

The power of alignment: how personalized information shapes voter decisions

Nikandros Ioannidis

To cite this article: Nikandros Ioannidis (02 Jun 2025): The power of alignment: how personalized information shapes voter decisions, Journal of Information Technology & Politics, DOI: [10.1080/19331681.2025.2512856](https://doi.org/10.1080/19331681.2025.2512856)

To link to this article: <https://doi.org/10.1080/19331681.2025.2512856>



© 2025 The Author(s). Published with license by Taylor & Francis Group, LLC.



[View supplementary material](#)



Published online: 02 Jun 2025.



[Submit your article to this journal](#)



Article views: 980



[View related articles](#)



[View Crossmark data](#)



Citing articles: 1 [View citing articles](#)

The power of alignment: how personalized information shapes voter decisions

Nikandros Ioannidis

ABSTRACT

This study examines the effects of personalized political information on voter-party congruence and electoral behavior through an online survey experiment embedded in a Voting Advice Application (VAA) during the 2021 parliamentary elections in Cyprus. Drawing on Downs' paradox, it hypothesizes that personalized affinity information would increase electoral participation and proximity voting by lowering informational costs. The experiment, involving approximately 4% of the Cypriot electorate, finds that such information significantly increases the likelihood of participation – by up to 10 percentage points – and encourages broader party consideration beyond single-party allegiance. However, no evidence is found that it shifts vote intentions toward more ideologically congruent parties. Despite increased awareness, voting choices remain largely stable, suggesting that short VAA interactions may activate participation without altering entrenched preferences. These findings underscore the value of VAAs as tools for engagement, even if their capacity to reshape vote choice is limited.

KEYWORDS

Voting advice applications (VAAs); electoral engagement; voter-party congruence; personalised information

Introduction

Political information plays a critical role in guiding proximity voting, influencing citizen preferences and actions in the electoral process (Carpini & Keeter, 1996; Enelow & Hinich, 1984). Despite the ongoing debate regarding the impact of such information, it is widely accepted that personalized political information significantly affects voter behavior (Martinelli & Chaffee, 1995). Informed voters, aware of party positions and current political affairs, are generally more likely to vote than their less-informed counterparts (Lassen, 2005; Nordin, 2014).

However, the specific influence of personalized political information on proximity voting remains somewhat elusive. The acquisition of such information, which often requires considerable resources and time, can be a deterrent for many voters (Bartels, 1996; Cunow et al., 2021; Kaid et al., 2007). Voting Advice Applications (VAAs) have emerged as a solution to this challenge, offering voters an accessible way to understand the ideological landscape and identify parties that align with their beliefs (Walgrave et al., 2009). Nevertheless, the extent to which VAAs influence proximity

voting and voter turnout is not yet fully understood, with existing findings presenting a mixed picture (Munzert & Ramirez-Ruiz, 2021).

This study makes a methodological and substantive contribution to the ongoing debate about the influence of voter-party congruence on electoral behavior. By employing a VAA to provide voters with personalized political information regarding their congruence with parties, this research aims to determine whether and how such information influences political behavior, especially in a context where users are already motivated to seek political input. The core question it addresses is whether knowledge of voter-party distance, as presented through VAAs, can motivate electoral behavior. Further, it explores whether various representations of voter-party congruence – each highlighting different aspects of alignment – have distinct effects. Through this approach, the study seeks to uncover if the provision of congruence information is a motivation for electoral engagement, offering insights into how political information processing potentially mobilizes voters.

VAAs are interactive online tools designed to help voters find political parties or candidates that

CONTACT Nikandros Ioannidis  nikandros.ioannidis@cut.ac.cy  Cyprus University of Technology, 30 Archbishop Kyprianos Street, Limassol 3036, Cyprus
 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/19331681.2025.2512856>

© 2025 The Author(s). Published with license by Taylor & Francis Group, LLC.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

most closely align with their own views. By answering a series of policy-related questions, users receive recommendations based on the match between their responses and the positions of various political parties (Garzia & Marschall, 2012). VAAs aim to reduce the informational and cognitive barriers to political participation, providing a straightforward mechanism for voters to navigate the political landscape and make informed decisions.

An online experiment was conducted in collaboration with Choose4Cyprus (the most well-known VAA in Cyprus) during the 2021 Cypriot legislative elections, reaching nearly 4% of the Cypriot electorate. Participants were randomly assigned to either the control group or one of four experimental groups, each presented with distinct representations of voter-party distance. The findings of this study corroborate existing research indicating that access to political information can increase intended voter turnout. Moreover, the paper offers new insights by showing that while VAAs increase the likelihood of electoral participation and expand voters' consideration sets, they do not significantly alter the final vote intention. The study contributes to the literature by clarifying the mixed findings of previous research and providing a more definitive account of how personalized political information affects turnout intentions and voter-party proximity. The study both reinforces elements of established knowledge and advances the debate, thereby enhancing its relevance within the broader field of political behavior and information effects.

Literature Review

The paradox of voting and political information

Participation in elections often incurs more costs than benefits, with abstention being an option for those perceiving elections as a net cost (Benz & Stutzer, 2004; Downs, 1957; Owen & Grofman, 1984). Systemic attributes, including electorate size, political culture, and electoral laws, shape this cost-benefit analysis (Jackman, 1987). The complexity of contemporary democracies, with their multiparty systems and emerging niche political formations, necessitates increased time for

voter decision-making (Cunow et al., 2021). Traditional participatory mechanisms like party membership and class voting have weakened, while media fragmentation diversifies the political message (Gray & Caul, 2000; Kostelka & Blais, 2021; Mancini, 2013).

In many European countries, voters often have limited knowledge about party positions (Haugsgjerd et al., 2021), relying on fragmented and non-news media sources. The information received is often generic and fails to address individual voters' information deficits (Blais et al., 2009; Graber, 1994). Party manifestos, while an integral part of the parties' standing, seldom capture voters' attention (Adams et al., 2014; Däubler, 2012, 2014).

Recently, the focus has shifted toward personalized political information's impact on electoral participation and proximity voting (Geers et al., 2017; Spoon & Klüver, 2019). Precise, easily digestible information aligned with individuals' ideopolitical orientation is posited to increase the likelihood of electoral participation and voting for a proximate party.

Voters incline to minimise the distance

Voters principally aim to ensure high proximity by voting for a party that aligns with their beliefs (Downs, 1957; Enelow & Hinich, 1984), a tendency more observable among educated and politically informed voters (Joesten & Stone, 2014; Singh & Roy, 2014). This inclination even extends, to some extent, to less-informed voters (Singh & Roy, 2014). Ideologically extreme voters often abstain when no party aligns with their stance, highlighting the impact of ideological distance on electoral behavior (Lefkofridi et al., 2014). Experimental studies underscore the significance of the spatial model guiding voters' choices. Claassen (2007), Tomz and Van Houweling (2008), and Lacy and Paolino (2010) conducted experiments in which participants evaluated hypothetical candidates. They provided participants with information about candidates' ideological positions or policy stances and observed that participants tended to favor candidates with the smallest ideological or policy distance. Although diverse in their methodologies, these studies

consistently confirmed the spatial model's importance in shaping voters' preferences.

Proximity voting is influenced by several moderating factors. It is more pronounced in multi-party and polarized party systems, offering distinct choices to voters (Lachat 2008 impact (Lachat, 2008; Wessels & Schmitt, 2008)). However, it is constrained in multidimensional systems where clear information about party positions is lacking (Singh, 2010).

Proximity voting requires a substantial informational effort by the voter and a considerable amount of prior political information (Federico & Hunt, 2013; Jessee, 2010; Lacy & Paolino, 2010; Singh & Roy, 2014; Tomz & Van Houweling, 2008). Lau and Redlawsk (2006) displayed that less politically informed voters often rely on cognitive shortcuts, failing to choose candidates or parties closest to their political positions. A cross-national study by Boonen et al. (2017) reaffirmed the positive relationship between political information and proximity voting, suggesting informed voters demonstrate higher proximity to their preferred parties. Therefore, it is safe to speculate that improving users' understanding of the dynamics within a party system by providing them with tailored political information can increase their probability of participating in elections and choosing a party proximate to them.

Moreover, the use of VAAs may contribute to electoral participation through mechanisms other than the supposed improvement of awareness of the parties' position in the political space. VAAs might reduce ambiguity or doubt, reinforcing voting intentions by reaffirming voters' predisposed party preferences, thus addressing cognitive dissonance caused by conflicting political messages. Also, the capacity for voters to use heuristics successfully in making voting decisions is considered (Lupia, 1994), suggesting that VAAs can serve as effective heuristic tools (Tromborg & Albertsen, 2023), simplifying the decision-making process and potentially increasing the likelihood of voting in line with ideological preferences without requiring comprehensive knowledge of the overall structure of the party system.

Finally, a major point of criticism for the above studies is the gap between voting intention and actual behavior. The present study focuses on

the impact of VAAs on voting intention, but it is safe to imply that intention can be linked to voting behavior itself. The Theory of Planned Behavior (Ajzen, 1991) and the studies that followed (Granberg & Holmberg, 1990; Netemeyer & Burton, 1990; Pieters & Verplanken, 1995) suggest a strong link between voting intention and actual electoral behavior. Recent studies give more weight to this conclusion, as they confirm the effect of VAAs on electoral behavior with the conduction of post-election surveys (Tromborg & Albertsen, 2023). Therefore, while this study focuses on the effect of perceived distances between voters and parties on voting intention, it suggests a probable correlation that these intentions may translate into actual voting behavior.

VAAs as the political information providers

VAAs serve as essential tools in contemporary political landscapes, offering voters personalized political information and thereby facilitating informed voting decisions (Germann & Gemenis, 2019; Munzert & Ramirez-Ruiz, 2021). These web-based platforms juxtapose users' policy perspectives with the actual party positions, enhancing voter understanding of their political alignment. This process is particularly crucial in multiparty systems where voters face a plethora of choices (Krouwel et al., 2014).

The digital era has significantly expanded VAAs' reach, making them a popular choice for voters seeking quick, personalized political insights. Their growing influence is evident in countries like Denmark and the Netherlands, where a substantial proportion of the electorate uses VAAs before elections (Germann & Gemenis, 2019).

VAAs are expected to reduce voter abstention by offering congruent voting options, aligning with the cost/benefit theorem (Dinas et al., 2014; Gemenis & Rosema, 2014; Tromborg & Albertsen, 2023). This theoretical framework posits that VAAs can efficiently provide crucial political information, thereby influencing electoral participation. However, the relationship between VAA usage and electoral behavior, particularly regarding voter turnout and proximity to preferred parties,

has been met with mixed results in empirical studies.

Initial studies on VAAs largely reported self-perceived benefits from users Fivaz and Nadig (2010); Marschall and Schmidt (2008), leading to concerns about self-selection biases (Walgrave et al., 2008). Subsequent research attempted to address these limitations by considering users' socio-political characteristics and employing panel data (Gemenis, 2018; Kruikemeier et al., 2014; Marschall & Schultze, 2012). Yet, these methods only partially resolved the issue of self-selection, as VAA data tends to overrepresent certain segments of the electorate (Marschall & Schmidt, 2008).

Experimental studies have further explored this relationship, yielding inconsistent results. Some studies challenge the notion that VAAs significantly impact electoral participation (Enyedi, 2016; Mahéo, 2017; Munzert et al., 2020), while others find only a fragile effect (Garzia et al., 2017; Vassil, 2011). Research focusing on the influence of VAAs on proximity voting suggests that informed users might logically vote for parties closely aligned with their preferences (Wagner & Ruusuvirta, 2012). Empirical and panel data studies have indicated a positive association between VAAs and electoral choices (Kleinnijenhuis et al., 2019; Munzert et al., 2020; Pianzola, 2014a, 2014b),

but experimental studies offer a less consistent narrative, often finding no significant correlation between VAAs and proximity voting and vote switching Enyedi (2016); Mahéo (2016); Munzert et al. (2020); Pianzola et al. (2019); Vassil (2011).

This study seeks to offer a more conclusive understanding of the role VAAs play in shaping electoral behavior. Using data from an online experiment embedded in the Cypriot VAA, Choose4Cyprus, conducted ahead of the 2021 parliamentary elections, the research examines the effects of personalized political information on voting intention and alignment with ideologically proximate parties. The findings contribute to the broader literature on political information tools by clarifying the extent to which VAAs influence participation and voter-party congruence, addressing previous mixed evidence with a more systematic and experimentally grounded perspective.

Within the experimental design, participant engagement was randomly bifurcated. Some individuals were initially exposed to one of the VAA outputs, subsequent to which they were asked which party they intend to vote for (treatment groups). An alternative group of participants were initially queried about their prospective voting choice prior to being presented with one of the VAA outputs (control group).

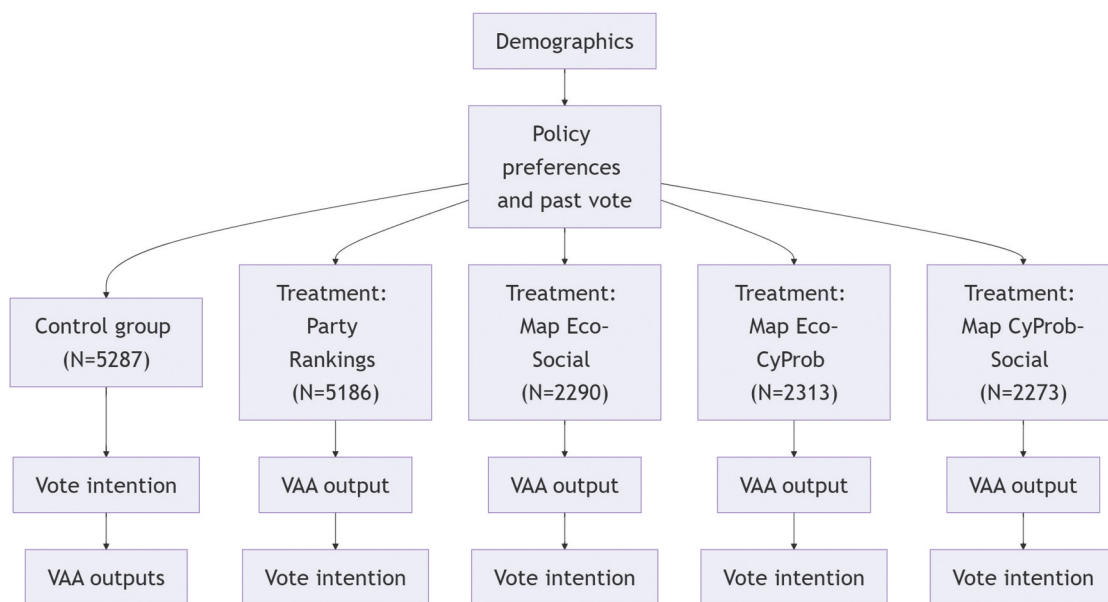


Figure 1. Experimental design (N equals the number of observations of each group).

In Figure 1, I present the configuration of the experimental design. The VAA was divided into four parts. First come the socio-demographic variables, encompassing age, gender, and district, among others. The second segment focuses on political preferences, assessed on a five-point scale ranging from “strongly disagree” to “strongly agree,”¹ in conjunction with a question about past voting behavior, particularly concerning the previous parliamentary election (2016 Cypriot legislative election). The third part focuses on electoral behavior in the upcoming parliamentary election and the hypothetical second and third vote choices. Finally, the fourth part highlights the VAA outputs.

Participants were allocated randomly into five distinctive groups: one served as the control group, while the other four were designated as treatment groups, each assigned a unique stimulus. Participants were randomly assigned to one of five experimental groups using a uniform random draw between 0 and 1.00. The assignment probabilities were pre-defined to allocate approximately 30% of respondents to the control group, 30% to the party rankings treatment, and the remaining 40% evenly across the three policy map treatments. This allocation strategy was designed to maximize precision in comparisons between the control group and the two main treatment types – party rankings and spatial policy maps – while treating the three map conditions as conceptually similar variations on a shared treatment logic. The process and the resulting post-clean group sizes are shown in Figure 2.

All five groups began their engagement with the VAA identically: initially, users were queried

about their socio-demographic details and then asked a series of questions about their policy preferences and their past voting choice. In the case of the control group, the sequence proceeded with soliciting their voting intention for the upcoming election, after which they were presented with the VAA outputs. In contrast, the treatment group participants followed a different configuration. Following the socio-demographic and policy preference questions, these participants were first presented with one of four VAA outputs, after which they were asked about their voting intention.

Right after the primary voting intention question, two hypothetical voting intention questions were posed to participants (one below the other on the same screen). These questions aimed to assess how exposure to different VAA outputs might influence their alternative voting choices. The first question asked participants to consider their voting choice if they had a hypothetical second vote. Similarly, the second question asked participants to consider their voting choice if they had a hypothetical third vote.²

The four VAA outputs used as treatments are: a) the party ranking, visualized as a bar chart depicting parties in descending order of congruence with the user, b) a political map demarcated by the economic left-right axis (X-axis) and the progressivism-conservatism dimension (Y-axis), c) another political map delineated by the economic left-right axis (X-axis) but juxtaposed with the Cyprus problem dimension (Y-axis), and finally, d) a third political map, this one demarcated by the Cyprus problem dimension (X-axis)

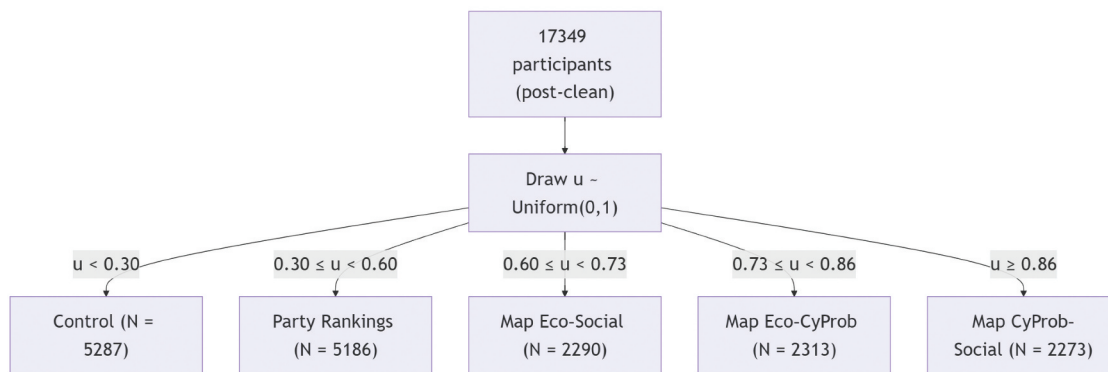


Figure 2. Randomisation procedure (uniform-draw cut-offs) and resulting post-clean sample sizes for each experimental arm.

and the dimension between progressivism and conservatism (Y-axis).

Consequently, the above experimental arrangement gives rise to the study's initial hypothesis:

H1: Users who first observed one of the VAA outputs are more likely to indicate that they will participate in elections.

Furthermore, I expect that voters are likely to consider a broader spectrum of political options when they are presented with VAA outputs. This is particularly relevant in multi-party systems where voters might not be fully aware of all the parties' stances on various issues. By being exposed to this tailored information, voters might realize that multiple parties align with their views on different dimensions, thus increasing the likelihood that they will consider more than one party as a viable option for their vote. This idea also relates to the concept of cognitive dissonance and decision-making. When voters see their alignment with multiple parties visualized through VAA outputs, it may prompt them to consider alternatives that they might not have previously considered. This effect might be particularly significant in an environment where voters are overwhelmed by the number of choices or unclear where different parties stand on issues that matter to them.

H2: Users who first observed one of the VAA outputs are more likely to consider more than one party for their voting choice.

Additionally, the study investigates whether VAA outputs influence voter-party congruence. Drawing on the spatial model of voting, it posits that personalized outputs – by reducing the cognitive effort required to evaluate party positions – may prompt voters to choose parties that are more ideologically aligned with their preferences. In this sense, VAAs are expected to promote proximity-based voting by helping users identify and act on ideological closeness that they might otherwise overlook, or even potentially motivate vote-switching.

H3: Users who first observed one of the VAA outputs are more likely to vote for a party that is ideologically closer to their preferences.

H4: Users who first observed one of the VAA outputs are more likely to switch their votes.

Data and methodology

Choose4Cyprus 2021 and the experimental design

Choose4Cyprus was launched on 21/5/2021 (Friday), and the Cypriot parliamentary elections took place on 30/5/2021 (Sunday). After initiating the VAA, data was meticulously scrutinized for irregularities. Certain users were excluded from the dataset due to the detection of patterns of abnormal behavior during their interaction with the VAA, such as expedited response times and uniformity of answers.³ Following this cleaning process, the final dataset used for this analysis comprised 17,349 users.⁴ Figure 3 presents a view of user participation, illustrating two facets of user engagement with the VAA. The top panel of the figure showcases the daily distribution of observations, highlighting the fluctuation in user activity over the entire period during which the VAA remained online. The bottom panel, in contrast, displays the cumulative number of users over the same period, providing insight into the overall growth of user engagement over time.

Figures 4 and 5 are examples of the outputs provided by Choose4Cyprus. Figure 4 shows the party rankings, estimated based on users' answers to all twenty-one policy preference questions. The calculation was based on the Manhattan distance equation, with possible negative and positive values.⁵

The highest positive affinity is achieved when the user and the party are placed on precisely the same level on the 5-point scale (e.g., the party and the user are both placed on the "Strongly Agree" level). Positive affinity also transpires even if the party and user are located at different points on the same side of the scale (e.g., the party ranks at the "Strongly Agree" level, while the user places on "Agree").

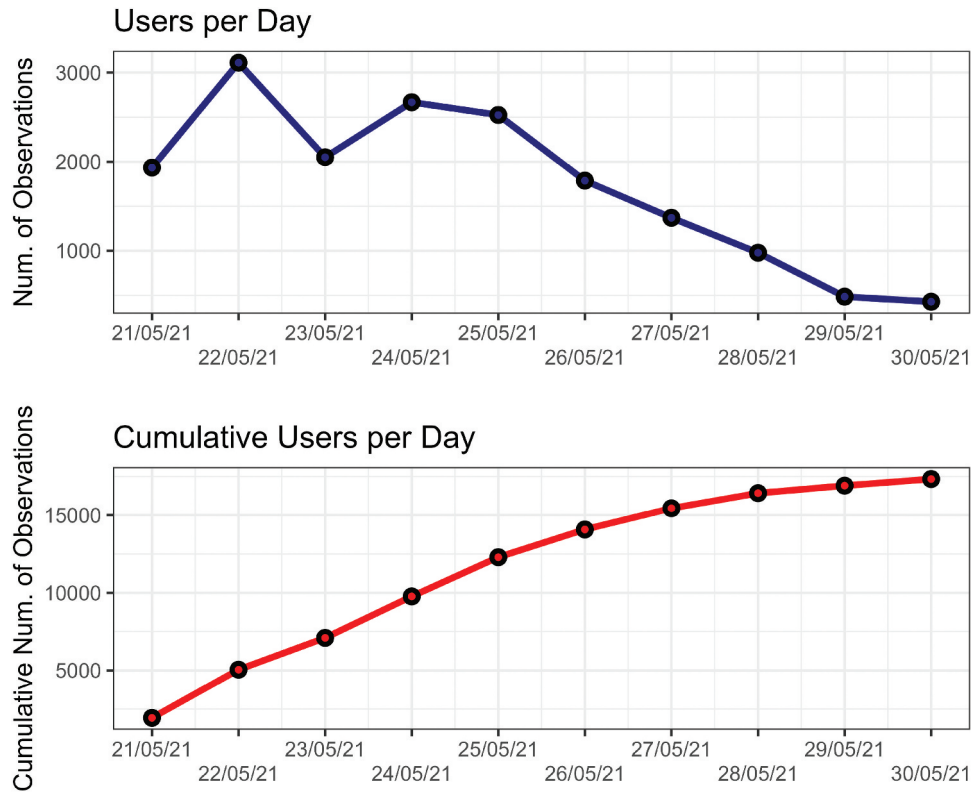


Figure 3. The top panel illustrates the daily distribution of user observations. The bottom panel displays the cumulative count of users.



Figure 4. Party Rankins example - “affinity with the parties.” Green bars indicate high affinity (over 50), yellow bars indicate weak positive affinity (between 0 and 50), and red bars indicate negative affinity (below 0).



Figure 5. Political map: Left/right economy (X-axis) and progressivism - conservatism (Y-axis). Party logos indicate the party's placement on the specific political map. The blue figure indicates the user's placement based on their responses to the questions in these two axes-groups (i.e. questions regarding the economy and social/moral issues).

Contrastingly, the highest degree of negative affinity manifests when the user's position stands in stark opposition to the party's, occupying anti-podal points on the scale (e.g., the party aligns with "Strongly Agree" while the user places on "Strongly Disagree"). Thus, these calculations provide a detailed quantification of the correspondence or divergence between the party's and the user's policy preferences.⁶ The political preference questions included in the survey were selected for their relevance to the respondents (i.e. Cypriot voters), ensuring relevant responses. The coding of the parties' positions on the policy preference questions was systematically carried out based on responses from experts who voluntarily participated in the coding process.⁷

Figure 5 displays the political map, demarcated by the economic Left-Right continuum (X-axis) and the dimension spanning from Progressivism to Conservatism (Y-axis). The user's and parties' placements on these maps are derived from their

responses to questions encompassing three key dimensions: i) economic issues, ii) social/moral values, and iii) stances on the Cyprus Problem. Their positioning on each dimension is determined by the average value of their responses to the associated group of questions.

For instance, in Figure 5, the user's icon is adjacent to the upper boundary of the Y-axis, indicating their progressive stance on social/moral issues. To clarify, this means that the user expressed utmost agreement with issues connoting progressivism, such as equal rights for homosexual couples, the legalization of cannabis for recreational purposes, and prioritizing environmental preservation over economic growth. The economic Left-Right axis is defined by attitudes toward state intervention in the economy, wealth redistribution, and the privatization of semi-public organizations. Perspectives on a potential resolution plan and views on coexistence with Turkish Cypriots delineate the Cyprus Problem dimension.⁸

On one end of the Cyprus Problem axis, parties and users advocating for a bi-communal federal solution can be found, whereas, on the opposite end, those opposing such a solution are situated. Some of the twenty-one policy preference questions do not pertain to any specific group, such as those involving the COVID-19 pandemic, corruption, or state institution reforms. Hence, these were solely utilized to estimate voter-party affinity for the Party Rankings.

Following the voting intention question for the impending parliamentary elections, participants were engaged with a hypothetical scenario where they had the chance to cast votes for a second or third party. Despite the Cypriot electoral system not permitting multiple-party voting, this exercise was designed to scrutinize whether the VAA's recommendations can also influence secondary and tertiary party choices. Importantly, examining the preference for a second and third vote carries significant interest beyond the initial insights it provides. It allows for an exploration of potential vote transfers, offering a comprehensive view of the electorate's elasticity between different voting options. Additionally, the scenario allows us to understand potential electoral behavior without the confounding influence of partisanship, habitual voting patterns, and strategic voting (which restrain the actual voting choice).

Table 1 depicts the socio-demographic features of each participant group. Consistent with prior research (Marschall & Schmidt, 2008), some demographic groups appear to be disproportionately represented in the sample. Notably, the average participant age approximates 37 years, slightly below the median age of Cypriot voters. Most respondents were male, and the mean education and political interest levels were relatively high compared to representative survey outcomes. This overrepresentation of politically engaged and

informed citizens reflects a broader pattern in VAA research, where users are typically more attentive to politics and more comfortable navigating digital platforms. As such, this experimental study – like most VAA-based studies – does not aim to draw definitive generalizations about the entire electorate, but rather to assess the behavioral effects of personalized information among those who are already motivated enough to seek political input. The theoretical implications should therefore be interpreted in relation to the characteristics of the research sample: even among engaged citizens, exposure to personalized VAA feedback may shift behavior in meaningful ways. These results offer a lower-bound estimate of how information may function for more disengaged voters. However, the random allocation of participants was impeccably executed, demonstrated by the virtually identical socio-demographic profiles across the five groups.⁹ This equitability assures the validity of the hypotheses testing, eliminating the potential impact of confounding latent factors.

The Cyprus context

In recent times, the Cypriot party system has been experiencing transformations akin to those observed across numerous European party systems (Triga, 2017; Triga et al., 2024). Even with its already pronounced fragmentation, especially considering its relatively small electorate, the Cypriot party system has seen a continued decline of major mainstream parties and an emergence of smaller niche political entities (Ellinas & Katsourides, 2021). Moreover, voter abstention reached an unprecedented high and approximately 14% of votes cast for parties that failed to surpass the 3.6% electoral threshold. Collectively, these developments signal a novel era of political mistrust

Table 1. Socio-demographic characteristics mean values of each participant group.

	Ctrl group	Party Rank	Map E/S	Map E/Cy	Map Cy/S
Age	36.92	37.24	37.60	36.82	37.41
Gender	0.32	0.32	0.33	0.32	0.31
Edu. Level	3.99	4.02	3.98	4.01	3.98
Pol. Interest	1.90	1.90	1.89	1.89	1.89
Obs.	5287	5186	2290	2313	2273

Note: The table presents the mean values of socio-demographic characteristics for each participant group. These characteristics include age, gender (Male: 0, Female:1), education level (Did not complete high school: 0, Master's degree: 5), and political interest (Not at all: 0, Very: 3).

toward political parties in Cyprus (Ellinas & Katsourides, 2021).

Cyprus is the only European Union country operating under a presidential system, wherein the President functions as both the head of state and the head of government. The President appoints ministers and determines the government's political direction. Although the parliament lacks the authority to trigger early presidential elections, its role remains critical since, in post-Makarian times, the President's party has never secured a majority of seats. Adding to the peculiarities of the Cypriot political framework, the Cyprus problem endures as a central political issue. This problem has been a longstanding determinant of party competition (Christophorou, 2007), acquiring the attributes apt to describe it as a "super issue."

Within this context, I posit that Cyprus' distinct political and party landscape renders the nation's parliamentary elections an ideal milieu for exploring the link between the provision of information on voter-party congruence and electoral behavior. This is primarily due to several factors: a) the depersonalization of parliamentary elections, where the individual attributes of party leaders carry less significance given the President of the Republic's leading role, b) the party system's fragmentation, which offers a plethora of choices ranging from a leftist party with a communist legacy to a far-right ultranationalist faction,¹⁰ c) the operation of one of the most proportional electoral

systems in Europe, and lastly, d) political competition being grounded on multiple dimensions, including a notably sensitive and complex issue – the Cyprus problem. I propose that in this complex political setting, the provision of personalized political information could have the most substantial impact, as the Cypriot voter is inundated with an array of different options across various dimensions.

Results

The first aspect of the analysis to be considered involves examining the treatments' impact on the probability of electoral participation. Figure 6 details the coefficients from generalized probit models,¹¹ which test the effects of the four VAA outputs on the participation probability (referenced against the control group participants).¹² As depicted in Figure 6 (controlling for participants' socio-demographic characteristics), all four treatments bolster the likelihood of electoral participation.¹³ More explicitly, individuals randomly assigned to the experimental groups, subsequent to viewing one of the four allocated VAA outputs, exhibited an increased probability of participation in the upcoming parliamentary election compared to their control group counterparts. All four coefficients attain statistical significance at the 95% level, thus attesting to the positive influence of VAA outputs on electoral participation.

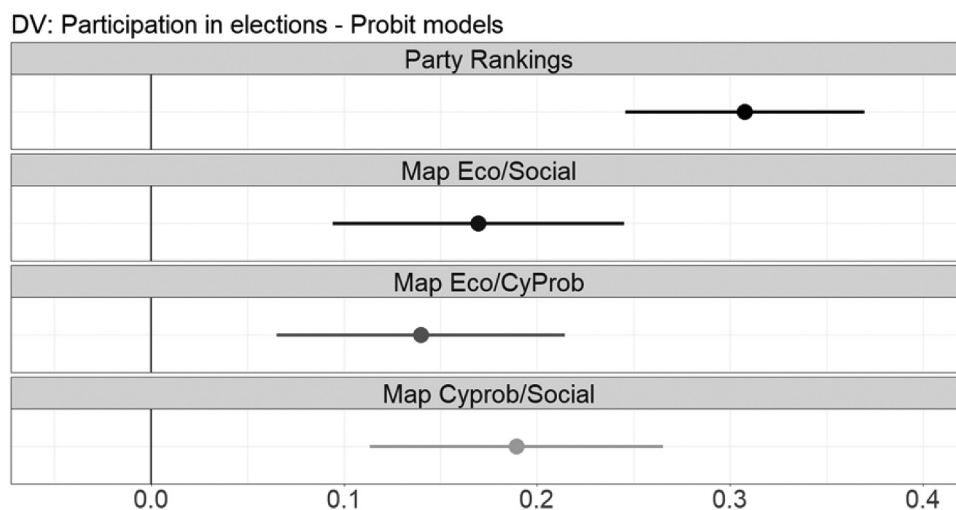


Figure 6. Participation in the election: treatment coefficients - probit models.

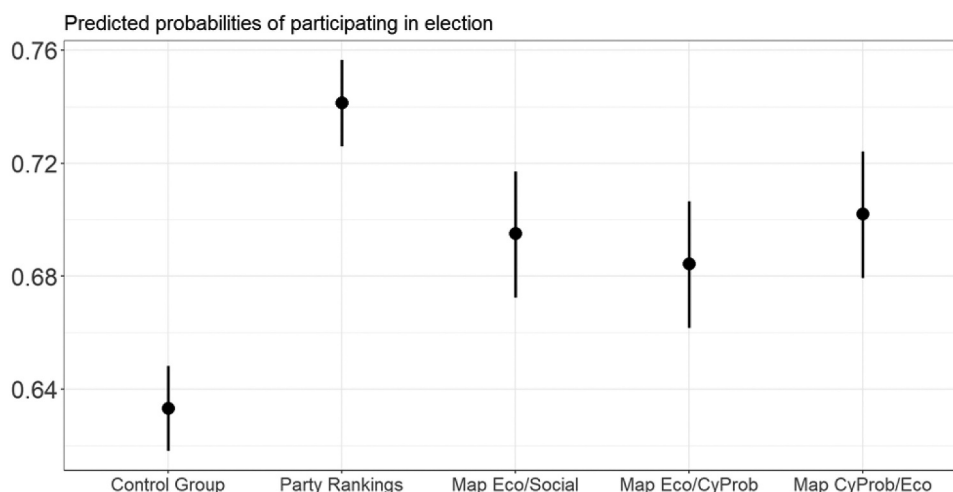


Figure 7. Predicted probabilities of participating in the election per sample group.

To contextualize the magnitude of the treatments' coefficients, [Figure 7](#) delineates the predicted probabilities of participation in the upcoming election for different sample group members. Participants in the experimental group who examined the Party Rankings prior to detailing their intended electoral choices exhibited a 74.1% likelihood of affirming their election participation. In contrast, a 63.3% likelihood of election participation was noted for the control group, indicating a 10.8 percentage point difference between the two groups. Although positive, the impact of the three political maps proves notably smaller than that of the Party Rankings,¹⁴ with the most influential map being the one amalgamating the Cyprus Problem dimension and the economic left-right axis.

While this 10.8 percentage point effect is substantial, it should be interpreted with caution. Existing research on VAAs has yielded mixed findings, with studies reporting null or modest effects on turnout ([Frese et al., 2024](#); [Munzert et al., 2020](#)). To assess the credibility and stability of these findings, a comprehensive set of robustness checks is presented in Section 6.2. First, interaction models (6.2.1) and subgroup analyses (6.2.2) confirm that the observed treatment effects persist across mostly all participant profiles.¹⁵ Second, simplified models that exclude all control variables (6.2.3) and participants who responded too hastily to the policy questions (6.2.5) show that the core treatment effects do not alter substantially. Third, pooled estimates (6.2.4) confirm that, on average, exposure

to personalized political information boosts turnout by approximately 7.5 percentage points. Fourth, I fit a Bayesian probit model (6.2.6) to further assess parameter stability and uncertainty under an alternative estimation framework. Across all specifications, the main effect, particularly for the Party Rankings treatment, remains statistically significant and substantial. Taken together, these checks reinforce the credibility of the turnout effect.

Subsequent to the intended voting choice question, the VAA also included questions requesting participants to indicate their additional choices, where they were (hypothetically) allowed to select up to three parties. Participants could state they had no other voting preference or would not exercise this hypothetical right. Responses to the second hypothetical vote question were used to group participants into two categories, thus creating a binary variable: participants who did not indicate a second party (value 0) and those who chose an additional party (value 1). The analysis then examined whether the four treatments increased the probability of participants specifying a second hypothetical vote. The results of these models are presented in [Figure 8](#).

All four treatment coefficients proved positive and statistically significant, suggesting that participants from the experimental groups, having examined their party affiliation degrees through party rankings or their relative positions in the political space through one of the three political maps, were

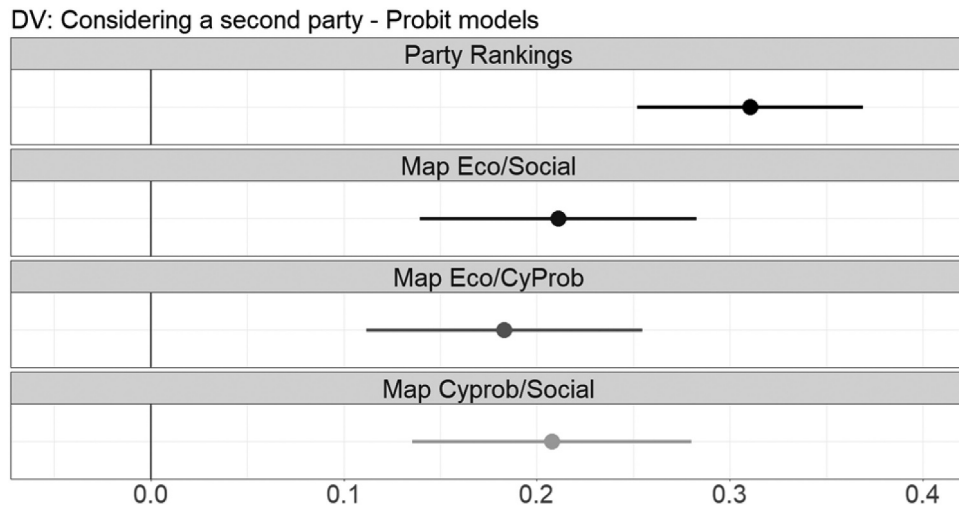


Figure 8. Considering a second party: treatment coefficients - probit models.

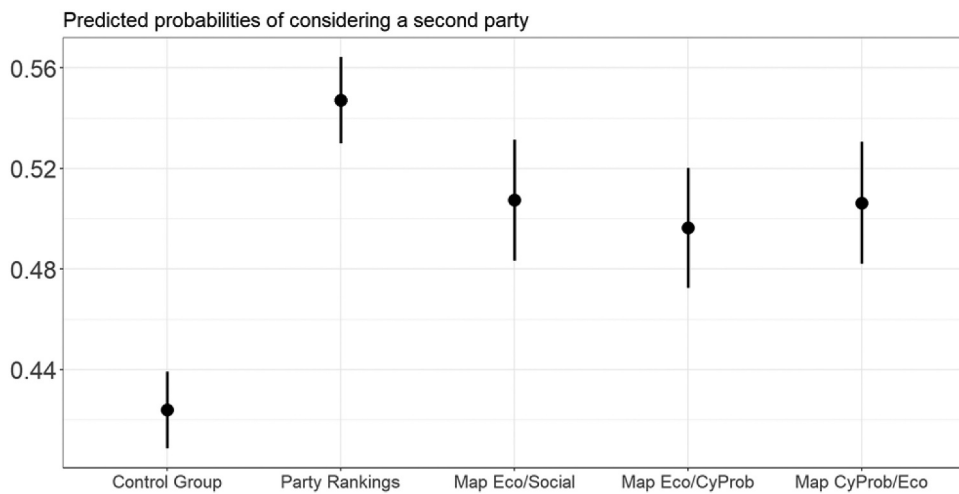


Figure 9. Predicted probabilities of considering a second party per sample group.

more likely to indicate a hypothetical second vote than their control group counterparts.

Figure 9 exhibits the predicted probabilities of selecting a party for the second hypothetical vote. Once again, the highest probability is observed among experimental group participants who initially observed the party rankings, registering a probability of 54.7%. The corresponding percentage for the control group is 42.3%, yielding a 12.3 percentage points difference. The effect of the three maps appears identical, with a roughly 50% probability of indicating a second hypothetical vote among participants who initially observed one of the three maps.

Adopting the same approach for the third hypothetical vote, Figures 10 and 11 display the respective outcomes. In line with previous findings,

all four treatment coefficients were statistically significant and positive, suggesting that experimental group participants were more inclined to indicate a third hypothetical vote than those from the control group. The largest coefficient, once more, belonged to the experimental group of party rankings, with a predicted probability of 33.4%. Theoretically, the significant impact of party rankings could be due to their ability to greatly simplify political information (as they are a straightforward, comparative ordering of parties), thus reducing the cognitive effort required for decision-making. Among the three maps, the most substantial coefficient and the highest predicted probability corresponded to the map defined by the economic left-right axis and the dimension between

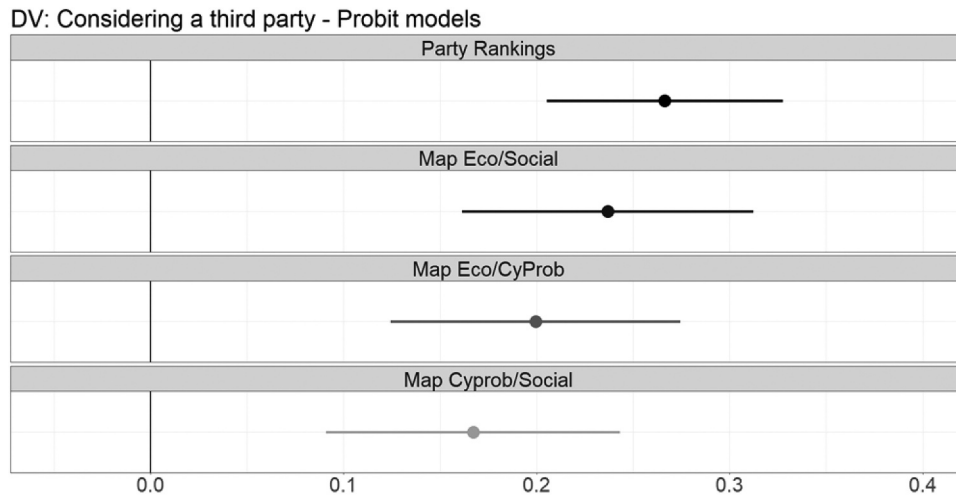


Figure 10. Considering a third party: treatment coefficients - probit models.

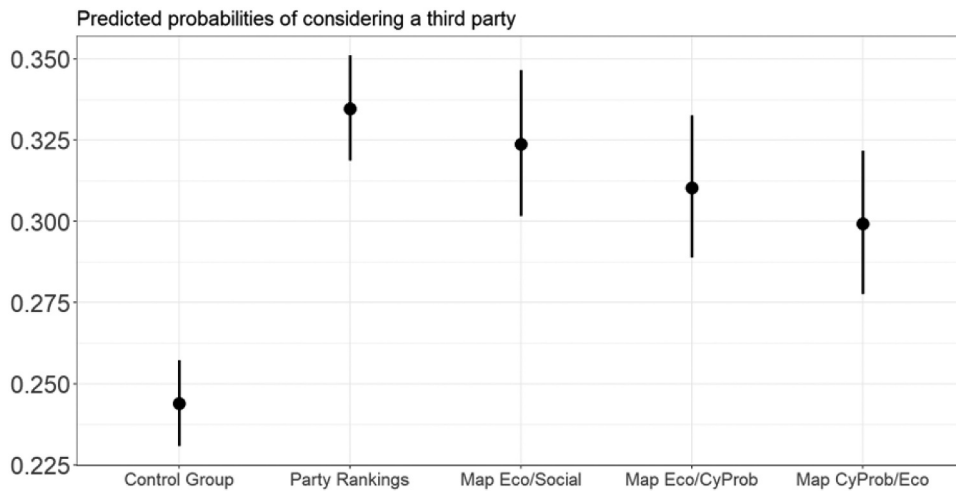


Figure 11. Predicted probabilities of considering a third party per sample group.

progressivism and conservatism. Figure 11 suggests that the four treatments’ impacts are rather similar. Variations in the presentation of personalized political information are less critical as we move from the intended actual voting choice to the third hypothetical vote.

Progressing from the relationship between the dispensation of personalized political information and electoral participation, I move on to the analysis concerning proximity voting. In the experimental group exposed to party rankings, the proximity between participants and the parties was calculated using the Manhattan distance equation. This estimation is the affinity level depicted for each party in the party rankings graph. Here, the dependent variable is the party’s affinity order

with the user, based on all political preference questions included in the VAA. More specifically, if the user indicated that they would vote for the party with which they share the highest political affinity, then this variable would be assigned a value of 1. If, on the contrary, they indicated that they intend to vote for the party with which they share the least affinity (or greatest dissimilarity) then it will take the value 8 (since Choose4Cyprus covered only the eight main political parties in Cyprus). For the experimental groups exposed to political maps, proximity was gauged as the Euclidean distance between participants’ position and their preferred party; therefore, a smaller Euclidean distance signifies greater proximity.¹⁶ Figure 12 exhibits the coefficients of

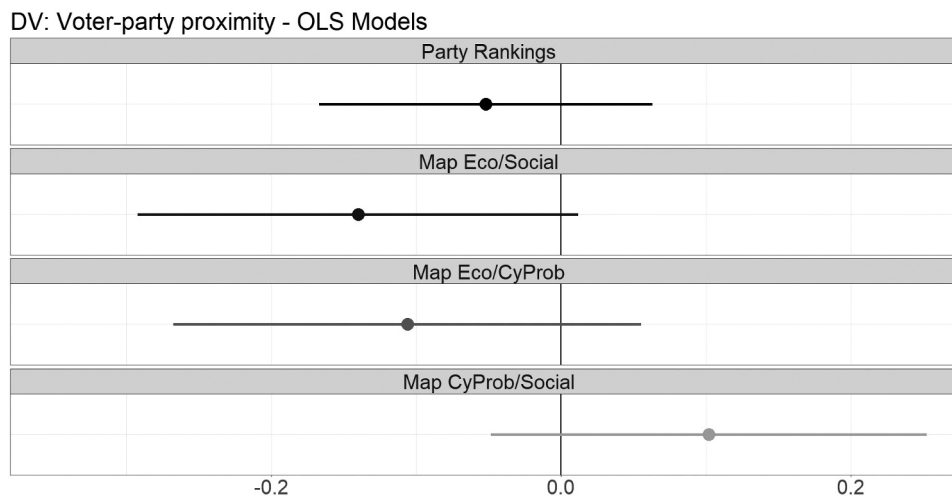


Figure 12. Voter-party proximity: treatment coefficients - OLS models.

the four treatments, using the corresponding affinity order of the control group participants as the reference point throughout.

All four coefficients approximate zero and lack statistical significance, indicating that the provision of personalized political information do not direct the participant to favor a party that shares substantial congruence in policy preferences. While all four treatments influence electoral participation and the quantity of parties participants consider, participants do not base their actual voting decision on the VAA's recommendations. However, this conclusion should be interpreted with caution. The proximity outcome is inherently comparative, and the counterfactual proximity for each individual (i.e., how aligned their choice would have been without treatment) remains unobservable.

To further investigate this limitation, I conduct a series of robustness checks. First, Kolmogorov – Smirnov tests (6.2.7) reveal no meaningful differences in the distribution of proximity scores between treatment and control groups, with only a very marginal deviation for the Economy – Social issues map ($D = 0.05$, $p = .041$). Second, permutation tests (6.2.8) confirm that the observed treatment effects are well within the expected range under random assignment. Third, quantile regression models (6.2.9) estimate treatment effects at specific points in the outcome distribution – namely, the 25th and 75th percentiles – to detect potential heterogeneity that mean-based models may obscure. These models allow

for the possibility that the treatment might affect only those already inclined to choose highly proximate parties or, conversely, those whose choices are typically less aligned. The results show no significant differences at either percentile, suggesting that the null effect on proximity holds consistently across the distribution and is not being masked by divergent subgroup responses. Fourth, I introduce an alternative operationalization of proximity (6.2.10), where the outcome is defined as whether a participant intends to vote for the party ranked first by the VAA algorithm – i.e., the most ideologically congruent option. This binary outcome yields no significant treatment effect, meaning that the treatments did not increase the likelihood of selecting the closest party. In a complementary analysis, I examine whether the treatment effects differ depending on whether the top-ranked party was of low electoral viability (i.e., new or niche parties such as ELAM, Greens, DIPA, and Solidarity). This analysis speaks to the potential trade-off between sincere and strategic voting: even if a voter identifies high policy congruence with a party, they may hesitate to support it if its electoral prospects appear limited. The interaction models yield non-significant results, suggesting that participants were no more or less likely to follow VAA recommendations based on a party's perceived viability. Finally, a Bayesian probit model (6.2.11) confirms that posterior estimates for all four treatments are centered near zero with high uncertainty.

Taken together, these results suggest that VAA exposure did not systematically nudge voters toward more congruent parties. While this does not rule out individual-level effects, the null result is consistent and robust across multiple operational definitions and statistical models. Given the randomized design, the absence of group-level differences suggests that personalized information, although behaviorally salient in other domains, may be less effective in altering the ideological alignment of vote choice.

I nevertheless followed the same approach and created the affinity ranking variable between users' positions and their second (hypothetical) voting choices in order to examine whether the treatments have an effect on the hypothetical vote rather than the actual vote. This analysis compares the affinity of the second hypothetical vote between the control group and treatment group participants. The results of the OLS models with affinity ranking as the dependent variable are presented in Figure 13. In contrast to the results of the analysis with the actual voting intention, in Figure 13 two treatment coefficients are statistically significant and negative, indicating that these two treatments are more likely to lead users to choices with higher affinity for their second hypothetical vote. These two treatments are the Party Rankings and the map delineated by the Cyprus Problem dimension and the social/moral axis. This result suggests that the provision of personalized political information cannot pervade other factors that influence in a more fundamental way the actual electoral

choice, but it can shape voters' alternative choices, i.e. those that are more likely to be unencumbered by other social and partisan factors.

Moving to the next finding, Figure 14 displays the results pertaining to vote switching. Vote switching is dichotomous and assumes value when voters indicate their intent to vote for a party different from their 2016 parliamentary election choice.¹⁷ The coefficients of all four treatments are not statistically significant. The coefficient of the experimental group of party rankings is positive but barely non-statistically significant (with p-value: 0.06). The outcomes of the vote switching and proximity voting analyses are congruous and, when considered together, suggest that VAA recommendations alone are inadequate in directing participants to vote for a particular party. Providing personalized political information within a VAA's context does not appear to sufficiently alter participants' voting preferences.

The evidence indicates that, in comparison to the control group, participants in the experimental groups are more likely to express an intention to vote, but not more likely to choose a more ideologically proximate party. Thus, it is intriguing to investigate whether the treatments shape voting intention, notwithstanding their failure to diminish the distance between participants and their parties. This question is addressed by the multinomial probit model results presented in Figure 15, with voting intention as the outcome variable (and the reference level being participants who responded that they would abstain or are still undecided). The

DV: Voter-party proximity with second voting choice - OLS Models

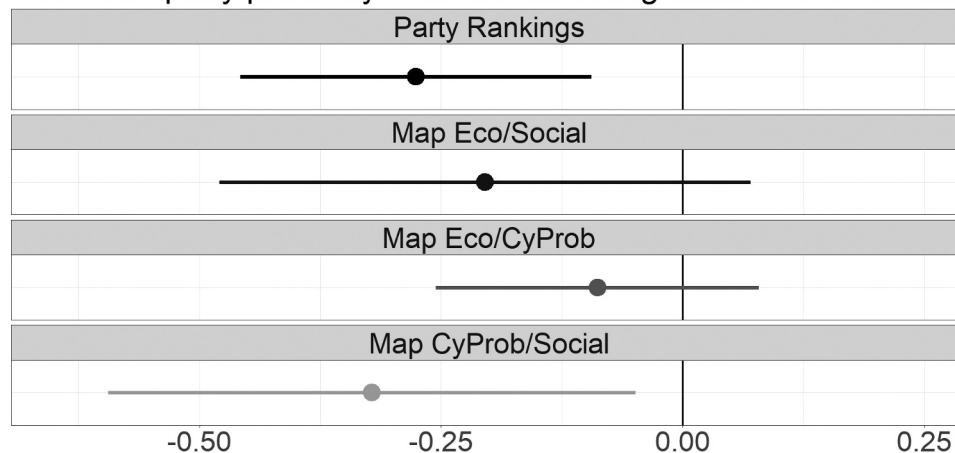


Figure 13. Voter-party proximity with second vote choice: treatment coefficients - OLS models.

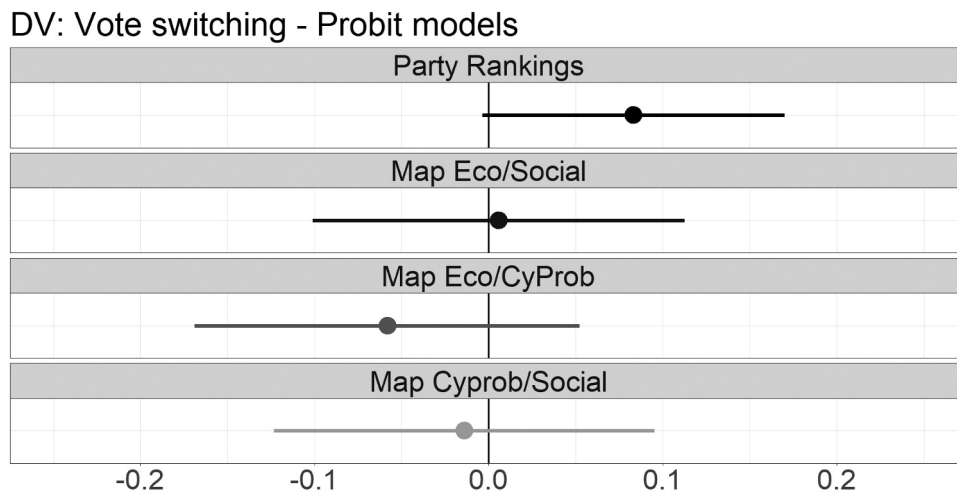


Figure 14. Vote switching: treatment coefficients - probit models.

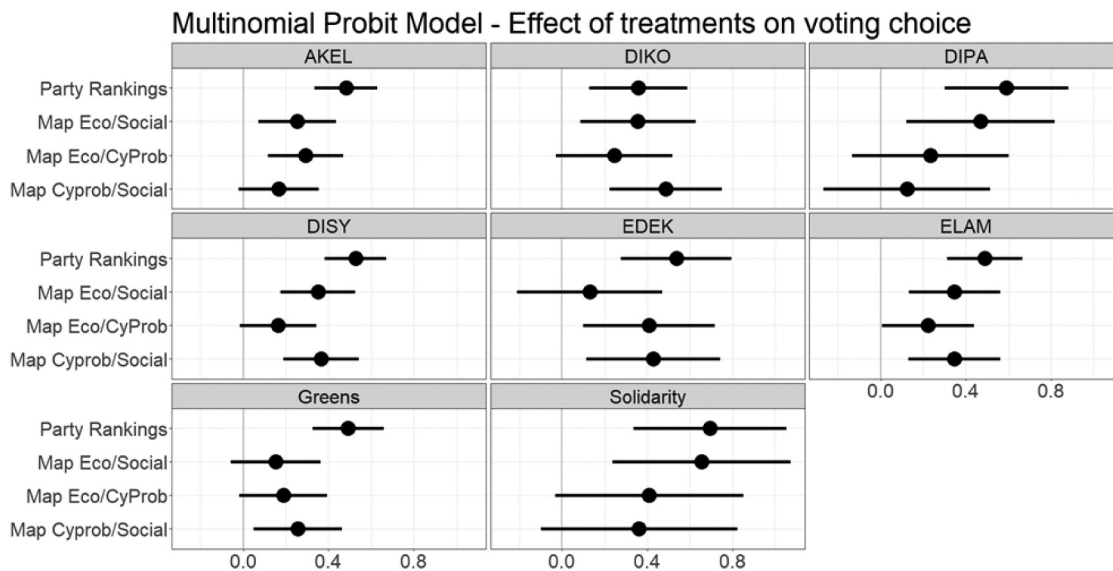


Figure 15. Voting intention: treatment coefficients - multinomial probit model.

graph presents treatment coefficients with the control group as the reference level.

Interestingly, the results suggest that the rise in participation due to the influence of the treatments does not particularly benefit any party. Instead, the effect appears to be disseminated across all parties, especially the impact originating from party rankings. The coefficient of party rankings is the largest and the sole statistically significant one for all parties. The only party for which all treatment coefficients attain statistical significance is the radical right-wing nationalist ELAM. This could imply that the provision of personalized political information may have a more pronounced effect on parties with distinct, even extreme, political

stances. It is possible that for voters who are undecided or less informed, the clarity provided by the VAA about ELAM's distinct position in the political spectrum might lead to a stronger mobilization effect toward such ideologically clear-cut parties. The multinomial probit model's outcome implies that the participation increase resulting from the experimental design is approximately evenly distributed across the eight principal parties.

To conclude, the results show that providing personalized political information increases the likelihood of electoral participation and broadens the range of parties participants consider. However, the information about their affinity to parties does not appear to influence their final

choice. This suggests that the treatments do not strongly promote proximity voting. Participants who do not typically base their vote on ideological closeness are unlikely to change this behavior after engaging with the VAA. Although turnout intentions rise as a result of the treatments, vote choice seems to be shaped by other criteria not captured by this study. Finally, among the treatments, party rankings appear most effective, but differences diminish when participants are asked to consider more abstract scenarios (e.g., a third hypothetical vote).

Conclusion

This study is among the few in the field to thoroughly address a set of interrelated questions concerning the relationship between personalized political information, voter-party congruence, and electoral behavior. Its central contribution lies in the use of a controlled experimental design, which allows for more reliable causal inferences. Despite the inherent limitations of VAA data, several findings emerge as both robust and conclusive.

Foremost among these findings is the solid association between the provision of personalized political information – detailing the affinity between political parties and voters – and the propensity for election participation. [Figure 9](#) provides compelling evidence in this regard. It, therefore, confirms the initial hypothesis (H1), indicating that personalized political information can increase the likelihood of electoral participation – at least within a context where users are already predisposed to engage with political content.

Moreover, the results lend credence to the second hypothesis (H2). Participants in the experimental groups demonstrated a greater probability of considering second and third party options when presented with such a hypothetical scenario. Initial exposure to personalized affinity information enhanced participants' understanding of the political landscape, enabling them to reassess preferences and broaden their electoral purview beyond singular party allegiance.

However, the results do not support the proximity voting hypothesis. Across all four treatments, participants were not significantly more likely to choose parties with which they shared higher ideological

affinity. As a result, Hypothesis 3 (H3) is rejected, indicating that the provision of personalized political information alone is insufficient to shift vote choice toward more proximate parties. This finding diverges from some strands of the literature suggesting that VAAs can promote proximity voting (Munzert & Ramirez-Ruiz, 2021), and instead aligns with research that conceptualizes proximity voting as a gradual process—one that depends on long-term party familiarization and the continuous acquisition of political information (Federico & Hunt, 2013; Jessee, 2010; Lacy & Paolino, 2010).

Considering the final hypothesis (H4), this study's findings provide a robust rejection of the anticipated relationship between the provision of personalized information and vote switching. In contrast to this fourth hypothesis, the findings demonstrate that participants exhibited a negligible likelihood of changing their voting choices due to VAA participation.

Additionally, the noteworthy influence of the party ranking format reinforces the cost/benefit theory, illustrating that depictions of voter-party affinity demanding minimal interpretative time engage participants most effectively. In contrast, participants encountering the political maps required a more intensive cognitive effort to grasp the map's dimensions, ascertain their position within it, and comprehend the relative positions of various parties.

The study's findings strongly suggest that, while voters are more inclined toward electoral participation when provided with targeted insights about their party affinity, the temporal constraints of VAA interaction preclude a transformative impact on electoral behavior. Voting behavior, including proximity voting and vote switching, appears to be less influenced by VAA usage and more a function of long-term political sophistication – a conclusion aligning with prevailing research findings. VAAs appear capable of incentivizing participation, particularly among individuals already inclined to engage with political information, but they are not a substitute for the broader benefits of sustained political engagement and information gathering.

Regarding the external validity of these findings, it is crucial to discuss how the political context of Cyprus – characterized by a multifaceted party system and a diverse range of political offerings – might mirror other settings. The significance of the

provision of personalized political information in Cyprus suggests that similar impacts could possibly be observed in other democracies with comparable political landscapes. This extrapolation underscores the potential for the findings to apply beyond the Cypriot context, particularly in countries where a large number of parties are competing across a variety of issues and dimensions. Such environments, with their convoluted political landscapes and major ideological divides, may provide fertile ground for the beneficial effects of the provision of personalized political information, mirroring the scenario observed in Cyprus. Moreover, because Cyprus is a presidential democracy in which legislative elections play a secondary role in determining executive power, VAA recommendations may be perceived as particularly helpful by voters seeking guidance in medium-salience, high-choice elections where party fit is less obvious.

While this study highlights certain limitations in the use of VAAs as tools for influencing vote choice, it also underscores their considerable strengths. Most notably, this study shows that VAAs can increase electoral participation by up to 10%. Although the primary focus was on how ideological distance visualizations shape attitudes rather than actual behavior, the observed increase in engagement is significant. The treatments appear to prompt greater political reflection and involvement, suggesting that even brief exposure to personalized political information can improve awareness and participation.

Future research should explore designs that deliver political information over time, allowing for a better understanding of whether voters aim to minimize ideological distance or rely on other, non-spatial cues. Longitudinal or repeated-treatment studies would help clarify the mechanisms through which VAAs influence electoral behavior and provide a fuller picture of how personalized information shapes decision-making in complex political environments.

Notes

1. The full list of the policy preference questions is presented in the Appendix – Table 8.
2. The electoral law in Cyprus stipulates that voters can only cast their vote for only one party or an independent candidate.
3. I excluded users who spent less than 15 seconds on at least three policy preference questions. Uniformity of answers indicates users selecting the same response option across most or all items, which might not reflect genuine political preferences. In these cases, if the user gave the same answer 10 times in a row, then they were excluded from the sample.
4. The total number of users who initiated the VAA before applying any cleaning rules was 17,611. Notably, the final sample size remains stable even under alternative or stricter exclusion criteria. For instance, if users were excluded for providing six identical answers in a row or for answering at least five policy questions in under 15 seconds – rules that are more conservative than the main thresholds – the resulting sample still slightly exceeds 17,000 participants.
5. The Manhattan distance, or city-block distance, measures the distance by calculating the total sum of the absolute differences between the coordinates of a pair of points. Unlike Euclidean distance, which calculates the shortest path between points as if they were connected by a straight line, Manhattan distance reflects the sum of the distances. This metric is particularly useful in VAAs for quantifying ideological distances between voters and political parties. It effectively captures the aggregate distance across a range of policy dimensions, with each dimension corresponding to a question in the VAA. For instance, if a respondent chooses “Completely Agree” for a statement and a party’s stance is “Disagree,” the Manhattan distance would be the absolute difference in their positions on a linear scale representing the Likert options. This methodology, adapted from Mendez (2017), allows for a nuanced comparison of political preferences, providing a coefficient that measures alignment or divergence between a respondent’s views and those of different parties. By aggregating these distances across multiple policy issues, the VAA generates a comprehensive score that reflects overall ideological proximity or disparity, thus aiding users in identifying which party most closely matches their own policy preferences.
6. In the Appendix, I present the other two outputs of Choose4Cyprus.
7. The experts involved in coding the parties’ positions are a team of academics and senior journalists who have consistently participated in this task for each iteration of the Choose4Cyprus.
8. The Cyprus problem refers to the ongoing conflict and division of the island of Cyprus, between the Greek Cypriot and Turkish Cypriot communities. The conflict began in the mid-20th century, culminating in the 1974 Turkish invasion following a Greek-backed coup. Since then, the island has remained divided, with the Republic of Cyprus controlling the southern two-thirds and the Turkish Cypriots having established an illegal state in the northern part of the island, recognized only by Turkey. Numerous negotiations have

taken place since 1974 under the auspices of the United Nations, aiming to find a resolution to the conflict. The most widely discussed solution is the Bi-zonal Bi-communal Federation (BBF), which envisions a federal state comprising two constituent states, one for each community, under a single international legal personality. However, this proposed resolution plan is contentious and not favored by a significant portion of the electorate, particularly among Greek Cypriots, who have concerns about the implications for security, governance, and territorial adjustments. The Cyprus problem remains a dominant political issue, influencing various aspects of Cypriot society and politics.

9. In the Appendix, I present the results of balance tests (Figure 18) showing that the randomization process was done correctly.
10. In the Appendix – Table 2, I present the main political parties in the 2021 Cypriot legislative election.
11. The choice of probit over logit models in this analysis stems from probit's ability to handle the binary nature of the dependent variable – electoral participation – with a distribution assumption that closely aligns with the theoretical underpinnings of voter behavior in this context. This is the appropriate choice, as the underlying latent variable is assumed to be normally distributed between control and experimental group members.
12. For time-saving purposes, I present only the coefficients of the four treatments. The entire models are available in the Appendix, Section 6.1.
13. Probability of voting gets a value of 0 if participants responded that they will not vote or are undecided and get the value of 1 if participants stated one of the parties as their voting choice. Figure 5 displays the coefficients from probit regression models that estimate the impact of four different VAA outputs on the probability of electoral participation. The coefficients represent the estimated effect of each treatment compared to the control group. For full model specifications and results, including all control variables and detailed statistical output, refer to Table 3 in the Appendix.
14. This pattern is further supported by the results in Table 15, which reports pairwise contrasts between treatment groups (probit coefficients) in subsection 6.2.4.
15. While it appears that the treatments are more influential among participants with lower political interest and higher educational level.
16. The Euclidean distance was utilized for calculating proximity on the political maps due to its dimensional nature, while the party ranking estimation employed the Manhattan city-block equation. This distinction stems from the Manhattan metric's suitability for the linear arrangement of party rankings, contrasting with the Euclidean distance's applicability to the two-dimensional space of the political maps.
17. Voters who in one of the two elections indicated that they did not vote/intend not to vote were excluded.

Disclosure statement

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

Notes on contributor

Nikandros Ioannidis (Ph.D. in Political and Social Science, Universitat Pompeu Fabra) is a Special Teaching Staff at Cyprus University of Technology. His research focuses on political communication, political behaviour, and digital tools in democratic participation, with an emphasis on experimental and computational methods.

References

- Adams, J., Ezrow, L., & Somer-Topcu, Z. (2014). Do voters respond to party manifestos or to a wider information environment? an analysis of mass-elite linkages on European integration. *American Journal of Political Science*, 58(4), 967–978. <https://doi.org/10.1111/ajps.12115>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
- Bartels, L. M. (1996). Uninformed votes: Information effects in presidential elections. *American Journal of Political Science*, 40(1), 194–230. <https://doi.org/10.2307/2111700>
- Benz, M., & Stutzer, A. (2004). Are voters better informed when they have a larger say in Politics? – evidence for the European Union and Switzerland. *Public Choice*, 119(1/2), 31–59. <https://doi.org/10.1023/B:PUCH.0000024161.44798.ef>
- Blais, A., Gidengil, E., Fournier, P., & Nevitte, N. (2009). InformatiInformatiOn, visibility and elections: Why electoral outcomes differ when voters are better informed. *European Journal of Political Research*, 48(2), 256–280. <https://doi.org/10.1111/j.1475-6765.2008.00835.x>
- Boonen, J., Pedersen, E. F., & Hooghe, M. (2017). The effect of political sophistication and party identification on voter-party congruence. A comparative analysis of 30 countries. *Journal of Elections, Public Opinion and Parties*, 27(3), 311–329. <https://doi.org/10.1080/17457289.2016.1273226>
- Carpini, M. X. D., & Keeter, S. (1996). *What Americans know about politics and why it matters*. Yale University Press.
- Christophorou, C. (2007). An old cleavage causes new divisions: Parliamentary elections in the republic of Cyprus. *South European Society & Politics*, 12(1), 111–128. 21 May 2006. <https://doi.org/10.1080/13608740601155559>
- Claassen, R. L. (2007). Ideology and evaluation in an experimental setting: Comparing the proximity and the directional models. *Political Research Quarterly*, 60(2), 263–273. <https://doi.org/10.1177/1065912907302050>
- Cunow, S., Desposato, S., Janusz, A., & Sells, C. (2021). Less is more: The paradox of choice in voting behavior. *Electoral Studies*, 69, 102230. <https://doi.org/10.1016/j.electstud.2020.102230>

- Däubler, T. (2012). The preparation and use of election manifestos: Learning from the Irish case. *Irish Political Studies*, 27(1), 51–70. <https://doi.org/10.1080/07907184.2012.636183>
- Däubler, T. (2014). What the UK general elections of 2005/10 tell us about the demand for manifestos (and the other way round). *Parliamentary Affairs*, 68(2), 401–422. <https://doi.org/10.1093/pa/gsu022>
- Dinas, E., Trechsel, A. H., & Vassil, K. (2014). A look into the mirror: Preferences, representation and electoral participation. *Electoral Studies*, 36, 290–297. <https://doi.org/10.1016/j.electstud.2014.04.011>
- Downs, A. (1957). *An economic theory of democracy*. Harper & Row.
- Ellinas, A. A., & Katsourides, Y. (2021). The silent electoral earthquake in Cyprus: A crisis of political representation. *South European Society and Politics*, 26(3), 413–436. <https://doi.org/10.1080/13608746.2022.2034272>
- Enelow, J. M., & Hinich, M. J. (1984). *The spatial theory of voting: An introduction*. CUP Archive.
- Enyedi, Z. (2016). The influence of voting advice applications on preferences, loyalties and turnout: An experimental study. *Political Studies*, 64(4), 1000–1015. <https://doi.org/10.1111/1467-9248.12213>
- Federico, C. M., & Hunt, C. V. (2013). Political information, political involvement, and reliance on ideology in political evaluation. *Political Behavior*, 35(1), 89–112. <https://doi.org/10.1007/s11109-011-9184-7>
- Fivaz, J., & Nadig, G. (2010). Impact of voting advice applications (vaas) on voter turnout and their potential use for civic education. *Policy & Internet*, 2(4), 167–200. <https://doi.org/10.2202/1944-2866.1025>
- Frese, J., Hix, S., & Lachat, R. (2024). Quality not quantity: How a VAA affected voting behavior in three large-scale field experiments [Preprint]. OSF Preprints. <https://osf.io/y549s/>
- Garzia, D., & Marschall, S. (2012). Voting advice applications under review: The state of research. *International Journal of Electronic Governance*, 5(3/4), 203–222. <https://doi.org/10.1504/IJEG.2012.051309>
- Garzia, D., Trechsel, A. H., & De Angelis, A. (2017). Voting advice applications and electoral participation: A multi-method study. *Political Communication*, 34(3), 424–443.
- Geers, S., Bos, L., & De Vreese, C. H. (2017). Informed switchers? how the impact of election news exposure on vote change depends on political information efficacy. *International Journal of Communication*, 11, 2415–2436. <https://ijoc.org/index.php/ijoc/article/view/6063>
- Gemenis, K. (2018). The impact of voting advice applications on electoral turnout: Evidence from Greece. *Statistics, Politics and Policy*, 9(2), 161–179. <https://doi.org/10.1515/spp-2018-0011>
- Gemenis, K., & Rosema, M. (2014). Voting advice applications and electoral turnout. *Electoral Studies*, 36, 281–289. <https://doi.org/10.1016/j.electstud.2014.06.010>
- Germann, M., & Gemenis, K. (2019). Getting out the vote with voting advice applications. *Political Communication*, 36(1), 149–170. <https://doi.org/10.1080/10584609.2018.1526237>
- Graber, D. A. (1994). Why voters fail information tests: Can the hurdles be overcome? *Political Communication*, 11(4), 331–346. <https://doi.org/10.1080/10584609.1994.9963044>
- Granberg, D., & Holmberg, S. (1990). The intention-behavior relationship among U.S. and Swedish voters. *Social Psychology Quarterly*, 53(1), 44–54. <https://doi.org/10.2307/2786868>
- Gray, M., & Caul, M. (2000). Declining voter turnout in advanced industrial democracies & comma; 1950 to 1997: The effects of declining group mobilization. *Comparative Political Studies*, 33(9), 1091–1122. <https://doi.org/10.1177/0010414000033009001>
- Haugsgjerd, A., Hesstvedt, S., & Karlsen, R. (2021). Increased media choice and political knowledge gaps: A comparative longitudinal study of 18 established democracies 1995–2015. *Political Communication*, 38(6), 731–750. <https://doi.org/10.1080/10584609.2020.1868633>
- Jackman, R. W. (1987). Political institutions and voter turnout in the industrial democracies. *American Political Science Review*, 81(2), 405–423. <https://doi.org/10.2307/1961959>
- Jessee, S. A. (2010). Partisan bias, political information and spatial voting in the 2008 presidential election. *The Journal of Politics*, 72(2), 327–340. <https://doi.org/10.1017/S0022381609990764>
- Joesten, D. A., & Stone, W. J. (2014). Reassessing proximity voting: Expertise, party, and choice in congressional elections. *The Journal of Politics*, 76(3), 740–753. <https://doi.org/10.1017/S0022381614000140>
- Kaid, L. L., McKinney, M. S., & Tedesco, J. C. (2007). *Political information efficacy and young voters-introduction (vol. 50) (no. 9)*. Sage Publications.
- Kleinnijenhuis, J., van de Pol, J., van Hoof, A. M., & Krouwel, A. P. (2019). Genuine effects of vote advice applications on party choice: Filtering out factors that affect both the advice obtained and the vote. *Party Politics*, 25(3), 291–302. <https://doi.org/10.1177/1354068817713121>
- Kostelka, F., & Blais, A. (2021). The generational and institutional sources of the global decline in voter turnout. *World Politics*, 73(4), 629–667. <https://doi.org/10.1017/S0043887121000149>
- Krouwel, A., Vitiello, T., & Wall, M. (2014). Voting advice applications as campaign actors: Mapping vaas' interactions with parties, media and voters. In D. Garzia & S. Marschall (Eds.), *Matching voters with parties and candidates. voting advice applications in a comparative perspective* (pp. 67–78). ECPR Press.
- Kruikemeier, S., Van Noort, G., Vliegthart, R., & de Vreese, C. H. (2014). Unraveling the effects of active and passive forms of political internet use: Does it affect citizens' political involvement? *New Media & Society*, 16(6), 903–920. <https://doi.org/10.1177/1461444813495163>
- Lachat, R. (2008). The impact of party polarization on ideological voting. *Electoral Studies*, 27(4), 687–698. <https://doi.org/10.1016/j.electstud.2008.06.002>

- Lacy, D., & Paolino, P. (2010). Testing proximity versus directional voting using experiments. *Electoral Studies*, 29(3), 460–471. <https://doi.org/10.1016/j.electstud.2010.04.008>
- Lassen, D. D. (2005). The effect of information on voter turnout: Evidence from a natural experiment. *American Journal of Political Science*, 49(1), 103–118. <https://doi.org/10.1111/j.0092-5853.2005.00113.x>
- Lau, R. R., & Redlawsk, D. P. (2006). *How voters decide: Information processing in election campaigns*. Cambridge University Press.
- Lefkofridi, Z., Giger, N., & Gallego, A. (2014). Electoral participation in pursuit of policy representation: Ideological congruence and voter turnout. *Journal of Elections, Public Opinion and Parties*, 24(3), 291–311. <https://doi.org/10.1080/17457289.2013.846347>
- Lupia, A. (1994). Shortcuts versus encyclopedias: Information and voting behavior in California insurance reform elections. *American Political Science Review*, 88(1), 63–76. <https://doi.org/10.2307/2944882>
- Mahéo, V.-A. (2016). The impact of voting advice applications on electoral preferences: A field experiment in the 2014 Quebec election. *Policy & Internet*, 8(4), 391–411. <https://doi.org/10.1002/poi3.138>
- Mahéo, V.-A. (2017). Information campaigns and (under) privileged citizens: An experiment on the differential effects of a voting advice application. *Political Communication*, 34(4), 511–529. <https://doi.org/10.1080/10584609.2017.1282560>
- Mancini, P. (2013). Media fragmentation, party system, and democracy. *The International Journal of Press/Politics*, 18(1), 43–60. <https://doi.org/10.1177/1940161212458200>
- Marschall, S., & Schmidt, C. K. (2008). Preaching to the converted or making a difference? Mobilizing effects of an internet application at the German general election 2005. In D. Farrell & R. Schmitt-Beck (Eds.), *Non-party actors in electoral politics: The role of interest groups and independent citizens in contemporary election* (1st ed., Vol. 8, pp. 259–278). Nomos. <https://doi.org/10.5771/9783845206639>
- Marschall, S., & Schultze, M. (2012). Voting advice applications and their effect on voter turnout: The case of the German wahl-o-mat. *International Journal of Electronic Governance*, 5(3/4), 349–366. <https://doi.org/10.1504/IJEG.2012.051314>
- Martinelli, K. A., & Chaffee, S. H. (1995). Measuring new-voter learning via three channels of political information. *Journalism & Mass Communication Quarterly*, 72(1), 18–32. <https://doi.org/10.1177/107769909507200103>
- Mendez, F. (2017). Modeling proximity and directional decisional logic: What can we learn from applying statistical learning techniques to vaa-generated data? *Journal of Elections, Public Opinion and Parties*, 27(1), 31–55. <https://doi.org/10.1080/17457289.2016.1269113>
- Munzert, S., Barberá, P., Guess, A., & Yang, J. (2020). Do online voter guides empower citizens? evidence from a field experiment with digital trace data. *Public Opinion Quarterly*, 84(3), 675–698. <https://doi.org/10.1093/poq/nfaa037>
- Munzert, S., & Ramirez-Ruiz, S. (2021). Meta-analysis of the effects of voting advice applications. *Political Communication*, 38(6), 691–706. <https://doi.org/10.1080/10584609.2020.1843572>
- Netemeyer, R. G., & Burton, S. (1990). Examining the relationships between voting behavior, intention, perceived behavioral control, and expectation. *Journal of Applied Social Psychology*, 20(8), 661–680. <https://doi.org/10.1111/j.1559-1816.1990.tb00431.x>
- Nordin, M. (2014). Do voters vote in line with their policy preferences? The role of information. *CESifo Economic Studies*, 60(4), 681–721. <https://doi.org/10.1093/cesifo/ifu012>
- Owen, G., & Grofman, B. (1984). To vote or not to vote: The paradox of nonvoting. *Public Choice*, 42(3), 311–325. <https://doi.org/10.1007/BF00124949>
- Pianzola, J. (2014a). Selection biases in voting advice application research. *Electoral Studies*, 36, 272–280. <https://doi.org/10.1016/j.electstud.2014.04.012>
- Pianzola, J. (2014b). Swing voting due to smartvote use? evidence from the 2011 Swiss federal elections. *Swiss Political Science Review*, 20(4), 651–677. <https://doi.org/10.1111/spsr.12120>
- Pianzola, J., Trechsel, A. H., Vassil, K., Schwerdt, G., & Alvarez, R. M. (2019). The impact of personalized information on vote intention: Evidence from a randomized field experiment. *The Journal of Politics*, 81(3), 833–847. <https://doi.org/10.1086/702946>
- Pieters, R. G., & Verplanken, B. (1995). Intention-behaviour consistency: Effects of consideration set size, involvement and need for cognition. *European Journal of Social Psychology*, 25(5), 531–543. <https://doi.org/10.1002/ejsp.2420250505>
- Singh, S. P. (2010). Contextual influences on the decision calculus: A cross-national examination of proximity voting. *Electoral Studies*, 29(3), 425–434. <https://doi.org/10.1016/j.electstud.2010.03.014>
- Singh, S. P., & Roy, J. (2014). Political knowledge, the decision calculus, and proximity voting. *Electoral Studies*, 34, 89–99. <https://doi.org/10.1016/j.electstud.2013.11.007>
- Spoon, J.-J., & Klüver, H. (2019). Party convergence and vote switching: Explaining mainstream party decline across Europe. *European Journal of Political Research*, 58(4), 1021–1042. <https://doi.org/10.1111/1475-6765.12331>
- Tomz, M., & Van Houweling, R. P. (2008). Candidate positioning and voter choice. *American Political Science Review*, 102(3), 303–318. <https://doi.org/10.1017/S0003055408080301>
- Triga, V. (2017). Parties and change in the post-bailout Cyprus: The May 2016 parliamentary elections. *South European Society and Politics*, 22(2), 261–279. <https://doi.org/10.1080/13608746.2017.1312768>
- Triga, V., Ioannidis, N., & Djouvas, C. (2024). The waning of ideology? presidential elections in the Republic of Cyprus, 5 February 2023. *South European Society and Politics*, 28(2), 1–30. <https://doi.org/10.1080/13608746.2024.2304445>

- Tromborg, M. W., & Albertsen, A. (2023). Candidates, voters, and voting advice applications. *European Political Science Review*, 15(4), 1–18. <https://doi.org/10.1017/S1755773923000103>
- Vassil, K. (2011). *Voting smarter? the impact of voting advice applications on political behavior*. European University Institute.
- Wagner, M., & Ruusuvirta, O. (2012). Matching voters to parties: Voting advice applications and models of party choice. *Acta Politica*, 47(4), 400–422. <https://doi.org/10.1057/ap.2011.29>
- Walgrave, S., Nuytemans, M., & Pepermans, K. (2009). Voting aid applications and the effect of statement selection. *West European Politics*, 32(6), 1161–1180. <https://doi.org/10.1080/01402380903230637>
- Walgrave, S., Van Aelst, P., & Nuytemans, M. (2008). ‘Do the vote test’: The electoral effects of a popular vote advice application at the 2004 Belgian elections. *Acta Politica*, 43(1), 50–70. <https://doi.org/10.1057/palgrave.ap.5500209>
- Wessels, B., & Schmitt, H. (2008). Meaningful choices, political supply, and institutional effectiveness. *Electoral Studies*, 27(1), 19–30. <https://doi.org/10.1016/j.electstud.2007.11.010>