A Tool for All People, but Not All Occasions: How Voting Heuristics Interact with Political Knowledge and Environment

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Abstract

Recent research into the relationship between heuristic use and political sophistication suggests that these variables interact in helping a voter make a good choice at the ballot box. Such findings—which we believe result from poor measurement of heuristic use—contradict the theoretical underpinnings of heuristics, heuristics being simple diagnostic shortcuts used to equal effect by voters of varying political knowledge and sophistication. Using a new survey measure of heuristic use, we present evidence from four presidential elections that a voter's level of political knowledge does not enhance or diminish the usefulness of specific voting heuristics. Rather, an important determinant of heuristic effectiveness is the electoral context in which it is used. We show that changes in the ideological proximity of presidential candidates influences the helpfulness of some voting heuristics and not others. Overall, our results indicate that, while a voter cannot hope to wield a given heuristic better than her fellow voters, the particular heuristics a voter employs will greatly influence her chances of making a correct vote.

1 Introduction

Heuristics have been shown time and again to serve as fundamental tools in political decision-making, most notably the vote. The past decade of research into heuristics has helped flesh out how these tools are used and how they relate to other individual-level variables. Such is the case with voting heuristics and political knowledge, itself an important determinant of political behavior. The relationship between voting heuristics and political knowledge is currently murky, with some scholars presenting theoretically untenable findings such as an interactive relationship

between the two in producing a correct vote. In this paper, we aim to refine our understanding of that relationship, first by returning to the psychological theory that underpins all voting heuristics, then by empirically testing the interaction between heuristic use and knowledge in producing a correct vote across four presidential elections.

As originally conceived, heuristics are simple mental shortcuts meant to decrease the amount of information required by an individual to make an acceptable decision (Simon 1990; Gigerenzer, Todd and Group 1999). If heuristics act as the straightforward diagnostic tools they are posited to be, we should not expect some users to employ them more fruitfully than others. It seems odd to us, then, when researchers find that individuals exhibiting greater knowledge or sophistication are able to use a given voting heuristic more effectively than their less capable peers (Lau and Redlawsk 2006; Lau, Andersen and Redlawsk 2008). Other researchers, however, are unable to identify any interaction between heuristic effectiveness and knowledge in driving political behavior (Goren 2013), which seems to us a more theoretically defensible finding.

None of this is to say that political knowledge does not have some meaningful relationship with voting heuristics. To appreciate that relationship, we have to introduce a third fundamental concept: the electoral environment. There exists a multitude of voting heuristics, each being more or less suited to a given context. Astute political observers may be better able to choose an appropriate heuristic for the election environment before them. Once they have committed to that heuristic, however, their superior political knowledge will not aid them in its execution. So we must be careful to specify the voting heuristics of interest and the relevant aspects of the environment in which they are being studied.

We confine our empirical examination to two heuristics—one based on partisanship and one based on candidate image. We also present a novel means of measuring heuristic availability and use by using large-N surveys from four presidential elections, hopefully overcoming the measurement error that we believe plagues past research. Our findings are twofold. First, increased political knowledge or sophistication does not enable more artful use of our two voting heuristics. Second, heuristic effectiveness is highly dependent on the electoral environment—specifically, partisan heuristics are more likely to produce a correct vote as candidate ideologies are more disparate. To conclude, we discuss research questions that arise from our results and posit a new role for political knowledge and sophistication to play in our understanding of voting heuristics.

2 Theory

Public opinion researchers have for over fifty years found the mass American public to be uninformed about and uninterested in politics (e.g., Converse 1964; Delli Carpini and Keeter 1997). Early commentary on the matter was filled with dire predictions about the continued functioning of our republic. Such an inattentive citizenry could not be relied upon to make sound choices at the ballot box, and state officials—should they want to incorporate public sentiment into the crafting of their laws and policies—ought not hope for any kind of sensible, cogent signal from their constituents. Yet somehow, members of this generally uninformed electorate managed to conduct themselves in a manner that often appeared rational. In search of an explanation for this curious observation, political science scholars turned to theories of heuristic decision-making (Simon 1990).

Heuristics are a broad category of decision making strategies that allow individuals to conduct a limited search for information in the course of making some final ruling (Lupia 1992; Kuklinski and Quirk 2000; Shah and Oppenheimer 2008). Individual heuristics vary widely in their levels of complexity and are meant to aid in the execution of diverse tasks. Common to all, however, is an effort-saving feature: Heuristics enable individuals to leverage less (sometimes far less) information than might otherwise seem required to arrive at a sound decision. They are simple, diagnostic tools utilized almost unconsciously by individuals (Gigerenzer, Todd and Group 1999). Their use in political decision making, particularly in the realms of public opinion and voting, has been well documented (Sniderman, Brody and Tetlock 1991; Lupia 1994; Popkin 1994). Debate continues, however, over who, exactly, can use and benefit from political heuristics.

Much evidence shows that specific heuristics do have an ability to improve political decision making capabilities in the general population (Lupia 1994; Boudreau 2009). If heuristics work as originally predicted, they should allow the least politically knowledgeable to behave similarly to the most politically knowledgeable. Yet when comparing the two populations scholars find significant differences in their behavior, calling into question the ability of heuristics to compensate for a lack of hard information (Bartels 1996; Althaus 1998; Luskin 2000). Out of these findings arose the speculation that whether citizens can employ efficient and effective heuristics depends on their individual political sophistication (Sniderman 2000). Lau and Redlawsk notably go further, providing evidence that political sophistication interacts with heuristic use, indicating that the

politically sophisticated use decision shortcuts to greater effect than their relatively unsophisticated compatriots (Lau and Redlawsk 2006; Lau, Andersen and Redlawsk 2008).

We argue that the idea of a moderating relationship between political knowledge and heuristic effectiveness runs counter to the theoretical underpinnings of heuristics. At best, political sophistication is an important determinant of the specific heuristic individuals bring to bear on a particular decision. Some heuristics require a greater knowledge of politics or different sorts of information in order to be used. Indeed, we are able to replicate such findings with the dataset we use in this paper.[1] But possessing more or less political knowledge does not allow the heuristic user to wield their heuristic of choice with more or less skill.

The concept of decision heuristics is grounded in the low costs and efficiency of their use. They are strategies that are easily understood and executed, sometimes unconsciously, by individuals (Gigerenzer, Todd and Group 1999; Gigerenzer and Gaissmaier 2011). The simplicity of many voting heuristics endorses this position. For instance, an individual using partisanship as a decision rule simply has to identify their partisan loyalty and the partisan identifications of the candidates; a straightforward affair given the regularity with which such labels are placed on ballots. This decision rule cannot be used more or less artfully according to how politically sophisticated an individual is.

We hypothesize that in predicting whether an individual makes a good political choice, there should be no interactive relationship between political knowledge or sophistication and the use of voting heuristics. The few studies showing a moderating role for sophistication, we contend, suffer from poor measurement of heuristic use.[2] To apply a heuristic, users essentially plug a set modicum of information into a rudimentary formula. That knowledge is supremely simple, as is appropriate for heuristics by definition. Do you share a party affiliation with one of the candidates? If yes, the partisan heuristic would have you vote for that candidate. Do you have a more favorable disposition toward one of the candidates? If yes, the candidate image heuristic would have you vote for that candidate. A minimum amount of knowledge is required to

[1] We modeled how political sophistication affects the use of two different decision heuristics: a partisan heuristic and a candidate image heuristic. The more politically sophisticated were more likely to use a partisan heuristic, which requires knowledge of party platforms and relative positions. The less sophisticated were more likely to use a candidate image heuristic, which relies simply on candidate appearance and personality to make a vote choice. Regression results available on request.

[2] We explore this measurement error in the following section, when we present our own measure of likely heuristic use.

apply a given heuristic, but knowledge beyond that threshold offers no additional advantage in the heuristic's application.

In contrast, the environment in which a heuristic is used can powerfully influence its efficacy. Experimental research has shown that under certain environmental conditions (e.g. candidates behaving non-stereotypically or an outside source confirming information from an endorser) the efficacy of heuristics can change (Lau and Redlawsk 2001; Boudreau 2009). This idea is also studied in psychology, where scholars have considered the ecological rationality of heuristics (Todd, Gigerenzer and ABC Research Group 2011). The idea is that heuristics are not equally useful in all contexts, and the effectiveness of any particular heuristic will depend on the context in which it is employed. Consider elections in which candidates' partisan affiliations do not correlate strongly with their policy preferences. The aforementioned partisan heuristic has an increased chance of leading users astray in casting their ballots than if they had abandoned the heuristic and sought out more information about the candidates. **This leads to our second hypothesis, that in predicting whether an individual makes a sound political choice, there will be an interactive relationship between electoral context and the use of voting heuristics.**

3 Concepts and Measures

Before turning to our analyses, we must introduce a few key concepts and our metrics for them. Of all the many possible voting heuristics, we consider two: a partisan and a candidate image heuristic. So that we may have some common measure of the effectiveness of these heuristics, we review the idea of the "correct vote", which will serve as the dependent variable in our regressions. Our first hypothesis, concerning the ability of different voting populations to use a given heuristic more or less effectively, relies heavily on the notions of political sophistication and political knowledge. Our second hypothesis, concerning the sensitivity of heuristics to their context, demands that we examine an environmental factor present to varying degrees across elections; in this case we have chosen the ideological distance between candidates. All of our measures use survey data from the American National Elections Study (ANES 2010) from the 1996, 2000, 2004 and 2008 presidential elections.

3.1 Partisan heuristic

Partisan heuristics are where individuals base their vote on party affiliation (Kuklinski and Hurley 1994; Nicholson 2005; Arceneaux 2007). The hope is that a voter can rely on twin bits of information—the voter's party and the candidates' parties—as a substitute for a broader knowledge of the actual policy positions of the candidates. Forming a partisan attachment may not be so modest an undertaking, but once a voter can identify herself as, say, a Democrat, executing the partisan heuristic is a straightforward affair. Vote for the Democrat. Embedded within that label is a tremendous amount of information not explicitly sought by the heuristic user. For example, our Democratic voter and her Democratic candidate may not share policy positions on abortion and several other issues. Restricting her information search to partisan labels and not actual policy positions increases the probability that our voter makes an "incorrect" decision, but not necessarily enough to justify spending more time researching the candidates.

3.2 Candidate image heuristic

Candidate image heuristics are where voters rely on candidate appearance and personality in determining whom to support (Pierce 1993; Lodge and Taber 2005; Hayes 2008). The candidate image heuristic does not require any kind of political knowledge. Rather, it is an intuitive, affective estimation of how favorably a voter feels toward one candidate compared to the other. The candidate image heuristic is not a policy based evaluation, but relies on perceptions of candidate intelligence, attractiveness, and relatability. A voter employing a candidate image heuristic will cast her ballot for the candidate toward whom she has the most positive feelings. Some voters like a president who is trustworthy, others want a president who is intelligent, and any other constellation of qualities that voters find endearing. The candidate image heuristic may lead voters astray when candidates are able to win-over voters by creating a false image of themselves, one that ascribes to them qualities or personalities they do not actually possess.

3.3 Heuristic availability and use

Measuring heuristic use is a complicated prospect. Many studies of heuristics rely on experimental data to ensure that the measurement of this crucial variable can be isolated, but often at the expense

of external validity. There has been some effort to utilize survey data to measure heuristic use with what we believe is mixed success (Lau, Andersen and Redlawsk 2008; Baldassarri and Schadee 2005). This work has focused on two different ideas: a heuristic's availability and its use. Heuristic availability refers to how readily accessible the particular heuristic is to a voter. For example, individuals that are strong partisans will have the partisan heuristic more readily available than those who are not. Having a heuristic readily available does not mean it is put to use. Researchers look at actual decision outputs in an attempt to sort voters into two camps: those who apparently used the heuristic under study and those who apparently did not. Continuing our illustration with the partisan heuristic, citizens who voted for the candidate of their party are classified as partisan heuristic users. Citizens who did not vote for the candidate of their party are categorized as having not used a partisan heuristic.

Both of these measures are problematic. Heuristic use measures are prone to error because they are not sufficiently discriminating in their categorization. Anyone who makes a decision ostensibly in accordance with a specific heuristic rule is considered to have used that heuristic. But as we mentioned, not all individuals who behave in a manner consistent with a heuristic have necessarily used that heuristic, and scholars using this measure do not distinguish between voters who are more or less likely to have used the heuristic. Measures of heuristic availability have the reverse problem. While these measures do provide an indication of which voters are more likely to use a heuristic, they do not check to see whether an individual behaved in a manner consistent with the heuristic rule.

The problems facing these separate measures can largely be overcome by combining them into a measure of *likely* heuristic use. We first construct a base score; a dichotomous variable indicating whether or not a voter's behavior is consistent with the heuristic rule. To this base we apply a weight measuring how available the partisan and candidate image heuristics are to a voter. Voters whose behavior is consistent with the heuristic rule but for whom that heuristic is not readily available receive a lower "likely use" score than voters whose behavior is consistent with heuristic use and for whom that heuristic is readily available. Similarly, a voter with all the information necessary for a given heuristic will nonetheless be assigned a zero probability of heuristic use if their behavior runs contrary to the heuristic rule.

Applied to the partisan heuristic, a voter's behavior is considered consistent with the heuristic

rule if she cast her ballot for the presidential candidate of her party. Voters who so voted receive a base score of one and voters who did not receive a base score of zero. To weight this base score, we used partisan strength as a proxy for partisan heuristic availability. There are four possible scores for partisan heuristic availability, each corresponding to the standard seven-point scale of partisan strength, folded about the midpoint. Pure independents, having no party affiliation, lack a crucial component of the partisan heuristic and so receive an availability score of zero. Strong partisans, conversely, receive a score of one, with less stalwart party members receiving lower availability weights. Combining the base score and the weight produces a "likely partisan heuristic use score". Voters receiving the highest possible likely heuristic use score, then, are strong partisans who voted for their party's presidential candidate. Lowest likely heuristic use scores went to political independents and anybody who voted for a candidate not of their professed party.

Applied to the candidate image heuristic, we create a summary scale of individual perceptions of the personal traits of the presidential candidates. This includes voter perceptions of candidates' morality, leadership skills, relatability, political knowledge, intelligence, and honesty. From this summary scale we generate an individual's mean perception of each candidate and then take the difference between perceptions of the two candidates. The final value represents not just a voter's overall perception of the individual candidates, but how strongly a voter feels about one candidate compared to another. When voters have roughly similar feelings about the personalities of the two candidates, the difference will be small and the image heuristic is least available, as neither candidate is perceived as significantly more attractive. When one candidate is evaluated as much better than her opponent, the difference between candidate perception is large and the candidate image heuristic is much more readily available to be used. This availability measure acts as a weight for our measure of heuristic use, such that all voters who did not vote for the candidate toward whom they were personally disposed are ranked at the bottom of the "likely candidate image heuristic use" score.

3.4 Correct vote

Heuristics are only valuable if they provide users an increased chance of making a sound decision at a decreased cost. Voting heuristics are meant to enable citizens to vote as if they had conducted more extensive information searches than they actually did. Measuring the effectiveness of a voting

heuristic, therefore, would have us compare the decision reached by a heuristic user with the decision that voter would have made had they gathered full information on the candidates. Although there is no standard for what a competent citizen decision looks like, several scholars have given advice on how to best measure citizen competence by 1) defining the task at hand, 2) determining the criterion to be evaluated, 3) finding an indicator of that criterion, and then 4) measuring individuals on levels of the criterion (Kuklinski and Quirk 2001).

When it comes to the task of voting, a criterion commonly used is whether voters selected candidates that best matched their policy preferences (e.g., Bartels 2005). Lau and Redlawsk have developed a more comprehensive measure called correct voting (Lau and Redlawsk 1997; Lau, Andersen and Redlawsk 2008). Their measure incorporates not only policy closeness, but also the personalities of the candidates, their partisanship, and their affiliations with different social groups such as unions and the NAACP. This data is freely available and easily merged with the ANES election data. We build the correct vote variable as a binary indicator of whether a voter chose the major party candidate that best matched their own opinions and affiliations according to Lau and Redlawsks data. There are numerous goals a citizen may have when casting a ballot, and although we cannot account for them all, this binary measure of a correct vote at least gives us a standard metric from which to begin our investigation.

3.5 Political knowledge and sophistication

Our first hypothesis holds that, contrary to previous findings, there should be no interactive relationship between a voter's political knowledge and her use of voting heuristics in producing a correct vote. Political knowledge is the holding of accurate political information. The more knowledgeable a person is about politics, the more political facts she has at her disposal (Popkin and Dimock 1999; Delli Carpini and Keeter 1993). Accordingly, we measure political knowledge with an index of the number of correct answers voters offered to the six factual questions appearing in every ANES survey, such as what office an individual holds or which parties control the different houses of Congress. Knowledge, however, presumes nothing about a person's ability to draw connections between whatever political facts she holds. Political sophistication, on the other hand, may be thought of as knowledge in use. It is the ability to take accurate political information and make larger connections with other bits of knowledge (Luskin 1987, 1990). Knowledge is not

automatically linked with other knowledge, so accumulating knowledge does not guarantee political sophistication.[3]

Our theory applies to both political knowledge and sophistication. Possessing more or less knowledge and being more or less adept at drawing insights from it: neither is expected to influence an individual's effective use of voting heuristics. For a number of reasons, however, our six-question battery more closely resembles traditional measures of political knowledge, although it is close to many measures of political sophistication. Indeed, despite being two distinct theoretical concepts, a great many researchers conclude that "factual knowledge is the best single indicator of sophistication and its related concepts [...]" (Delli Carpini and Keeter 1993, 1180).[4] And the dominant measures of political sophistication have been with answers to the same factual questions we use.[5]

3.6 Environmental factor: ideological distance

Given our theory that the effectiveness of voting heuristics is tied to the specific context in which they are used, we need to identify an environmental factor that varies across elections, can be calculated from available data, and produces testable hypotheses pertaining to the effectiveness of partisan and candidate heuristic use. The environmental factor we consider in this paper is the ideological distance between the two major-party presidential candidates. We measure ideological distance by looking, one election at a time, at the average ideological placement of the two major party candidates according to ANES respondents who scored in the top half of the knowledge scale. We then take the difference between these average placements for each election.

When presidential candidates moderate from their parties' more extreme ideological positions and become ideologically close to one another, a partisan heuristic begins to lose its power. Rather

[3]It is possible, under these common definitions, for someone to be highly adept at formulating connections between political information and nevertheless be counted as political unsophisticated if the information being related is not factual (i.e., does not qualify as "knowledge").

[4]For examples of researchers who make this conclusion, see: Luskin (1987); Lodge, McGraw and Stroh (1989); Fiske, Lau and Smith (1990); Price and Zaller (1990); Zaller (1990, 1992).

[5]It is important to address a growing body of research that has rightly complicated discussions of political sophistication by suggesting that measures relying on factual questions obfuscate true knowledge levels (Lupia and Boudreau 2011). In an attempt to accommodate such views, we initially included a separate measure of political sophistication; one that required higher-order thinking on the part of respondents. Following Luskin (1987), our sophistication measure assessed respondents' ability to demonstrate a consistent understanding of complex ideological concepts and public policy positions. Survey responses that went into this measure, however, were already incorporated elsewhere in our analysis as either independent variables or large components of the correct vote dependent variable. To allow for a methodologically sound analysis, we were forced to limit ourselves to our original measure of political knowledge. Fortunately, this measure is used by several other studies (e.g., Lau, Andersen and Redlawsk 2008) ensuring that our results easily comparable to them.

than taking the typically liberal or conservative positions their party label would indicate, moderate candidates would end up farther from the consistently partisan voter. Conversely, when candidates are far apart on the left-right dimension, their partisan labels become increasingly expedient indications of the candidates' relative policy positions, making this heuristic a very useful tool. A candidate image heuristic, however, should offer no added benefit given the nature of our correct vote measure. The ideological distance between candidates would not change the basic connection between candidate images and their policy positions.

4 Analysis and results

4.1 Does voter knowledge influence heuristic effectiveness?

To answer this question we estimate logit models of correct voting using ANES voting data pooled from the 1996, 2000, 2004, and 2008 presidential elections.[6] Regression results for four models are shown in Table 1. Every model includes three control variables, each an individual characteristic that has been shown to be relevant in determining correct vote (Lau and Redlawsk 1997). The difference between models 1 and 2 and between models 3 and 4 is the absence or inclusion of several additional demographic control variables that we suspected might influence our results.[7] Moreover, models 3 and 4 include two interaction terms not present in models 1 and 2. The first measures the interaction between political knowledge and the likely use of a partisan heuristic on a voter's ability to make a correct vote. The second measures the interaction between political knowledge and the likely use of the candidate image heuristic on a voter's ability to make a correct vote.

Models 1 and 2, each absent the aforementioned interaction terms, will allow us to determine whether using the partisan and/or candidate image heuristics aid voters in making a correct vote. Given the large, positive, and statistically significant coefficients for both heuristic variables in these models, models 1 and 2 indicate that using heuristics substantively increases a voter's ability to make a correct vote. Even when including relevant demographic controls, our models confirm that partisan and candidate image heuristics help individuals make sound electoral decisions.

[6] In our analysis we use the 2008 as our base election year, which is why it is not shown in the table.

[7] In the end, none of the control variables exert much power in any of the models. The only statistically significant coefficient is for the education variable, suggesting—quite reasonably—that holding all else constant the more educated a voter, the higher her likelihood of casting a correct vote.

Table 1: Influence of knowledge on partisan and candidate image heuristic effectiveness

Logistic Regression on Correct Vote

Variable	Model 1	Model 2	Model 3	Model 4
knowledge	0.3834	0.1021	0.6384	0.2029
	[0.6309]	[0.6369]	[1.0743]	[1.0638]
partisan heuristic	1.8189***	1.7444***	2.1934***	1.9628***
	[0.1804]	[0.1766]	[0.5014]	[0.4880]
(party_heur)(knowledge)			–0.7583	–0.4370
			[0.8232]	[0.8196]
image heuristic	1.4085***	1.3596***	0.9537	1.0231
	[0.3009]	[0.3098]	[0.7129]	[0.7704]
(image_heur)(knowledge)			0.9886	0.7053
			[1.5655]	[1.6190]
education	0.2696***	0.2931***	0.2721***	0.2954***
	[0.0946]	[0.1017]	[0.0949]	[0.1017]
cares about election	0.4073	0.3998	0.4298	0.4138
	[0.3160]	[0.3395]	[0.3164]	[0.3419]
interest in election	0.5858	0.6333	0.5781	0.6307
	[0.4726]	[0.5018]	[0.4728]	[0.5046]
age		–0.0007		–.0003
		[0.0079]		[0.0079]
income		–0.0023		–0.0029
		[0.0242]		[0.0242]
nonwhite		0.1144		0.0982
		[0.2991]		[0.3071]
male		0.356		0.0247
		[0.2805]		[0.2831]
1996	–0.3812	–0.4399	–0.3484	–0.4194
	[0.2580]	[0.2722]	[0.2532]	[0.2682]
2000	–0.4427**	–0.5198*	–0.4610**	–0.5330*
	[0.2039]	[0.3047]	[0.2057]	[0.3025]
2004	–0.1988	–0.2507	–0.2016	–0.2431
	[0.2358]	[0.2333]	[0.2360]	[0.2338]
constant	-4.3515***	–4.1771***	–4.5161***	–4.2590***
	[0.6734]	[0.7160]	[0.7919]	[0.8582]
n	3332	3055	3332	3055
pseudo R^2	0.5704	0.5535	0.5727	0.5545

* p <0.10; ** p <0.05; *** p <0.01

Robust standard errors are given in parentheses below the coefficient

At the heart of our paper, however, is the question of whether all voters benefit equally from heuristic use. For that, we turn to models 3 and 4, which show whether the effectiveness of voting heuristics is mediated by political knowledge. Neither interaction term in either model passes statistical muster. Indeed, no interaction coefficient comes anywhere close to statistical significance, regardless of what controls are included. Knowledge does not mediate heuristic use.

To aid interpretation of the relevant logistic regression coefficients we follow the advice offered by Brambor, Clark and Golder (2006), who suggest using marginal effects plots to more clearly show interactive relationships. Figures 1 and 2 are such plots, based on model 3 from Table 1.[8] The vertical axes denote the change in the probability of a correct vote resulting from a voter going from not using the specified heuristic to using that heuristic. We are able to see how this marginal change in probability alters as we move along the spectrum of political knowledge, across the horizontal axes. All other variables are held at our sample's mean values. If increased political knowledge were to benefit a voter in using a heuristic to produce a correct vote, the line in the graphs will have a positive slope. What we actually see, however, is a flat line in both figures.

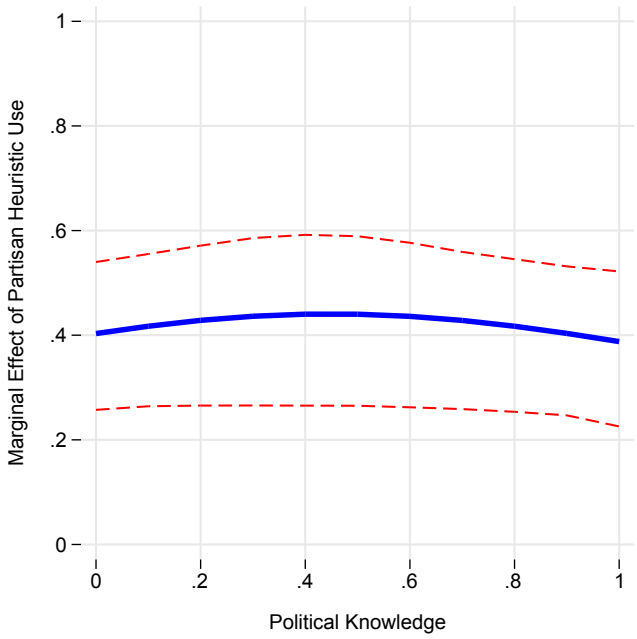

Figure 1: Marginal effect of partisan heuristic use on correct vote as knowledge changes

[8]The p-value for the term interacting political knowledge and likely partisan heuristic use is 0.357 for model 3 and 0.594 for model 4. The p-value for the term interacting political knowledge and likely candidate image heuristic use is 0.528 for model 3 and 0.663 for model 4.

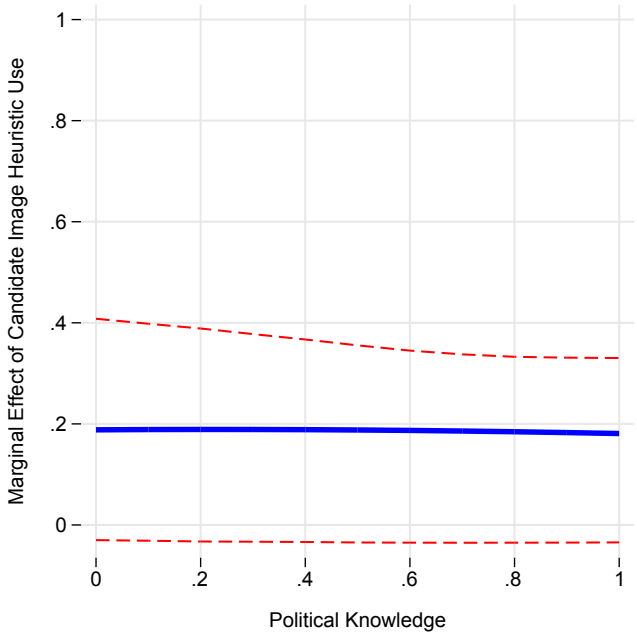

Figure 2: Marginal effect of candidate image heuristic use on correct vote as knowledge changes

In Figure 1 we see that a voter in every way average but with the lowest level of political knowledge increases her probability of making a correct vote by 40% using the partisan heuristic. Similarly, a voter in every way average but with the highest level of political knowledge also increases her probability of making a correct vote by about 40% using the partisan heuristic. And so it goes for intermediate levels of political knowledge. Improving political knowledge offers no marginal benefit to partisan heuristic use. If anything, voters of middling political knowledge are the most effective users of the partisan heuristic, as indicated by the meager bowing of the line in the middle. Overall, however, it appears that the effectiveness of a partisan heuristic does not change with a voter's political knowledge.

Figure 2 shows essentially the same finding for the candidate image heuristic. Again we see that across the spectrum of political knowledge, the marginal change in the probability of an average voter making a correct vote using an image heuristic stays flat, right around 20%. The effectiveness of a candidate image heuristic does not change with a voter's political knowledge. It is worth noting that the candidate image heuristic is much less useful in producing a correct vote than partisan heuristic. This makes sense, given that the personal characteristics of candidates are not as closely

related to their policy positions as their partisanship is.

These graphs exhibit no interactive relationship between political knowledge and heuristic use. We have evidence for our view of heuristics as simple diagnostic tools that, once implemented, are of uniform value for the spectrum of voters. Because a voter cannot use a given heuristic to greater or lesser effect, the trick seems to be selecting the best heuristic. Not all heuristics are made equal. The partisan heuristic appears generally more helpful than the candidate image heuristic across individuals. Next, we investigate whether a given heuristic's worth changes with the environment in which it is exercised.

4.2 Does electoral environment influence heuristic effectiveness?

To answer this question we again estimate correct voting in four presidential elections, adding to our models a measure of the ideological distinctiveness of presidential candidates. We hypothesize that as candidates grow farther apart ideologically, the partisan heuristic will become increasingly helpful in directing citizens toward a correct vote. The candidate image heuristic, however, is not overtly influenced by candidate ideology and is not expected to be sensitive to changes in candidate distinctiveness.[9] To test our hypotheses, we interact our measure of candidate distance with our measures of likely partisan heuristic use and likely image heuristic use. We do not include controls for each year as elections are perfectly correlated with the ideological distinctiveness variable. Table 2 shows the results of our modeling efforts.

Model 1 is a simple model containing only the variables of interest, and each subsequent model introduces sets of controls described in the previous section. As before, partisan and candidate image heuristics have a statistically and substantively positive effect on making a correct vote across all models. More importantly, our hypotheses are confirmed. The term interacting candidate distinctiveness and likely partisan heuristic use is statistically significant and of a sizeable magnitude regardless of our controls. The interaction variable relating candidate distinctiveness and likely image heuristic use, conversely, is statistically indistinguishable from zero at traditional levels of significance. This particular environmental factor—ideological distance between candidates—has a

[9]It is possible that ideology influences a voter's assessment of a candidate's personality, character, and the like. For example, conservatives may subconsciously identify fellow conservatives as, say, more trustworthy in part because of their shared ideology. As such, candidate ideological distance may have some limited influence on the effectiveness of the candidate image heuristic.

Table 2: Influence of presidential candidates' ideological distance on partisan and candidate image heuristic effectiveness

Logistic Regression on Correct Vote

Variable	Model 1	Model 2	Model 3
ideological distance	3.9529***	2.8906**	2.2899
	[1.5222]	[1.7538]	[1.8718]
partisan heuristic	2.3802***	2.2855***	2.2900***
	[0.4837]	[0.4280]	[0.4296]
(party_heur)(ideo_dist)	-2.6801**	-2.5828***	-2.5960***
	[1.0961]	[0.9796]	[1.0010]
image heuristic	2.6974**	2.4113***	2.3424*
	[1.2054]	[1.1517]	[1.2133]
(image_heur)(ideo_dist)	3.2497	-2.9003	-2.6077
	[2.5180]	[2.3821]	[2.5259]
knowledge		0.7092	0.1684
		[2.0801]	[1.9192]
education		0.2082	0.2637*
		[0.1353]	[0.1536]
cares about election		0.5307	0.8647
		[0.4784]	[0.5280]
interest in election		0.8776	-2.6077
		[0.7117]	[0.8067]
age			0.0223
			[0.0138]
income			–0.0133
			[0.0376]
nonwhite			-0.2023
			[0.4828]
male			-0.1414
			[0.4408]
constant	-3.4843***	-5.2585***	-5.4739**
	[0.6734]	[1.9913]	[2.1627]
n	1660	1647	1502
pseudo R^2	0.5809	0.6010	0.5939

* p <0.10; ** p <0.05; *** p <0.01
Robust standard errors are given in parentheses below the coefficient

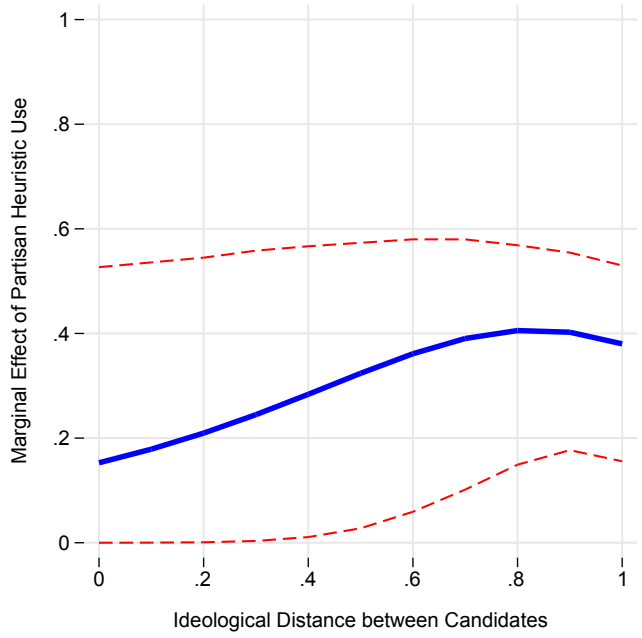

Figure 3: Marginal effect of partisan heuristic use on correct vote as ideological distance between candidates changes

sizeable effect on the usefulness of the partisan heuristic and no determinable effect on the usefulness of the candidate image heuristic.

Again to ease interpretation of these relationships, we graph the marginal change in the probability of voting correctly for heuristic users, across the spectrum of ideological distance.[10] Figure 3 illustrates this relationship for the partisan heuristic. It shows that when there is very little distance separating candidate ideologies, using a partisan heuristic has a much reduced marginal effect of only 20%. When candidates become quite ideologically distinct, though, this heuristic becomes much more valuable. The change in the probability of voting correctly in these situations increases to 40%. The influence of electoral context on the worth of the partisan heuristic is further evidenced by the tightening of the confidence interval as candidates become more distinct.

Figure 4 shows the marginal change in the probability of voting correctly for candidate image heuristic users across the different levels of candidate ideological distinctiveness. The very wide confidence intervals show the very low accuracy of the estimate. There is a substantive change

[10]We base Figures 3 and 4 on model 2 from Table 2, that model being parsimonious while still including control variables previously shown to influence a voter's ability to case a correct vote.

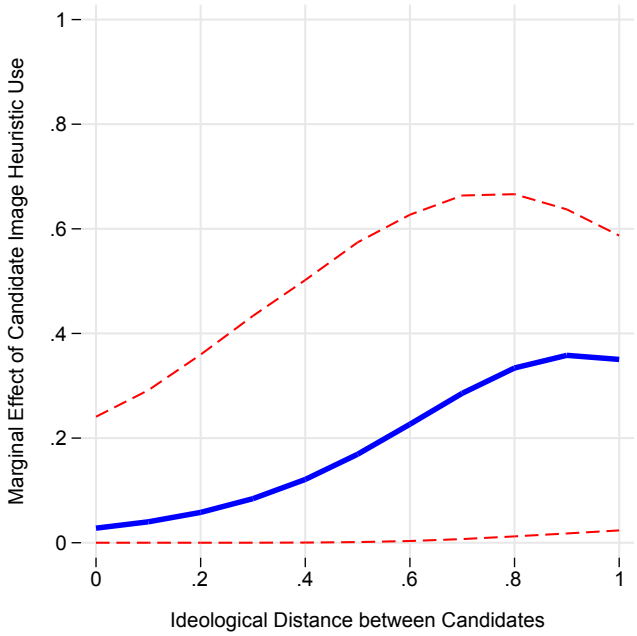

Figure 4: Marginal effect of candidate image heuristic use on correct vote as ideological distance between candidates changes

in the usefulness of this heuristic as candidates become more ideologically distinct, but we again wonder at the worth of this estimate given its still quite wide confidence intervals, even at the far end of the graph. There is little theoretical reason to think that a candidate image heuristic, which is based on candidate perceptions, would be mediated by the perceived ideological distinctiveness of the major candidates. The partisan heuristic, in contrast, is intimately tied to candidate ideologies. Given the distant theoretical ties between candidate ideology and the candidate image heuristic, and given the lack of statistical significance, we are reluctant to credit the substantive change seen in Figure 4 to any true moderating relationship.

5 Discussion and Conclusions

Heuristics, although ubiquitous, cannot be treated as a monolithic strategy. With this fact in mind, we presented a new measure of likely heuristic use, one that can be tailored to the specific heuristic under investigation, and one that enjoys the external validity common to large-N surveys. Our measure simultaneously checks whether a voter acted in accordance with a specific heuristic's

rules and it tempers that assessment by ascertaining just how accessible the information needed for that heuristic is for each voter. Previous metrics were limited to one or the other, limiting the usefulness of survey-based research into voting heuristics and producing results that we argue go against the theory underpinning heuristics. With our new measure of likely heuristic use, we were able to reassess the influence of two key variables—voter knowledge and election environment—on heuristic effectiveness. In so doing, we hoped to reground the empirical literature on voting heuristics in broader heuristic theory.

First, we showed that better informed voters are not able to use partisan or image voting heuristics more artfully than the politically ignorant. The benefit of these heuristics is more or less constant for voters regardless of where they fall in the spectrum of political knowledge. So long as the minimal information necessitated by the heuristic is available to the voter, her execution of it will produce a decision on par with that arrived at by more and less knowledgeable citizens using the same heuristic. We doubt very much that our findings would be different had we examined other voting heuristics, given the simple algorithmic nature of this class of decision strategies.

Because heuristics are so straightforward in their execution and rely on such a paucity of information, we further hypothesized that a given heuristic's effectiveness will be heavily tied to the electoral context in which it is applied. And our analyses show just that. The partisan heuristic becomes increasingly valuable as presidential candidates grow ideologically distant from one another. Not so for the candidate image heuristic, the effectiveness of which is theoretically and—by our measure—empirically unaffected by the degree of ideological distance between the candidates. Once a voter commits to using a heuristic, its effectiveness is largely determined by the vagaries of the electoral arena.

Taking the two findings together, however, allows political knowledge and sophistication to play a more nuanced and interesting role in voting heuristics. Although of no help in executing a voting heuristic, excess knowledge (i.e., knowledge beyond that needed for the heuristic algorithm) may help voters in determining when to implement a certain heuristic and when to rely on some other decision mechanism.

Consider the following well-known finding, to which we alluded in an early footnote: The more politically sophisticated a voter, the more likely she is to employ a partisan heuristic; and the less sophisticated a voter, the more likely she is to use a candidate image heuristic (**?**)Lau2006). We were

able to replicate this finding with our data set, using both our political knowledge and our political sophistication measures.[11] There are undoubtedly systematic reasons why different sets of voters tend toward different voting heuristics, but the question stemming from the findings in this paper seems to us: Are some voters able to adapt to the decision environment? Are more knowledgeable or sophisticated voters better able to tailor their decision strategies to the electoral environment than their less astute compatriots? Even if political sophisticates default to a generally more effective heuristic than do low sophisticates, our results indicate that they will be using that heuristic to no greater effect than low sophisticates. A real gain for the more knowledgeable or sophisticated voters would be determining when a specific heuristic should be adopted or avoided given the electoral environment. Research by Arceneaux (2007) into the use of partisan cues indicates this is indeed a possibility, with certain voters abandoning a partisan heuristic in situations where it is not useful.

In addition to better understanding the role of individual characteristics and voting heuristic use, we hope this paper provides some groundwork for scholars keen to study the influence of political context on voting and heuristic decision making. A ready extension of our work would be to expand the types of elections under scrutiny—national versus state, presidential versus congressional, single-member versus multi-member, and so forth. Given our evidence, we think it likely that these different environments would alter the effectiveness of different heuristics. Understanding these differences would be an important step in building better theories of decision making strategies, helping explain why some scholars find heuristics to be effective and others find them to be harmful.

[11] Regression results available upon request. To see how we measured political sophistication, refer to footnote 6.

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