

Toward a Procedurally Plausible Model of the Vote Choice: Decision Strategies, Information Processing, and Correct Voting*

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Abstract

Most extant voting models are based on the untested assumption that voters engage in cognitively complex processes as they receive information about candidates during an election campaign. Whether it be by the many variants of rational choice theory or updated versions of *The American Voter*, people are generally assumed to be largely passive recipients of campaign information which they subsequently process by making complicated tradeoffs between good and bad attributes of the competing candidates or parties. No complete model of the vote decision has been proposed that addresses both the information search activities and the cognitive limitations that citizens face in trying to decide how to vote. This paper reports a significant step towards just such a model. Using a dynamic process tracing methodology we examine the decision strategies used by voters to make sense of an election campaign. Those strategies, broadly categorized as *rational*, *confirmatory*, *fast and frugal*, and *intuitive* (which we label Models 1 through 4, respectively) are tested against a correct voting standard. We find that voters consciously structure their information search in response to the campaign environment, and that use of a classically rational strategy is usually the least effective means of reaching a correct voting decision. Thus the widespread assumption that voters *should* employ some rational procedure in making their vote decisions is called into question.

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At their heart, elections are about information. Campaigns generate messages about candidates, the media relay those message, adding their own interpretations as they see fit, and citizens use that information in deciding how to vote. It seems obvious that the kind and amount of information voters have about candidates affect the nature and quality of the vote. And in fact the basic inputs to any model of vote choice are informational: partisan preferences, ideology, issue positions, performance evaluations, candidate personal characteristics, and so on.¹ We propose a new set of concerns. It is not just the values and preferences and attitudes that voters hold, plus the candidates and campaigns they have been exposed to, that matter on election day. *How* voters have been exposed to that information -- which is a function of both the information environment and discretionary information search -- and how they *process and integrate* it, also matter.

Decision theorists refer to how people go about gathering information as a “decision strategy.” More formally, a decision strategy is a set of mental and physical operations that an individual uses to reach a decision. It includes identifying alternatives, searching for information about the possible outcomes associated with the different alternatives, making probabilistic judgments about the likelihood of those different outcomes, searching through memory to determine how much each of those outcomes is valued and how important it is in this particular context, and so on. A decision strategy also includes a method for choosing among the alternatives.

In the decision literature, elections would be called “well-defined” choice situations, in that the alternatives are presented to decision makers rather than generated by them (Abelson and Levy, 1985). Elites play an important role in trying to encourage different individuals to stand for election, but our concern is with voter decision making, and it is fair to say the common citizen takes the candidates who have decided to run in an election as fixed and given. Voters play a much larger role in how much information they *learn* about the candidates, however. Certainly in high level political campaigns like presidential elections in the U.S., there is far more information available about the candidates than anyone could possibly process. A common perspective in political science is that voters are largely passive recipients of campaign information, getting all of their political information by watching the evening news, and by inadvertent and largely random exposure to political commercials (Patterson, 1980; Patterson and McClure, 1976; Zaller, 1992).

Yet there are many more sources of political information than the evening news, even on television. The fall election season generally includes one or more televised debates, which citizens may or may not choose to watch. For decades most of the country has had access to the public educational channel PBS, and to shows such as the *News Hour* for expanded coverage of political issues – if they so desire. The explosion of cable and satellite channels gives almost all potential voters access to several “all news, all day” stations like CNBC, CNN, and Fox News, which again people may *choose* to watch – or not. Talk radio provides another source of easy

¹ Compare, among many others, Campbell, Converse, Miller, and Stokes, 1960; Downs, 1957; Enelow and Hinich, 1984; Fiorina, 1981; Kelly and Mirer, 1974; Lodge, Steenbergen, and Brau, 1995; Markus and Converse, 1979; Miller and Shanks, 1996; Nie, Verba, and Petrocik, 1976.

political information, and many of the most popular programs have obvious ideological biases (Barker and Knight, 2000), shaping the information environments of listeners accordingly. Most people see a daily newspaper, and any major U.S. newspaper has more coverage of the presidential campaign than most people can digest. Such a statement is equally true of weekly news magazines such as *Newsweek*, *Time*, and *U.S. News and World Report*. The internet now offers another magnitude of alternatives for learning about politics, for those with access and the inclination (Bimber and Davis, 2003). And of course other *people* in day-to-day conversations are one of the (if not *the*) most important sources of political information (Beck, 2002; Huckfeldt and Sprague, 1995). All of this is very much under anybody's own discretion, and it is up to the individual citizen to partake of more or less of this political feast.

Research in behavioral decision theory, which focuses on understanding the processes people actually use in decision making, has identified a number of strategies that people can employ in reaching a decision. These strategies differ in terms of how cognitively difficult they are to use, how much of the available information they consider, and their likelihood of generating a "best" decision. Perhaps the most important way that decision strategies can be categorized is by the extent to which they *confront* or *avoid* conflict (Billings and Marcus, 1983; Ford, Schmitt, Schechtman, Hults, and Doherty, 1989). Conflict can occur when one alternative is preferred on one dimension of judgment but a different alternative is preferred on another dimension of judgment. Such conflict may require the decision maker to make difficult value tradeoffs. Two general categories of strategies are used (Rieskamp and Hoffrage, 1999).

- *Compensatory* strategies are cognitively complex information integration rules where decision makers are assumed to assign a value to every attribute associated with each alternative. Some of those values can be positive, and others negative, but when they are combined into an overall evaluation or decision, a positive value on one dimension can *compensate for* or trade-off against a negative value on another dimension. Conflict is confronted and resolved in the process of integrating the positive and negative information or values associated with a choice.² To use a compensatory strategy, a voter would have to explicitly compare candidates' positions on diverse unrelated issues (the war in Iraq and abortion, for example) and allow the failure of a candidate to meet the voter's preference on one to be offset by meeting the other. This is not especially difficult if there are only a few attributes to consider, or just two alternatives, but it becomes exponentially more difficult as attributes and/or alternatives multiply.
- *Noncompensatory* strategies, on the other hand, rely on incomplete information search to avoid conflicts. Negative values on one attribute or possible outcome do not trade off against positive values on another attribute or outcome; instead, alternatives are usually

² Compensatory strategies require *commensurable* outcomes or values that can be compared on some common dimension. In an economic market, for example, the universal commensurate value is money. Even economists realize that there is more to life (and people's preferences) than money, however, and usually presume that there is some universally commensurate "*utility*" into which all apples and oranges can be translated. This is a big assumption, one we are forced to emulate in trying to model compensatory decision strategies.

eliminated once anything negative information about them is learned.³ A voter using such a strategy might examine one candidate, find that the candidate meets all requirements at least at a minimal level, and never bother to look at any others. This kind of limited information search approach is clearly simpler than a compensatory strategy.

A great deal of research in behavioral decision theory has shown that most decision makers, most of the time, do everything they can to *avoid* value tradeoffs (Hogarth, 1987, provides a good review). Such tradeoffs are time consuming, cognitively difficult, and at the extremes, emotionally draining. Yet there are few if any explicitly noncompensatory models of the vote choice in the political science literature, despite the fact that such models may well be more accurate descriptors of what voters actually do.

We believe that most voters, like all decision makers, hold two overriding but often conflicting goals: the desire to make a *good* decision, and the desire to make an *easy* decision (Payne, Bettman, and Johnson, 1993). When the stakes are relatively low, as they almost always are in mass politics, easy usually trumps good. It is not that people *want* to make poor candidate choices, but rather that the effort necessary to do especially well may be beyond what most people are willing to commit to politics. With the exception of simply voting one's party identification, however, "easy" is not how we would describe the processes assumed by extant political science models of the vote decision. As a field, we need to start building theories of the vote decision that better match what people actually do.

In the remainder of this paper we first describe four broad categories of decision strategies, and then discuss how their use can be operationalized. The first two of these encompass most of the classic models of voter decision making, while the last two derive from notions of "bounded rationality" which have become fashionable in political science over the past year or two. We also present a new framework for studying voter decision making, a framework that draws attention to how campaign information is processed. Next we briefly present a dynamic process tracing methodology that allows us to observe and record information search as voters make their decisions, and present the experimental procedures used to gather our data. Then we turn to our primary results: just how prevalent are these different types of decision strategies, can their use be explained (or explained away) by more familiar concepts such as political sophistication, and most importantly, what consequences do they have for the probability that citizens vote "correctly?" The final section of the paper discusses the implications of our findings, not only for political science, but for politics more broadly.

Four Broad Categories of Decision Strategies

We would argue that virtually all extant models of the vote, while appearing to be about information, fail to consider that *how* voters get their information has potentially significant implications for the vote decision. Our analysis of information search focuses on the prevalence of and consequences for the vote decision of four broad categories of theoretically defined decision strategies. *Rational strategies* represent the compensatory approach, where voters must search for a great deal of information and make tradeoffs. At the other extreme, what we call

³ Thus incommensurability is not a problem for noncompensatory strategies because no tradeoffs are made in the first place.

intuitive strategies are clearly noncompensatory and rely on limited information search and avoidance of tradeoffs. The well known Michigan model of *The American Voter* (Campbell, Converse, Miller, and Stokes, 1960), and another category labeled *fast and frugal*, are somewhat of a compromise between the two.

Model 1: Classic Rational Choice⁴

All modern discussions of “rational” decision making are based on the principle of maximizing expected utility (von Neumann and Morgenstern, 1947). Although von Neumann and Morgenstern did not discuss the processes involved per se, theorists generally describe rational decision making as beginning with a search for all possible consequences associated with every conceivable alternative course of action, evaluating those consequences in terms of the decision maker’s current assets, and when those consequences are uncertain, evaluating their likelihood in terms of the basic rules of probability (Allison, 1971; Dawes, 1988; Janis and Mann, 1977; Savage, 1954). While there are a number of rational decision strategies that differ in some of their specifics (see Lau, 2003, for a recent discussion), all rational rules assume that conflicts are directly confronted and resolved in an explicitly compensatory manner. This classic economic perspective on rationality views humans as “omniscient calculators” or (a term we like even better) “ambulatory encyclopedias” (Lupia and McCubbins, 1998; Lupia, McCubbins, and Popkin, 2000). Applications of the rational choice approach in political science are too numerous to mention, but Davis, Hinich, and Ordeshook (1970) and Riker and Ordeshook (1968) are two of the early classics, while Enelow and Hinich (1984) or Hinich and Munger (1997) provide more recent summaries and extensions of the general approach.

A huge advantage of rational choice procedures is that *if* they are followed completely, they guarantee that the value-maximizing alternative has the highest probability of being chosen. This gives rational choice strategies a strong normative component as the standard against which other decision processes are judged. For voters this would mean casting a vote for the best candidate available in the election – the one maximizing the voter’s utility. This is the basis of our first hypothesis:

⁴ A quick note on epistemology. Many proponents of rational choice theory take “rationality” as a starting assumption rather than a testable proposition (Friedman 1953). According to MacDonald (2003), this *instrumentalist-empiricism* epistemology views rationality as a useful fiction that allows for the generation of empirical predictions about some aspect of the social world. The rationality assumption facilitates the construction of general hypotheses about human behavior and thus is immune itself from empirical test (Lakatos, 1970). Whether people actually act in a manner prescribed by the theory is irrelevant, according to this view; what matters is the ease with which testable propositions can be generated, the generality of those propositions, and of course the accuracy of the predictions that are made from the theory (cf Hempel, 1965; Popper, 1959).

In contrast, those adopting a *scientific realism* epistemology wish to develop theories about entities and phenomenon that actually exist and operate in the real world. The emphasis is on accurate description of real processes. Conceptual clarification and description of causal mechanisms are at the heart of theory building, and are at least as important as the empirical testing of theoretically derived propositions. Similarly, describing a (potentially limited) “universe” in which a theory is believed to operate is more important than striving for theories that are universally applicable (cf Bhaskar, 1997; Putnam, 1982). Thus from the scientific realism perspective, rational choice involves a set of observable decision processes which may, or may not, describe actual behavior, and which may, or may not, result in normatively preferred outcomes. Our research clearly adopts this latter perspective.

H₁: *The more closely rational decision processes are followed – that is, the more information that is obtained about all possible alternatives – the higher the probability of a correct vote.*

We should be quick to add that the belief that “complete information” is desirable for high quality decision making is not limited to economics. Similar statements can be found in classic philosophy (e.g., John Stuart Mill), from the founding fathers (Benjamin Franklin, Thomas Jefferson), in political science (e.g., Kelley, 1960), psychology (e.g., Janis and Mann, 1977), and (we will confidently assert without having any additional references) from virtually every other modern discipline that has made recommendations about decision making.

Of course situational constraints may make it impossible to completely follow rational procedures in making a decision. It takes time to gather decision-relevant information, for instance, time a decision maker may not have, or time the decision maker may choose to allocate to some competing goal or activity. Such constraints can lead a decision maker to rationally make a decision with somewhat less than complete information about all possible alternatives. We would call this procedure “optimization under constraints”⁵ (Gigerenzer and Todd, 1999), and in broad strokes it is the procedure described by Anthony Downs (1957) and his followers. Fiorina (1981) provides one of the best political science examples of this approach with his model of *retrospective* voting. According to Fiorina, voters normally prefer retrospective (i.e., based on past performance) evaluations over prospective considerations (balancing promises about future policy) because the information costs associated with the former are much less, and the reliability of that information much greater (see also the “peasants vs. bankers” controversy – e.g., Clarke and Stewart, 1994; MacKuen, Erikson, and Stimson, 1992).

Both constrained and unconstrained rational choice models assume people consciously and explicitly consider the *consequences* (both positive and negative) for their own self-interest associated with every alternative course of action. More information is always considered to be better than less information, although “constrained” rationality realizes that the cost of gathering all of that information may exceed the marginal benefit from having it. This does not change the logic of classical rationality nor the normative claims that result from it, however, although those claims must be qualified (as they are in H₁) to reflect the possibility that in many circumstances rational procedures may not be perfectly or completely followed. This is classic rational

⁵ The constraints must work with some “stopping rule” which tells the decision maker to stop looking for additional information. It is interesting to consider exactly how a stopping rule would actually provide any cognitive savings, and if it does, how it could be considered “rational.” For example, how does the decision maker know that additional information will not prove to be especially valuable, without actually looking at it? Obviously there could be no cognitive savings here. Alternatively, if the decision maker were automatically forming some sort of on-line evaluation of every candidate (Lodge, McGraw, and Stroh, 1989), then the stopping rule could involve some sort of “variance indicator,” and the rule could cut off additional information search once the evaluation stops varying very much with additional information. But then cognitive resources would have to be spent to monitor and calculate variance in some manner, and still the decision maker would have to assume that additional information would be similar to information already obtained about an alternative, a very questionable assumption in a dynamic situation such as a political campaign. Lupia and McCubbins (1998) try to get around this problem when they define the benefits and costs of acquiring new information in terms of changes in the ability to make accurate predictions (p. 26). But how could the decision maker know how useful any information will be before they expend the effort to obtain it, and without complete knowledge of what is yet to come during the campaign?

decision making, and because of its classic nature, we will refer to it as *Model 1*.⁶

Model 2: Early Socialization and Cognitive Consistency

The American Voter (Campbell, et al, 1960) is one of the most influential books in all of political science, and its basic theory of long- and short-term forces and the “funnel of causality” is still the bible for many students of political behavior. It is a perfect illustration of what we call *Model 2* decision making. Whereas Model 1 decisions are based on explicit calculations of self-interest, Model 2 decisions are strongly influenced by early-learned social identifications which, like all such identifications, tends to be accepted (on one’s mother’s knee) with little or no consideration of alternatives. That is, such identifications develop through simple conditioning rather than any calculation of self-interest (see Sears, 1975; Sears and Funk, 1991). To the extent the parties stay basically the same, there is no real need for continuous monitoring of party activity, a view which is very consistent with the general dearth of political information held by the American public – one of the most far-reaching, and well-documented findings in all of the social sciences.

Thus exposure to political information is generally viewed as haphazard and unintentional, and most citizens learn only the basic gist of the most prominent issues covered by the media. Moreover, perception of political information is often biased by prior predispositions, and voters are motivated to *maintain* their prior convictions. Hence while in theory it is easy to know how to change the minds of Model 1 decision makers – change the contingencies, and they should change their decisions – Model 2 decision makers have many psychological devices which work against change, making many decisions essentially *standing* decisions. Thus we would not expect Model 2 voters to be strongly influenced by any political campaign. If Model 1 decision makers are trying to maximize self-interest, Model 2 decision makers are trying to *confirm* a prior predisposition. Thus a shorthand and not totally misleading label for Model 2 would be *confirmatory decision making*.⁷

The theory and empirical evidence for Model 2 voting is strongly shaped by the ANES surveys that have developed along with it. By their very nature, surveys are “snapshots” of public opinion at a particular point in time, and hence not well suited to explicating a *process* of information search and decision making which must occur over time. Thus political scientists who have (implicitly, at least) adopted a Model 2 view of voter decision making have said little

⁶ We also chose this label to celebrate Allison (1971), whose wonderful book about the Cuban Missile Crisis introduced us to the decision making literature. Allison presented three different models of governmental decision making, the first of which, Model I, is identical to our own Model 1. Allison’s remaining two models are very explicitly models of *organizational* decision making, however, and are thus not very relevant to individual decisions like the vote choice. Allison used Roman numerals to label his models. To help avoid confusion, we will employ plain old (Arabic?) numbers for ours.

⁷ This model is very consistent with the classic “minimal effects” view of media influence, that campaigns serve primarily to activate prior predispositions rather than to change any minds. As Lazarsfeld, Berelson, and Gaudet (1948) put it: "Political writers have the task of providing ‘rational’ men with good and acceptable reasons to ‘dress up’ the choice which is more effectively determined by underlying social affiliations. ... Arguments ... *point out*, like signboards along the road, the way to turn in order to reach a destination which is already determined" (p. 83).

about how information is gathered, and it is up to us to flesh out the information search and decision making aspects of the model a bit more.

While the information gathering of Model 2 voters is clearly envisioned as largely a passive (media-driven) process, the one big exception is that voters should try to learn a candidate's party affiliation as soon as possible. Any subsequent purposeful or intentional political information seeking could have a partisan flavor to it as well – that is, party voters should be expected to *disproportionately* seek out information about their own party's candidate(s) rather than the opposition.⁸ This contrasts with Model 1 decision makers, who should seek out the *same* information about all alternatives. And while the Michigan researchers do not say much about the degree or amount of information search, it is clear they expect many voters to *have* a reasonable amount of information about the major candidates in a presidential election. For example, Miller and Shanks (1996) describe a multi-stage decision process whereby partisan and policy-related (ideological) predispositions influence current policy preferences and perceptions of current (mostly economic) conditions, which in turn influence retrospective evaluations of the incumbent candidate's (or party's) job performance, all of which influence perceptions of the candidate's personal qualities, which influence prospective evaluations of the candidates and the parties, which combine to lead to the vote choice. This is a lot of information, even if we limit consideration to two candidates. Thus information “gathering” (which sounds a bit more passive than “search”) should be relatively deep, and quite possibly unequally distributed across the competing candidates.

In contrast to Model 1 voters, however, who also would be expected to gather quite a bit of information, there is no basis for predicting that Model 2 voters will reach particularly *good* decisions. Their search may be relatively deep, but it will be biased. While there is usually some good historical reason for an association to form between a group of people or social category and a political party, that association often lasts much longer than its basis in fact. Moreover, Model 2 voters are presumed to be motivated to avoid any information that would challenge their predispositions. This leads to our second hypothesis:

H₂: *Model 2 decision strategies will not result in very high probabilities of correct voting, particularly when compared to more rational Model 1 decision processes.*

Models 3 and 4: Bounded Rationality and Limited Information Strategies

⁸ The logic behind this prediction comes from *cognitive dissonance* theory (e.g., Festinger, 1957), an extremely important theory in social psychology at more or less the same time that *The American Voter* (1960) was in its heyday. The theory assumes people are strongly motivated to avoid experiencing cognitive dissonance, which could arise by knowing one supported a lousy candidate, for example. One way to avoid such unpleasant cognitions would be to change one's perceptions of the candidate (He really isn't so bad – or at least he is better than the other guy). This is what is meant by party identification “coloring” perceptions of other political information. But another way to avoid dissonance would be to seek out positive information about one's candidate, to counter-balance some initial negative impression. (Sure, Bill Clinton cheats on his wife, and lied about it to the American public, but he has also done a fantastic job with the economy, he has eliminated the deficit and created millions of jobs, he has kept us out of war and brought some hope of a long-term peace in Ireland and the former Czech Republic.) It is this latter procedure which leads to our prediction of biased information search.

Simon (1957, 1979, 1985) has proposed the well-known alternative to classical rational choice of *bounded rationality*, which views people as cognitively limited information processors with relatively weak organs for sensory input, severely limited computational power, and very imperfect memories. Even given complete information about all possible alternatives, cognitively limited decision makers would have a hard time knowing what to do with it all. Moreover, boundedly rational decision makers are not assumed to have the comprehensive utility functions necessary for broad-based compensatory decision making. Many decisions, perhaps *especially* in politics, really do involve “apples and oranges.” There are a number of more intuitive decision strategies which allow decision makers to reach these decisions without the extreme cognitive effort and value tradeoffs assumed by Model 1.

Model 3. One of the most straightforward of these strategies is to limit consideration to a handful of attributes or dimensions of judgment. At the extreme, when there is only a single criterion for choice, no difficult value tradeoffs are required (nor is any comprehensive utility function necessary) because choice can be based on whichever alternative is the best on this one criterion. More generally, the fewer the number of criteria considered, the less likely the need for complicated or impossible value tradeoffs. A compensatory decision strategy could still be followed, but it would be based on very limited information, rather than the comprehensive information sought by Model 1 decision makers.

We refer to this strategy as *Model 3*. A catchy label, which we borrow from the cognitive psychologist Gerd Gigerenzer and his colleagues at the ABC research group, is *fast and frugal* decision making. Our image is of Joe Friday (from *Dragnet* fame) deciding how to vote: “Just the facts, Ma’am.” Gigerenzer and colleagues provide numerous examples of situations in which *less is more* – that is, situations in which people make better decisions when they have less information than when they have more information. While their work focuses on factual questions about which there is a clearly correct decision – e.g., which German city has a larger population? – the logic should translate directly to decisions (such as the vote choice) where the standards of correctness are somewhat more subjective. Hence we offer a third hypothesis:

H₃: *Decisions based on very limited information search (such as the fast and frugal Model 3) can often reach better decisions than strategies (such as Model 1 or Model 2) relying on much deeper and more extensive information search.*

Past treatments of the vote decision in political science have been dominated by what we are calling Model 1 and Model 2 decision making, but it is also possible to find examples within the field of Model 3 decision making. Single-issue voters, for example (Conover, Gray, and Coombs, 1982), would clearly fall under Model 3, as would anyone relying exclusively on what Carmines and Stimson (1980) would call “easy” issues.⁹ It does not take any great sophistication to vote on easy issues, whereas hard issue voting has a more Model 1 ring to it.

Model 4. One of the best known intuitive decision strategies is Simon’s (1957) *satisficing*. Satisficing assumes that decision makers set a target level for each salient attribute, and then consider alternatives one-at-a-time in random order. Information search continues until

⁹ According to Carmines and Stimson (1980), “easy” issue can be characterized as issues long on the political agenda, largely symbolic rather than technical, dealing with policy ends rather than means. “Hard” issues are more technical in nature, dealing more with the appropriate means to achieve a universally valued end.

an alternative is discovered that meets or exceeds the target level for every salient attribute. Search then stops and this alternative is chosen. If no such alternative is found, target levels must be lowered and the process repeated until an alternative which satisfies all criteria is found. This relatively simple cognitive process avoids conflict by seeking an alternative that is simply satisfactory on every salient criterion of judgment, neither trading off good and bad positions through some utility function nor explicitly comparing the alternatives to each other.¹⁰ Tversky's (1972) *Elimination by Aspects* is another well-known noncompensatory decision strategy that works much like satisficing but presumes an attribute-oriented search rather than the alternative-oriented search process.

This general approach is most consistent with our own view, which we will refer to as *Model 4* or *intuitive* decision making. This approach argues that most decisions (including most political decisions) are better understood as *semi-automatic responses to frequently encountered situations* than as carefully weighed probabilistic calculations of the consequences associated with the different alternatives.¹¹ These diametrically opposing views of the underlying decision process is the starkest difference between Model 1 and Model 4. Model 4 is consistent with a good deal of recent work within political science which also adopts a bounded rationality view of human information processing capacities¹² (although as we argue elsewhere, much of this work *assumes* rather than *demonstrates* the advantages of low information rationality; see Lau and Redlawsk, 2001b).

Because decision makers are guided by two competing motivations, the desire to make a *good* decision and the desire to make an *easy* decision, the consequences of the decision matter to Model 4 decision makers, but only in the limited sense of "How important is this decision to me?" rather than a detailed Model 1 considerations of the consequences associated with every different attribute associated with each different alternative course of action. If a choice is very important to a person, "getting it right" should be the more important consideration. But for

¹⁰ In addition to the possibility that some alternatives will never be examined, satisficing also generally focuses only on a subset of attributes, rather than the classically rational requirement to consider all attributes for all alternatives. Thus a voter who has no interest in a particular policy will not bother to learn anything about any candidate's position on that issue. This means that incommensurability is not a problem. Obviously the *order* in which alternatives are considered can completely determine which alternative is selected, if more than one would alternative would meet the aspiration levels for the attributes deemed important enough to consider. Again, Lau (2003) describes several additional noncompensatory decision strategies in more detail. They share the common strategy of eliminating alternatives once value conflicts are confronted, and thus make no pretext of guaranteeing anything close to value-maximizing decisions.

¹¹ We could make the same statement about even the most consequential decisions made by political elites, although this would take us well beyond our own data. See Allison and Zelikow, (1999), Jervis (1976), or Levy (2003) for evidence about elite decision making that is largely consistent with Model 4.

¹² Prominent among these would be Lau, 1995; Lau and Redlawsk, 2001a, 2001b; Lodge and Stroh, 1993; Lodge and Taber, 2000; Lupia, 1994; Lupia and McCubbins, 1998; Popkin, 1991; Redlawsk, 2002; Sniderman, Brody, and Tetlock, 1991; Taber and Steenbergen, 1995. Explicitly noncompensatory approaches have also been adopted outside of the voting literature. Mintz (1993) presents a noncompensatory theory to explain the first President Bush's decision to attack Iraq in 1991. More recently Mintz and colleagues (2004; Mintz and Geva, 1997) have developed a mixed model that begins with a non-compensatory simplification stage leading into a more explicitly analytical decision stage.

most decisions – and certainly most political decisions – “doing it easily” should be the primary concern. Indeed, according to Model 4, people’s severe cognitive limits make “the easy way” often the *only way* that a decision can be reached.

Model 4 comes with one very important drawback, compared to Model 1 and even Model 3. Since some alternatives (not to mention some attributes) may be totally ignored, there is no guarantee that anything approaching the best alternative will be selected. Judged against a criterion of finding the best possible solution, Model 4 should in many situations be at a big disadvantage, particularly compared to Model 1. The logic seems clear, although it is based on an assumption that decision makers have the cognitive capacity to process all (or a lot of) the additional information – which we know they do not. In practice, then, Model 4 intuitive strategies often prove to be quite reasonable, resulting in decisions that are “good enough” if not always value-maximizing. From an evolutionary perspective, this “good enough” result must have occurred often enough to reinforce the use of such cognitively simple decision strategies. Thus we hypothesize that:

H₄: *Noncompensatory Model 4 decision strategies lead voters to decisions that are as good as those reached by more cognitively taxing Model 1 rational choice strategies.*

Indeed, it is possible that limited information noncompensatory decision strategies, which make no pretext of searching for the best possible alternative, could (consistent with Hypothesis 2) actually *outperform* rational processes, at least in some circumstances. The reasoning behind this counterintuitive proposition involves the bounded rationality of cognitively limited information processors. There is no doubt that the procedural demands of rational choice exceed the cognitive limits of normal human beings for all but the simplest of decisions. If the excess (i.e., beyond cognitive limits) information is simply discarded – “in one ear and out the other,” as one of the author’s mother would say – it should not harm decision making. But if decision makers somehow become flummoxed once cognitive limits are exceeded, such that the processing of *all* information is impeded, then decision makers who nevertheless attempt to gather the information required for a thorough compensatory decision may in the end make so many errors that they are *less* likely to reach a correct decision, compared to decision makers who rely on less effortful noncompensatory procedures. Exactly the same logic underlies Model 3. The crucial features of all four models of decision making are summarized in Figure 1.

***** Insert Figure 1 about here *****

A General Framework for Studying Voter Decision Making

One of the chief goals of our work is the development of a new process-oriented model of voter decision making, and the elaboration of a new set of measures for studying it. We begin with a very basic idea. Voter decision making *cannot* be much different from most other decisions people make in their daily lives. There is nothing special about the political environment that should cause people to magically overcome the limitations of human cognition. Indeed, everything we know about how citizens view politics suggests that for most people, most

of the time, politics is usually a minor concern. Yet in certain high profile situations such as presidential elections, citizens can hardly avoid exposure to politics and to the steady stream of information that is made available. How can people cope with a potentially confusing and easily overwhelming information environment when they are motivated to pay at least some attention, but unable devote superhuman cognitive resources to the task? Assuming one is going to make a choice,¹³ some process for acquiring information and evaluating it is necessary.

Our process-oriented approach is, first and foremost, about information and the processes voters use to acquire and evaluate it on the way to choosing their candidate. While still considering traditional antecedents of the vote – individual characteristics such as ideology and partisanship, economic status, political experience, personal characteristics and the like – we focus our attention on understanding how those factors influence information acquisition and processing (rather than preferences themselves), intervening variables which we believe in turn have a key (and largely underappreciated) influence on candidate evaluation and choice.

A broad schematic of our approach is set forth in Figure 2. It provides a general guide for the analyses to follow. The beginning of the model is comprised of four sets of factors that serve as the primary *independent* variables in our model: demographic background characteristics of voters, including their partisan predispositions, which for us serve primarily as controls; then more directly germane to decision making, political sophistication or expertise, and what psychologists call “task demands” but what in our context might be bettered labeled *campaign factors*, which together determine the subjective or perceived “nature” of the decision task.

***** Insert Figure 2 about here *****

What is new in our framework is the focus on a set of *information processing* variables, which along with memory play a crucial intervening role in the model. By “information processing” we primarily mean different measures of information search – what kind, how much, and in what order information is gathered; but also information integration – how carefully the information is considered, whether it is accurately perceived, whether it is stored in long term memory and thus available for later recall, what else it is linked to in memory. As we shall see below, our four general models of decision making make very different assumptions about information search, which provides key leverage in distinguishing between them.

Information processing and memory are hypothesized to have important direct effects on the nature and quality of the vote decision. But they are themselves hypothesized to be functions of prior decision making variables, including most prominently the perceived nature of the decision itself. Thus we believe that the set of information processing variables included in this framework are an important route by which individual voter differences, and institutional and campaign factors which determine the nature of the decision task, ultimately have their influence on the direction and quality of the vote choice itself. One cannot truly understand *how* the vote choice is made, we would argue, without explicating every step in this model.

¹³ We recognize that nearly half of the American public is apparently not particularly motivated to vote and thus would have little incentive to bother processing *any* information about a presidential campaign. These citizens clearly make the easier choice of all: not voting. Because this paper is about voters, however, we will beg the question of information processing and decision making by those whose decision is to abstain.

Determining Which Decision Strategy Is Being Used

Before we can examine the prevalence and consequences of decision strategies, we need a method for determining which strategy a decision maker is following. A very important tenet of behavioral decision theory is that *different patterns of information acquisition clearly reflect distinguishable choice strategies*. Thus a key to understanding any decision is observing how people acquire information, because this in turn sheds light on the decision rules and strategies that people follow in making their choice. As we detail below, we use a new methodology to make exactly the kinds of observations needed to identify which strategy voters are employing.

If voters were omniscient calculators with perfect memory who seek out and process all relevant information, the order in which information is acquired would be irrelevant. But if decision makers are cognitively limited information processors who often make decisions before all possible information has been obtained, then the distribution and order of information acquisition can be crucially important. It should be obvious that *how much* information is obtained can influence choice. Somewhat less obviously, even controlling on amount of information, *how* information comes to a decision maker can also influence choice. Each of the decision strategies above specifies a particular depth and distribution of information search. Thus measures of information search can be used to infer which decision strategy is being employed.

- * Depth of Search. Consider first the *depth* of information search. By depth of search, we mean how much of the available information is considered before a decision is reached. The intuitive and fast-and-frugal strategies assume relatively shallow search, while rational strategies require that as much information as possible about every alternative be obtained. Model 2 also assumes many voters will engage in relatively deep information search. By observing information search we can calculate the proportion of all alternatives that is considered, the proportion of all attributes that is considered, and the proportion of all possible information about every alternative that is considered, and so on – all reasonable measures of the depth of information search.
- * Comparability of Search Across Alternatives. The various decision strategies make specific statements not only about the depth of information search, but also about the variance of information search across alternatives. Rational and few-best strategies assume that the *same* information should be considered about every alternative, whereas intuitive strategies allow for very unequal search across alternatives, and the confirmatory Model 2 *expects* it.¹⁴

¹⁴ Variance measures are particularly useful in distinguishing between decision strategies when task constraints (e.g., time) make it impossible for all information to be considered. If search has to be restricted, it should be restricted to the same attributes for all alternatives. *Comparable alternatives* are those about which the same attribute information is known, as is always possible with a standard information board. *Noncomparable alternatives*, on the other hand, are those with at least some attributes that are unique to each alternative (Johnson, 1984, 1986). Alternatives can be *inherently* noncomparable – guns vs. butter, say – or *de facto* noncomparable because of information about some alternatives which exists but is unknown to the decision maker. Elections often involve choices between inherently noncomparable alternatives, when an incumbent with a track record of performance in office is running against a challenger who has no prior experience in the office being contested.

Together, these two dimensions of depth and comparability of search allow us to distinguish between different types of decision strategies.¹⁵ As shown in Figure 3, when search is relatively deep and mostly comparable across candidates, decision makers are following a Model 1 rational choice strategy. Relatively deep but equally distributed search (with the bias in favor of one's own party) would be indicative of a confirmatory Model 2 strategy. If search is relatively shallow but comparable across alternatives, something like a fast and frugal Model 3 strategy is being followed. If search is relatively shallow and unequally distributed across candidates, decision makers are employing some intuitive Model 4 noncompensatory strategy.

***** Insert Figure 3 about here *****

Procedure

Our experimental procedure has been described before (Lau, 1995, 2003; Lau and Redlawsk, 1997, 2001a, 2001b; Redlawsk, 2001, 2002, 2004), and we will only highlight the most important details here. We have developed a mock presidential election campaign which typically includes both a primary campaign with six candidates (two Democrats and four Republicans, or four Democrats and two Republicans), followed by a general election campaign where the two party nominees square off against each other. Before the campaign begins subjects must “register” with a party, and subsequently must vote in that party’s primary, and then again in the general election.

Imagine a matrix into which all information relevant to some decision is placed. The columns of the matrix represent the different alternatives under consideration, and the rows of the matrix the various attributes or dimensions of judgment across which the alternatives differ. Such a matrix (or “information board”) is actually one of the most popular – and powerful – techniques employed by behavioral decision theorists for studying decision making (Carroll and Johnson, 1990). With an information board, the contents of each cell of the matrix are hidden from view, and the decision maker must actively choose to access the information (typically with a mouse click on a computer screen) before it is revealed. Thus information boards provide a complete record not only of the content of all information that is considered, but also the order in which it is considered, the length of time it is considered, the distribution of information across alternatives, and so on.

Essentially what we have done is take the classic information board and make it dynamic to better mimic the modern high-level election campaign. The “boxes” or cells of the information board scroll down the computer screen to emulate the ongoing nature of actual campaigns,

¹⁵ Behavioral decision theory also considers the *sequence* of information acquisition as an important measure of information search (Jacoby, Chestnut, Weigl, and Fischer, 1976). There are specific variants of the broader categories of decision strategies considered here which assume either alternative-based or attribute-based search (see Lau, 2003). It is our current belief that the sequence of search is largely a function of how the information is presented (Rahn, 1993), so while we argue that voters are active participants in the information search process, their participation can be structured to some extent by the way in which information is presented to them. However, we have not identified any important consequences of this structuring in our own research on voting and thus we have ignored sequence of search in what follows. The overall pattern of results reported below does not change if we make further distinctions in our broad categories by considering sequence of search.

leaving only a small proportion of the total information pool available at any point in time. Furthermore, we vary the probability that different information will appear on the screen in a manner matching the actual probability that different types of information appear during presidential election campaigns (Lau, 1992). If a subject fails to access a particular bit of information the first time it appears on the screen, it may never become available again. At regular intervals the computer screen is taken over by a political advertisement from one of the candidates, which all subjects are exposed to “free of charge” without any active decision on their part. The total pool of information is so large (45 individual items about each of six candidates, plus 74 group endorsements and poll results which, by their nature apply to multiple candidates) that it would overwhelm the cognitive capacity of anyone, even if people had the opportunity to carefully consider every bit of information, which they do not. The primary campaign lasts about 20 minutes; the general election about 12 minutes. Figure 4 summarizes our experimental procedure.

***** Insert Figure 4 about here *****

The data we present below come from four different experiments run using this basic procedure. Most subjects were donating their time to a voluntary organization to which they belonged (which in turn received a \$20 subject payment). We had only two criteria for subjects: (1) that they be eligible voters in U.S. elections (hence citizens, at least 18 years old); and (2) that they *not* be currently attending college. Subjects were certainly not a random sample of anything, but they broadly match census descriptions of the population of central New Jersey, where our experiments were run (see Lau and Redlawsk, 2001b). A total of 595 subjects “voted” in our primary election across the four experiments, and 489 voted in the general election campaign.¹⁶

Operationalizing Crucial Concepts

We had three indicators of the *depth of search*, calculated separately for the primary and general elections: the number of attributes that were considered (at least once), the total number of unique items consider (ignoring any times an item was “re-accessed”), and the average number of items considered per candidate.¹⁷ We limited consideration to alternatives in the voter’s choice set, so that any search involving out-party candidates during the primary campaign was ignored. The three items were standardized and combined into a single measure of depth of search from the primary campaign and a similar depth measure from the general election campaign. This 3-item scale had a reliability (Cronbach’s alpha) of .92 in the primary and .98 in the general election.

¹⁶ One experiment only involved a primary election, which explains the drop in subjects.

¹⁷ Since half the subjects had two in-party candidates in their choice set during the primary election and the other half had four candidates, we had to use an average number of items *per candidate* as a measure of depth. We also examined the number of alternatives considered as another measure of depth of search, but in practice this measure had almost no variance, as virtually everyone examined at least one item about every candidate.

The standard measure of *comparability of search across alternatives* is the variance in the number of items considered per alternative. If the same number of attributes is considered about every candidate, the inter-alternative variance will be very small (indeed, zero); if the amount of information gathered about the candidates differs widely, however, that variance will be relatively large. Large variance is associated with low equality across alternatives, and vice versa.

This measure works well when information search is under the decision maker's control, as it is in the ideal world of a static information board. But when the number of attributes that could be considered is large, decision time is limited, and information availability is dynamic and hence much more difficult to control, as is the case in an actual presidential election campaign – and our experiment -- this measure could be quite misleading. Voters in our four-candidate primary could have considered ten candidate-specific items about every in-party candidate – thus producing 0 inter-alternative variance – and still have absolutely no overlap between candidates in the information examined! We therefore devised a much more direct measure of the comparability of search across alternatives: the percentage of all attributes considered about *any* relevant candidate, that was considered about *all* relevant candidates.¹⁸ Our hypothetical example above would have 40 in the denominator and 0 in the numerator, resulting in a comparability score of 0, reflecting the low comparability across alternatives that is appropriate in this instance.

The measures of depth and comparability of search are used to determine which of the four strategies were used during the information search. There are no absolute standards here, and what exactly would constitute “deep” or “shallow” search will differ from decision context to decision context. Our experimental procedures define one such context, and it is only fair to define depth and comparability of search in that light. As a first cut then, we simply performed median splits on our measures of depth and comparability of search, and categorized the decision strategies employed by our subjects in making their vote choices according to the guidelines in Figure 3. This procedure, while somewhat arbitrary, does not advantage any particular strategy. But it has one major disadvantage: It completely ignores the crucial assumption of Model 2, which is that candidates' party affiliation should be learned early. Deep search, unequally distributed across the candidates, is *not* Model 2 unless the party affiliation of the candidates has been learned. We therefore established another criterion for Model 2, also considering the

¹⁸ With this definition, it is much more difficult to have a high comparability of search score with four alternatives to consider, compared to only two. The likelihood of not even seeing some desired information about one of four candidates (for example, because it scrolled down the screen when a political ad hid what was available) was pretty high. To compensate for this, in the four-candidate condition of the primary election, we increased the numerator whenever information was examined about three *or* four candidates. Note that group endorsements and polls are relevant to every alternative in the choice set, so they increase both the numerator and the denominator equally. This new and more direct measure of comparability of search across alternatives correlates with the standard variance score only -.18 in the primary (and -.29 in the general election), reflecting our belief that the variance is a poor indicator of the concept we are trying to measure. The negative correlations are expected, as high variance translates into low comparability. But the relatively low *magnitude* of the correlation (i.e., that it is fairly close to 0) indicates that the two are not measuring the same thing. We thus rely only on our direct measure of comparability of search (calculated separately in the primary and general election campaigns).

priority of accessing party affiliation, particularly during the primary election campaign.¹⁹ Model 2 voters ought to learn candidates' party affiliation, and they ought to learn it soon. Of course there is nothing inconsistent about accessing party identification and any of the other models – they just do not grant it the preordained status that Model 2 does. Hence we must continue to consider both depth and comparability of search in categorizing even Model 2 voters.²⁰

But this sets up another hurdle for being categorized as Model 2, which will reduce the apparent number of Model 2 voters. To compensate for this additional hurdle, we lowered the percentile for being considered relatively “deep” search from 50 percent to 40 percent for Model 2 voters. This has the effect of transferring a few voters who were initially categorized into one of the other models, but who also accessed party affiliation pretty quickly, into Model 2. It also has the effect of leaving some voters – those who looked at party affiliation pretty late in the campaign, and who were otherwise solidly “Model 2” – that is, who conducted such deep search, and so unequally distributed across the candidates that they could not slip into one of the other categories – *uncategorized*. Our initial median-split categorization procedure has the advantage of placing everyone into one of the four categories. Once we include another consideration for one of those categories but not the others, we have the possibility of leaving some people out. This can cause statistical difficulties if the excluded group is fairly small, as it was here.

There are at least two solutions to this statistical problem. The first is to exclude the unclassified voters from all analyses, but this has the obvious costs of eliminating subjects. The second solution is to increase the size of the unclassified group. We followed this solution by lowering the upper limit for “shallow” search to the 45th percentile, and raising the lower limit for relatively “deep” search to the 55th percentile, throwing all voters in the middle ten percent of the measures of depth of search into an unclassified or undifferentiated category. In the analyses to follow we will be able to estimate separate coefficients for each decision strategy, which will all be compared these unclassified voters.

The revised data are shown in Figure 5. The data – particularly for the general election – look very much like we would expect. Models 1, 2, and 4 are all very comparable in size, and a bit bigger than Model 3. Models 1 and 4 dominate decision making during the primary campaign, with Model 2 the least prevalent – but then *The American Voter's* model was never

¹⁹ Although Model 2 most clearly applies to a general election context where candidates differ by party, there is actually no need to go out and learn the general election candidates' party affiliations, because they should already have been learned during the primary election. Indeed, while almost everyone accessed party affiliation at least once during the primary election campaign, a large minority of voters – 28 percent – never accessed it during the general election campaign, presumably because they were very confident about which of the general election candidates was a Democrat, and which a Republican. Hence we consider how soon party affiliation was accessed during the primary campaign even for our categorization of Model 2 voters in the general election.

²⁰ One reader of an earlier draft of this manuscript suggested that most rational choice models either implicitly or explicitly assume that voters rely on *policy*-relevant information in their calculations. While this may be true in practice, it is very explicitly not true in theory. All descriptions of rational choice that we have seen are very clear that the theory says absolutely nothing about *what* should be valued or what values or preferences to hold – just that those values, whatever they are, should be consistently applied in evaluating alternatives. In theory, it is equally rational to judge candidates on the basis of their personalities as it is their policy stands. We allow our Model 1 voters to decide for themselves what is important in evaluating candidates, without imposing any particular policy-based criterion.

meant to describe decision making during a primary election. Most importantly, however, our revised coding scheme does a much better job of operationalizing the actual conceptual definitions of the different models.

***** Insert Figure 5 about here *****

While most studies of the vote decision focus on which candidate (or party) received the most votes, such a question is much less interesting in a mock election study. Instead, as noted earlier our crucial dependent variable is whether subjects voted *correctly*. We have previously presented two closely related measures of correct voting (Lau and Redlawsk, 1997), one determined by the voters themselves and the other by our comparing voters' pre-experiment preferences to the known (to us) positions taken by our candidates.²¹ The two measures correlate strongly with each other, but only the latter is available from every study, and hence we rely upon it as our measure of correct voting.

Finally, a number of standard variables are employed in our analyses as controls, including age, education, gender, income, ideological orientation, strength of party identification, and political sophistication. Sophistication is measured by a combination of political knowledge (itself based on a short "civics" test – see Delli Carpini and Keeter, 1996), general interest in campaigns, and a short scale combining following politics in the media, reported political behaviors, and frequency of discussing politics with others.²² All of these variables are measured using standard items obtained from a questionnaire administered shortly before the experiment began. Perceived difficulty of choice is a scale based on two items asked immediately after subjects had made their vote choices (and evaluated the candidates) during the experiment itself: how difficult this choice had been, and how confident they were that they had made the right decision. These two questions were combined into a single measure of perceived difficulty, after responses to the second question were reversed.²³

Additional Hypotheses

Our primary focus in this paper is the extent to which any of the four categories of decision strategies lead to a higher probability of correct voting. But our broader theory suggests additional testable hypotheses with the data at hand that are important enough to consider here.

²¹ The second measure, which we refer to as "normative naive," is based on our knowledge of voter's preferences, our objective knowledge of where the candidates "stand" on all available attributes of choice, our knowledge of what voters chose to look at during the mock election campaigns, and the normative judgment that if voters considered a particular attribute for one candidate, they should have considered that same attribute for all candidates. See the Appendix in Lau and Redlawsk (1997) for details.

²² The resulting summary measure of political sophistication had a reliability (coefficient alpha) of .83. Because party identification and liberal-conservative identification tend to be strongly correlated with each other (.60, in our data), we used the standard 7-point measure of ideological identification as an indicator of partisan/ideological direction, but "folded" the standard 7-point measure of party identification at its midpoint to create a 4-point indicator of *strength* of partisan/ideological orientation.

²³ The reliabilities of these two summary scales were .67 and .58 for the primary and general election campaigns, respectively.

As argued above, we believe that voters (and cognitively limited decision makers of all types) are largely driven by two chief motives, the desire to make a good decision, and the desire to make an easy decision. This leads to two related hypotheses about when the different decision strategies will be employed:

- H₅:** The more difficult a decision is perceived to be, the *more likely* people are to rely upon a cognitively easy decision strategy.²⁴ Thus we would expect voters to rely on Model 2 or Model 4, the two noncompensatory strategies, more when the choice is perceived to be particularly difficult.
- H₆:** The more difficult a decision is perceived to be, the *more effective* will the cognitively easier decision strategies prove to be. On the other hand, rational choice strategies should prove to be particularly effective when the decision task is relatively easy.

This last hypothesis thus predicts an interaction between the actual (or perceived) difficulty of the choice and decision strategy on decision quality.

Results

Deciding How to Decide

Although our primary interest is the effect of utilizing different decision strategies on correct voting, it is important to first consider how well we can explain the choice of decision strategy itself. Hypothesis 5 expresses our primary theoretical prediction along these lines, that more difficult choices will be associated with the cognitively easier decision strategies – i.e., either of the two noncompensatory decision strategies. In all of our experiments we manipulated several factors that varied the difficulty of the choice. The strongest such manipulation was in the primary, where we varied the number of candidates running in the voter's party primary. A choice involving four alternatives is obviously more difficult than a choice involving only two alternatives.²⁵ We conducted a multinomial logistic regression where choice of decision strategy was regressed on the various background characteristics in our model (age, education, income, gender, liberalism-conservatism, strength of party identification), political sophistication, the number of candidates manipulation, and the perceived difficulty of the choice. The overall likelihood ratio tests are shown in Table 1, but for present purposes the key results are shown in Figure 6. The number of candidates manipulation has a very significant effect on decision strategy, $\chi^2(4) = 97.88$, $p < .001$, with voters being much more likely to employ either of the two compensatory strategies (Model 1 or Model 3) in the two-candidate

²⁴ The other side of the coin is that the more *important* a choice is to a decision maker, the more likely he or she is to choose a strategy which should maximize the probability of the best decision – which arguably should be rational choice. We did not attempt to manipulate the importance of the decision for our voters, however, so we have no way of testing this hypothesis.

²⁵ And so it was perceived by our subjects, who rated the choice between four candidates as significantly more difficult than the choice between two candidates, $p < .001$.

condition than the four-candidate condition. In contrast, voters in the four-candidate condition were much more likely to employ one of the more intuitive strategies (Model 4) or the confirmatory Model 2 strategy. This is a *huge* effect of this one manipulation on decision strategy. The one distinguishing feature of all of the compensatory strategies is that they require comparable search across candidates. Clearly, our voters found it very difficult to gather comparable information about four different alternatives.

***** Insert Table 1 and Figure 6 about here *****

The general election campaign of our experiments always involved only two candidates, but in one experiment we manipulated the ideological distinctiveness of the two competing candidates, while in another experiment we manipulated the stereotypic nature of the out-party candidate. Campaigns involving two ideologically similar candidates, or involving a candidate who does not conform to party stereotypes, should be more difficult than campaigns involving candidates who are ideologically distinct, or candidates who conform to partisan stereotypes.

The differences between conditions are not as stark in the general election campaign as we found for the number of candidates manipulation from the primary – in part because *all* voters in the general election campaign were in a two-candidate condition – but they are entirely consistent with them. The ideological distinctiveness manipulation was marginally significant ($p < .10$). Voters comparing two ideologically distinct general election candidates were more likely to employ one of the compensatory decision strategies (52%) than voters making the more difficult decision between two ideologically similar candidates (37%), who in turn were much more likely to utilize one of the noncompensatory decision strategies. As was the case with the number of candidates running in the primary, then, voters were more likely to utilize one of the more “rational” strategies when the decision was relatively easy, but more likely to rely upon a more intuitive strategy when the decision was more difficult. Here we see the two competing goals of making a good decision and making an easy decision playing off against each other. Holding the desire to make a good decision constant, a more difficult decision context – one involving two ideologically similar candidates – would seem to require a more careful, compensatory strategy like Model 1. But this same decision context also makes Model 1 exceedingly difficult to apply, and the “payoff” (in terms of large issue-based candidate differentials) is relatively small.

Our manipulation of the stereotypic nature of the out-party candidate had an even stronger effect on choice of decision strategy ($p < .01$). Voters are noticeably less likely to employ one of the compensatory strategies (28% vs 41%) when the out-party candidate is nonstereotypic, once again following the pattern of avoiding cognitively difficult rational choice procedures when the choice itself is fairly difficult. But voters are commensurably more likely to utilize one of the various noncompensatory strategies when the out-party candidate is nonstereotypic. It would seem that many voters are flummoxed by having the nonstereotypic candidate in the mix, or they want to avoid the value tradeoffs which a serious consideration of the nonstereotypic candidate would probably engender, and they consequently found it very difficult to employ a “rational” strategy which requires relatively deep information search and frequent value tradeoffs. Notice that we cannot attribute this difference to little “payoff” from employing a Model 1 strategy (as we could with ideologically similar candidates), because here the issue differential should be much larger, on average, in the nonstereotypic condition.

We are reminded of that old saying from our high school sports days, “When the going gets tough, the tough get going.” We attribute this quote (probably incorrectly) to the legendary coach Vince Lombardi. We must not have had any former Green Bay Packers in our experiments, however, because in our elections, when the choice became difficult, our voters did everything they could to simplify the task for themselves. This is undoubtedly a much more common human response to task difficulty, although it would not have made Coach Lombardi happy. As we have predicted, however, when push comes to shove “easy” will almost always trump “good.”

Consequences of Using Different Decision Strategies

We now turn to our primary interest in this paper, the effect of utilizing the different types of decision strategies on the probability of voting correctly, beginning with the primary election. Table 2 reports the results of a logistic regression analysis where all of the predictors used in Table 1, plus dummy variables for the four major types of decision strategies, are all used to predict the probability of a correct vote. A correct vote is scored high, an incorrect vote low. The unclassified category serves as the baseline (excluded category) in this analysis.

We focus our discussion on the effects of the different decision strategies. Common sense, plus a long history of research and theorizing in economics and political science, would lead us to expect that Model 1 decision strategies will lead to the highest probability of a correct vote. This is Hypothesis 1, but it fails to take into account the limited nature of human cognitive capacities. In contrast, Models 3 and 4 are based on assumptions of bounded rather than unlimited rationality, and Hypotheses 3 and 4 predict these latter two models will outperform Model 1.

We can think of few situations, however, when confirmatory Model 2 decision strategies should result in particularly high quality decisions – as reflected in Hypothesis 2. *The American Voter*’s decision strategy is often derided for its blind adherence to party identification, but in our view it is the presumed motivation to *maintain* those prior predispositions that is most problematic, and that makes the probability of reaching a particularly good decision low. Any strategy which relies on *biased* information search or *biased* perception will rarely be associated with any objective measure of decision quality, as our normative naive measure of correct voting is meant to be. We do not expect every Model 2 voter to engage in such biased search and biased perception, but enough will that overall levels of correct voting for people utilizing this strategy should suffer.

The results of our most basic logistic regression analysis are shown in the first columns of Table 2. Neither of the decision strategies that rely on relatively deep search provide any improvement over chance in the quality of the decision that is reached. They are both negatively (albeit, nonsignificantly) related to correct voting. But the two categories of decision strategies that rely on relatively shallow search – both the compensatory Model 3 fast and frugal strategy, and the noncompensatory Model 4 strategies, are positively related to correct voting, with the latter achieving conventional levels of statistical significance ($p < .04$).

Figure 7 translates the logistic regression coefficients into probabilities of a correct vote for a female voter in the easier two-candidate condition with median values on all of the remaining control variables. Such a median voter employing some undifferentiated decision

strategy²⁶ was correct 59 percent of the time. If instead she employed either Model 1 or Model 2, the two strategies relying on relatively deep information search, her probability of a correct vote dropped to 52 and 49 percent, respectively – essentially chance levels in a two-candidate election. The lack of success of Model 2 in a primary election is not at all surprising, as there is little advantage to Model 2 decision making when party provides no basis for making a choice. But the indifferent success of Model 1 *is* a little disappointing, as we expected that if Model 1 were to prove efficacious anywhere in a primary election, it could only do so in a relatively easy decision context such as a two-candidate election.

***** Insert Table 2 and Figure 7 about here *****

Our framework for studying the vote decision led us to examine interactions between choice of decision strategy and several of the “prior” variables in our framework – political sophistication, variation in contextual factors which affect the objective difficulty of the choice, and the subjective perceived difficulty of that choice. As shown in equation 2 of Table 2, the interaction between decision strategy and the number of candidates manipulation provides very interesting results. The “main effect” of each decision strategy is now interpreted as the effect of employing that strategy in the easier two-candidate condition, while the four interaction terms are the *change* in the probability of a correct vote associated with using each strategy in the more difficult four-candidate condition. Figure 8 translates the logistic coefficients into probabilities. In brief, the story is this: In the more difficult four-candidate condition, Models 1 and 2 are no better than chance, while in the easier two-candidate condition they are noticeably worse than chance. In contrast, Models 3 and 4 are little different from chance in the easier two-candidate condition, but a big improvement over chance in the more difficult four candidate condition. Hence half of Hypothesis 6 is supported: Models 3 and 4 prove to be particularly efficacious in more difficult choice situations, but Model 1 is no more effective in a relatively easy decision context.

***** Insert Figure 8 about here *****

The data from the general election campaign show a somewhat different pattern from the primary, but again accord pretty closely to our theoretical predictions. The statistics are provided in Table 3, while Figure 9 reports the change in the probability of a correct vote associated with each decision strategy for the median voter over a baseline of 55 percent correct. Rational Model 1 voters do no better than the baseline, but each of the other decision strategies prove to be significant improvements over baseline. Once again our intuitive Model 4 voters perform the best, with fast and frugal Model 3 voters not too far behind. But this time *The American Voter’s* Model 2 confirmatory decision makers do almost as well as Model 4 voters. In a general election campaign, when party differentiates the candidates, Model 2 proves to be a very efficacious decision strategy.

²⁶ That is, a voter with median levels of depth of search (between the 45th and 55th percentiles) who could not be classified into one of our four categories of decision strategies.

***** Insert Table 3 and Figure 9 about here *****

Is there no situation, or subset of voters, for whom Model 1 provides any improvement in the quality of decision making? Equation 2 of Table 3 presents an analysis where each of the decision strategies are interacted with political sophistication. The only significant interaction involves Model 1. Whereas political novices who try to employ a rational Model 1 decision strategy do about 10 percent worse than baseline, political experts who employ such a strategy do significantly better than novices, and about 4 percent over baseline. So political experts, then, might benefit from employing a rational Model 1 decision strategy, but only in a relatively easy general election decision context.

Pressing a Bit Harder to Save Rational Decision Processes

This is the best picture we can paint for Model 1 voters, and it is not overly impressive. These results are very consistent with our theoretical expectation (based on a great deal of prior research in cognitive psychology), but they are extremely important because they so clearly run counter to the promises of classic economic rational choice theory. What these results are telling us is that, at least in politics, *more information does not always result in better decisions* -- in fact, it often results in *worse* decisions. This finding sounds counter-intuitive until we remember that all decision makers have cognitive limits. Evidently additional information beyond cognitive capacity often confuses voters and actually lowers the probability of a correct value maximizing decision.

Or at least that is how we view our results. But we have been pressed by colleagues who have heard preliminary versions of this research to push a bit harder on this point. What if we have it absolutely wrong, and it is not that most people are overwhelmed by too much information, but rather that our criterion for calling someone a “Model 1 voter” is too *low*? In other words, some people really can process a great deal of political information, and we are wrongly including too many people in the Model 1 category. Perhaps true rational choice voters should be in the upper 35th or even 25th percentiles of depth of search, rather than the upper 45th as we have employed here?

To explore this possibility we redefined the Model 1 category with these two higher limits and ran the basic (equation 1) analyses from Tables 2 and 3 again. These results are available from the authors for interested readers, but we can characterize them pretty easily here. In the primary, raising the depth of search criteria for Model 1 from the 55th to the 65th percentile has almost no effect whatsoever, apart from reducing the sample by 15 cases. The coefficient associated with Model 1 changes from -.299 to -.162, a slight improvement. Raising the criterion on depth of search to the 75th percentile makes a somewhat bigger change, so that now the coefficient associated with Model 1 is zero (to three decimal places). The coefficients for the remaining three decision strategies remain virtually identical to those reported in Table 2. In the general election, the coefficient associated with Model 1 increases from .089 originally to .152 with the first raising of the bar, but then falls to .064 with the toughest criterion, even lower than it was originally. None of these changes lead us to change our interpretation of these results.

Another possible explanation for the relatively poor performance of Model 1 involves the definition of “correct voting” rather than the operationalization of the different decision strategies. Recall that our normatively naive definition of correct voting is based on each

individual voter's judgment of what criteria are important to them in deciding how to vote. We get this information by observing each voter's behavior, by looking at what attributes they examine for two or more candidates, and then making the normative judgment that they should have looked at that same information for *every* alternative in the choice set. This procedure gives each voter a pretty strong voice in determining what is "correct," which was our intent. But it also means that the standards of "correctness" differ across voters, and differ in proportion to the amount of information that is actually considered. It is simply much easier for a voter who in practice only examines two or three different attributes for multiple candidates to be counted as voting correctly, compared to a voter who considers 15 or 20 different attributes for multiple candidates. By this reasoning, our normative naive measure of correct voting could have inadvertently "built in" a bias against decision strategies which rely on relatively deep information search.

To examine this possibility, we go to the other extreme in defining correct voting and say that, regardless of what our voters may have actually wanted to learn about these candidates, they nonetheless *should* have looked at *every* bit of available information about every candidate in the choice set, even though for all intents and purposes this was physically impossible to do in our experiments. We refer to this as our "kitchen sink" measure of correct voting. We find such a definition of "correct" voting harder to justify normatively, but it does fit with the assumptions of classic economic rational choice, and should if anything bias our results in favor of Model 1 and Model 2, the two types of decision strategies which involve the deepest search.

The results of these new analyses are again available from the authors upon request. In the primary, the change in definition of correct voting had the effect lowering the apparent effectiveness of every decision strategy except Model 2, and its coefficient is still clearly negative. Model 1 voters do not do any better with the kitchen sink formulation of correct voting compared to our original normative naive measure; in fact, they do somewhat worse. In the general election, the changes went in the opposite direction, as the apparent efficacy of all four decision strategies improves. Model 1 now has a significant positive coefficient – but it is still roughly half the size of the coefficients associated with the remaining three decision strategies. Again, we see no reason to change our interpretation of our basic findings.

Digging a Bit Deeper: What Leads Voters Astray?

Up until this point, every move we have made, every analysis we have performed, has been driven by our theory. Several readers of an earlier draft of this paper have nonetheless urged us to look further. How are voters who employ any of the different models led astray? Can we find any cognitive processes that might mediate and/or help explain why Model 3 and Model 4 voters often do better than Model 1 and Model 2 voters?

To begin to answer these questions, we isolated voters who employed each of our different decision strategies, and tried to explain their probability of a correct vote from a new set of predictors, including variables measuring the depth of information search, comparability of search across candidates, the percentage of within-candidate and within-attribute search sequences, the percentage of all search that was devoted to policy issues, or person attributes, political sophistication, four measures of political heuristic use (see Lau and Redlawsk, 2001b), and in the general election, total accurate memory. This is certainly not mindless data dredging, but neither will we pretend to have solid theoretical expectations as to which of these variables

should prove to be particularly elucidating.

Starting with Model 1 voters, the data across both the primary and general election campaigns do point to one particular factor: the *order* in which information was gathered. We have tried to simplify the analysis by ignoring a factor which the behavioral decision literature takes quite seriously, the order or sequence in which information is obtained.²⁷ But we did measure it, and what that measure tells us is that for Model 1 voters, within-attribute search is more likely to be associated with correct voting than within-candidate search. Intra-attribute search sequences should be associated with greater equality of search across alternatives. Evidently, had we raised the bar for categorization as Model 1 on equality of search rather than depth of search, we may have found more positive results.

There are no consistent results for any of the other decision strategies, however. Greater equality of search across candidates was also associated with more correct voting for Model 2 voters in the primary, but it worked in the opposite direction in the general election. Separate analysis of Model 3 and Model 4 voters yields nothing at all. Thus if there are any additional factors in our data that can tell us more about when people vote *incorrectly*, we have not been able to find them.

Discussion

This paper has illustrated a simple but heretofore largely ignored point in the voting behavior literature: *How* voters go about making a decision has important implications for the nature and quality of the decisions they make. We have argued that voters, like all decision makers, are faced with two often competing motivations: the desire to make a *good* decision, and the desire to make an *easy* decision. We have argued further that people play a much larger role in shaping their own political information environments than is normally recognized. Indeed, it is in their discretionary information search that people exhibit different decision strategies which vary in how cognitively difficult they are to perform, and their probability of reaching the best possible decision.

Our most surprising and important finding is that *voters who exhibited a classically rational decision process* – one characterized by relatively deep information search, evenly distributed across the different alternatives – *were in many circumstances less likely to make a correct decision* compared to voters employing an intuitive or the fast and frugal strategy, both of which are based on relatively shallow information search. In our experiments, less was often

²⁷ See fn 15 above. If decision makers have complete control over the order in which they obtain information (as they would with a classic static information board), this variable is an important individual difference. Most decision makers will prefer either attribute-oriented (sometimes called “dimensional”) or candidate-oriented (sometimes called “holistic”) search sequences, with attribute-oriented search usually assumed to be cognitively easier (Payne et al, 1993). Hence the standard measure of search sequence is the ratio of attribute-oriented to candidate-oriented search. While this may be an important individual difference in the ideal world of a static information board, decision makers will readily adapt their search to the contingencies of the situation. Make attribute-oriented search easier, and decision makers will use it; make candidate-oriented search easier, and decision makers will employ *it* (e.g., Herstein, 1981; Rahn, 1993). Our dynamic information board does not make either sequence particularly easy, however, and the literature does not suggest that one is any more likely to result in higher quality decisions than the other. So here we did not try to further subdivide our four models of decision making by search sequence.

better. This finding flies in the face of decades of work in economics and related decision making fields where a paramount assumption has been that gathering all available information about every conceivable alternative leads to the highest probability of making the best possible decision. But in the context of a complicated, information rich election environment, our finding dovetails with the often expressed (but rarely shown) idea that voters can do a pretty good job despite their cognitive and informational limitations.

We readily acknowledge that few voters have the motivation to gather all possible information about even the major competing candidates in an election, and even if they did, the overwhelming amount of such information during the typical U.S. presidential election would make obtaining anything close to “all” possible information a pipedream – or at least a full time job. But that is not the point. In our experiments, time limitations made it impossible to consider all possible information – just as is the case during most actual elections. But within those constraints, voters who examined the *most* information, and as much as possible obtained the *same* information across the different candidates – that is, voters who came as close as possible to following the dictates of classic rational choice – often were *less* likely to reach what for them was the best possible decision.

The reader may ask whether it is possible for a decision maker to employ *multiple* strategies in reaching a decision. It certainly is. With a large number of alternatives, for example, it would seem quite reasonable to employ some noncompensatory strategy to “narrow down the field” before switching to a compensatory strategy to make a final choice.²⁸ We have thought about this problem a lot, but have not found a good way to determine when a decision maker switches from one strategy to another. The results we present here do allow decision makers to switch strategies between the primary and general election campaigns, in that the measures of depth and comparability of search upon which the median splits were performed, were calculated separately for each election campaign. But within election campaign, our operationalization of decision strategy places voters in one (and only one) category. Clearly this is a topic for more research.

All research designs have their limitations, of course, and ours is no different. Experiments allow us to place significant control on our experimental “universe,” letting us manipulate only that part that is theoretically interesting while holding constant other theoretically irrelevant factors. This strength means we are quite certain that the findings we report are internally consistent and directly attributable to the experimental manipulations. But of course, our experiments are not an election. And while our subjects became engrossed in the “campaigns” they faced, and reported that they found them quite realistic, clearly our findings should be replicated, by other research teams and with different methodologies. But that research is well worth doing, we would argue, because the implications of our findings are profound and far-reaching, both for political science (and decision research more generally) and for the practice of politics.

On a normative level, classic liberal democracy is broadly justified as the system of government that (in theory and/or in practice) best reflects the “will of the people.” The underlying basis for this justification is the assumption of personal autonomy, that individual

²⁸ This is certainly the spirit of Mintz’s (2002; Mintz and Geva, 1997) “poliheuristic” perspective on foreign policy decision making. By our reading, however, Mintz does not address this question of shifting decision strategies either.

citizens know best what their own interests are (Dahl, 1989). Social choice analyses in turn build on this assumption, seeking equilibrium solutions for certain institutional arrangements because they are presumed to maximize collective (autonomously determined) utility (see Austen-Smith and Banks, 1999, for a recent review).

We have no argument with the assumption of personal autonomy; indeed, we rely on it as the basic justification for our own measure of correct voting (Lau and Redlawsk, 1997). But when in practice democracy seems to yield a result which does not appear to truly reflect the will of the people, the suggested solution is always providing more and “better” information. This idea has been with us from the very inception of our own government, as when Thomas Jefferson argues that the best way to preserve democracy is to “educate and inform the whole mass of the people,” and is repeated time and again by more recent political scientists. For example, Kelley (1960), in his book on political campaigns, argues that voting decisions will be best when voters have “full information about the alternatives to be voted upon [and] full knowledge of all the effects that would attend the choice of each alternative” (p. 9). Similarly Delli Carpini and Keeter (1996) provide an impassioned argument for increased political knowledge – i.e., information – as a solution to many of the ills of democracy.

At a minimum our results must give pause to this common line of argument. Could social science be misguided not only in assuming that people or organizations actually make decisions in an instrumental, classically rational manner (which we have long known is rarely the case), but also in the assumption that people and organizations are *capable* of following rational strategies; and moreover, *if they did, that they would reach value maximizing decisions?* This is not just a minor theoretical question of importance only to a few political scientists. Indeed, the question of how much and what kind of information voters should have is the key question asked (at least implicitly) by all political campaigns.

Complaints about the media’s (mostly television’s) coverage of modern political campaigns are common: how they focus on horserace and hoopla, and how they have forced candidates to simplify the important details of complicated policy debates to the 7-10 second “sound bites” that television is willing to show (e.g., Patterson and McClure, 1976; Patterson, 1994). The basis of those complaints is the uncritically accepted assumption that providing people with more information will allow them to make better decisions. What we get from the media is too brief, too condensed, and what we need is more complete and (inevitably) more complex information. Our results challenge that assumption.

Similarly, political science turned up its collective nose when early voting studies found how generally uninformed the public was, and how simplistic were its apparent decision making processes, often based on little more than the “standing decision” of party identification, and perhaps the vague notion that the “nature of the times” was good or bad (Campbell et al, 1960). Again, perhaps we as a field were too quick to judge.

If our findings do unequivocally suggest that more information does not always lead to better quality decisions, they should not be construed to suggest that *better information*, and political *education*, are worthless goals. Accurate and reliable information is clearly preferable to inaccurate and unreliable information; clear and easy to understand information is better than vague and ambiguous information; pictures and other visual cues may well enhance the comprehensibility of many types of information. It is also better when any biases in the

sources of the information are open and known to the audience.²⁹

By political *education*, we mean not just the transmission of more political facts and information, but also an increase in the ability to *understand* politics. True political education in this sense is a very worthwhile goal. It includes a knowledge of history that would put current political controversies in some broader context. It certainly includes an awareness of alternative points of view, if only to put one's own values and preferences on firmer ground. In purely cognitive terms, it involves more and stronger links between different bits of information in memory, which can bring both more dimensions of judgment to bear on a problem (what Tetlock, 1985, 1993, calls *differentiation*), and more complex connections among them (*integration*). Somewhat paradoxically, what political education (and thus expertise) brings is the ability to get more *meaning* from *less* information. Improving the quality – if not the quantity – of information, and the quality of the decision maker, may be better routes for improving democracy than trying to insure the “rationality” of the processes employed to reach a decision.

²⁹ We are being careful not to argue that unbiased or two-sided information is better than biased or one-sided information. We are not sure it is, at least from the perspective of the individual decision maker. Whether collectively the political community would be better off if all information were unbiased and multi-sided is a more debatable question – but again, not one we should presume ahead of time to know the answer to. It is a topic we will address in future research.

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TABLE 1
Factors Affecting Choice of Decision Strategy,
Primary Election Campaign

	Chi-Square	Sig.
Age	24.35 (4)	.000
Education	10.89 (4)	.028
Income	22.61 (4)	.000
Gender	15.01 (4)	.005
Strength of PID	.87 (4)	ns
Conservative ID	2.06 (4)	ns
Political Sophistication	3.58 (4)	ns
# of Candidates Manipulation	97.88 (4)	.000
Perceived Difficulty	12.17 (4)	.016
Full Model	1049.4 (36)	.000
Nagelkerke Pseudo R ²	.41	

Note: Results come from a multinomial logistic regression. N = 401.

TABLE 2
Effect of Decision Strategies on Correct Voting,
Primary Election Campaign

	<i>Equation 1</i>		<i>Equation 2</i>	
	B	S.E.	B	S.E.
Age	-1.148*	(.525)	-1.212*	(.521)
Education	-.489	(.546)	-.432	(.545)
Income	-.134	(.360)	-.117	(.358)
Female	-.060	(.240)	-.089	(.239)
Strength of Party ID	.052	(.354)	-.047	(.351)
Conservative ID	-.508	(.529)	-.451	(.528)
Political Sophistication	1.566*	(.825)	1.535*	(.820)
# of Candidates Manipulation	-1.534***	(.265)	-3.278***	(.264)
Perceived Difficulty of Choice	-.777*	(.446)	-.742*	(.444)
Model 1	-.299	(.377)	-1.606*	(.590)
Model 2	-.407	(.423)	-2.204*	(.591)
Model 3	.435	(.450)	-.854	(.645)
Model 4	.600*	(.340)	-.716	(.560)
# of Candidates X Model 1			2.088*	(.891)
# of Candidates X Model 2			2.470*	(1.119)
# of Candidates X Model 3			2.454*	(1.256)
# of Candidates X Model 4			1.916*	(.847)
Constant	.866*	(.421)	2.090**	(.695)
Correctly Classified	71.6%		71.9 %	
Nagelkerke Pseudo R ²	.26		.29	
Model X ² (df)	88.52 (15)		97.28 (19)	
Significance	$p < .000$		$p < .000$	

* $p < .05$ ** $p < .01$ *** $p < .001$

Note: Table entries are logistic regression coefficients. Analysis also includes dummy variables representing the different studies. Significance tests for directional hypotheses are one-tailed. N = 402.

TABLE 3
Effect of Decision Strategies and Memory on Correct Voting,
General Election Campaign

	<i>Equation 1</i>		<i>Equation 2</i>	
	B	S.E.	B	S.E.
Age	.246	(.519)	.154	(.569)
Education	-.001	(.534)	.082	(.548)
Income	.171	(.355)	.118	(.365)
Female	.009	(.232)	.091	(.240)
Strength of Party ID	.998**	(.343)	1.017**	(.354)
Conservative ID	.669	(.530)	.687	(.534)
Political Sophistication	-.446	(.777)	-1.151	(1.221)
Ideological Distinctiveness	.033	(.261)	.005	(.265)
Perceived Difficulty of Choice	-.390	(.448)	-.475	(.459)
Model 1	.089	(.485)	-.404	(.558)
Model 2	.866*	(.482)	.911 [@]	(.569)
Model 3	.672 [@]	(.505)	1.302 [@]	(.689)
Model 4	.988*	(.482)	.606	(.578)
Political Sophistication X Model 1			1.125*	(.547)
Political Sophistication X Model 2			-.166	(.561)
Political Sophistication X Model 3			-1.021	(.701)
Political Sophistication X Model 4			.711	(.566)
Net Accurate Memories	1.326 [@]	(.936)	1.359 [@]	(.962)
Constant	.060	(.529)	.220	(.549)
Correctly Classified	70.4 %		70.9%	
Nagelkerke Pseudo R ²	.10		.13	
Model X ² (df)	29.01 (16)		39.79 (20)	
Significance	$p < .03$		$p < .01$	

[@] $p < .08$ * $p < .05$ ** $p < .01$

Note: Table entries are logistic regression coefficients. Equation 3 employs the “kitchen sink” measure of correct voting. All models include dummy variables representing the different studies. Significance tests for directional hypotheses are one-tailed. N = 402.

FIGURE 1
Four Models of Individual Decision Making

	Model 1 Rational Choice: <i>Dispassionate Decision Making</i>	Model 2 Socialized Attitudes and Cognitive Consistency: <i>Confirmatory Decision Making</i>	Model 3 Cognitive Psychology and Bounded Rationality: <i>Fast and Frugal Decision Making</i>	Model 4 <i>Intuitive Decision Making</i>
<i>Assumptions about Information Search</i>	Decision makers should actively seek out as much information as possible, about every available alternative [until the cost of additional information exceeds its expected benefit].	Information gathering is basically passive, except PID should be sought early. Most exposure to relevant information comes from the media and is largely inadvertent. Perception of media messages is often biased in favor of early-learned predispositions, and to the extent information search is purposeful, it too is biased toward those early-learned predispositions..	Decision makers should actively seek out only a very few attributes of judgment which they really care about or which they have found to be most diagnostic, and ignore everything else.	People actively seek out only enough information to allow them to reach a decision (although depth of search is conditioned by the perceived importance of the decision). Cognitive shortcuts and various decision heuristics are heavily (and almost automatically) utilized.
<i>Method of Decision Making</i>	Explicit, conscious, cognitively difficult consideration of the positive and negative consequences associated with each alternative	Memory-based or on-line evaluations of what is known (long-term) and has recently been learned (short-term) about the different alternatives	Explicit memory-based consideration of the one or two positive and negative consequences associated with each alternative	Satisficing or related methods which attempt to make choice relatively easy by restricting information search
<i>Motivations for Choice</i>	Self-Interest	Cognitive Consistency	Efficiency	Making the best possible decision with the least amount of effort; Avoiding value tradeoffs
<i>Electoral Inputs to Decision</i>	Mainly retrospective (e.g., job performance) and prospective (issue stands) judgments about candidates.	Primarily party identification, but also issue stands, economic evaluations, perceptions of the candidates, and evaluations of the incumbent's job performance.	Candidates' "stands" on the few attributes a voter considers (but certainly not limited to policy stands)	Cognitive shortcuts (stereotypes, schemas, etc.) and other political heuristics

FIGURE 2
General Process-Oriented Model of Voter Decision Making

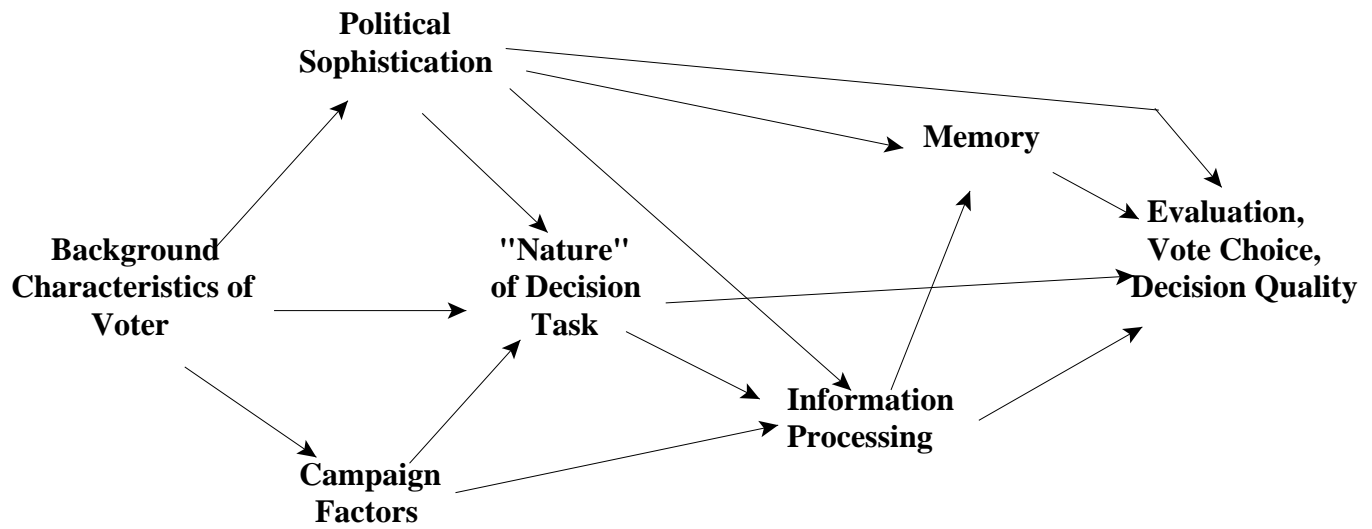


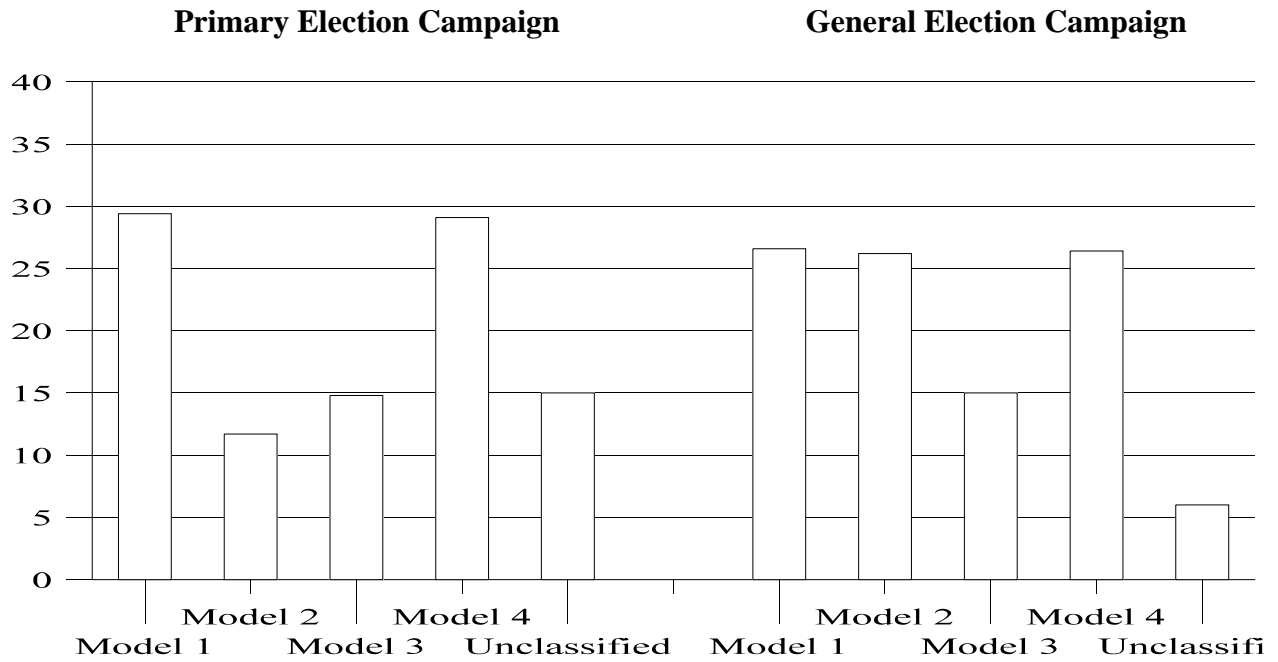
FIGURE 3
Characteristics of Different *Types* of Decision Strategies

Decision Type	Depth of Search	Comparability of Search
<i>Compensatory Strategies</i>		
Model 1: Rational Choice	Deep	Equal
Model 3: Fast and Frugal	Shallow	Equal
<i>Noncompensatory Strategies</i>		
Model 2: Confirmatory	Relatively Deep	Often Unequal
Model 4: Intuitive	Typically Shallow	Generally Unequal

FIGURE 4: Outline of Experimental Procedure

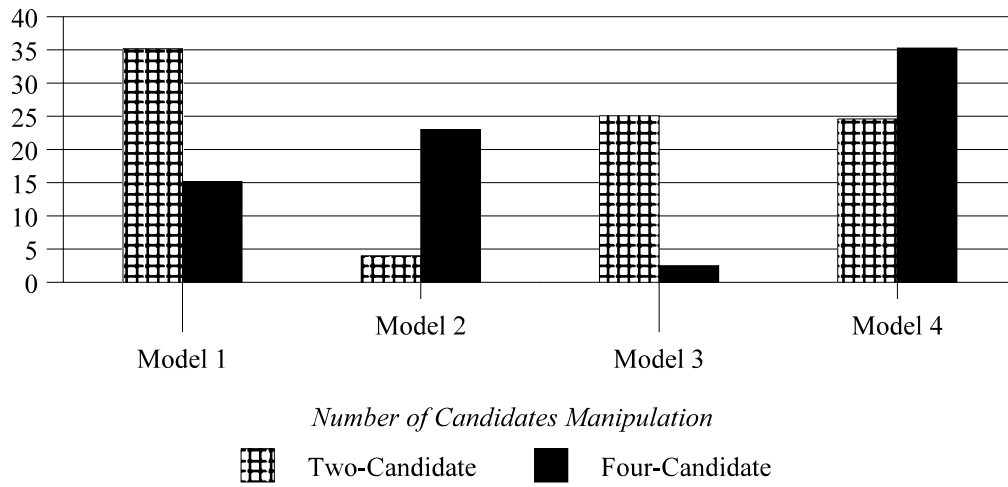
<p style="text-align: center;">1. Political Attitudes Questionnaire</p> <ul style="list-style-type: none">- Questions to measure subjects' political preferences;- political interest, participation, knowledge, and media usage;- importance of different types of political information for 1992 vote choice;- background/demographic information (<i>30-40 minutes</i>)
<p style="text-align: center;">2. Mock Election Campaign</p> <ul style="list-style-type: none">a. Practice session accessing information with the mouse about 1988 Presidential election (<i>about 8 minutes</i>)b. Explicit instructions and 1996 campaign scenario; random assignment to different experimental conditions (hidden from subjects) (<i>about 5 minutes</i>)c. Primary election campaign involving 6 candidates (<i>about 22 minutes</i>)d. Vote in party's primary election; evaluate all six candidates; manipulation check on difficulty of choice (<i>about 3 minutes</i>)e. Break for party conventions; general election candidates selected (<i>about 2 minutes</i>)f. General election campaign involving two candidates (<i>about 12 minutes</i>)g. Vote in party's primary election; evaluate all six candidates; manipulation check on difficulty of choice (<i>about 3 minutes</i>)
<p style="text-align: center;">3. Unexpected Memory Task</p> <p>Subjects asked to remember as much as they can about two general election candidates (<i>about 10 minutes</i>)</p>
<p style="text-align: center;">4. Correct Voting Determination (Experiments 1 and 2 only)</p> <p>Subjects presented with complete information about two candidates from primary (the one they voted for, and the candidate closest to the subject on the issues, of the remaining candidates in that same party) and asked to decide which they would have voted for if they had obtained all of this information when they actually had to make their choice during the primary election (<i>10-15 minutes</i>)</p>
<p style="text-align: center;">5. Attribution of Policy Stands to General Election Candidates (Experiments 3 and 4)</p> <p>Subjects asked to place the two general election candidates on guaranteed jobs and incomes, national health insurance, affirmative action, abortion, and the standard liberalism-conservatism scales. Subjects also indicated how "attractive" each candidate was, and how much they would like that person as a friend (<i>2 - 4 minutes</i>).</p>
<p style="text-align: center;">6. Debriefing</p> <p>Subjects' general impressions of experiment gathered; any remaining questions answered; etc. (<i>about 5 minutes</i>)</p>

FIGURE 5
Prevalence of Different Decision Strategies: Revised Measure



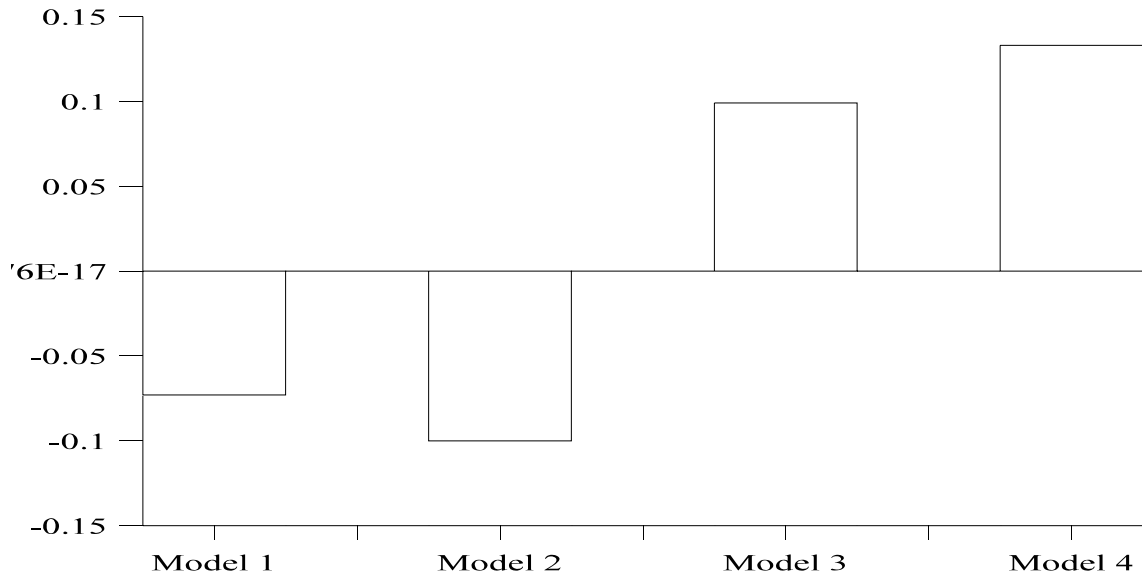
Note: Data are the percentage of all voters employing each of the different types of decision strategies in the primary and general election campaigns, respectively.

FIGURE 6
Effect of Number of Candidates Running in the Primary on Choice of Decision Strategy



Note: The unclassified middle category includes 11% of the cases, in the two-candidate condition, and 24% of the cases in the four-candidate condition.

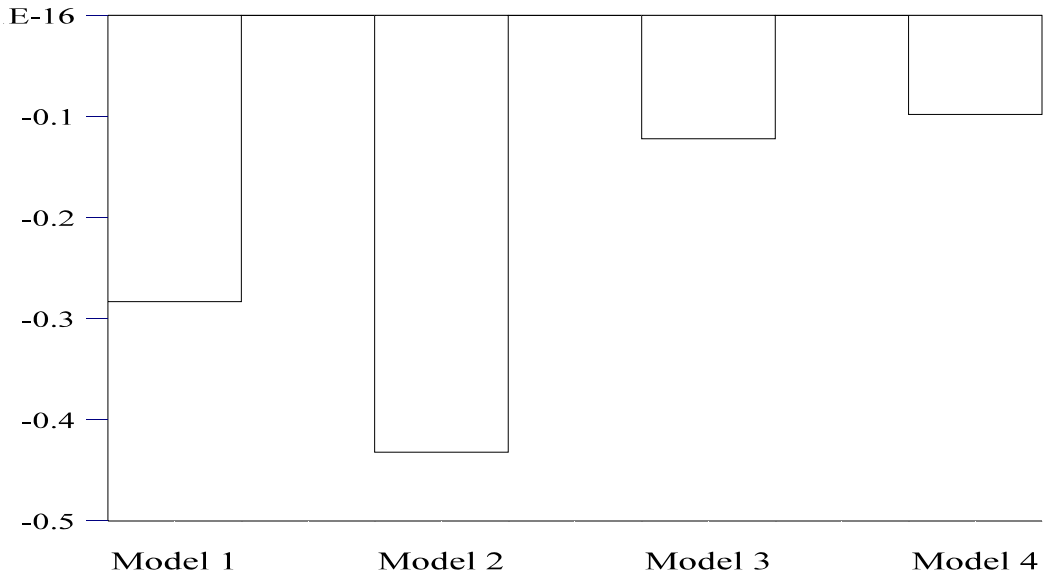
FIGURE 7
Effect of Decision Strategies on Change in Probability of a Correct Vote
Primary Election



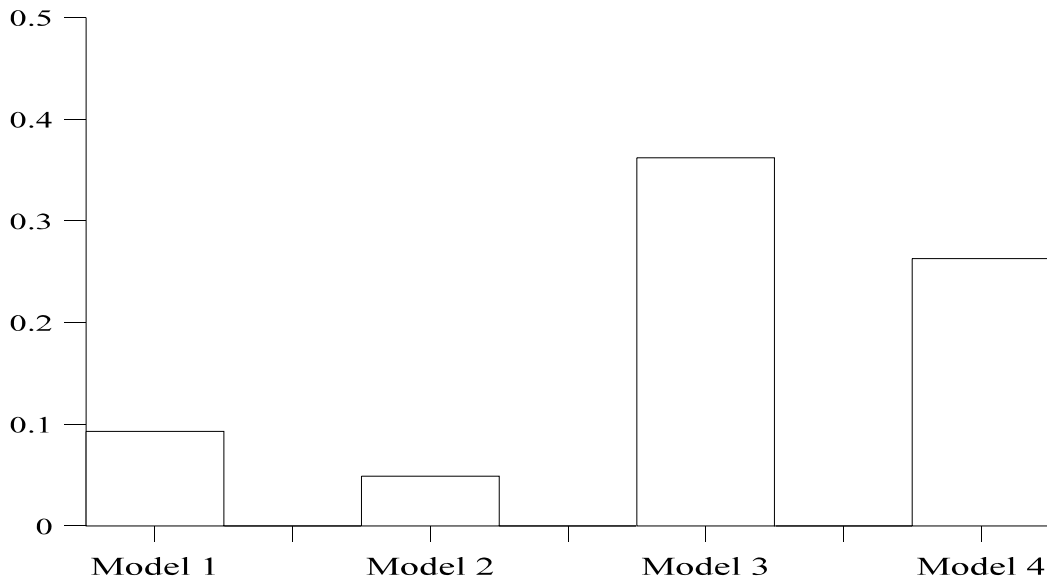
Note: Data reflect change from an overall base of a .59 probability of being correct for a median voter in the two-candidate experiment condition.

FIGURE 8
Effect of Decision Strategies and Objective Difficulty of Decision on
Change in Probability of a Correct Vote, Primary Election Campaign

Two-Candidate Condition (Base .88 probability of a correct vote)

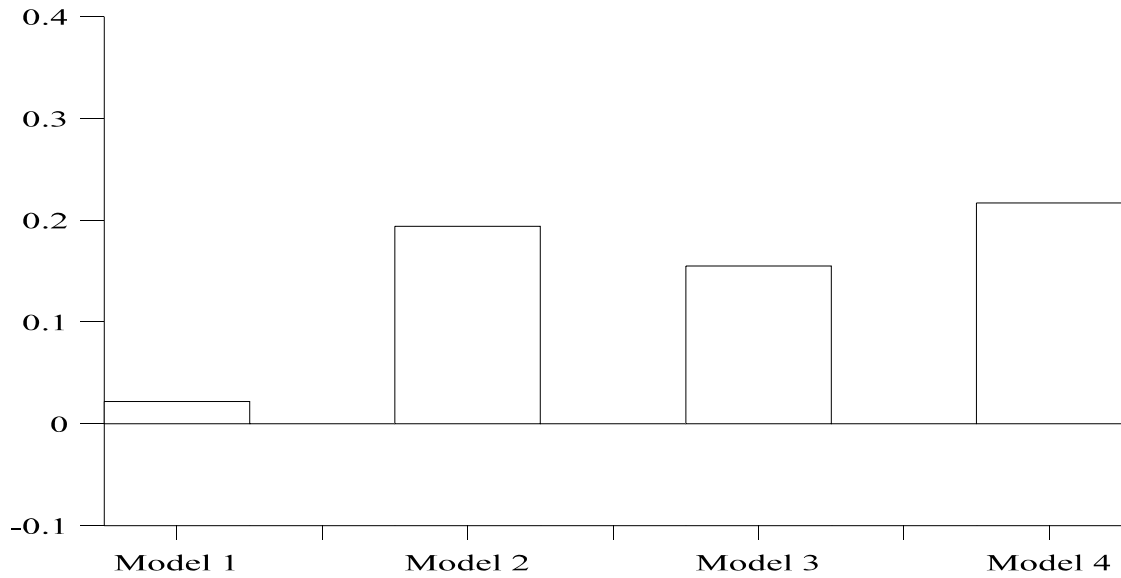


Four-Candidate Condition (Base .22 probability of a correct vote)



Note: Data reflect change in the probability of a correct vote for a median voter in the easier two-candidate condition (top half of the figure) or the more difficult four-candidate condition (bottom half of the figure).

FIGURE 9
Effect of Decision Strategies on Change in Probability of a Correct Vote
General Election Campaign



Note: Data reflect change from an overall base of a .55 probability of being correct for a median voter in the two-candidate experiment condition.