, Däubler, Thomas, 2016. Holding individual representatives accountable: The role of electoral systems. *J. Polit.* 78 (3), 746–762.
- Rudolph, Lukas, Däubler, Thomas, Menzner, Jan, 2022. Das Potenzial offener Listen für die Wahl von Frauen zum Bundestag. *Ergebnisse eines Survey-Experiments*. *Politische Vierteljahresschrift* 63 (3), 441–468.
- Rudolph, Lukas, Fesenfeld, Lukas, Wehrli, Stefan, Quöß, Franziska, Bernauer, Thomas, 2020a. *Swiss Environmental Panel Study 2018-2019, Wave 3 Data [Dataset]*. ETH Zurich - Institute of Science, Technology and Policy, Distributed by FORS, Lausanne, 2021.
- Rudolph, Lukas, Quöß, Franziska, Bernauer, Thomas, 2020b. *Swiss Environmental Panel Study 2018-2019, Wave 1-3, Documentation*. ETH Zurich - Institute of Science, Technology and Policy, Distributed by FORS, Lausanne, 2021.
- Samuel, Merrill, Grofman, Bernard, Adams, James, 2001. Assimilation and contrast effects in voter projections of party locations: Evidence from Norway, France, and the USA. *Eur. J. Political Res.* 40 (2), 199–223.
- Selects, 2024. *Selects 2019 Panel Survey (waves 1-7) [dataset]*. <http://dx.doi.org/10.48573/115Z-FD63>, FORS.
- Sevi, Semra, 2021. Do young voters vote for young leaders? *Elect. Stud.* 69, 102200.
- Shugart, Matthew Soberg, Valdini, Melody Ellis, Suominen, Kati, 2005. Looking for locals: Voter information demands and personal vote-earning attributes of legislators under proportional representation. *Am. J. Political Sci.* 49 (2), 437–449.
- Singh, Shane P., Roy, Jason, 2014. Political knowledge, the decision calculus, and proximity voting. *Elect. Stud.* 34, 89–99.
- Spoon, Jae-Jae, Hobolt, Sara B., Vries, Catherine E. De, 2014. Going green: Explaining issue competition on the environment. *Eur. J. Political Res.* 53 (2), 363–380.
- SRF, 2019. *Das war die «Klimawahl» – Das Protokoll zum Nachlesen*. Schweizer Radio und Fernsehen, URL: <https://www.srf.ch/news/schweiz/wahlen-2019/gruene-neu-viertstaerkste-kraft-das-war-die-klimawahl-das-protokoll-zum-nachlesen>.
- Stokes, Leah C., 2016. Electoral backlash against climate policy: A natural experiment on retrospective voting and local resistance to public policy. *Am. J. Political Sci.* 60 (4), 958–974.
- Sundström, Aksel, Stockemer, Daniel, 2021. Conceptualizing, measuring, and explaining youths' relative absence in legislatures. *PS: Political Sci. Politics* 54 (2), 195–201.
- Thomasen, Jacques, 2012. The blind corner of political representation. *Representation* 48 (1), 13–27.
- Thurner, Paul W., 2000. The empirical application of the spatial theory of voting in multiparty systems with random utility models. *Elect. Stud.* 19 (4), 493–517.
- Tiemann, Guido, 2022. Conditions of proximity and directional voting: Voter sophistication, political information, and party identification. *Elect. Stud.* 75, 102436.
- Tomz, Michael, Houweling, Robert P. Van, 2008. Candidate positioning and voter choice. *Am. Political Sci. Rev.* 102 (3), 303–318.
- Tromborg, Mathias, 2019. Issue salience and candidate position taking in parliamentary parties. *Political Stud.* 67 (2), 307–325.
- Tromborg, Mathias Wessel, 2020. Appealing broadly while appearing unified: Resolving an electoral dilemma. *Eur. J. Political Res.* 60 (1), 131–152.
- Van der Brug, Wouter, Van der Eijk, Cees, 1999. The cognitive basis of voting. In: Schmitt, Hermann, Thomassen, Jacques (Eds.), *Political Representation and Legitimacy in the European Union*. p. 129.
- van Erkel, Patrick F.A., 2019. Sharing is caring: the role of voter-candidate similarities in intra-party electoral competition. *Eur. Political Sci. Rev.* 11 (1), 75–89.
- van Erkel, Patrick F.A., 2023. The odd one out: The influence of ideological positioning on individual electoral success. *Party Politics* 29 (1), 65–71.
- Vatter, Adrian, 2016. *Das politische System der Schweiz*. Baden-Baden, Nomos.
- Vegetti, Federico, Fazekas, Zoltán, Méder, Zsombor Zoltán., 2017. Sorting your way out: Perceived party positions, political knowledge, and polarization. *Acta Politica* 52 (4), 479–501.

von Schoultz, Åsa, Papageorgiou, Achillefs, 2021. Policy or person? The electoral value of policy positions and personal attributes in the finnish open-list system. *Party Politics* 27, 767–778.

Wäckerle, Jens, 2023. The end of the all-male party? Voter preferences for gender representation in political parties. *J. Elect. Public Opin. Parties* 33 (4), 726–745.

Wolkenstein, Fabio, Wratil, Christopher, 2021. Multidimensional representation. *Am. J. Political Sci.* 65 (4), 862–876.