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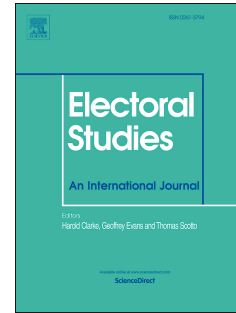
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Heterogeneity and Vote Choice

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Highlights

- We study voter heterogeneity focusing on the influence of four decision criteria
- The study uses a specially-designed survey instrument to study heterogeneity
- Criterion heterogeneity translates into heterogeneous effects on the vote
- Voter sophistication influences which decision criteria voters consider important

Abstract

Although classic voting studies noted that voters may reach their voting decision on the basis of different criteria most contemporary voting studies assume that one voting model fits all. Building on the limited, but developing literature on the topic, this paper develops and tests models incorporating voter decision criteria heterogeneity. Paying particular attention to the role of voter sophistication, we investigate which voters mainly decide on the basis of ideology, position and valence issues, or party leaders, and how these differences influence their party choices. Analyses using mixed logit and a specially designed survey instrument embedded in a high-quality, nationally representative survey of Danish voters show that decision criteria heterogeneity has substantial influence on the vote. The conclusion discusses the normative implications, in particular the question of whether voters' reliance on party leaders constitutes a democratic problem.

Keywords: Voting, voter heterogeneity, issue voting, voter sophistication, party leaders

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Although classic voting studies noted that voters may reach their voting decision on the basis of different criteria most contemporary voting studies assume that one voting model fits all. Building on the limited, but developing literature on the topic, this paper develops and tests models incorporating voter decision criteria heterogeneity. Paying particular attention to the role of voter sophistication, we investigate which voters mainly decide on the basis of ideology, position and valence issues, or party leaders, and how these differences influence their party choices. Analyses using mixed logit and a specially-designed survey instrument embedded in a high-quality, nationally representative survey of Danish voters show that decision criteria heterogeneity has substantial influence on the vote. The conclusion discusses the normative implications, in particular the question of whether voters' reliance on party leaders constitutes a democratic problem.

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1. Introduction

The insight that different groups of voters may form their opinions and voting decisions in different ways is, as pointed out by Roy (2009, 118), not a new one. Classic works such as *Voting* (Berelson et al. 1954), *The American Voter* (Campbell et al. 1960) and Converse's (1964) seminal paper, "The Nature of Belief Systems in Mass Publics," also express this idea. However, despite this prominent ancestry – and resonance with common sense – interest in such voter heterogeneity is surprisingly limited in voting analyses. While this limited interest may have good reasons,¹ it prevents us from uncovering the drivers of the perhaps most central aspect of democratic citizenship: voting. The normative thrust of this problem resides in the point raised by Lewis-Beck et al. (2008, 256) that without taking such heterogeneity into account, politicians are unable to correctly translate into policies the muted signal sent by the electorate through the ballot box.

Furthermore, in the emerging research literature that has begun to address such heterogeneity focusing typically on only one or a few criteria at a time,² a core question has been the extent to which certain voter groups – often differentiated by their level of

¹ E.g., it raises high theoretical and analytical demands in a field that is sometimes still struggling with the basics of model specification.

² See Adams et al. 2012; Andersen and Borre 2007; Bartle 2005; Blumenstiel 2014; Blumenstiel and Plischke 2015; Blumenstiel and Rattinger 2011; Clarke et al. 2009; De Vries and Giger 2014; Gomez and Wilson 2001; Lau 1989; Leiter 2013; Lewis-Beck et al. 2008; Marsh 2007; Miller et al. 1986; Peterson 2005; Rahn et al. 1990; Rivers 1988; Roy 2011; Sniderman et al. 1990.

political sophistication – base their decision on what is sometimes seen as shallow factors, such as the personal characteristics of presidential candidates or leaders of large parties. This discussion also touches on fundamental aspects of democracy. Thus, and in the extreme, voters deciding mainly on the basis of candidate personalities can be seen as sending an even very weak signal about their desired policies. To the extent that certain groups are more likely to use personalities as decision criterion, therefore, they may place themselves at a democratic disadvantage. In this light, advancing our understanding of the extent to which voters use different decision criteria seems an important step in assessing the well-being of democracy.

Therefore, this paper aims to develop and test voting models that allow for such heterogeneity across a range of criteria. Paying special attention to the role of political sophistication, we investigate what types of voters are mainly driven by, respectively, ideology, positional or valence issues, or party leaders, and how these differences in decision criteria influence their party choices. We do this through the implementation of a specially designed survey instrument embedded in a high-quality, nationally representative survey of Danish voters. Our survey instrument is introspective, and hence relies on self-reporting as an indicator of vote motivation, i.e. that the voter can indicate which of the four decision rules motivated her vote choice.

The results contribute to the developing literature by applying a new approach to test heterogeneity in the vote choice, but also by showing, across a range of central criteria, how using a given criterion enhances the effect of the implicated factor, e.g., party leader sympathy, on the vote. In other words, those who claim to vote on the basis of party leaders are more influenced by their sympathy towards such leaders than other voters. The additional effects associated with using a given criterion are substantial,

which implies that voter heterogeneity is a force that should be taken more into account in voting models. Furthermore, the analyses corroborate existing evidence by revealing that ideology and position issues are the more prevalent decision criteria among high sophistication voters whereas low sophistication voters rely more on party leaders and valence issues.

These findings are important for at least two reasons. First, they indicate a need to augment most standard voting models with voter decision criteria heterogeneity if we are to improve our understanding of the signal voters are sending to the elected on Election Day. Second, the results raise normative questions about the well-being of democracy. Thus, our finding that even voters in a party-centred system, like the Danish one, are influenced by party leaders may give cause for worry that many – particularly less sophisticated – voters are diverting attention away from the substance of politics, thereby possibly placing themselves at a democratic disadvantage. We return to this discussion in the conclusion.

2. Theoretical Accounts of Voter Heterogeneity

We understand voter decision criteria heterogeneity as implying ‘that voters place different weights on’ different criteria when they decide which party to vote for (Bartle 2005, 654). This, in turn, raises the question of which criteria are relevant and available to voters. Out of the unending list of possible criteria, contemporary voting research – irrespective of whether it investigates voter heterogeneity or not – focuses on ideology, party identification, positional and valence issues, candidates,³ and strategic reasoning as

³ In the following, we shall use candidates and party leaders interchangeably.

the main drivers of vote choice (for overviews see, e.g., Blumenstiel 2014; Lewis-Beck et al. 2008; Whiteley et al. 2013). Voters basing their decision on ideology are expected to operate according to a spatial logic (cf. Downs 1957), in which they vote for the party closest to their preferred ideological position. In this respect we follow Lewis-Beck et al. (2008, 207) in conceptualizing ideology as ‘a set of beliefs and evaluations that are crystallized, interlocked, and broad in scope.’ Hence, ideologically minded voters choose their party on the basis of a comprehensive set of interconnected considerations forming a distinct mind-set that transcends and integrates attitudes to single issues like taxation or crime. The core ideological dimension that has typically been subject to investigation is the left-right dimension, running from a socialist/liberal left to a conservative right (see, e.g., van der Eijk et al. 2005; Lewis-Beck et al. 2008; Thomassen 2005, 15). It is also this dimension that we focus on in the analyses below.

The study of party identification and voting goes back to the famous first formulations in *The American Voter* where it is defined as ‘an individual’s affective orientation’ (Campbell et al. 1960, 120) to the parties. To cast a vote on the basis of party identification, thus, a voter needs only consult her affective attachment to the parties and will vote for the party to which she feels connected.

The idea of issue based voting comes in two versions. In the first, issue voting is similar to ideological voting, only for one (or a few) issue(s) rather than many at a time: Voters support parties that stand for their preferred positions (e.g. cutting taxes) on a given issue. This approach works well for positional issues, i.e. issues where the end-goal is subject to disagreement. Yet, as pointed out by Stokes (1963; 1992) and elaborated in the so-called ‘valence model’ of voting (Clarke et al. 2009; Sanders et al. 2011; Whiteley et al. 2013; see also Green and Hobolt 2008) voters are not only

(perhaps not even mainly) basing their decisions on positional issues. Rather, valence issues where there is agreement about the goals, but (possible) disagreement about who is best at delivering on those goals also play a role in the voting calculus. On such issues, voters will prefer the party seen as best at delivering the desired goal – typically in the form of solving a societal problem, such as unemployment. For both types of issues, we should furthermore expect voters to be paying more attention to the issues that they, themselves, deem important (cf. the ‘valence model’).⁴ Thus, voters who pay special attention to a specific issue should be particularly influenced by that issue in their choices (De Vries and Giger 2014).

The ‘valence model’ – as well as studies of ‘candidate’ or party ‘valence’ – also points to party leaders as an important decision criterion for voters (Clarke et al. 2009; Sanders et al. 2011; Whiteley et al. 2013; cf. also Karvonen 2010). According to the authors, ‘Leader images are an important heuristic which voters use to judge the ability of parties to deliver desired policy outcomes’ (Whiteley et al. 2013, 133). In this logic, voters prefer the party with the most competent or agreeable candidate.⁵ Finally, the strategic criterion signifies that voters may choose a party other than their preferred one because the latter has a negligible chance of winning, or in order to help a potential

⁴ For studies of voter heterogeneity in issue voting, see Basinger and Lavine 2005; Kosmidis and Xezonakis 2010; Leiter 2013.

⁵ For studies of voter heterogeneity in candidate voting, see Bartle, 2005; Basinger and Lavine 2005; Blumenstiel and Rattinger 2011; Clarke et al. 2009; Marsh 2007; Sniderman et al. 1990.

coalition partner to overcome an electoral threshold (Bartle 2005; Blumenstiel and Rattinger 2011; Clarke et al. 2009).

The basic idea of the theory of voter decision criteria heterogeneity is that different voters give different weight to the various criteria when making up their mind about which party to vote for.⁶ Our first hypothesis can therefore be formulated as:

H1: Voters differ in the weight they attach to different decision criteria when voting.

We should point out that although the idea advanced here has clear parallels with theories about voters' use of heuristics (see, e.g., Lau and Redlawsk 2001; Sniderman et al. 1991) the two perspectives differ in that the theory of voter heterogeneity does not necessarily consider the criteria to be 'shortcuts' that voters with low levels of information may use to arrive at better decisions. While some voters may use some of the criteria discussed here in that way, the basic premise is that the criteria act as genuine reasons for voting one way or the other.

The majority of studies addressing voter heterogeneity in one (often limited) form or the other have indicated political sophistication as the main moderator of voters' use of

⁶ It should be noted that the argument is not that voters necessarily rely on only one criterion, but that they differ in the weight they attach to the criteria in the vote calculus – a point that has to be reflected when measuring criteria heterogeneity.

the different criteria.⁷ Political sophistication is here understood in line with Zaller's (1992, 21) concept of "political awareness", i.e. "the extent to which an individual pays attention to politics *and* understands what he or she has encountered." (for related conceptions, see Luskin 1987; Sniderman et al. 1991). In line with this literature, voters with divergent levels of sophistication (measured by education, knowledge or attention measures, cf. below) are expected to base their voting decision on different criteria. The key to understanding this variation rests in the cognitive processes that the criteria require. In their decision-making process, the least sophisticated should use the less demanding criteria, and the reverse for the most sophisticated. The studies cited above (almost) unanimously agree that the candidate-based decision criterion is less demanding (see, however, Rahn et al. 1990). The main candidates usually dominate election news coverage, which facilitates the formation of opinions based on, in the least, simple likeability. Thus, it takes little effort to vote on the basis of the leading candidates.

The same applies to voting on the basis of valence issues. As argued by Whiteley et al., (2013, 135) 'Valence factors are easier to use because they require much less information processing; a voter only has to judge if a party or a leader has delivered, or is (un)likely to deliver on policies that matter.' We should, consequently, expect valence issue voting to be more prevalent among the less sophisticated (cf. also Basinger and

⁷ See, e.g., Bartle 2005; Basinger and Lavine 2005; Clarke et al 2009; 2013; Campbell et al. 1960; De Vries and Giger 2014; de Vries et al 2011; Gerber et al. 2015; Gomez and Wilson 2001; Lau and Redlawsk 2001; Lewis-Beck et al. 2008; Peterson 2005; Roy 2009; Roy 2011; Sniderman et al. 1990; Weisberg and Nawara 2010.

Lavine 2005; Kosmidis and Xezonakis 2010). Meanwhile, for voters with a clear and stable party identification, the thought process behind voting should also be simple. But, since party identifiers also include highly sophisticated voters, the conditioning effect of sophistication may be limited (contrast Basinger and Lavine 2005 with Blumenstiel and Rattinger 2011).

In contrast, the studies cited (see also Luskin 1987, 862, 864) seem to agree that voters who base their decisions on the positional issue and/or ideological distances between themselves and the parties are required to exert more effort. In order for a voter to make an optimal choice on this basis, she should know the issues and/or ideologies that are important to herself, her own positions on the issues, and the positions of (ideally) all parties running for election (cf. the logic of Downs 1957). Consequently, decision making on the basis of position issues or ideologies should be most prevalent among the highly sophisticated.⁸ The same applies to strategic voting, which presupposes even more refined knowledge about the workings of the political system as well as of party positions (cf. the results in Blumenstiel and Rattinger 2011).

The few existing, direct analyses of the drivers behind the importance of the different decision criteria have, using measures and methods of varying degrees of appropriateness, generally been able to confirm the above expectations.⁹ They find that high levels on various indicators of political sophistication, such as education, political knowledge, political interest and news media consumption, are positively correlated with relying on demanding criteria, such as ideology and positional issues, and

⁸ See, however, Adams et al. 2012 for related analyses that do not find such differences.

⁹ See Andersen and Borre 2007; Bartle 2005 and Blumenstiel and Rattinger 2011.

negatively correlated with reliance on valence issues or party leaders when deciding which party to vote for. Thus, our second hypothesis is:¹⁰

H2: Sophisticated voters will be more inclined to base their vote on positional issues or ideologies than less sophisticated voters who, in turn, rely more on valence issues or party leaders.

Straightforward as they may seem, the hypotheses have received surprisingly little direct attention. To our knowledge ours is among the first studies¹¹ to investigate them in the context of a wider range of decision criteria.

3. Measuring Differences in Decision Criteria Across Voters

The way in which to measure variations in the weight voters place on different decision criteria has been subject to debate. Earlier studies, such as *The American Voter* (Campbell et al. 1960; cf. also Lewis-Beck et al. 2008), used open-ended questions from the American National Election Studies about voters' likes and dislikes about the parties. The use of this type of items came under heavy criticism on two counts. First, Nisbett and Wilson (1977), who questioned respondents' ability to engage in the required form of introspection. Their claim implies that voters are unable to trace the origins of their

¹⁰ For reasons that are made clear below we decided to exclude voting based on party identification and strategic voting from the analyses.

¹¹ Blumenstiel and Plischke 2015; Blumenstiel and Rattinger 2011, Gerber et al. 2015, and Roy 2011, are the only others we have come across.

own voting decisions. However, Wilson (2002, 106) contends that even if individuals were not aware of the considerations behind their decisions, if their behaviour results from conscious thought, respondents would have attained self-knowledge. In the context of voting behaviour, the fact that voting is a conscious act (i.e., voters are aware that they are making a decision; they have to physically move to the polling station and indicate their choice on a ballot paper) implies that even if the decision to vote for a party is initially the result of latent consideration, the act of casting a vote should bring about self-knowledge of the considerations that led to the vote choice.

The discussion since then has produced mixed results (see the overview in Blumenstiel and Rattinger 2011, 252-6), ranging from the partial rejection of the Nisbett-Wilson position by White (1988; cf. also Lau 1989; Lewis-Beck et al. 2008, 295) to its confirmation for voting studies by Rahn et al. (1994). A moderate consensus may, however, be seen as developing out of Blais et al.'s (1998, 360) position: "Our findings do not prove that people are able to tell, in the context of a survey interview, the true motivations of their vote. Our more modest claim is that introspective open-ended questions are useful in ascertaining the relevance of various considerations". As noted by Bartle (2005, 660) and Blumenstiel and Rattinger (2011, 257), the issue boils down to whether such measures provide the expected results when included in voting models. This is also the position we adopt.

Second, and in addition to voters' ability to give truthful (or at least informative) accounts of their decision criteria, it has also been debated whether to elicit these criteria with open- or close-ended survey items. As discussed by Blais et al. (1998, 356) and Blumenstiel and Rattinger (2011, 256), closed-ended question formats may produce biased responses, since voter rationalization may occur when respondents are presented

with a list of normatively acceptable decision criteria (cf. also Rahn et al. 1994). Such lists may also omit the criteria that are important to some voters, thereby resulting in misreporting. At the same time, the risk should not be overstated. Even when using a blunt, closed-ended measure, Bartle (2005, 660) finds some indications of decision criteria heterogeneity. Marsh (2007, 520) also obtains meaningful results using closed-ended questions. Moreover, the built-in dangers of the closed-ended format can also be an advantage in the sense that it can help respondents legitimize to themselves the responses that they would otherwise be reluctant to give.

The above suggests that a close-ended format can be appropriate for testing the effects of decision criteria heterogeneity. Therefore, our proposed new measure of such heterogeneity consists of the following three questions:

As a voter, it's possible to place emphasis on different factors when deciding how to vote in a Folketing¹² election. Here are some factors which affect how many people vote. Which of these factors are the most important to you when you are voting? Please choose only one.

Which factor is the second most important to you when voting?

Which factor is the third most important to you when voting?

For each question, respondents were issued with a card (or shown a list on the screen, cf. below) containing the following possibilities (with the relevant theoretical construct in parentheses): “The parties’ policy on certain issues” (position issues); “The personal credibility of the party leaders” (party leaders); “The fundamental values of the parties” (ideology); “The likeability of the party leaders” (party leaders); “The ability of the

¹² The Danish parliament.

parties to solve the country's problems" (valence issues) and "The ability of the party leaders to lead the country" (party leaders). "Don't know" responses were also recorded. These options were chosen to reflect the main theories of voter behaviour discussed above. The idea, thus, was to test the core, theoretical propositions for a range of factors of high theoretical and empirical importance.¹³ Future analyses might probe the appropriateness of the theory also for other criteria.

The item is designed on the basis of Bartle's (2005) study and a previous Danish study (Andersen and Borre 2007). In these studies, only few respondents indicated to be voting on the basis of party leaders, which coincides with the prevalent norm that politics should be focused on political substance rather than politicians' character traits. Respondents may, thus, be likely to under-report the degree to which they rely on party

¹³ The question did not include an option for voters to indicate voting on the basis of party identification due to the well-known (cf. Thomassen 1976) problems with the concept of party identification in many European countries, including Denmark: Voters' perceptions of partisan identity, thus, tend to be almost completely endogenous to the vote and have been found to change more frequently than the vote. Furthermore, results of previous analyses of heterogeneity in the use of partisanship are mixed (contrast Basinger and Lavine 2005 with Blumenstiel and Rattinger 2011). Instead, partisan respondents will be picked up by the "fundamental values" option. Likewise, there was no strategic voting option since such voting is, likely, a very marginal phenomenon in the Danish PR system with a low threshold of 2 per cent and only one vote to cast. In contexts where these considerations do not apply, or if focus is on specific, other criteria, it would be necessary to adjust the measure accordingly.

leaders when voting. We counteract this normative bias by including in our measure three party-leader based criteria, two of which centre on the leaders' ability to excel in the political jobs they are vying for while the third is less connected to the substance of politics.¹⁴

4. Data, Operationalisations, and Modelling

We employ the 2011 Danish National Election Study for our analyses.¹⁵ The dataset consists of 2,078 respondents, who were drawn at random from persons of voting age in the Central Person Registry, which contains records of all Danish citizens. The sampled respondents were interviewed after the September 15 Danish General Election by SFI-

¹⁴ A potential worry arising in this context is that the inclusion of three leader options out of six possibilities may work too well in the sense that it could bias the reporting of use of the leader criterion upwards. This would be particularly problematic if, as could be argued, such a tendency is more pronounced among low than high sophistication respondents as this would confound our analyses of the sources of decision criteria heterogeneity. As shown in a survey experiment reported in the supplementary materials, however, this worry does not appear to be borne out empirically.

¹⁵ While an experimental approach with its superior control over the causal processes would, in principle, have been preferable to our observational design, we have opted for the latter due to the low levels of external validity combined with strong pre-treatment effects associated with experimenting with influences on the vote in national elections as well as the difficulty in manipulating the core independent variable, vote criteria.

Survey, either via the web or face-to-face and the response rate was 59 per cent.¹⁶ The resulting sample is representative of the Danish population on core demographic variables and constitutes the highest quality available for such large-scale surveys in Denmark (see Stubager et al. 2012 for all details regarding the survey).¹⁷

4.1. Decision Criteria Heterogeneity and Vote Choice

The first step in the analyses consists in a simple inspection of the responses to the three questions presented above. However, to see whether the measure really does what it is supposed to, and – at a more fundamental level – whether we can actually find evidence of heterogeneity in voters' application of the various decision criteria, we need to also include the measure in models predicting the vote. In these models (having the choice among all eight parties represented in the Danish parliament after the 2011 election¹⁸ as

¹⁶ Most interviews were completed within two months, and all were completed by December 17. All individuals included in the initial sample were, first, sent a letter with a link to an online version of the questionnaire. After two weeks, face-to-face interviews were carried out with those who had not responded online. Of the 2,078 respondents in the final sample, 39 per cent completed the online version of the questionnaire while the rest were interviewed face-to-face. In order for the sample to be representative, respondents from the two collection modes should be analyzed together.

¹⁷ The data is available from the Danish Data Archive, study number 27067.

¹⁸ They are the Social Democrats, the Social Liberals, the Conservatives, the Socialist People's Party, the Liberal Alliance, the Danish People's Party, the Liberals and the Red-Green Alliance.

the dependent variable), we interact variables indicating the weight placed on each of the four criteria with variables measuring the relevant criterion to test whether those who claim to place weight on a given criterion actually do so more than others. To use as much of the available information as possible we construct, for each criterion, a variable reporting the use of this criterion. These variables are scored 1, 2/3, 1/3 or 0, respectively, depending on whether a respondent has chosen this criterion as her first, second, or third motivation or not at all.¹⁹ If the same criterion is mentioned more than once, the variable reports the highest rank. As noted, we combine the three leader criteria into one. This is done by first following the procedure just described for each of the three leader criteria and then summing them together and re-scaling to the 0-1 range of the three other criterion variables. For H1 to be supported, we would expect to find significant interactions between each of the criterion variables and measures of a given criterion.

Following this procedure, we interact the ideology decision criterion variable with a measure of the distance between the voter and each of the parties on a 0-10 left-right scale, on which voters were asked to place themselves and all the parties. This distance measure is considered a party attribute (cf. below). Following Whiteley et al. (2013, 133) who argue that voters' perceptions of leaders are 'effectively indexed by a summary leader affect scale' we use sympathy scores (on a 0-10 scale) as a summary measure of respondents' evaluations of the party leaders which is then interacted with

¹⁹ In this way, the measure directly takes into account that voters may take more than one criterion into account when making up their mind.

the leader criterion variable.²⁰ We also treat leader likability as a party attribute. In both the ideology and leader analyses we have 1,590 respondents.

To assess the effect of the positional issue criterion, we interact it with a summary issue distance measure constructed on the basis of respondents' perceived issue importance. An issue is important to a respondent if it has been mentioned as one of up to four issues reported as among the most important to the respondent. As relatively fewer respondents pointed to issues for which proper distance measures were available, we have 940 respondents for the analysis of the impact of the position issues criterion. This is less than the number of respondents for the ideology and leader analysis, but still sufficient for the purpose at hand. We use a similar approach for valence issues, although with slightly different indicators. On this type of issues, we have 1,163 respondents in the model. Both issue measures are treated as party attributes.

In the interest of parsimony, we estimate four sets of models – one set for each criterion. Since we are most interested in the interaction terms, we estimate two models for each criterion. The first, base, model includes the core variable associated with a given criterion (i.e. left-right distance, position issue distance, valence issue preference, or leader sympathy). In the models with the latter three variables we also control for left-right distance as a way to capture this fundamental influence (and that of its antecedents) which might, if uncontrolled, be picked up by the policy or leader variables.²¹ The

²⁰ See the supplementary information for all details of variable construction.

²¹ Because our models and estimation method are rather complex and therefore vulnerable to the inclusion of many variables, we have opted not to include further control variables in the models. However, as shown in the supplementary materials if we

second model adds the criterion variables and the interaction between the criterion and the core variables. The interactions are treated as party attributes, since they involve party specific factors.

As mentioned, several of our core variables (e.g., the distance between voters and parties on both the left-right dimension and the position issue scales) are choice specific in the sense that they incorporate information about the parties and not just the voters. Therefore, we cannot rely on standard multinomial logit models to estimate the relationships. Instead, we use the mixed logit method, which has been increasingly popular among political scientists for analyses of multivariate choice because it relaxes the (often un-warranted) assumptions that 1) the error term is independently and identically distributed (IID), and 2) the independence of irrelevant alternatives (IIA) (Clarke et al. 2015; Glasgow 2001; Glasgow, Golder, and Golder 2011). Substantively, it creates the opportunity for us to model vote choice in a manner that is closer to reality. Methodologically, it ensures that we arrive at consistent estimates.

Following Glasgow, Golder and Golder (2011), we specify models with a random coefficient setup for our core variables, where the main explanatory variables takes on coefficients with an average effect, β , which is then adjusted by η_i for each respondent i .²² Following Glasgow (2001), the probability that respondent i has voted for party j is

include a set of standard, socio-demographic control variables (gender, age, education, household income), we get similar results although the coefficient for the interaction with the position issue criterion drops slightly, thereby becoming insignificant at the .05 level.

²² The coefficients are specified as uncorrelated.

the conditional probability that respondent i has voted for party j (à la McFadden 1974), with the probabilities adjusted by η_i :

$$P_{ij} = \frac{e^{x_{ij}\beta + x_{ij}\eta_i}}{\sum_{k=1}^K e^{x_{ik}\beta + x_{ik}\eta_i}}$$

Since η_i is not observed, we assign a joint probability distribution $g(\eta/\Omega)$, with Ω as the fixed parameters of the distribution, g , which specifies our random coefficients' distributions, which we assume to be normal (Glasgow 2001).²³ A la Glasgow (2001), the vote choice probability for each party j is thus the sum over all conditional probabilities over all parties:

$$P_{ij} = \int \left[\frac{e^{x_{ij}\beta + x_{ij}\eta_i}}{\sum_{k=1}^K e^{x_{ik}\beta + x_{ik}\eta_i}} \right] g(\eta|\Omega)$$

We use maximum simulated likelihood to calculate the mean probabilities of voting for party j , P_{ij} . Since we are estimating the mean, we also report the standard deviations around the mean coefficients.

4.2. Sources of Decision Criteria Heterogeneity

²³ It might be argued that since we would expect the effect of the distance measures to be negative and the likeability measure to be positive we could use a specification that takes this censoring into account (e.g., a log-normal). We have chosen the normal specification, however, as we do not want to enforce more assumptions on the data than necessary. By using a normal distribution we leave it an empirical question whether or not our expectations regarding the effects are borne out or not. As we show below, they are.

For testing H2 about the influence of voter sophistication on use of the four criteria we estimate four OLS regression models; one for each criterion. An important part of the scholarly literature on political sophistication has revolved around how best to measure the concept although many studies have ended up using education or knowledge as suitable proxies for the underlying concept (see, e.g., Enns and Kellstedt 2008; Sniderman et al. 1991, 21; Zaller 1992, 21). We follow an eclectic approach in that we rely on a range of different indicators capturing different aspects of sophistication (cf. the definition above): whether people pay attention (measured by self-reported interest in politics, TV-news consumption and newspaper reading) and whether they know how to use the information obtained (measured by higher education and political knowledge).²⁴ We expect that higher scores on these independent variables are positively correlated with reliance on the ideological or position issue criteria and negatively correlated with reliance on the valence issue and party leader criteria. We also include ideological extremity and whether or not the respondent identifies with a party.²⁵ We might expect, thus, a larger prevalence of the ideological criterion for party

²⁴ See the supplementary materials for measurement and coding of the independent variables. The five measures of sophistication are moderately correlated ($r = .20$, on average) and so their inclusion in one model should not cause problems of collinearity (see also below).

²⁵ Although party identification does not function well in voting models due to the problem of endogeneity, it may be a factor in influencing the voters' decision criteria. In any case, the endogeneity problem is much less pertinent in models having the criteria as dependent variables.

identifiers and ideological extremists. Finally, we control for the respondents' age, gender and household income.

5. Results

Table 1 reports our respondents' answers to the three questions about the weight they attach to the different voting criteria. The first point to note is that the vast majority of respondents were able to provide meaningful answers to all three questions and only two per cent failed to specify their most important criterion. This, in itself, suggests that our method has found resonance among the respondents. Second, the results also suggest that our strategy of including several leader-based criteria in order to legitimize such considerations to respondents may have been successful certainly when comparing with previous results obtained by Andersen and Borre (2007) and Bartle (2005). Taken together, thus, the leader criteria are mentioned, across the three questions, by 71.6 per cent of the respondents thereby surpassing the ideology criterion (parties' fundamental values) mentioned by 65.4 per cent in second place.²⁶ A further point worth emphasizing

²⁶ It should be noted that the inclusion of three leader criteria may result in an over-estimation of the share of voters using leaders as a decision criterion. Two points should be kept in mind, however: First, it was possible for respondents to answer all three questions in the measure without pointing to leaders just as they could also answer don't know. Second, our experiment comparing a measure with only one leader option to the version with three does shows only a weak tendency for the latter version to increase the weight of leaders; see the supplementary materials. This suggests that the inclusion of one leader option may be sufficient to tap into the use of this criterion. Future studies

is the fairly even spread among the four main categories (i.e., when treating the three leader-criteria as one). It seems, thus, that the criteria offered as response categories on our measure have all – albeit to varying degrees – been relevant to the respondents; none are dominant and none are irrelevant.

[Table 1]

We do, however, see more differentiation among the criteria chosen as most important (cf. the first column in the table). Thus, parties' fundamental values stand out as the (relatively) most important criterion followed by the two issue criteria and the party leaders. Among the three aspects of the leader criterion, leaders' credibility clearly comes out as more important than both their ability to lead the country and, particularly, their likeability.

In relation to H1, the results presented in Table 1 constitute a first indication of support. Thus, the respondents in our sample do in fact vary in the subjective weight they attach to different voting criteria. The natural next question then becomes whether these subjective perceptions also translate into effects on the vote; can we, in other words, find evidence of voter heterogeneity when we include the variation in criteria importance documented in Table 1 in voting models?

5.1. Do Respondents Vote According to Their Decision Criteria?

may explore this more fully.

We construct eight different models to investigate the conditioning effect of decision criterion heterogeneity on vote choice, two for each of the four categories of main decision criteria. For simplicity's sake, we only display the effects of the core explanatory variables.²⁷ The first two models in Table 2 estimate whether or not voters' degree of reliance on parties' core ideologies influences the effect of the left-right ideological distance on their vote choice. "Voter-Party Distance" refers to the distance between respondent i 's perception of party j 's left-right ideological position and her own position. The main variable of interest, the Criterion Interaction,²⁸ represents the extent to which the effect of the distance between a party's left-right ideology and her own ideology impacts the probability of voting for party j *changes* as the criterion increases in importance to the voter. A significant and negative mean coefficient would support H1.

The coefficients come out as predicted. In Model I, the negative mean coefficient of -9.83 implies that, not surprisingly, the larger the distance between the respondent's own and party j 's core ideology, the less likely she is to vote for the party. The test of H1 appears in Model II, where we include the interaction between the distance measure and the decision criterion. As expected, the interaction variable has a negative and significant mean coefficient of -5.81. This implies that, on average, as a party's core ideology becomes a more important decision criterion for respondents the likelihood of voting for party j decreases *even more* when the ideological distance between the

²⁷ The full results are displayed in tables A1-A4 in the supplementary materials.

²⁸ Constructed by multiplying Voter-Party Distance with the interval-scaled ideology criterion variable.

respondents and j increases. These results lend support to H1, with the caveat that there is a fair amount of variation in the size of the interaction coefficient (as indicated by its standard deviation).

We also observe that the inclusion of the interaction improves the fit of the model when judged from the log-likelihood which goes up and the AIC measure which goes down. We should note, however, that the fit deteriorates slightly according to the BIC measure (which goes up). This is probably due to the fact that adding the decision criterion variable and the interaction term sacrifices some of the model's parsimony. This is not surprising. By including the criterion interaction in the model, we introduce a substantial layer of complications to an otherwise simple model, but also deepen our understanding of the processes behind the voters' choices. We return to this point in the conclusion.

The average marginal effects of the criterion interaction can be inspected in the first column of Table 3. Consistent with Table 2, we find positive numbers for all parties, which imply a stronger effect among voters deciding on the basis of ideology than among other voters. Unsurprisingly, the effects are larger for larger parties (i.e. the Social Democrats and the Liberals), since there is more room for variation for parties with larger vote shares. With effect sizes of up to 13 percentage points, it is clear that the criterion interaction is of more than trivial importance.

[Table 2]

[Table 3]

Models III and IV in Table 2 present the results for the position issue distance criterion. As noted, for both this and the valence issue and leader criteria analysed below we control for the voter-party distance on the left-right scale as a way to incorporate the influence of voters' ideological position which might otherwise be captured by the core variables. As can be seen from the top of the table, the ideology control behaves as expected. The same applies to the position issue distance measure in the base model (III) without the criterion interaction. On average, the greater distance between party j and respondent i on the most important position issue, the less likely that the respondent will vote for the party. Adding, in Model IV, the Criterion Interaction, reveals the expected negative, and significant, coefficient which, furthermore, is not found to vary significantly around its mean (cf. the insignificant standard deviation). The variation around the coefficient is also insignificant. Again, the log-likelihood goes down, but both the AIC and BIC increase slightly. The predicted marginal effects appear in Table 3.²⁹ Conforming to the modest log-odds coefficient for the interaction, most of the predicted changes in the effect of the issues distance variable on the probabilities of voting for the parties are minor but with one, insignificant, exception they are all positive as expected and one does reach the level of six percentage points. On this background, we also count these results as support for H1.

Turning then to the analysis of the valence issue criterion in models V and VI, we see that, on average, being the party that is deemed as the best at handling problems like the economy or unemployment significantly increases a voter's probability of voting for the

²⁹ As for the results in Table 2, those presented in Table 3 are robust to the inclusion of control variables in the models.

party. The positive coefficient for the variable, Valence Issue Preferences, in Model V suggests that voters who regard a party as best at handling a given problem is likely to also vote for the party. Moreover, the significant coefficient for the Criterion Interaction in Model VI reveals, as expected, that the more voters base their voting decision on the parties' abilities to handle such problems, the more they are influenced by their assessment of the parties' problem-solving competencies. According to both the log-likelihood and the AIC, Model VI provides a better fit than Model V but the value of BIC increases when including the interaction in the model.

The predicted probabilities shown in Table 3 corroborate the story told by the log odds ratios. As can be seen, the sizes of the additional effects associated with using the valence issue criterion versus another criterion are fairly large (ranging up to 13 percentage points), also for some of the minor parties. Altogether, these results lend further support to H1.

Finally, models VII and VIII in Table 2 turn to the party leader-based voting criterion. Consistent with other analyses of Danish voters (see, e.g., Hansen and Goul Andersen 2013), on average, party leader sympathy significantly and positively impacts the probability of voting for a party. The more sympathy respondent i has for the leader of party j , the more likely she is to vote for party j , given that the leader is rated as her most-liked leader. More importantly, in Model VIII, the interaction between the party leader-based voting criterion and the rating of the most-liked party leader (the Criterion Interaction) is also significant and positive. This implies that, on average, respondents whose primary voting criterion is the party leaders are significantly more likely to be influenced by the sympathy felt towards the most-liked party leader than those using other criteria; again this supports H1. Similar to the results for the ideology voting

criterion in Model II, though, the variation around the mean coefficient is significant and of substantial size compared to the mean coefficient. The leader voting criterion results resemble those for the ideology criterion in another respect, too. Both the log-likelihood and AIC measures indicate an improved fit resulting from the inclusion of the criterion interaction in the model, whereas the BIC does not. The final column in Table 3 lists the additional effect of changes in leader sympathy associated with using the leader criterion. While some are fairly small, others range up to six percentage points. These results again bolster H1.

5.2. Which Respondents Use Which Criteria?

Having seen that voter heterogeneity does exist and exerts substantial influence on vote choice, we turn to examining H2 about the influence of voter sophistication on the choice of voting criteria. Table 4 reports the four OLS models predicting the weight placed on each of the four criteria using our model of sophistication variables as well as controls.³⁰

[Table 4]

³⁰ Table 4 reports models where all sophistication variables are included. The results do not change substantively if the effect of each sophistication variable is tested separately. Nor, if the five variables are combined in a scale. See section four in the supplementary materials.

The results in the table generally support H2: respondents' levels of political sophistication are correlated with their decision criteria in the expected way. With one exception, the models show that respondents with higher levels of education, knowledge and political interest place more weight on the parties' ideologies and their issue positions while they place less weight on the parties' problem solving capacities and their leaders.³¹ The only exception to this pattern arises for the political interest variable which does not have a significant effect on the weight placed on the valence issue criterion. We have no good explanation for this deviant result which, it should be noted, coincides with an even very low level of explained variation for the same criterion. Apparently, our model is not capable of explaining the weight placed on this criterion very well.

Contrary to our initial expectations, however, neither TV news viewing nor newspaper readership have significant effects. Again, the valence issue criterion stands out as an exception in that TV news viewing has a fairly substantial, positive effect for this criterion. The general absence of effects is only partially due to the inclusion of the knowledge and interest variables in the models. When these variables are omitted, thus,

³¹ As noted, our experiment comparing measures including one as opposed to three leader options among the response options does not suggest that the results for the leader criterion are driven by low sophisticates being more susceptible to point to leaders simply due to their prominence among the response options. Also, the parallel result with respect to the effect of sophistication on use of the valence criterion, of which there was only one among the response options, suggests that the results are not methodological artefacts.

the media variables only gain little in strength (cf. also the supplementary materials). Overall, therefore, media consumption – at least as measured here – seems to have only little influence on the weight placed upon the different voting criteria.³² Among the control variables, age is a significant predictor for all criteria except ideology. Voters claiming to be basing their decisions on party leaders are older while those using either of the two types of issues are younger. We should note also that, as expected, party identifiers are more likely to place emphasis on the ideology criterion. They are simultaneously less likely to rely on parties' positions on contentious issues while party identification does not have an effect on either the valence issue or leader criterion. Apart from these effects, there are no systematic relationships between the control variables and the four criterion variables to report.

Summing up, while we do acknowledge that our models have difficulty predicting reliance on the valence issue criterion, the overall result is one of rather strong and consistent support for H2. Reliance on the ideology and position issue criteria is more prevalent among the more than the less sophisticated voters, while the reverse applies for the valence issue and leader criteria.

6. Conclusion

The results above suggest that voter decision criteria heterogeneity is a force that warrants attention. By assuming that all voters exhibit the same voting behaviour, we

³² One reason for the weak media consumption effects may be that we were unable to include a measure of internet news media browsing which was not available in the survey.

systematically blunt our analytical instruments to the disadvantage of political analysts, practitioners and citizens alike. The main finding – which adds to the limited, but developing research agenda on the topic – is the conditioning effect of the different decision criteria (ideology, positional and valence issues, or party leaders) on the relevant criterion's impact on the vote. We find that, across all four criteria, the votes of those claiming to be using a specific criterion are more sensitive to the levels of the respective factor than those using different criteria. The additional effects, reaching as high as 13 percentage points, are also substantial. Also, we corroborate existing findings that more politically sophisticated voters are more likely to base their voting decisions on ideology and positional issues than less sophisticated voters, while the reverse is true for valence issues and party leaders.

The results are notable in another aspect: they are obtained in a PR setting with a low electoral threshold. This makes the results for the party leader criterion particularly interesting. Even in a party-centred political system characterised by a relatively high number of parties represented in parliament (eight in the relevant term), the party leaders play an important role to a sizeable share of the electorate (71.6 per cent of our sample mentioned at least one leader criterion; 21.1 mentioned a leader criterion as the most important³³) who, consequently, are at least somewhat sensitive to their sympathy for the leaders when voting. This implies that party leaders may be expected to play even more

³³ As noted, this result does not seem to be driven by the inclusion of three leader options among the response options, cf. the supplementary materials.

important roles in more candidate-centred political systems such as the UK or, even more pronounced, the USA.³⁴

Therefore, the results raise a set of normatively important questions across the range of democratic countries. The importance attached to the party leaders may give cause to worry that democracy is, to a significant extent, a colossus on clay feet. Instead of pursuing their policy interests by sending signals through the ballot box, voters basing their decision on party leaders – whom we have seen, moreover, are the least sophisticated – may be subject to misperceptions, or even manipulations, that can lead them to vote against their own interests. This is so since the appearance of political leaders in the media – which is where the vast majority of voters encounter them – can be more easily staged to present a given impression. Also, the short glimpses into such leaders' personalities provided by the media constitute a rather shallow ground on which to build one's political choices. In this light, the leader-based criterion can be seen as a democratic problem.

The analyses do, however, give cause for a bit more optimism on behalf of democracy. First, it is important to remember that there are different facets of party leaders. In this respect, we saw that out of the three aspects of party leaders included in

³⁴ The generalizability of the results to other countries is, of course, an empirical question. We should note, however, that the results in Table 4 corroborates evidence from other countries, just as the few existing studies of voter heterogeneity have found (sometimes weaker) results pointing in the same direction as those in the first part of our analysis. On this basis it seems unlikely that we have uncovered a specifically Danish phenomenon.

the decision criterion measure, the personal credibility, the problem-solving capacities, and the likeability of the leaders, the first was clearly more important than the other two particularly as the most important criterion. Second, from a democratic point of view the leader criterion – not least the credibility aspect – might not be that detrimental after all. Thus, if voters are to be able to navigate in politics in a way consistent with their interests it appears central that they can trust politicians to actually do as they say – i.e., to be credible. This consideration may be even more pronounced for less sophisticated voters, who have a harder time keeping up with developments in politics and, therefore, need easy heuristics, such as the credibility of party leaders, to help them make sensible choices. In short, the leader-based criterion may not be as shallow as one would think on first encounter. It may even be a help for groups of voters who are otherwise prone to democratic inactivity to take on the task of democratic citizenship to the best of their abilities (cf. the heuristics literature, e.g., Lau and Redlawsk 2001; Sniderman et al. 1991). For these voters, the signal sent through the ballot box may, hence, be less clear in policy terms. But seen through the lens of the ‘valence model’ it reflects a more general trust in the governing capabilities of the chosen party and its leader.

A caveat should be mentioned, however. The results pertaining to the conditioning influence of the decision criteria on the vote come out of fairly complex statistical models, and the fit statistics of the models indicate that we sacrifice parsimony for gaining a better, more nuanced understanding of the processes leading voters to choose the way they do. In some sense, this sacrifice is integral to the investigation of voter heterogeneity. Investigating whether different groups of voters use different decision criteria, by definition, entails the perspective that we may need to abandon the more parsimonious “one model fits all” approach dominant in electoral research. However,

this sacrifice seems necessary if we are to arrive at an improved understanding of the factors that drive voters' decisions – with the possibility to minimize politicians' misreading of the voters' wishes entailed herein. In sum, thus, the analyses have provided evidence that taking into account voter heterogeneity provides important knowledge about voting in democratic elections: one voting model does not fit all voters.

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Table 1. Subjective Importance of Decision Criteria. Per Cent.

	First Choice	Second Choice	Third Choice	Mentioned by
The parties' policy on certain issues	20.5	24.6	22.1	60.2
The ability of the parties to solve the country's problems	21.56	19.6	13.1	52.1
The fundamental values of the parties	34.9	15.3	20.9	65.4
The likeability of the party leaders	1.5	11.2	9.7	20.4
The personal credibility of the party leaders	14.6	19.4	16.8	48.9
The ability of the party leaders to lead the country	5.0	6.6	11.3	22.9
Total leaders	21.1	37.3	37.8	71.6
Don't know or unanswered	2.0	3.5	6.1	

Note: Entries in the first three columns are percentages of respondents choosing each criterion as the first, second or third most important for their vote choice (see the text for exact question wording). Total leaders provides the total across all three leader criteria. The final column provides the percentage of respondents who mentioned a given criterion at all. N = 2,078.

Table 2: Voter Decision Criteria and Party Choice. Mixed Logit Coefficients (Standard Errors) and Measures of Fit

	Ideology Criterion				Position Issue Criterion				Valence Issue Criterion				Leader Criterion			
	Model I		Model II		Model III		Model IV		Model V		Model VI		Model VII		Model VIII	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Ideology Distance	-9.83*	3.86*	-7.91*	2.04*	-10.24*	5.09*	-10.53*	5.32*	-10.38*	4.01*	-11.06*	-4.30*	-8.29*	3.13*	-8.97*	3.55*
Position Issues Distance	-	-	-	-	-2.93*	-0.75	-2.44*	-0.54	-	-	-	-	-	-	-	-
Valence Issues Preference	-	-	-	-	-	-	-	-	2.10*	3.09*	1.67*	2.81*	-	-	-	-
Leader Sympathy	-	-	-	-	-	-	-	-	-	-	-	-	3.13*	1.50*	2.87*	1.42*
Criterion Interaction			-5.81*	6.41*			-1.27*	-0.41			1.38*	-1.79			2.63*	4.36*
			(1.52)	(1.27)			(0.77)	(1.38)			(0.67)	(1.93)			(1.21)	(1.67)
N	1,590				949				1,163				1,590			
Log-Likelih.	-2012.79		-1993.95		-1099.40		-1090.32		-1337.45		-1319.14		-1464.26		-1447.12	
LR χ^2	24.20*		45.01*		24.60*		25.81*		44.56*		58.65		17.25*		36.40*	
AIC	4043.58		4037.89		2220.80		2234.64		2696.90		2692.27		2950.52		2948.24	
BIC	4110.64		4224.16		2297.00		2421.63		2775.42		2885.01		3032.48		3149.41	

Note: *: $p < 0.05$. - : Not included in model. See the supplementary materials for all estimated coefficients.

Table 3: Average Marginal Effect of Voter Decision Criteria, Predicted Probabilities

	Effect of Ideology Criterion	Effect of Position Issue Criterion	Effect of Valence Issue Criterion	Effect of Leader Criterion
Social Democrats	0.13*	0.06*	0.11*	0.003*
Social Liberals	0.05*	0.05*	0.13*	0.05*
Conservatives	0.02*	-0.01	0.13*	0.05*
Socialist People's Party	0.04*	0.03*	0.09*	0.04*
Liberal Alliance	0.03*	0.03*	0.11*	0.05*
Danish People's Party	0.06*	0.02*	0.10*	0.04*
Liberals	0.13*	0.03*	0.08*	0.02*
Red-Green Alliance	0.04*	0.03*	0.05*	0.06*

Note: * : $p < 0.05$. Entries are the differences between voters using a given criterion and those not in the average change in the predicted probability of voting for each party in response to a change from the 25th to the 75th percentile on the ideology distance, positional issue distance, or leader sympathy variables or from 0 to 1 on the valence issue dummy variable. The predictions are based on the coefficients in Table 2.

Table 4: Sources of Decision Criteria Use. OLS Regression Coefficients (Standard Errors) and Explained Variance.

	Ideology Criterion	Position Issue Criterion	Valence Issue Criterion	Leader Criterion
Political sophistication				
Higher Education	0.05* (0.02)	0.09* (0.02)	-0.05* (0.02)	-0.06* (0.01)
Political Knowledge	0.08* (0.04)	0.11* (0.03)	-0.08* (0.04)	-0.06* (0.02)
Political Interest	0.18* (0.04)	0.11* (0.04)	0.01 (0.04)	-0.10* (0.03)
TV news	-0.02 (0.04)	-0.00 (0.04)	0.13* (0.04)	-0.00 (0.02)
Newspaper	0.02 (0.03)	0.02 (0.03)	-0.01 (0.03)	0.01 (0.02)
Extreme Voter	0.02 (0.02)	0.05* (0.02)	-0.04 (0.02)	-0.01 (0.01)
Party Supporter	0.07* (0.02)	-0.05* (0.02)	0.00 (0.02)	0.00 (0.01)
Control variables				
Female	0.05* (0.02)	0.01 (0.02)	-0.02 (0.02)	-0.01 (0.01)
Age	0.01 (0.07)	-0.39* (0.07)	-0.17* (0.07)	0.12* (0.04)
Household Income	0.06 (0.05)	0.07 (0.04)	0.06 (0.05)	-0.06* (0.03)
Constant	0.24* (0.05)	0.38* (0.05)	0.42* (0.05)	0.39* (0.03)
R^2 (adj.)	0.04	0.09	0.01	0.06

Note: * $p < 0.05$. N = 1,703.

Supplementary Material (intended for online publication)

We provide five types of supplementary materials: 1) Details on the coding of the independent variables in the analyses; 2) The full sets of coefficients for the models presented in Table 2; 3) The results of estimating the models reported in Table 2 with controls; 4) Re-analyses of Table 4 including each sophistication measure one at a time as well as combined in a scale; 5) Results from an experiment that tests if the inclusion of three rather than one leader based response options on our measure of voter criterion heterogeneity leads to more reporting of the use of this criterion.

1. Coding of independent variables

The independent variables are coded as follows:

- For ease of interpretation, education is measured by a binary variable that equals 1 if the voter has completed high school. This applies to some 43% of the respondents. The measure is based on the status of high school education as the primary access round and main requirement for tertiary education. It is, thus, a simple but effective measure hereof. Incidentally, we obtain similar results using a measure differentiating between five levels of education (results are available from the authors on request).
- Political interest is measured by the survey question: “Would you say that you are very interested, somewhat interested, only slightly interested or not at all interested in politics?”. The variable is rescaled to 0-1.
- Political knowledge is an index based on five factual questions: “How many members are there in Folketinget if we disregard the four members from Greenland and the Faroe Islands?”; “Which parties form the current government?”; “Which party does Mette Frederiksen come from?”; “Which party does Ellen Trane Nørby come from?”; “Which party does Kristian

Thulesen Dahl come from?” The variable is rescaled to 0-1.

- TV-news and newspaper consumption are measured as the number of days in a normal week that the activity takes place. The survey questions are: “In the course of a typical week, how many days do you watch the news on TV, e.g. TV-Avisen on DR1, Deadline on DR2, Nyhederne on TV2, Nyhederne on TV2 News or DR Update?”; “In the course of a typical week, how many days do you read a newspaper? It may both be in print or online.” The variable is rescaled to 0-1.
- Ideological extremity is measured by the survey question: “In politics one often talks about left and right. Where would you place yourself on this scale?” The variable is coded 1 for those scoring 0-2 or 8-10 on the 0-10 scale, and 0 otherwise.
- Party identification is measured by the survey question: “Many people consider themselves adherents of a particular party. There are also many who don’t feel they adhere to any party. Do you consider yourself to be, e.g., a Social Democrat, a Conservative, a Social Liberal, a Liberal, a Socialist People’s Party supporter or something else? Or don’t you feel as an adherent of any party?” Those identifying with a party are scored 1; all others 0.
- Party leader sympathy is measured by the question: “Using this scale from 0 to 10, I would like to ask how good or bad you think about our political leaders. If I mention a party leader whom you don’t know or don’t think you know well enough, just say so.” The scale ran from 0 “Thinks very bad about the person” to 10 “Thinks very well about the person”. In the models, the party leader sympathy measure is based on the sympathy scores given to the best liked leader meaning that for a given respondent, her scores for all other leaders are 0, and her score for the most-liked leader would be the score she gave for the leader. In the case of ties, where two or more party leaders received the same highest likeability score, we assign that score to both, and 0 to all other party leaders. This operationalization has been chosen as appropriate

since we expect that voters who claim to vote on the basis of party leaders should be particularly influenced by their sympathy for the leader they like the most.

- The positional issue distance measure has been constructed by combining respondents' answers to a range of different issue items into one based on the respondents' indication of what they perceive as the top-4 most important problem politicians should address (assessed in open ended questions at the beginning of the survey: "We have just had a general election. I would therefore like to ask you which problem you believe is the most important for politicians to take care of today?"). Thus, for respondents pointing to, e.g., immigration as the one of the four most important issues, the issue measure consists of the distance between the respondents' positions on a five-point scale and their perceptions of the positions of the parties on the same scale. This operationalization has been implemented for the issues of taxation, the environment, crime, the size of the public budget, and immigration for which such measures were available in the survey. The questions ran as follows:
 - Taxation: "The parties discuss what to do with taxes on high incomes. Some parties want to raise taxes on high income, while others want to reduce them. On this scale, 1 stands for lowering taxes on high incomes while 5 stands for increasing taxes on high incomes. Where about would you place [Party/Yourself]?"
 - The environment: "You sometimes talk about a green dimension on which some parties stand out by strongly emphasizing environmental protection, while others say that environmental protection is going too far. On a scale where 1 stands for the least green policy while 5 stands for the most green policy, where about would you place [Party/Yourself]?"
 - Crime: "Some parties are in favour of maintaining law and order with severe punishment. Other parties talk instead of preventing crime and treating criminals humanely. On this

scale 1 stands for those who are most in favour of law and order and 5 stands for those who are most in favour of prevention and humane treatment of criminals. Where about would you place [Party/Yourself]?”

- Size of the public sector: “The parties also disagree about how large the public sector should be. Some parties say we should cut public revenues and expenditures. Others say that we should expect increasing public revenues and expenditures in the future. Here is again a scale from 1 to 5 where 1 stands for cutting deep in public revenue and expenditure, 2 stands for cutting a little, 3 stands for keeping public revenue and expenditure as they are, 4 stands for increasing them a little and 5 stands for increasing them strongly. Where about would you place [Party/Yourself]?”
- Immigration: “Among other things, the parties disagree about how many refugees we can receive. Some think we receive far too many. Others say we can easily take more refugees. Here is a scale from 1 to 5 where 1 stands for accepting far fewer refugees than at present, 2 stands for accepting a little fewer, 3 stands for the same number as now, 4 stands for a little more, and 5 stands for accepting many more refugees than at present. Where about would you place [Party/Yourself]?”

The measures are rescaled to 0-1. Respondents pointing to more than one of the five issues as among their top-4 were coded based on the issue that was most important to them.

- The valence issue measure is also constructed on the basis of respondents’ answers to the open ended issue saliency item. Thus, for respondents pointing to Danish economy or unemployment (the only two issues where the relevant measures are available) as among their top-4 most important issues, we use their answers to two items assessing which party they see as best at handling Danish economy (“Which party do you consider best at handling Denmark’s economy?”) or fighting unemployment (“Which party do you consider best at combating

unemployment?"). The coding is such that a respondent scores 1 for the party pointed to and 0 for all other parties. Respondents pointing to both issues as among their top-4 were coded based on the issue that was more important to them.

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2. Full sets of coefficients for the models presented in Table 2

Table A1. Ideology Decision Criterion and Party Choice. Mixed Logit Coefficients (Standard Errors) and Measures of Fit

	<i>Model I</i>		<i>Model II</i>	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
<i>Ideology Distance</i>	-9.83*** (0.46)	3.86*** (0.50)	-7.91*** (0.62)	2.04** (1.02)
<i>Ideology Criterion Interaction</i>	-	-	-5.81*** (1.52)	6.41*** (1.27)
<i>Social Liberals</i>				
<i>Constant</i>	-0.82*** (0.10)	-	-0.94*** (0.15)	-
<i>Ideology Criterion</i>	-	-	0.26 (0.24)	-0.01 (0.81)
<i>Conservatives</i>				
<i>Constant</i>	-1.74*** (0.15)	-	-2.17*** (0.26)	-
<i>Ideology Criterion</i>	-	-	0.59 (0.60)	0.68 (0.99)
<i>Socialist People's Party</i>				
<i>Constant</i>	-1.20*** (0.11)	-	-1.41*** (0.20)	-
<i>Ideology Criterion</i>	-	-	-0.24 (0.47)	-1.64*** (0.59)
<i>Liberal Alliance</i>				
<i>Constant</i>	-1.18*** (0.13)	-	-1.28*** (0.20)	-
<i>Ideology Criterion</i>	-	-	0.17 (0.36)	0.20 (1.26)
<i>Danish People's Party</i>				
<i>Constant</i>	-0.73*** (0.12)	-	-0.71*** (0.18)	-
<i>Ideology Criterion</i>	-	-	-1.64** (0.78)	3.04*** (0.74)
<i>Liberals</i>				
<i>Constant</i>	0.04 (0.10)	-	0.07 (0.15)	-
<i>Ideology Criterion</i>	-	-	-0.14 (0.28)	-0.97* (0.53)
<i>Red-Green Alliance</i>				
<i>Constant</i>	-0.92*** (0.13)	-	-0.97*** (0.22)	-
<i>Ideology Criterion</i>	-	-	-0.02 (0.35)	-0.36 (0.82)
Log-likelihood	-2012.79		-1993.95	
LR χ^2	24.20*		45.01*	
AIC	4043.58		4037.89	
BIC	4110.64		4224.16	

Note: *: $p < 0.05$. -: Not included in model. N = 1,590. Reference category is the Social Democrats.

Table A2. Position Issue Decision Criterion and Party Choice. Mixed Logit Coefficients (Standard Errors) and Measures of Fit

	<i>Model I</i>		<i>Model II</i>	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
<i>Ideology Distance</i>	-10.24*** (0.70)	5.09*** (0.71)	-10.53*** (0.78)	5.32*** (0.77)
<i>Position Issue Distance</i>	-2.93*** (0.30)	-0.75 (1.06)	-2.44*** (0.42)	-0.54 (1.38)
<i>Position Issue Criterion Interaction</i>	-	-	-1.27* (0.77)	-0.41 (1.38)
<i>Social Liberals</i>				
<i>Constant</i>	-0.59*** (0.13)	-	-0.78*** (0.21)	-
<i>Position Issue Criterion</i>	-	-	0.37 (0.34)	0.16 (0.89)
<i>Conservatives</i>				
<i>Constant</i>	-1.67*** (0.22)	-	-1.29*** (0.29)	-
<i>Position Issue Criterion</i>	-	-	-2.38 (1.54)	2.07 (1.33)
<i>Socialist People's Party</i>				
<i>Constant</i>	-1.15*** (0.15)	-	-1.33*** (0.26)	-
<i>Position Issue Criterion</i>	-	-	0.30 (0.45)	0.28 (1.44)
<i>Liberal Alliance</i>				
<i>Constant</i>	-0.96*** (0.19)	-	-1.17*** (0.28)	-
<i>Position Issue Criterion</i>	-	-	0.33 (0.63)	0.59 (1.33)
<i>Danish People's Party</i>				
<i>Constant</i>	-0.53*** (0.18)	-	-0.52** (0.25)	-
<i>Position Issue Criterion</i>	-	-	-0.33 (0.67)	-1.01 (1.06)
<i>Liberals</i>				
<i>Constant</i>	0.08 (0.15)	-	0.28 (0.21)	-
<i>Position Issue Criterion</i>	-	-	-0.67 (0.42)	-0.90 (0.71)
<i>Red-Green Alliance</i>				
<i>Constant</i>	-0.78*** (0.18)	-	-1.03*** (0.30)	-
<i>Position Issue Criterion</i>	-	-	0.52 (0.48)	0.09 (0.72)
Log-likelihood	-1099.40		-1090.32	
LR χ^2	24.60*		25.81*	
AIC	2220.80		2234.64	
BIC	2297.00		2421.63	

Note: *: $p < 0.05$. -: Not included in model. N = 949. Reference category is the Social Democrats.

Table A3. Valence Issue Decision Criterion and Party Choice. Mixed Logit Coefficients (Standard Errors) and Measures of Fit

	<i>Model I</i>		<i>Model II</i>	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
<i>Ideology Distance</i>	-10.38*** (0.63)	4.01*** (0.67)	-11.06*** (0.74)	-4.30*** (0.70)
<i>Valence Issue Preferences</i>	2.10*** (0.29)	3.09*** (0.63)	1.67*** (0.32)	2.81*** (0.70)
<i>Valence Issue Criterion Interaction</i>	-	-	1.38** (0.67)	-0.32 (1.12)
<i>Social Liberals</i>				
<i>Constant</i>	-0.89*** (0.14)	-	-0.99*** (0.19)	-
<i>Valence Issue Criterion</i>	-	-	0.22 (0.38)	0.05 (0.81)
<i>Conservatives</i>				
<i>Constant</i>	-1.67*** (0.20)	-	-1.96*** (0.29)	-
<i>Valence Issue Criterion</i>	-	-	0.47 (0.51)	0.59 (1.22)
<i>Socialist People's Party</i>				
<i>Constant</i>	-1.25*** (0.16)	-	-1.08*** (0.20)	-
<i>Valence Issue Criterion</i>	-	-	-0.93 (0.61)	0.71 (1.55)
<i>Liberal Alliance</i>				
<i>Constant</i>	-1.06*** (0.17)	-	-1.15*** (0.25)	-
<i>Valence Issue Criterion</i>	-	-	-0.01 (0.77)	1.28 (1.35)
<i>Danish People's Party</i>				
<i>Constant</i>	-0.71*** (0.16)	-	-0.69*** (0.23)	-
<i>Valence Issue Criterion</i>	-	-	-0.41 (0.86)	1.81*** (0.65)
<i>Liberals</i>				
<i>Constant</i>	-0.09 (0.14)	-	-0.55*** (0.21)	-
<i>Valence Issue Criterion</i>	-	-	0.80* (0.42)	2.67*** (0.83)
<i>Red-Green Alliance</i>				
<i>Constant</i>	-0.71*** (0.17)	-	-0.58*** (0.22)	-
<i>Valence Issue Criterion</i>	-	-	-1.69* (0.94)	-1.79 (1.93)
Log-likelihood	-1337.45		-1319.14	
LR χ^2	44.56*		58.65	
AIC	2696.90		2692.27	
BIC	2775.42		2885.01	

Note: *: $p < 0.05$. -: Not included in model. N = 1,163. Reference category is the Social Democrats.

Table A4. Leader Decision Criterion and Party Choice. Mixed Logit Coefficients (Standard Errors) and Measures of Fit

	<i>Model I</i>		<i>Model II</i>	
	<i>Mean</i>	<i>Std. Dev.</i>	<i>Mean</i>	<i>Std. Dev.</i>
<i>Ideology Distance</i>	-8.29*** (0.58)	3.13*** (0.66)	-8.97*** (0.73)	3.55*** (0.71)
<i>Leader Sympathy</i>	3.13*** (0.18)	1.50*** (0.35)	2.87*** (0.26)	1.01 (0.68)
<i>Leader Criterion Interaction</i>	-	-	2.63** (1.21)	4.36*** (1.67)
<i>Social Liberals Constant</i>	-1.86*** (0.15)	-	-1.37*** (0.21)	-
<i>Leader Criterion</i>	-	-	-3.89*** (1.47)	2.70 (1.95)
<i>Conservatives Constant</i>	-1.29*** (0.18)	-	-0.84*** (0.27)	-
<i>Leader Criterion</i>	-	-	-2.74** (1.16)	-0.14 (1.55)
<i>Socialist People's Party Constant</i>	-1.01*** (0.13)	-	-0.67*** (0.20)	-
<i>Leader Criterion</i>	-	-	-2.59* (1.48)	-1.90 (2.51)
<i>Liberal Alliance Constant</i>	-0.94*** (0.16)	-	-0.40 (0.25)	-
<i>Leader Criterion</i>	-	-	-3.14*** (1.10)	-0.00 (1.55)
<i>Danish People's Party Constant</i>	-0.91*** (0.16)	-	-0.54** (0.26)	-
<i>Leader Criterion</i>	-	-	-2.32* (1.21)	0.87 (3.18)
Liberals				
<i>Constant</i>	-0.71*** (0.14)	-	-0.45** (0.22)	-
<i>Leader Criterion</i>	-	-	-2.48** (1.11)	5.32*** (1.22)
Red-Green Alliance				
<i>Constant</i>	-1.91*** (0.18)	-	-1.86*** (0.27)	-
<i>Leader Criterion</i>	-	-	-1.67 (1.77)	-3.82* (2.22)
Log-likelihood	-1464.26		-1447.12	
LR χ^2	17.25*		36.40*	
AIC	2950.52		2948.24	
BIC	3032.48		3149.41	

Note: *: $p < 0.05$. -: Not included in model. N = 1,590. Reference category is the Social Democrats.

3) The estimation in Table 2 with control variables.

The results of estimating the models in Table 2 with controls for gender, age, education and household income.

Table A5: Voter Decision Criteria and Party Choice. Mixed Logit Coefficients (Standard Errors) and Measures of Fit

	Ideology Criterion				Position Issue Criterion				Valence Issue Criterion				Leader Criterion			
	Model I		Model II		Model III		Model IV		Model V		Model VI		Model VII		Model VIII	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Ideology	-9.82*	3.86*	-7.83*	1.86	-10.18*	4.86*	-10.74*	5.25*	-10.35*	4.04*	-11.19*	4.35*	-8.24*	3.12*	-9.54*	3.82*
Distance	(0.46)	(0.50)	(0.64)	(1.19)	(0.69)	(0.70)	(0.84)	(0.77)	(0.62)	(0.65)	(0.76)	(0.70)	(0.57)	(0.64)	(0.77)	(0.72)
Position Issues	-	-	-	-	-2.38*	0.06	-2.09*	0.22	-	-	-	-	-	-	-	-
Distance					(0.28)	(1.41)	(0.43)	(1.07)								
Valence Issues	-	-	-	-	-	-	-	-	1.81*	2.29*	1.56*	2.36*	-	-	-	-
Preference									(0.23)	(0.53)	(0.30)	(0.70)				
Leader	-	-	-	-	-	-	-	-	-	-	-	-	3.05*	1.39*	2.84*	1.08
Sympathy													(0.17)	(0.36)	(0.24)	(0.55)
Criterion			-5.57*	6.31*			-0.87	0.10			1.07*	0.33			3.02*	3.98*
Interaction			(1.58)	(1.25)			(0.78)	(1.15)			(0.55)	(2.28)			(1.08)	(1.38)
N		1,590				949				1,163				1,590		
Log-Likelih.	-1910.32		-1896.31		-1062.35		-1051.53		-1280.05		-1263.13		-1408.42		-1389.11	
LR χ^2	23.74*		38.73*		21.87*		27.23*		34.28*		47.43*		16.67*		48.41*	
AIC	3894.64		3898.61		2202.70		2213.06		2638.09		2636.35		2894.84		2888.22	
BIC	4170.33		4293.51		2473.16		2594.48		2916.48		3028.85		3185.43		3298.03	

Note: *: $p < 0.05$. - : Not included in model.

4) Tests for each of the indicators on political sophistication in Table 4

Table A6: Sources of Decision Criteria Use. OLS Regression Coefficients (Standard Errors) and Explained Variance.

	Ideology Criterion	Ideology Criterion	Ideology Criterion	Ideology Criterion	Ideology Criterion
Political sophistication					
Higher Education	0.09* (0.01)				
Political Knowledge		0.15* (0.01)			
Political Interest			0.23* (0.02)		
TV news				-0.00 (0.02)	
Newspaper					0.06* (0.01)
Extreme Voter	0.03* (0.01)	0.03* (0.01)	0.02* (0.01)	0.03* (0.01)	0.03* (0.01)
Party Supporter	0.08* (0.01)	0.07* (0.01)	0.06* (0.01)	0.07* (0.01)	0.07* (0.01)
Control variables					
Female	0.03* (0.01)	0.05* (0.01)	0.05* (0.01)	0.04* (0.01)	0.05* (0.01)
Age	0.08* (0.02)	-0.08* (0.02)	-0.02 (0.02)	-0.01 (0.02)	-0.05* (0.02)
Household Income	0.09* (0.02)	0.07* (0.02)	0.10* (0.02)	0.12* (0.02)	0.10* (0.02)
Constant	0.34* (0.02)	0.37* (0.02)	0.28* (0.02)	0.41* (0.02)	0.40* (0.02)
R^2 (adj.)	0.023	0.026	0.031	0.014	0.017

Note: * $p < 0.05$. N = 1,703.

Table A7: Sources of Decision Criteria Use. OLS Regression Coefficients (Standard Errors) and Explained Variance.

	Position Issue Criterion	Position Issue Criterion	Position Issue Criterion	Position Issue Criterion	Position Issue Criterion
Political sophistication					
Higher Education	0.13* (0.01)				
Political Knowledge		0.20* (0.01)			
Political Interest			0.20* (0.01)		
TV news				0.01 (0.01)	
Newspaper					0.09* (0.01)
Extreme Voter	0.06* (0.01)	0.06* (0.01)	0.05* (0.01)	0.06* (0.01)	0.06* (0.01)
Party Supporter	-0.03* (0.01)	-0.05* (0.01)	-0.05* (0.01)	-0.04* (0.01)	-0.04* (0.01)
Control variables					
Female	-0.01 (0.01)	0.02* (0.01)	0.02* (0.01)	0.01 (0.01)	0.02* (0.01)
Age	-0.29* (0.02)	-0.52* (0.02)	-0.43* (0.02)	-0.43* (0.02)	-0.48* (0.02)
Household Income	0.11* (0.02)	0.10* (0.02)	0.14* (0.02)	0.16* (0.02)	0.14* (0.02)
Constant	0.46* (0.01)	0.50* (0.01)	0.44* (0.02)	0.55* (0.02)	0.53* (0.01)
R^2 (adj.)	0.078	0.080	0.071	0.055	0.061

Note: * $p < 0.05$. N = 1,703.

Table A8: Sources of Decision Criteria Use. OLS Regression Coefficients (Standard Errors) and Explained Variance.

	Valence Issue Criterion	Valence Issue Criterion	Valence Issue Criterion	Valence Issue Criterion	Valence Issue Criterion
Political sophistication					
Higher Education	-0.07*				
	(0.01)				
Political Knowledge		-0.08*			
		(0.01)			
Political Interest			-0.06*		
			(0.01)		
TV news				0.14*	
				(0.01)	
Newspaper					-0.01
					(0.01)
Extreme Voter	-0.04*	-0.04*	-0.03*	-0.04*	-0.04*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Party Supporter	-0.00	0.00	0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Control variables					
Female	-0.01	-0.03*	-0.02*	-0.02*	-0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Age	-0.14*	-0.02	-0.06*	-0.14*	-0.05*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Household Income	0.04*	0.04*	0.01	0.00	0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Constant	0.48*	0.45*	0.46*	0.36*	0.43*
	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)
R^2 (adj.)	0.010	0.008	0.005	0.010	0.004

Note: * $p < 0.05$. N = 1,703.

Table A9: Sources of Decision Criteria Use. OLS Regression Coefficients (Standard Errors) and Explained Variance.

	Leader Criterion	Leader Criterion	Leader Criterion	Leader Criterion	Leader Criterion
Political sophistication					
Higher Education	-0.10 [*] (0.00)				
Political Knowledge		-0.13 [*] (0.01)			
Political Interest			-0.17 [*] (0.01)		
TV news				-0.03 [*] (0.01)	
Newspaper					-0.04 [*] (0.01)
Extreme Voter	-0.02 [*] (0.00)	-0.02 [*] (0.00)	-0.01 [*] (0.00)	-0.02 [*] (0.00)	-0.02 [*] (0.00)
Party Supporter	-0.01 [*] (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Control variables					
Female	0.01 (0.00)	-0.02 [*] (0.00)	-0.01 [*] (0.00)	-0.01 (0.00)	-0.01 [*] (0.00)
Age	0.07 [*] (0.01)	0.23 [*] (0.01)	0.17 [*] (0.01)	0.18 [*] (0.01)	0.19 [*] (0.01)
Household Income	-0.08 [*] (0.01)	-0.07 [*] (0.01)	-0.10 [*] (0.01)	-0.11 [*] (0.01)	-0.10 [*] (0.01)
Constant	0.34 [*] (0.01)	0.30 [*] (0.01)	0.36 [*] (0.01)	0.28 [*] (0.01)	0.28 [*] (0.01)
R^2 (adj.)	0.054	0.053	0.051	0.025	0.028

Note: ^{*} $p < 0.05$. N = 1,703.

Table A10: Sources of Decision Criteria Use. OLS Regression Coefficients (Standard Errors) and Explained Variance.

	Ideology Criterion	Position Issue Criterion	Valence Issue Criterion	Leader Criterion
Political sophistication				
Index ¹	0.29* (0.02)	0.37* (0.02)	-0.10* (0.02)	-0.26* (0.01)
Extreme Voter	0.02* (0.01)	0.05* (0.01)	-0.04* (0.01)	-0.02* (0.00)
Party Supporter	0.07* (0.01)	-0.05* (0.01)	0.00 (0.01)	-0.00 (0.00)
Control variables				
Female	0.05* (0.01)	0.01 (0.01)	-0.02* (0.01)	-0.01 (0.00)
Age	-0.05* (0.02)	-0.48* (0.02)	-0.05* (0.02)	0.20* (0.01)
Household Income	0.06* (0.02)	0.08* (0.02)	0.03 (0.02)	-0.06* (0.01)
Constant	0.28* (0.02)	0.38* (0.02)	0.48* (0.02)	0.39* (0.01)
R^2 (adj.)	0.032	0.090	0.006	0.068

Note: * $p < 0.05$. N = 1,703. ¹The index is formative and sums education, political knowledge, political interest, TV news viewing and Newspaper reading. The index is standardized to run between 0 and 1, where 1 is the highest level of sophistication.

5) Results from an experiment that tests if the inclusion of three rather than one leader based response options on our measure of voter criterion heterogeneity leads to more reporting of the use of this criterion.

An important aspect of our proposed measure of decision criteria heterogeneity is the inclusion of three, out of six, response options focusing on aspects of party leaders. As argued, we do so to legitimize to respondents the use of leaders as a decision criterion in order to overcome a potential bias in the sense that leaders may be seen as a normatively less valid criterion than, e.g., parties' policies or ideologies. However, the inclusion of three leader criteria risks biasing the share of leader responses upwards simply because they make up half of the available response options. Thus, although it is possible, using the other response options or the don't know-option, to avoid leader options when answering the question, their sheer prominence among response options might lead to an over-reporting of them.

In the aggregate, such over-reporting would be less serious to our models since we focus on the influence of variation in the weight given to the different criteria on their influence on the vote. This variation is not likely to be strongly influenced by (low to moderate levels of) over-reporting. However, in our analyses of the sources of decision criteria heterogeneity, we may face a larger problem. Thus, it might be expected that respondents with low levels of sophistication are more likely to be influenced by the inclusion of three leader options than are respondents with high levels of sophistication; in other words, that the tendency to over-report the use of the leader criterion is more pronounced among low than high sophistication respondents. Such a difference would be problematic since we aim to show the effect of sophistication on the use of the criteria and so we risk that the analysis is confounded by the method used, i.e. that any effect we might find of sophistication on the use of the leader criterion is driven by the method rather than genuine

differences.

To investigate the extent of this potential problem, we were able to include a survey experiment in a nationally representative survey with 1,356 respondents. The survey was administered by YouGov in June 2017 through their standing online panel. Respondents were randomly divided into two groups. One group received the decision criterion measure used in the manuscript, i.e. with three leader options. The second group, however, received a version of the measure where the three leader options had been combined into one: “The party leaders’ competence, credibility, or likeability”. The responses to the three questions about the first, second and third most important motivation (asked identically for both groups) were then coded up as in the main analysis where respondents are scored 1, 2/3, 1/3 or 0, respectively, depending on whether they have chosen (one of) the leader-based criterion as their first, second, or third criterion or not at all (if the same criterion was mentioned more than once, the variable reports the highest rank; respondents providing no substantial answer to any of the three questions were removed from the analysis). By comparing the mean values of this measure of the importance of the leader criterion across the two experimental groups we can determine whether the use of three leader options rather than just one increased the proportion of such responses – and in particular whether any such tendency was more widespread among low than high sophistication voters. To investigate the latter point, we break down responses within the two groups by respondents’ level of education (measured as in the main analysis) and knowledge (measured as the number of correct responses to three items about the party attachment of two politicians and the party composition of the governing coalition; as responses clustered in two groups, we coded the variable as low (0 or 1 correct) or high (2 or 3 correct)). These measures were the only sophistication measures available on this supplementary survey. The results are displayed in Table A11.

Table A11. Influence of the number of leader criteria on their use, scale scores.

	Three leader options	One leader option	Difference	Difference of differences
All respondents (n=1,275)	0.38	0.34	0.04*	-
Education				
Low (n=518)	0.41	0.38	0.03	0.02
High (n=757)	0.37	0.32	0.05*	
Knowledge				
Low (n=594)	0.41	0.38	0.03	0.03
High (n=554)	0.34	0.28	0.06*	

Note: * $p < 0.05$. Entries are average scores on the 0-1 leader criterion variable derived from versions of the voting criteria question having, respectively, three or one leader option among the response options. See the text for coding of the variables.

The table shows three interesting things. First, we do see an overall tendency for the three leader options-version to elicit more leader responses than the one leader option-version, i.e. the mean of the leader variable is higher in the former version than the latter. However, even though significant at the .05-level the difference of 0.04 on the 0 to 1 scale, is relatively minor particularly considered that the standard deviation is 0.35 for both versions. Second and consistent with both expectations and results in Table 4 in the main manuscript, for both versions we see that the less sophisticated respondents score higher on the leader criterion variable than do the more sophisticated respondents (except for the difference between high and low education respondents on the three leader options-version, these differences are all significant at the .05-level). Finally and crucially for our confidence in the measure, we see no tendency for low sophistication voters to be more likely than high sophistication voters to indicate a higher weight of leaders in the three- as compared to one leader version, the differences between the differences are insignificant for both education and knowledge (and that with p-values above .45). If anything, results point in the opposite direction in that high sophistication respondents seem to exhibit a slightly higher tendency to weigh leaders higher on the three- than one leader option-version than do low sophistication

respondents. Given the weak and insignificant results, we would not make too much of this tendency, however. On this background, we are reassured in the use of the three leader options-version of the measure in the analyses in the main manuscript. The worries set out above seem empirically unfounded, that is. On the other hand, the results also suggest that it may not be necessary to include three leader options to legitimize this criterion to respondents.

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