

The Meaningful Effects Hypothesis

INFORMING, PERSUASION, AND VOTE CHOICE IN THE 2000 AND 2004 PRESIDENTIAL CAMPAIGNS

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ABSTRACT: More than half a century into the modern study of voter behavior, scholars remain puzzled by the paradox of campaigns: though they are a ubiquitous feature of democratic elections, evidence that they have any impact on votes remains scarce. I aim to clarify our understanding of campaign effects by looking at the role of issue advertising in the 2000 and 2004 US presidential elections. The results offer a very different picture of campaign effects than seen in previous studies, and provide the basis for a new theoretical understanding of candidates' issue emphasis strategies. First, campaigns do not uniformly educate voters about the candidates' positions; instead, while candidates whose positions are closer to the voters' policy preferences tend to educate voters, their opponents will often try to mislead voters and negate that advantage. I also demonstrate that voters' policy preferences can be moved by persuasive messages, even after accounting for partisan cue-taking. And finally, when voters' candidate perceptions or policy preferences do change in the course of the campaign, I show that they update their candidate preferences in response—becoming more likely to vote for the candidate whose positions appear (in light of their own perceptions) to be a better fit for their own policy preferences, even when that means crossing party lines. By looking at the specific effects of advertising on voters' perceptions and preferences on individual issues, my analysis is able to separate out the offsetting effects of messages from competing candidates, to uncover a reality in which campaigns play a vital part in shaping public opinion and determining the outcomes of elections. Among the many implications of these findings for the study of campaign effects and strategy, the contrasting nature of ads' effects on both perceptions and policy preferences offers an explanation for why competing candidates so often discuss the same issues in their campaigns, particularly when those issues are already highly salient to voters.

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Introduction

Nowhere is the gulf between those who practice electoral politics and those who study it greater than on the topic of campaign effects. Though billions of dollars are spent on campaigns in every election cycle, finding evidence that these efforts have any significant effect on voters' choices remains a challenge, and the mechanisms by which these effects occur are an even greater mystery. When James Carville said in 1992 that "it's the economy, stupid," he said it to emphasize that the campaign needed to remind voters that the economy had become a mess under George Bush's watch. For many political scientists, however, the poor economy itself was enough to dictate the outcome—between the voters' long-term political predispositions and the daily reality of life in a recession, any reminder from the Clinton campaign served merely as a garnish.

In the past three decades, scholars have begun to move away from this "minimal effects" hypothesis and renewed efforts to understand the impact of campaigns on the electorate, first at the broadest level of total spending (Green & Krasno 1988, Jacobson 1978) and then on to progressively narrower metrics including speeches and commercials (Petrocik 1996, Sides 2006). In studies of issue voting and campaign strategy, the focus has largely been on priming, the raising of favorable issues' salience by campaigns in order to maximize their influence on voters' choices (Budge & Farlie 1978, Ansolabehere & Iyengar 1994). Only recently have others begun to look as closely at alternative roles for campaign messages, in providing information to voters about the candidates and in shaping the voters' own policy preferences. The evidence for these effects has so far been mixed: while it does appear that voters update both their estimates of the candidates' positions and their own preferences over the course of campaigns (Brader 2006, Franz, Freedman, Goldstein & Ridout 2008, Geer 2006), it is still unclear how these changes occur and whether they make a substantial difference in the voting booth (Lenz 2009).

I add to this line of research by making use of more extensive data on voters and campaign messages than was previously available, and show that campaigns have a greater impact on both public opinion and election outcomes than previously believed. I do this by combining both cross-sectional and panel data on voters from the 2000 and 2004 National Annenberg Election Surveys¹ with records of television advertising from the University of Wisconsin Advertising Project / Campaign Media Analysis Group datasets² to evaluate the effects of ads across a range of issues during the 2000 and 2004 US presidential election campaigns. My approach is unique for looking at the effects of ad spending on individual issues and separating the direct effects of campaign messages (on perceptions of candidates and policy preferences) from their ultimate intended effects (on vote choice). This allows me to distinguish changes in public opinion brought on by

¹Romer, Kenski, Winneg, Adasiewicz & Jamieson (2006)

²Goldstein, Franz & Ridout (2002), Goldstein & Rivlin (2007)

campaign messages from those which stem from the broader campaign context, and identify the effects of advertising more precisely than was possible in previous research.

These data are used to answer three main questions:

1. How do campaign messages influence voters' perceptions of candidates' positions?
2. Are voters' own policy preferences affected by campaign messages?
3. How do the effects of these messages translate into vote choice?

In doing so, I present results which contradict much of the conventional wisdom on campaign effects. My findings first demonstrate that competing candidates' messages have conflicting effects on voters' perceptions of the candidates' positions—when ads from one candidate (typically the one whose positions are closer to voters' preferences) serve to make voters better informed about these positions, the opponent's ads often serve to mislead them. This demonstrates for the first time how campaign strategy determines whether or not ads make voters better informed. I next offer similarly unique evidence that, even after controlling for partisan cue-taking, voters are persuaded by candidates' ads to update their own policy preferences. The final analysis of vote choice investigates whether these direct effects of campaigns matter on election day, and the result is a resounding “yes.” When given new information or persuaded about the best policy, individuals indeed update their votes to support the candidate whose positions are a better match for their own policy preferences, and this process can undermine voters' partisan predispositions as well as reinforce them. By combining the most precise data available on voters and campaigns with an analytical approach designed to isolate the effects of advertising from confounding factors, I ultimately present clear evidence that the temptation to dismiss campaigns' relevance is a mistake, and that their effects on voters are in fact a critical determinant of elections' outcomes.

In the following section, I expand on the theories and motivations underlying the search for campaign effects. The second section proposes the specific hypotheses to be tested and relates them to previous findings. I then introduce the data to be used in the analyses, describe the models employed, and outline the specific predictions for testing each hypothesis. The fifth section presents the results, first examining the direct effects of campaign messages on voters and then demonstrating what these changes mean come election day. I conclude with a discussion of what these findings mean for the study of campaign effects and what they imply for theories of campaign strategy.

Campaign Effects and Issue Voting

The “minimal effects” hypothesis is largely the product of two findings from the study of presidential elections. First, voters seldom waver in their candidate choices; nearly all can express a preference before the onset of campaign season, and very few deviate from this choice in November (Lazarsfeld, Berelson & Gaudet 1948, Berelson, Lazarsfeld & McPhee 1954). And second, the aggregate results of presidential elections can be predicted well in advance, with surprising accuracy, by looking at factors which are essentially exogenous to the campaign—most notably economic performance during the term of the incumbent (Erikson 1989, MacKuen, Erikson & Stimson 1992, Hibbs 2000) and party identification (Bartels 2000, Converse 1962, Fiorina 1981). These findings inspired a great deal of consternation on the part of researchers, because they suggest that for all the drama of campaigns, their significance is negligible (Ansolabehere 2006, Gelman & King 1993).

This viewpoint has started to fall out of favor as a consequence of studies beginning in the late 1970s, which looked beyond the presidential general election and toward primary campaigns and lower-office elections (Jacobson 1978, Gilliam 1985, Bartels 1988, Green & Krasno 1988). In these races, information is more scarce, partisanship is less deterministic, and the responsibility for economic performance is not as obvious—and as such, more room is left for voters to be swayed. These findings implied for presidential elections that perhaps the problem for researchers is not that campaign effects do not exist, but rather, that we have been unable to observe them because they may be obscured by macro-level factors and may also cancel each other out in closely-matched contests. With this challenge in mind, attention has once again shifted to the analysis of presidential campaigns.

Brady, Johnston, and Sides (2006) identify three general types of campaign effects that influence voters’ candidate preferences: *priming*, *persuasion*, and *informing*.³ Each of these effects relates to a specific component of the general issue voting model. In this model, which stems from extending the classic spatial model into multiple issue dimensions (Downs 1957, Stokes 1963, Calvert 1985), voters evaluate candidates’ issue positions in relation to their own policy preferences. On each issue, the candidate whose position is closer to the voter’s is preferred, and these issue preferences are aggregated across issues to determine the voter’s overall candidate preference, with each issue preference weighted according to the salience of that issue to the voter.

Thus there are three ways in which the voter’s calculation can be affected in such a model: campaigns may prime issues to increase their salience, they may persuade voters to change their policy preferences, and they may provide information about the candidates’ positions which voters can use to distinguish between

³The fourth type of effect they identify, *mobilizing*, relates to the turnout decision rather than the vote decision, and thus is not considered in this paper.

the candidates. Of these three types of effects, priming has received the most attention in recent years. It has been a centerpiece of nearly all theories about candidates' issue emphasis strategies (Ansolabehere & Iyengar 1994, Petrocik 1996, Sellers 1998, Simon 2002, Hillygus & Shields 2008, Vavreck 2009), and has also been supported by studies looking at the effects of campaigns on voters (Iyengar & Kinder 1987, Krosnick & Kinder 1990, Jacobs & Shapiro 1994, Kinder 1998). More recently, however, the other two types of effects have become more prominently featured in campaign effects research.

Studies of advertising in political campaigns have shown that ads—even the much-maligned attack ads—routinely serve to increase voters' knowledge about the candidates and their positions (Geer & Geer 2003, Freedman, Franz & Goldstein 2004, Geer 2006). This finding, however, goes against an important notion of campaign strategy: as Franklin (1991) and Alvarez (1997) point out, candidates often have an incentive to mislead voters about their positions rather than inform them. In 2004, for example, voters overwhelmingly supported providing universal healthcare, a situation that would logically favor Kerry. As such, Bush would be better served if voters did not know the candidates' real positions on the issue, so he would have an incentive to use his campaign messages to mislead voters rather than educate them. His goal would be to convince voters that his position is closer to theirs (or that Kerry's is further away) than is actually the case. Given the nature of two-candidate, winner-take-all elections, Kerry would have the opposite incentive: to make voters better informed about both candidates' real positions.

This dichotomy can be seen in candidates' ads. To illustrate, Table 1 contains excerpts from ads used in the 2000 and 2004 presidential elections, and shows how competing candidates send conflicting signals about their positions on specific issues. On the question of job creation, for example, Kerry's ads tell viewers that he will cut taxes for companies that create domestic jobs. An ad from the Bush campaign, however, asserts that Kerry will actually raise taxes on businesses and hurt job creation. Regarding Bush's position on the same issue, while Bush's ads claim that he wants to improve the economic climate for companies to keep them in the US, an ad for Kerry (paid for by the DNC) accuses Bush of actually helping companies which move their operations abroad. In these instances and others shown in the table, the candidates clearly present voters with opposing views on where each candidate stands. If candidates do actually have some "true" issue position, then only one side's argument could be expected to move voters' perceptions in a more accurate direction; the other side, offering a competing viewpoint, will lead voters away from the true position instead.⁴

[INSERT TABLE 1 HERE]

⁴This assumes, of course, that ads move voters' perceptions of a given candidate's positions toward the position asserted in those ads—that is, that voters do not second-guess the ad and react by shifting their perceptions in the opposite direction instead. While some individuals may in fact react in this manner, it is safe to assume that most voters' reactions fall somewhere on the spectrum between accepting an ad's claims and ignoring them. And regardless, as the coming analyses test the *effects* of ads and not just the claims therein, whether this assumption is valid will ultimately be sorted out empirically.

Studies of public opinion have also shown mixed evidence as to the ways in which messages from candidates can affect voters' policy preferences. The main debate in this area is as to whether such effects are the result of "true" persuasion, in which voters are swayed by the merits of a candidate's argument, or whether these observed effects are simply the result of partisans without strong policy preferences taking cues from their preferred candidate about the "correct" position on each issue (Zaller 1992, Page & Shapiro 1992).⁵ These alternatives are not mutually exclusive—some voters may be genuinely persuaded by argument, while simultaneously others conform their preferences to match their candidates' positions. But to date, no study has shown voters to be subject to persuasion as a function of argument or evidence, rather than cueing.

Finally, a lingering question across all types of campaign effects is whether they actually lead to meaningful differences in votes as a consequence. The vast majority of studies showing an effect of campaigns on votes have observed their main function to be in reinforcing existing preferences or in activating underlying predispositions (Campbell 1960, Converse 1962, Hillygus & Jackman 2003, Key 1966). Conversely, none of these studies show evidence that the effects of campaigns may push voters in directions they were not already inclined to go. Similarly, the question has arisen as to whether previous evidence showing significant priming effects is really showing another effect entirely. Lenz (2009) argues that the increased predictive power of issue positions over the course of the campaign, seen in studies using rolling cross-sectional survey designs, is actually attributable to voters growing increasingly informed about the candidates' positions. Voters then employ that information to bring their candidate and policy preferences into better alignment. Using panel data, Lenz shows that voters update their policy preferences to reflect their candidate preferences, not the other way around. This would suggest—coming full circle to the original minimal effects viewpoint—that the substantive effect of campaigns on election results may well be negligible after all. If voters' candidate preferences remain stable in the face of campaign messages, than any effects of campaigns on perceptions or policy preferences would be of little significance.

Hypotheses of Campaign Effects

In the coming analyses, I attempt to untangle these questions by testing three hypotheses, one related to each of the two direct effects of campaigns described above (informing and persuasion) and the third about the resulting impacts of these direct effects on vote choice:

- *Repositioning hypothesis*: On any given issue, competing candidates' messages about that issue will have contrasting effects on the accuracy of respondents' perceptions of the candidates' positions; can-

⁵The term "persuasion" takes on multiple definitions across this literature. While some use it to argue that individuals can be "persuaded" to change their votes, I use it strictly to refer to the process of changing voters' minds about the best policy choice on a given issue.

didates whose positions are closer to the public’s preferences will make voters better informed about these positions, while their opponents will make voters less informed.

The repositioning hypothesis is suggested in much of the existing work on campaign strategy and informing effects, but has not been extensively tested with real data.⁶ It implies that when discussing the positions of two competing candidates, one candidate will have an incentive to mislead voters about his or his opponent’s position. This is compared to the null hypothesis that ads make voters better informed about the candidates’ positions regardless of which candidate they come from, as suggested by the broad claims about advertising made by Franz et al. (2008), Geer (2006), Freedman, Franz & Goldstein (2004), and others.

Note that this framework assumes each candidate to hold objective positions on each issue, which indicate the specific policies each candidate would support once in office. While identifying these positions exactly (that is, predicting the future) is not feasible, I assume that there is a single best estimate of this position that voters would reach given complete information about the candidates’ prior actions, policy statements, and so forth. Information conveyed by candidates which accurately reports these actions and statements—thus making voters “better informed” in that their factual knowledge of this evidence is greater—brings voters’ perceptions of a candidate’s position closer to the aforementioned best estimate. Information which distorts such evidence, however, pushes voters’ perceptions away from where they would be under complete information.⁷

- *True persuasion hypothesis*: Respondents exposed to a candidate’s messages on an issue shift their own policy preferences closer to that candidate’s position as the volume of campaign messages becomes greater, above and beyond the effects of partisan cue-taking.

The true persuasion hypothesis has received little empirical support in the existing literature; rather, the consensus appears to be that policy preference changes in response to campaign messages are primarily a function of the individual’s predispositions toward the messengers (Zaller 1992, Page & Shapiro 1992). In Lenz’s (2009) account, cue-taking occurs when individuals learn the positions of their favored candidates and update their own policy preferences to match; this process is thought to have no substantial impact on vote choice. To account for the effects of such cues, I control for whether partisan respondents learn the positions of their nominees between panel waves, and test the true persuasion hypothesis against the null hypothesis

⁶Alvarez (1997) proposes a similar explanation for his finding that campaigns do not appear to make voters less uncertain, but does not test this hypothesis explicitly. Franklin (1991), meanwhile, provides evidence supporting a related but distinct hypothesis—that incumbents’ positions are clarified by their own ads but obfuscated by challengers’ ads.

⁷If the evidence about a candidate’s position is inconsistent—for example, if he claims to have changed his position—a single piece of factual evidence may move a voter away from the complete information perception, but the acquisition of factual evidence will still move the voter in the right direction in expectation. My analyses minimize concerns over this point, however, because they use binary candidate placements and only include issues on which the candidates have taken unambiguous and distinct positions. Identifying whether a candidate’s “true” position is for or against each of these policies is therefore unlikely to be controversial, and these positions are the basis for coding “correct” responses by individuals.

that ads have no effect on policy preferences aside from cueing.

- *Meaningful effects hypothesis:* As voters' perceptions of the candidates' issue positions change and their policy preferences evolve over the course of a campaign (e.g., in response to campaign ads), they will update their candidate preferences to better align with their policy preferences.

There is little consensus in the existing literature about how direct campaign effects (such as those on perceptions and policy preferences) translate into vote choice, beyond the common belief that campaigns ultimately do very little. The minimal effects viewpoint would argue that these direct effects are irrelevant—either the causal relationship is reversed (with candidate preferences driving responses to campaigns, such as through cue-taking on policies), or voters' candidate preferences are simply too strongly determined by long term factors such as partisanship and the economy. Even among scholars who argue that voters do update their candidate preferences, the effects of campaigns are presumed to simply reinforce existing preferences or activate “fundamental variables” such as ideology and demographics (Andersen, Tilley & Heath 2005, Gelman & King 1993).

The meaningful effects hypothesis, by contrast, is implied by the first two hypotheses about direct campaign effects as well as the spatial model of voting—if (a) individuals evaluate candidates by matching the candidates' positions to their own policy preferences and vote for the closest candidate, and (b) individuals' perceptions of the candidates' positions and their own policy preferences are swayed by campaigns, then (c) individuals should therefore update their votes in response to those changes in perceptions and preferences. While testing the spatial model may seem redundant given its long history in political science, the empirical evidence behind its framework of issue voting is surprisingly scarce. As Ansolabehere, Rodden & Snyder (2008) point out, measuring and modeling voters' perceptions of candidate positions and preferences on policy is more challenging than it might appear.

And even when these quantities can be measured, as Lenz (2009) notes, determining the directions of causal relationships in issue voting models is similarly perilous. Much of the evidence linking policy preferences with vote choice does not distinguish between those individuals who base their votes on their policy preferences and those who choose their preferred candidates on other grounds then take cues from these candidates about which policies to support. Because of the uniqueness of the data and methods employed below, my analyses are designed to overcome these challenges and thereby determine whether changes in perceptions of candidates or policy preferences indeed cause potential voters to reconsider which candidates they support.

Data

Previous studies of campaign effects have been limited by the availability of data on both voters and campaigns (Iyengar & Simon 2000). As noted in the previous section, rolling cross-sectional surveys of voters have often been used to study campaign effects, but interpreting causal relationships is a challenge in these surveys (Brady & Johnston 2006). Panel datasets offer a significant advantage over cross-sectional data, as they allow the researcher to observe the effects of campaigns on individual respondents over time. Such datasets are much fewer in number, however, and are typically shorter in length and smaller in sample size than most rolling cross-sectional surveys.

Measuring the effects of campaigns directly presents another dilemma, as data on campaigns' messages is similarly hard to come by. Scholars from Berelson, Lazarsfeld & McPhee (1954) through Finkel (1993), Lenz (2009), and others refrain from attempting to estimate campaigns' messages directly, and instead simply use the passage of time during a campaign period as a proxy for the candidates' actions. The problem with such an approach is that it says nothing about the mechanisms of campaign effects—whether any observed changes are the product of campaigns' direct messages to voters, news coverage of the campaigns, personal interactions between individuals, or something else entirely is completely unknown. In other words, such a design can say what happens to voters *during* a campaign, but cannot say that any of these effects happen *because* of it. An improvement over this method is to make use of variation across issues discussed by a candidate, as is done in Petrocik, Benoit & Hansen (2003), Sides (2007), and Vavreck (2009), but such a method does not provide for any variation in exposure to campaigns between voters. With these limitations, the inability of previous studies to find consistent evidence for substantial campaign effects is hardly surprising.

The data I use in the analysis which follows offer the opportunity to examine campaign effects on a more specific level than was previously feasible. This increased precision is made possible by two unique features of the datasets on voters and campaigns. First, by matching specific positional questions asked about both the candidates and the respondents themselves with measurements of candidates' TV ad spending on those same issues, the correspondence between the campaigns' messages and the voters' reactions can be ascertained more directly. And second, by utilizing the over-time variation in advertising in concert with panel data on voters, the ever-present concerns about endogeneity with regard to campaign strategy can be greatly reduced.⁸ This allows the analysis to make use of two sources of variation in exposure to campaign messages that are not available in studies which simply look at voters before and after a campaign: between-

⁸These concerns cannot, admittedly, be eliminated entirely. The panel varies in the date of the pre-election interview, which makes variation in individuals' responses across waves more of a challenge to compare than if all respondents were interviewed at the same time. See Appendix D for a more detailed discussion of the challenges and benefits of using such data for analyzing campaign effects.

respondent variation over time and across media markets.

Data on voters is taken from the 2000 and 2004 National Annenberg Survey (NAES) datasets.⁹ These datasets contain large cross sections of respondents (58,373 in 2000, 81,422 in 2004) interviewed over a long time period beginning the previous year. Of the respondents initially interviewed before election day (starting January 3 in 2000, July 15 in 2004), a subset (6,508 in 2000, 8,644 in 2004) were reinterviewed after the election as well, providing panel data which can be used to gauge the effects of the fall campaign.

Issues used in the analyses of informing and persuasion effects were selected based on five criteria:

1. Each issue required a question or questions in which respondents were asked to identify the candidates' positions on a relevant policy proposal, as well as a corresponding question in which the respondents identified their own preferences on the same policy.¹⁰
2. Both of these questions were asked in both the pre- and post-election waves of the panel data.
3. The candidates must have taken distinct positions on that policy. (In 2004, the candidates' positions were noted in the NAES codebook. While this was not the case in 2000, each candidate's positions on these issues were clear from their public statements and actions while in office: Bush was coded as supporting school vouchers and opposing government-provided healthcare for children and the right to sue HMOs, while Gore took the opposite positions.)
4. The advertising dataset contained at least one issue category for which ads in that category specifically addressed the policy asked about in the NAES data.¹¹
5. Both candidates devoted significant resources to ads on that issue (at least \$0.50 per household combined and \$0.10 each, on average across all covered media markets, between July 15 and election day).¹²

These criteria allowed for nine issues (three in 2000, six in 2004) to be used in testing the hypotheses given above. For each issue and in each wave, I create dummy variables for each respondent indicating whether she correctly placed each of the candidates' positions. "Correct" responses are those which accurately identify

⁹See Appendices A and B for more detailed information on the specific questions used and their coding, along with information on how missing data is handled.

¹⁰For some issues in 2000 and all in 2004, respondents were asked in a single question whether Bush, Gore / Kerry, both, or neither supported a given proposal; I use these joint placements to infer perceptions of individual candidates.

¹¹This was verified by reviewing the transcripts of each candidates' ads to confirm each policy was addressed by ads in the assigned issue category.

¹²To put it in perspective, \$0.10 per household would pay for approximately 218 30-second ad airings on a major network in Miami during the 2004 campaign (using the average observed cost of a presidential ad in that market), 242 in Memphis, 234 in Flint, or 168 in Cleveland. Note also the similarity of these figures, which demonstrates the usefulness of per-household spending as a quantity which is comparable across markets. Using the per-household spending figure rather than (for example) counts of the number of ad airings builds in an estimate of the audience of each ad. Otherwise, a 60-second major-network primetime ad would be treated the same as a 15-second ad aired on a rarely-watched network at 4am—using per-household spending accounts for both the size of the media market and the audience share for that station and timeslot.

whether the candidate supports or opposes the given policy proposal; because only issues on which candidates took clear and distinct stands are included, determining their positions on specific policies is straightforward. I then also code a variable indicating the respondent’s own preference on the same policy, coded from -100 (the most conservative preference, which matches Bush’s position) to 100 (the most liberal preference, which matches Gore’s and Kerry’s positions).¹³

To control for cueing in the persuasion models and to test the effects of informing and persuasion on vote choice, I create sets of “change” variables based on those described above, which capture the shift in perceptions and preferences between waves. Specifically, for each issue, I create:

- A knowledge-change variable with respect to each candidate, indicating whether the respondent learned (coded 1) or forgot (coded -1) that candidate’s positions between waves (with unchanged placements assigned values of 0).¹⁴
- A preference-change variable measuring shifts in the respondent’s policy preference between waves, which subtracts the post-election value from the pre-election value and thus can range from -200 to 200.

In addition, I code respondents’ demographics (age, gender, race, religion, income, retirement status, education, urban residence, and region), partisanship, ideology, media consumption, interest in politics, swing state status¹⁵, media market, and the number of days between the pre-election interview and election day. When these variables occur in both waves, only the pre-election versions are employed, to avoid endogeneity of their values to any effects of campaigns between waves.

Data on television advertising comes from the Wisconsin Advertising Project, which produced datasets in each year from records collected by the Campaign Media Analysis Group (CMAG). These datasets detail each airing of a political ad in the largest 75 media markets in 2000 and largest 100 in 2004, covering more than 75% of the population in 2000 and 80% in 2004. For each issue used, I transform the data to create estimates—for each possible combination of interview date and media market—of the total spending on policy-focused ads on that issue by each presidential candidate, both up to and after that date in the media market (separately). After creating these estimates, I adjust spending by the size of the media market (in number of households) to create measures of per-household issue ad spending which are

¹³Respondents’ preferences are taken from categorical self-placement questions. The choice of scale used here was made to standardize interpretation across issues, since the number of response categories varies across questions. See Appendix A for more detailed information about this coding.

¹⁴“Learned” is defined as a movement from incorrect placement in the pre-election wave to correct placement in the post-election wave, while “forgot” indicates the opposite transition. This latter term is value-neutral (“forgetting” may happen naturally), but the underlying phenomenon may be a product of deliberate attempts by candidates to mislead voters about their positions, as suggested by the repositioning hypothesis.

¹⁵“Swing states” are those in which the final two-party vote margin was less than 10%. Alternative measures of competitiveness (such as the raw and logged vote margins) did not offer significantly more accurate results, so the swing state indicator was chosen for simplicity.

comparable across media markets, then merge them with the NAES data based upon media market and date of pre-election interview for each respondent.¹⁶ At the end of this process, for every respondent, I have estimates of the amount spent in her media market, by each candidate and on each issue, both (a) before her pre-election interview and (b) between the specific date of her pre-election interview and the date of the election. To my knowledge, no other study to date has estimated issue advertising at such a fine-grained level, and I use this precision to better identify the specific effects of these ads as distinct from confounding effects of other aspects of the campaign environment.

To provide a sense of the distribution of spending across media markets on each issue, Figure 1 plots spending by each candidate across all media markets in the final 100 days of the election. Of the 75 media markets used in 2000 and 100 in 2004, candidates ran ads on each of these issues in roughly half of them, and varied their per-household spending across that subset of markets considerably. For most of the issues shown, the balance of did not tilt overwhelmingly toward one candidate or another in most markets—the slope of the fitted line is close to 1, and the observations stay largely close to that prediction. Only on the issue of job creation in 2004 was there a clear imbalance, with Kerry outspending Bush on the issue of jobs by a roughly 6 to 1 margin in these markets (based upon the slope of the fitted values)—a finding that perhaps drives home the points made by Vavreck (2009) about the relationships between incumbents, challengers, and the economy in campaigns.¹⁷

[INSERT FIGURE 1 HERE]

But for the present purposes, the data in this graph are meant to show that these issues are ones on which the candidates were both competing across these media markets. These data are also useful for providing context to the discussion of spending amounts in the analyses which follow.

Analyses

The approaches to testing all three hypotheses—about informing effects, persuasion effects, and the impacts of both types of effects on votes—are similar. The first two hypotheses (repositioning and true persuasion) each look at a distinct issue-level outcome variable (accuracy of candidate perceptions and respondent policy preferences, respectively) so distinct models are used to test them for each issue. The third hypothesis (meaningful effects) is tested using a single vote choice model for each year. (This section provides the basic descriptions of these models; full specifications for the models are given in Appendix E.) In all of these

¹⁶See Appendix C for more information on the ad coding procedure and the correspondence between issues in the NAES and CMAG datasets.

¹⁷Vavreck argues that in presidential campaigns, one candidate will be advantaged by the economy and choose to emphasize it, while the other will try to change the subject to a more favorable issue instead.

models, the actual dependent variable is a response to a multiple-choice survey question. These observed categorical variables are assumed to be manifestations of an underlying continuous variable; whether or not a respondent correctly identifies Bush as opposing universal healthcare, for example, reflects the respondent’s latent (unobserved) perception of Bush’s position along a unidimensional spectrum of positions on healthcare policy.

My interest is in the change in this latent variable across panel waves. Because the date of each respondent’s pre-election interview varies, classifying respondents based solely upon pre-election responses could introduce error and perhaps bias, because the meaning of these responses may well vary based upon the interview date.¹⁸ To compensate, I model individuals’ post-election responses as a function of their pre-election responses, advertising by each candidate between waves (informing and persuasion models), time between waves, changes in survey responses regarding candidate perceptions (for the persuasion and vote models) and preferences (vote models only), and a prediction of the latent variable (e.g., perception of the candidate’s position) at the time of the pre-election interview.¹⁹

This prediction is created by using all of the NAES respondents (cross-sectional as well as panel) to model pre-election responses as a function of advertising exposure prior to the pre-election interview (informing and persuasion models only), demographics, media consumption, partisanship, ideology, political interest, and the date of the interview. The linear predictions of these models are used alongside the actual responses as proxies for the latent variable at the time of the pre-election interview. By including both of these quantities in the informing, persuasion, and vote choice models, the optimal weighting of both quantities is determined empirically in each regression; this ensures a better-fitting combination than if the weighting of the two variables was chosen *a priori*.²⁰ This approach therefore allows me to take advantage of *both* of the best qualities of the NAES data: I use the panel data to control for previous responses from the same individuals, yet also gain traction from the massive sample of the rolling cross-section to more precisely model the effects of non-campaign variables such as partisanship and demographics.

Controlling for these variables allows the post-election models to focus specifically on the impacts

¹⁸An illustration: a respondent who cannot identify Kerry’s position on stem cells in July is not directly comparable to one who cannot do so in October, because we do not know whether or not the July respondent learned Kerry’s position by the time of the October respondent’s interview. Thus the assignment of the respondent to a category based upon the pre-election response (as in a Markov transition model) would be correlated with the date of interview, which would also be correlated with the respondent’s exposure to campaign messages. So the hypothetical July respondent may be more likely to learn Kerry’s position than the October respondent (because he may do so between July and October, while we are certain the October respondent did not), and would also be exposed to more advertising, but the correlation between those two phenomena could be spurious.

¹⁹See Appendix D for a more detailed explanation of this modeling strategy.

²⁰The motivation behind the use of both quantities is straightforward. Pre-election survey responses are a product of the individual’s pre-election latent variable and (potentially-biasing) measurement error from the response-generating process, while the linear predictions generated from the pre-election responses are unaffected by measurement error from the survey response but exclude any unobserved individual-level heterogeneity. By including each alongside the other and determining the optimal mix empirically, the models of post-election responses can both account for the unobserved heterogeneity of individuals’ responses and minimize the potential bias introduced in the course of translating latent variables into survey responses.

of advertising and time trends on the changes in responses between panel waves. I model time trends as a function of the number of days until the election, with separate slopes for the final 15 days before the election, days 16–30, days 31–60, days 61–120, and days 121 and over. Separate time trends are estimated for respondents in swing and non-swing states, to allow for the time trends to vary based upon the competitiveness in the respondent’s state. By including a robust time trend alongside the advertising measures (even though they are of course correlated with each other), some of the effect of advertising is likely muted, but it enables the results to speak more directly to the effects of campaign messages specifically. Otherwise, inferences could be made about the effects on voters over the course of a campaign, but little could be said about whether the campaigns’ messages to voters (here in the form of TV ads) were directly responsible for any observed relationships—exactly the problem plaguing studies which only look at time trends without measuring campaigns directly. Both measures are ultimately needed to identify the specific mechanisms of campaign effects.

Before proceeding to the analysis of ads’ effects on voters, I present aggregate data on the trends in perceptions of candidates and policy preferences on each issue in Table 2. On most every issue, respondents’ perceptions of the candidates’ positions became more accurate between the pre- and post-election waves of the NAES panel. While in a few instances this change was dramatic, in most cases the change was a modest increase of up to five percent.

[INSERT TABLE 2 HERE]

The magnitude of this change, moreover, appears correlated with the accuracy of initial perceptions. For some policy issues such as the right to sue HMOs, respondents actually did worse than the 50% correct placement rate they would get from a coin toss, and on these issues voters showed substantial learning (with an increase of more than 30% in correct placements of Bush on HMOs) between waves. When respondents were already well informed, however, their perceptions were little changed—correctly placing both candidates on stem cells at about an 85% rate, respondents’ placements edged just slightly closer to 86% between the pre- and post-election interviews. But the overall trend shows an increase in voters’ knowledge over the course of the campaign, and this makes it easy to see how earlier studies which only used the passage of time as their measure of campaigns could lead to the conclusion that campaigns make voters better informed.

Table 2 also shows trends in respondents’ policy preferences on each issue. None of these issues showed particularly large swings in public opinion over time: the largest difference is barely 5% (on school vouchers in 2000, a liberal shift of +10.2 points on the 200-point scale). While on most of these issues public opinion falls squarely on the Democratic side (not surprising, given the prominence of health-related policies in the set of issues available for this analysis), voters moved in the conservative direction between waves for

two-thirds of these issues. While this may suggest a degree of partisan cue-taking over the course of the campaign (with Republicans' preferences falling in line with their party's positions as the election draws near), the sample of issues shown here is ultimately too narrow to draw broad conclusions about where these shifts come from. Instead, the more important takeaway of this data is that for most of these issues, public opinion clearly favors one candidate over the other, and as such this leads to specific predictions about when each side will choose to inform or mislead voters about their positions on each issue.

How do campaigns influence voters' perceptions of candidates' positions?

To test how ads impact perceptions of candidates, I first run a set of what I call "informing models", which look at the effects of candidate ads on respondents' perceptions of the candidates' positions. To repeat the basic elements of these models which were first introduced above, the dependent variable is whether the respondent correctly identifies the position of the given candidate in the post-election wave, and I run separate binary probit models for each candidate and issue. These responses are coded as correct when the respondent accurately answers whether a given candidate supports or opposes a given policy proposal, and are modeled as a function of ads by each candidate, pre-election placements and estimated latent perceptions, and time trends which control for the number of days between the first interview and election day (with separate slopes for different stages of the campaign as well as for swing and non-swing states).

If my proposed repositioning hypothesis is true, the candidates' ads will push voters in opposite directions. Gore's and Kerry's ads are likely to make voters better informed for issues on which the public's policy preferences are especially liberal, but conversely make voters less informed for issues on which the voters' preferences are more conservative. Bush's ads, meanwhile, should show the opposite trend—misleading voters for issues on which public opinion is liberal, and educating for those one which the public is conservative.

These specifications are used to model whether respondents correctly identified Gore's / Kerry's positions on each of nine issues. Figure 2 presents estimates of the marginal effects of spending by each candidate across all nine issues, arranged by the public's mean policy preference on that issue as given in Table 2. (These effects are estimated by running a series of probit models, the full results of which are given in Appendix Tables A1 and A2.) For each candidate's ads, I plot an estimate of the degree to which an additional dollar of ad spending—equivalent to a moderate amount spent in a contested market, as shown in Figure 1—changes the probability of an individual correctly placing each candidate, calculated on average across all respondents. Along with these point estimates, I include lines to indicate the ± 1 standard deviation interval around each estimate, to provide readers a sense of the effects' significance.²¹ Finally, I

²¹I choose to use this interval rather than the traditional 95% confidence interval both because my concern is not whether the

also show the fitted prediction line for each candidate, to show the relationship between the informativeness of each candidates' ads on each issue (that is, whether they inform or mislead voters) and the mean of voters' policy preferences (indicating which candidate's position is closer to the voters' preferences) on that issue.

[INSERT FIGURE 2 HERE]

In these graphs, the dark circles represent the effects of Gore and Kerry ads while the lighter diamonds show the effects of Bush's; effects of ads on the same issue are aligned vertically with one another. Across these issues, the effects of campaigns ads range from an increase in correct placements of more than 7% to a decrease of more than 14%. The negative effects of ads are most likely larger because of the difference in starting points on most issues. This might at first glance seem an idiosyncrasy of the model specification, but the explanation matches real-world conditions as well. If the majority of voters correctly perceive where a candidate stands already, only a minority are susceptible to becoming better informed, but misleading information could affect nearly everyone. As such, even when voters are already well informed, there may still be potential for misinformation to help disadvantaged candidates.

The first test to see is whether both candidates' ads on the same issues have contrasting effects, and clearly they do. For 17 of 18 perceptions (of each of two candidates on each of nine issues, = 18 total), the effects are opposite-signed. In the majority of cases, moreover, one or both of these effects is more than one standard deviation away from zero. Together these findings suggest that the effects of competing ads on candidate perceptions do push voters in opposite directions. The more important criterion, however, is whether candidates are choosing whether to inform or mislead based for the reasons proposed earlier—that is, is this a deliberate strategy on the part of candidates?

Figure 2 provides substantial evidence to say “yes”. The relationship between the informativeness of Gore's and Kerry's ads and the voters' policy preferences on each issue (seen in the long-dashed fitted line) is modest, but evident for placements of both candidates. For issues on which the public held more liberal views, ads from Gore and Kerry made respondents better able to place the candidates than did those candidates' ads about issues on which the public was more moderate. The relationship between Bush's ads and voters' policy preferences, shown with the short-dashed fitted line, is stronger and runs in the opposite direction. Bush's ads became clearly more misleading as the public's preferences grew more liberal.

This finding is even more evident when considering the dynamics of campaign targeting. Because candidates often choose which ads to air at the media-market (rather than nation) level, using national-level voter policy preferences is perhaps too blunt an instrument. It may be rational for Kerry to announce his

significance of any one individual effect—rather, my interest is in whether the effects across issues show consistent trends, and this does not rely on the significance of individual effects—and because the use of 1 SD makes it easier to visualize differences between them.

opposition to the Bush tax cuts in Philadelphia or for Bush to declare his support for school vouchers in Tampa if those voters happen to be more agreeable, so assigning advantages based on national opinion is difficult. If we limit our analysis to those issues on which one side has an overwhelming advantage (one that would likely persist no matter the district), the results grow even more convincing. Limiting the sample of issues to those on which one side is preferred by two-thirds of voters (thus a mean preference greater than 0.33 or less than -0.33) leaves six issues, all favoring the liberal side (school vouchers, the Bush tax cuts, and malpractice reform—the three leftmost issues shown in these graphs—are omitted). With regard to perceptions of Gore and Kerry, the Democrat’s ads were informative for four of six issues, while Bush’s ads were misleading for five of six. With regard to perceptions of Bush, the pattern is even more solid: Gore’s and Kerry’s ads make voters better informed across all issues, while Bush’s ads make votes less able to correctly place the candidates.

The implication of these results is clear: ads can have a substantial impact on voters’ perceptions of the candidates’ positions, and candidates choose whether to inform or mislead voters based on the public’s policy preferences. Because candidates’ messages routinely give voters conflicting information about their positions, the net effects of spending on perceptions are diminished as a consequence. While the data in Table 2 showed that voters typically become better informed during campaigns, in most cases this trend *cannot* be attributed to the campaigns themselves. Messages from candidates are not voters’ primary source for such information, so the concerns expressed earlier about identification in campaign effects studies are validated. But the repositioning hypothesis proposed above comes out with strong support: these results demonstrate that while candidates who are closer to voters on policy issues may make them better informed, their opponents will often mislead voters, and both strategies can be effective in shaping the public’s perceptions.

Are voters’ own policy preferences affected by campaigns?

The persuasion models look at the effects of candidate ads on respondents’ policy preferences. The models used to test for effects on each issue are equivalent to those used to test informing effects in the previous section, with two exceptions. First, because the outcome variable (respondents’ post-election policy preferences) is not dichotomous, I use a linear regression model instead of binary probit.²² And because testing the true persuasion hypothesis requires controlling for the effects of partisan cues, I also include variables indicating whether partisans learned their nominees’ positions between waves. (As with the informing models, detailed model specifications are provided in Appendix E.) If this hypothesis is true, we should see that ads by Gore and Kerry push respondents’ policy preferences in a liberal direction (more positive on the -100 to 100 scale)

²²Substituting an ordered probit model offers similar results, but interpretation of marginal effects in such a model is far more of a challenge, so I use the linear model for simplicity.

while Bush’s ads push them in a conservative (negative) direction.

Figure 3 presents marginal effects of ads on policy preferences in the same fashion as was shown in Figure 2, though without the ordering of issues based on respondents’ preferences or the accompanying fitted values.²³ (These are not necessary because the prediction for each side is uniform across issues: Gore’s and Kerry’s ads make voters more liberal, Bush’s ads make them more conservative.) At first glance, the prediction about these effects’ signs is supported, but only modestly: out of 18 effects shown (9 issues, 2 candidates’ ads), 11 are in the expected direction, 6 in the opposite direction, and 1 is indistinguishable from 0.²⁴

[INSERT FIGURE 3 HERE]

This simple tally treats ads on every issue the same, but there are reasons to distinguish between issues in this analysis. The CMAG coding of campaign ads does not distinguish whether each ad provides evidence or arguments in favor of or against a particular position, and surely many of the issue ads used in these models have other aims—there is no reason to expect all of them to affect voters’ preferences. In this case, we should only expect some subset of ads to show evidence of persuasion. There are 7 effects here with magnitudes which exceed their standard errors: those of Gore’s ads on HMOs and malpractice, Bush’s ads on children’s healthcare, and both candidate’s ads on tax cuts and stem cells. In all 7 cases, the effects are in the predicted direction—an outcome which would occur by random chance less 1% of the time.

As to why ads on these issues affected voters’ preferences more than others, there does not appear to be a distinct pattern in terms of the issues themselves. Persuasion is not confined by the public’s initial preferences or their knowledge of the candidates, nor is it obviously contingent upon the issue being new (while stem cells certainly was new to 2004, so was importing drugs from Canada) or on voters having weak preferences (children’s healthcare plays directly on voters’ emotions and values, while the Bush tax cuts hit them in their pocketbooks). The more likely explanation is that ads on these issues is that the content of ads was more directed at persuasion on some issues than others. For example, the Kerry campaign ran an ad featuring Michael J. Fox (an actor suffering from Parkinson’s Disease) telling viewers that “stem cell

²³The underlying regressions’ results are given in Appendix Table A3.

²⁴This last effect is for Bush’s ads which relate to prescription drug reimportation. A reading of these ads—which encompass the “healthcare” issue—shows that Bush does not often mention that particular policy directly (as Kerry often did), so it should be no surprise that they have no persuasive effect on voters’ preferences. This of course raises the question of whether this policy should be included in the study at all. I believe so, because the choice to discuss a particular issue without addressing a specific policy directly is a conscious one on the part of candidates and sends signals to voters. This is especially relevant for studying informing effects: by not, for example, taking a stand against an opponent’s proposal when addressing the same issue, a candidate may imply to voters that he does not object to the proposal, even if his true position is far to the other extreme. Such sins of omission are, in my view, simply another way a candidate might mislead voters about his positions on an issue. Not every attempt to do so requires a blatant mistruth to promote misinformation—and given that the most obvious lies are often quickly debunked, the subtler attempts may be even more effective. A typology of misleading messages is beyond the scope of this paper, but the point remains that ads do not have to directly address a specific policy to be relevant to voters’ perceptions.

research can help millions of Americans whose lives have been touched by devastating illnesses” and listing conditions which might be cured by future research. Such an appeal is not only emotionally charged by Fox’s appearance, it also relates directly to illnesses which are common to the experiences and fears of many families—and as such, it is easy to understand how such an ad could affect the viewer’s attitudes toward a policy issue that did not even exist in the previous election.

What does this mean for the true persuasion hypothesis, then? There is substantial evidence that voters are persuaded to change their policy preferences by candidates’ ads, but only for a handful of issues. The estimated magnitudes of persuasion effects on these issues are moderate—across the 7 noteworthy effects listed above, the average effect of \$1 in ad spending was a shift of 10 points out of 200—but for the remaining issues the effects are negligible. Simply put, television ads from candidates *can* sway voters’ policy preferences in more ways than just providing cues to partisans, but that is not to say that all ads *do* persuade. The reconciliation of my findings with previous researchers’ dismissals of persuasion is thus straightforward. In most instances, both views agree that persuasion is not occurring. But while others reject persuasion’s effects for their rarity, I contend that what matters is that persuasion works at all. My results suggest that persuasion strategies are a legitimate component of candidates’ toolkits, and when used, they can substantially affect voters’ own policy preferences.

What impact do these effects have on vote choice?

My final analysis examines the potential for changes in perceptions of candidates and policy preferences—when they occur—to affect the respondents’ overall vote preferences. I model post-election vote preferences (either reported votes or, for nonvoters, their preferences when asked whom they would have voted for had they turned out) as functions of pre-election responses and estimates of latent candidate preferences, changes in candidate perceptions, changes in policy preferences, interactions between perceptions and preferences (to allow for the effects of learning to be moderated by policy preferences, and for the effects of persuasion to be moderated by perceptions of candidate positions), and time trends for individuals swing and non-swing states.²⁵

In Figure 4, I provide three sets of estimates for the effects of learning both candidates’ positions on votes. The first estimates are calculated across all voters, while the second and third look distinctly at

²⁵As mentioned at the start of this section, I choose to use predicted values of pre-election candidate preferences in these models rather than control again for the full set of demographic and political variables which are used to model these preferences. This is done because the assumption of time-invariance for the values and effects of controls means that they will have the same impact in both periods, which means that their coefficients can be estimated far more precisely using pre-election data because of the availability of the rolling cross-section’s respondents (a sample which is a full order of magnitude larger than the panel’s). Again, see Appendices D and E for details on this modeling strategy and full specifications. The full results of these models are presented in Appendix Tables A4 and A5, but the interpretation of their coefficients is uninformative because of the various interaction terms used.

pre-election supporters of Gore/Kerry and Bush to observe how the effects of learning are conditional on initial preferences. This breakdown can also help to discern whether campaigns serve merely to reinforce existing preferences or if they can indeed convert voters from one side to the other.

These effect estimates show the *difference* in the estimated average probability of voting for Kerry or Gore for each group (where groups are defined based on pre-election vote-preferences) between two hypothetical scenarios. In the first scenario, respondents cannot place either candidate correctly on the given issue in either wave of the panel—that is, they do *not* learn the candidates’ positions in that interval. In the second scenario, respondents similarly cannot place the candidates in the pre-election wave, but they *can* place both candidates correctly by the time of the post-election wave—they do learn the candidates’ positions in that interval. Each point estimate is thus the expected difference in outcomes between those two hypothetical scenarios, subtracting the average probability in the “voters learn” scenario from the scenario in which they do not learn to show the effect of learning on votes. Estimates are calculated for each issue independently; all other variables (including voters’ policy preferences and their perceptions of candidates on all other issues) are kept at their actual pre- and post-election values for each individual respondent.

For most issues, becoming informed makes individuals more likely to vote for the Democrat, regardless of their initial candidate predisposition. This is consistent with the data from Table 2 showing that voters’ preferences favor Democrats for most of these issues—on only two (the Bush tax cuts and medical malpractice) was the mean policy preference closer to Bush. On medical malpractice, becoming informed had a similar effect across all three groups, increasing Bush’s vote share. But for the Bush tax cuts, the effects are polarized—while the effect across all voters slightly favors Kerry, each candidate’s supporters see their candidate preferences reinforced when becoming informed, on account of their divergent policy preferences on that issue.

[INSERT FIGURE 4 HERE]

Meanwhile, on all other issues the respondents (overall) were closer to the Democratic position, and becoming informed increased the Gore/Kerry vote share accordingly. But looking again at the two subgroups, Bush supporters in 2004 were slightly more likely to support him after learning his positions on prescription drugs and stem cells, in contrast to the pattern seen (of increased support for Kerry) across all respondents and among Kerry supporters. In terms of magnitude, the overall changes in vote probabilities are substantial; the observed effects of learning (across all respondents) are as large as 3.3%, on children’s healthcare in 2000. In only a handful of cases do these results approach statistical significance, but the patterns seen here clearly show the predicted effects. When voters learn the candidates’ positions, they increasingly support the candidate closest to their own policy preference.

Given that these changes occur as a result of becoming informed on a single issue, there is a substantial incentive for candidates to educate or mislead the public about their policy positions in order to win votes. Interestingly, in some cases the effects of learning on the *opponent's* base are more favorable to a given candidate than the same effects on the candidate's own supporters. This seems paradoxical (since a candidate's own supporters are far more likely to share his position), but the degree to which a given voter's candidate preference is affected depends upon two factors: her policy preferences on that issue and the strength of her candidate preference based on all other factors. Though a candidate's supporters are typically closer to their own candidate than respondents in the other groups, the net effect of increasing their knowledge may be less than that seen for other voters simply because they are already so highly supportive to begin with.²⁶ This can make picking up undecided voters and the occasional "persuadable partisan" (Hillygus & Shields 2008) from the other side easier than finding additional votes within a candidate's own base. These findings suggest an important role for targeting ads at specific groups of voters, based both on their policy preferences and their partisan predispositions.

Stepping back and looking at these results in total, the overall effects as well as the subgroup-level effects give a clear picture. As in the first prediction of the meaningful effects hypothesis, increased knowledge about the candidates' positions does lead to a substantial increase in support for the candidate whose position is closer to the voters' own policy preferences. For the larger picture, this finding has noteworthy implications: while previous researchers claim that campaigns mainly serve to reinforce existing preferences, my results show that individuals *can* be inspired to change sides as a result of campaigns. This occurs because partisans do not always share all the positions of their parties, a conclusion which closely echoes the findings of Hillygus & Shields (2008) but is otherwise quite rare in the existing literature on campaign effects.

Persuasion also appears to work as predicted, at least for a subset of issues. Figure 5 presents estimates showing the degree to which voters updated their candidate preferences after changing their vote preferences between waves. These are calculated in similar fashion to those presented in the previous figure: I estimate vote probabilities for respondents under the hypothetical of having a neutral preference in both waves, and compare those predictions to the alternative scenario of the same respondents shifting their preferences in either direction between waves (to agree with either Bush or his opponent). The resulting estimates thus show the degree to which we can expect votes to change on average when a voter is persuaded by a candidate, from a starting point of remaining neutral throughout the election cycle.²⁷

²⁶As in any binary choice model, the marginal effect of a change in utility is diminished as that utility becomes further from zero.

²⁷Note that these models do not distinguish between the ways in which voters come to change their preferences, just as the results above could not isolate exactly where those who learned had acquired that information. Nonetheless, for the direct effects of informing and persuading to be meaningful, changes in perceptions and preferences would have to have an impact on votes in the first place, and that is exactly what is being tested here.

[INSERT FIGURE 5 HERE]

While about half of these issues show a negligible change in vote choice from a change in policy preferences—perhaps because those issues were not especially salient to voters at the time—the remaining issues all show effects in the expected direction. Being persuaded by the Democratic candidate is shown to increase the likelihood of supporting him by up to 1.3%, and being persuaded by the Republican can push votes in the opposite direction by just as much. Such effects may seem small at first glance, but they should be viewed in the proper context. First, these effects account for only a single issue at a time. All other facets of campaigns—including changes in perceptions and preferences on all other issues, as well as non-issue considerations—is excluded. What’s more, changes in public opinion early in the campaigns are not captured here; many of the panel respondents were first interviewed in the final weeks of the election, and these estimates do not include the effects of changes they experienced prior to the first interview. A change in vote share of even a fraction of a percent is as large, it should also be noted, as the difference in popular vote shares in the 2000 election.

Finally, the reference to 2000 brings up the question of targeting; given the peculiarities of the Electoral College, the proportion of voters being intensely fought over is much smaller than the proportion used to create these estimates. When targeting fewer voters, candidates can spend far more to reach them, so the observed amounts of spending used in these analyses (which only capture part of the total spending over the course of the campaign, and include many markets with no spending whatsoever) might be too modest. Given the hundreds of millions of dollars available to candidates, the potential effects of a sustained barrage of advertising on a closely-targeted population could be markedly larger than those estimated here.

Discussion

In this paper, I set out to revisit the long-standing question about campaign effects by studying the 2000 and 2004 US presidential elections. The analyses focus on two types of campaign effects, informing and persuasion. After looking for these effects directly—on voters’ perceptions of candidate positions and their own policy preferences—I then tested whether these effects had an impact on voters’ ultimate choices come election day. By utilizing data on both voters and campaigns which offers more precision than was available to previous researchers, I sought to clarify the role of campaigns in altering respondents’ issue voting calculus.

The results of this analyses lead to four main conclusions:

1. Campaign ads are routinely used by candidates to mislead voters as well as to inform them, and this is most often done by the candidate whose position is far from voters’ preferred policy.

2. Voters' own preferences are susceptible to persuasive messages in campaign ads, but these effects are only evident for a subset of issues.
3. When changes in perceptions and policy preferences occur, voters shift their support toward the candidates whose positions are closest to their own policy preferences.
4. Rather than just reinforcing voters' existing candidate preferences, campaigns can lead voters to question their predispositions and cross over to the other side.

These findings are highly encouraging for proponents of campaigns' significance. In testing for informing effects, my results showed both that emphasis of issues in candidates' messages pushes voters' perceptions in opposing directions, and that the candidate whose position is more distant from voters' preferences is more likely to be the one to mislead them. This finding brings the study of campaign effects more in line with the predictions of spatial models. While the previous finding that campaigns make voters better informed may be true in the general sense (voters do learn over the course of campaigns, on average), I show that candidates' messages serve to mislead voters about the candidates' positions just as often as they educate them. With regard to persuasion, I find—in contrast to much previous research—that voters' preferences may be swayed by arguments and evidence independent of partisan cues.

Each of these changes, moreover, can have a substantial impact on vote choice as a result. Rather than simply activating certain “fundamental” variables such as partisanship and ideology, campaigns can lead voters to reconsider their initial preferences and vote based upon their policy preferences and candidate perceptions on individual issues. Beyond just showing that campaign effects are relevant to elections, this also provides important insight into issue voting. By looking at the consequences of changes in perceptions and preferences during a campaign (while the fundamental variables remain the same), I demonstrate that voters are seriously considering these factors when deciding for whom to vote. While many previous studies have struggled to substantiate the causal link between policy preferences and vote choice, my findings show that policies on individual issues do indeed matter to voters.

The ability of these analyses to distinguish the effects of competing messages from one another also sheds light on how previous studies reached such different conclusions from those presented here. Competing candidates' messages often cancel each other out, so the net effects of campaigns can be small and difficult to identify. But this in no way implies that campaigns do not matter. Though messages from competing candidates can offset, a candidate whose opponent declined to campaign would be able to steer the public's views of candidates and issues in a direction that most favors his own election. Moreover, these fights occur across many fronts—over myriad issues and on multiple aspects of each—so the ultimate effect of any one type of message will inevitably appear small. But the fates of campaigns are a product of thousands of

individual messages, each of which may seem trivial on its own, but collectively they can define candidates and shape public opinion.

These results carry numerous implications for the study of campaign effects and strategy. At a fundamental level, by demonstrating the potential for campaigns to affect both voters' perceptions of candidates and their own policy preferences, they suggest that studies of campaigns should move beyond their excessive focus on priming to include informing and persuasion effects as well. My findings also imply that researchers studying the effects of information must distinguish between information which educates the public and that which misleads them. Rather than enlightening voters about absolute truths, candidates create the narratives delivered in their messages with only weak constraints placed on them by objective realities.

And lastly, because the effects of both informing and persuasive messages by each candidate ultimately push voters in opposite directions in terms of vote choice, these results offer a solution to the puzzle of issue convergence that has confronted existing theories of campaign issue emphasis. Since the magnitude of each effect is moderated by issue salience, informing and persuasion strategies become more attractive to both candidates on highly-salient issues. It is therefore entirely unsurprising that we witness high rates of issue convergence on the most salient issues in each election—the notion that this should *not* occur is merely an artifact of overly-narrow theories about what campaigns can do. A more fitting theory of issue emphasis, then, would allow for candidates to choose from a range of strategies when discussing each issue and employ those which offer the greatest return in light of the specific electoral context. Such a theory would both help to reconcile the literature on campaign strategy with that on issue voting, and more accurately reflect the patterns of issue emphasis we observe in real campaigns.

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Appendices

The following appendices provide supplemental information about the data and methods used in this project, in addition to that which is given in the main text.

Appendix A: NAES Data Coding

The estimates of respondent policy preferences and perceptions of candidate positions used herein stem from questions in the 2000 and 2004 NAES datasets. The following list describes each issue in greater depth:

- *School Vouchers (2000)*: Whether respondents/candidates favor or oppose the federal government providing vouchers for private school tuition
- *Children's Healthcare (2000,2004)*: Whether respondents/candidates favor or oppose the federal government providing health insurance for all children
- *Right to sue HMOs (2000)*: Whether respondents/candidates favor or oppose allowing patients to sue their HMOs
- *Bush Tax Cuts (2004)*: Whether respondents/candidates favor or oppose making the Bush tax cuts permanent
- *Job Creation Tax Incentives (2004)*: Whether respondents/candidates favor or oppose providing tax breaks to companies which create jobs
- *Universal Healthcare (2004)*: Whether respondents/candidates favor or oppose the government subsidizing employers' costs for providing health insurance to employees and guaranteeing coverage to children²⁸
- *Prescription Drug Reimportation (2004)*: Whether respondents/candidates favor or oppose allowing the reimportation of prescription drugs from Canada
- *Stem Cells (2004)*: Whether respondents/candidates favor or oppose creating additional stem cell lines
- *Medical Malpractice Reform (2004)*: Whether respondents/candidates favor or oppose limiting damages in medical liability lawsuits

For respondent preference questions, some variations of the questions were binary (favor/oppose), while others included a follow-up asking whether the respondent strongly or only somewhat favors/opposes

²⁸The self-placement on this issue comprises two questions, one about workers and the other about children. I code respondents' self-placements on each question and then average the two together to generate the estimated position on "universal healthcare" used in these analyses.

such a policy. For questions with no follow-up, conservative responses (agreeing with Bush) are coded -100, indifferent responses (neither favor nor oppose / don't know / refused) are coded 0, and liberal responses (agreeing with Gore/Kerry) are coded 100. When the follow-up is included, "strongly" responses are coded -100 and 100, "somewhat" responses -50 and 50, and indifferent responses 0.

The specific questions used for each issue are listed in Table A6.²⁹

Table A6: NAES Questions on Respondent Preferences and Candidates Perceptions

<i>Issue</i>	<i>Wave</i>	<i>Respondent Preferences</i>			<i>Candidate Perceptions</i>		
		<i>NAES Code</i>	<i>Dates Asked</i>	<i>n</i>	<i>NAES Code</i>	<i>Dates Asked</i>	<i>n</i>
School Vouchers (2000)	Pre	cbd02	1/1–12/12	4868	cbd07	4/4–9/7	1130
	Pre				cbd05,-06	4/4–12/10	1897
	Post	rbd02	All	4868	rbd05,-06	All	2486
Children's Healthcare (2000)	Pre	cbe08	4/4–11/27	3012	cbe11	4/4–9/7	1130
	Pre				cbe09,-10	4/4–11/27	1882
	Post	rbe08	All	4868	rbe09,-10	All	2382
Right to sue HMOs (2000)	Pre	cbe14	4/4–12/10	3012	cbe20	4/4–9/7	1130
	Pre				cbe18,-19	4/4–12/10	1882
	Post	rbe14	All	4868	rbe18,-19	All	2382
Bush Tax Cuts (2004)	Pre	cCB16	8/10–9/19	2016	cCB25	7/15–11/1	4766
	Pre	cCB17	9/20–11/1	2586			
	Post	rCB17	All	4766	rCB25	All	4766
Job Creation (2004)	Pre	cCB44	8/10–9/19	2016	cCB48	8/10–11/1	4602
	Pre	cCB45	9/20–11/1	2586			
	Post	rCB45	All	4766	rCB48	All	4766
Universal Healthcare (2004)	Pre	cCC03	7/15–9/19	1594	cCC07	7/15–8/9	1058
	Pre	cCC04	9/20–11/1	2586	cCC09	8/10–11/1	4602
	Pre	cCC05	7/15–9/19	1480			
	Pre	cCC06	9/20–11/1	2586			
	Post	rCC04	All	4766	rCC09	All	4766
	Post	rCC06	All	4766			
Prescription Drugs (2004)	Pre	cCC24	7/15–9/19	2556	cCC26	8/11–11/1	4553
	Pre	cCC25	9/20–11/1	2586			
	Post	rCC25	All	4766	rCC26	All	4766
Stem Cells (2004)	Pre	cCE14	10/13–11/1	1314	cCE15	10/12–11/1	1376
	Post	rCE14	All	4766	rCE15	All	4766
Medical Malpractice (2004)	Pre	cCG07	10/5–11/1	1519	cCG08	10/5–11/1	1519
	Post	rCG07	All	4766	rCG08	All	4766

For some question wordings in 2000 and all in 2004, individual candidate placements are logically inferred from original questions which ask about both candidates at once. For example: "To the best of your knowledge, which candidate favors placing limits on how much people can collect when a jury finds that a doctor has committed medical malpracticeGeorge W. Bush, John Kerry, both, or neither?" (cCG08) Responses to this question are used to create variables for each candidate reflecting whether or not the

²⁹Sample sizes reflect panel respondents in CMAG-covered media markets only.

respondent perceives him to favor that policy proposal; these are then used to create indicators for correct responses. (In this case, Bush supports, Kerry does not.) The associated self-placement question on this issue: “The government placing limits on how much people could collect when a jury finds that a doctor has committed medical malpractice do you favor or oppose this?” (cCG07) For each of the questions used, the candidates aligned themselves along the traditional ideological spectrum: Bush takes the conservative positions, while Gore and Kerry take the liberal positions.

Appendix B: Missing Data Imputation

As with any sizable dataset, analyzing NAES data requires the researcher to decide how missing data should be handled. The appropriate method for dealing with missing values depends upon the degree of missingness, the coding of each particular variable, and whether the process that leads to missingness is significantly non-random. I divide the types of data and my methods for handling them into five categories:

1. *Complete data*: For a handful of relevant variables—pre-election interview date, media market, region, urbanity, and gender—the data are complete.
2. *Almost-complete data*: Because multivariate imputation is only readily-implemented for continuous variables, I choose to treat a number of almost-complete variables as if they were complete so that they can be used to impute other, more seriously-missing variables and also be used as categorical variables in models. As such, appropriate values are assigned to the handful of respondents who either refused to answer or gave “don’t know” responses. For most demographics—age, religion, race, ethnicity, education, media consumption and retirement status—only a very small number of observations ($< 1\%$) are missing. In these cases, missing values are assigned to the modal category. For partisanship and ideology, the data are again nearly complete, so missing values are assigned to the “pure independent” and “moderate” categories. For candidate perceptions, missing values are assigned to the “incorrect” response category. For respondent policy preferences, missing values are assigned to the “indifferent” response category.
3. *Missing, imputed individually*: Income is missing for just over 10% of respondents, and missing values are imputed via univariate multiple imputation (MI) so that imputed values remain categorical. These imputations are used to generate 5 “complete” datasets used in the analysis, and model income as an ordered logit function of demographics, partisanship, ideology, swing-state status, and date of pre-election interview.
4. *Missing, imputed jointly*: Pre-election candidate perceptions and respondent policy preferences missing because of sample splits or interview date are imputed via MI using a multivariate normal regression which treats the complete and almost-complete data described above as independent variables. In addition, for post-election perceptions and preferences in 2000, missing values are imputed via the same method for use as explanatory variables in the vote choice model for 2000. (Only non-imputed values are used as dependent variables in the other models.)
5. *Missing, not imputed*: Post-election candidate perceptions and respondent policy preferences missing because of sample splits are left as-is and omitted from the analysis (with the exception of the missing

values from 2000 noted above), as are all missing vote choice responses in both waves. (While variables missing because of sample splits are generally the easiest to impute, these variables are mainly used as outcome variables, so the risks of imputing them are much higher than if they were just ordinary control variables.)

Appendix C: CMAG Data Coding

The CMAG dataset of television advertising records every airing of a political ad in the largest US media markets—75 in 2000 covering approximately 75% of the population, and 100 in 2004 covering approximately 80%. In this project, I calculate each candidate’s spending on ads (using CMAG’s estimates of each ad airing’s cost, adjusted for media market size to make spending comparable across media markets) for each issue used in the analysis on each day during the 2000 and 2004 election cycles. The population of ads included in this measure includes all ads run by Bush and Gore/Kerry and their respective parties in the context of the presidential election which have a “policy” or “mixed” focus (as opposed to those with a “personal” focus, as coded by CMAG).

For each date of the election cycle, I then create one set of variables which sum the total spending on that issue by each candidate in each media market up until that date, and a second set for spending on and after that date. These data are matched with NAES respondents based upon media market and date of pre-election interview so that for each respondent, the dataset records—for each issue—the spending by each candidate both before the pre-election interview and also between the pre-election interview and election day.

The CMAG dataset codes each ad as mentioning up to four issues, out of a list of 69 possible issue codes (in 2004; 2000 was similar). In assigning ads to issues used in the analysis, I create indicator variables which reflect whether any of the four issue codes assigned by CMAG corresponds to each issue. In addition, the 2004 CMAG dataset provides text entries for issues coded “other”, and where appropriate I assign them

Table A7 lists the issues used in the analysis by year, along with corresponding CMAG codes and mean per-household spending across media markets by each candidate in the final 100 days of the campaign.

Table A7: Issues Used in Analysis, Corresponding CMAG Issue Codes, and Mean Per-Household Spending By Each Candidate in Final 100 Days

<i>Year</i>	<i>Issue</i>	<i>CMAG Codes</i>	<i>Gore/Kerry Spending</i>	<i>Bush Spending</i>
2000	School Vouchers	40	0.14	0.48
	Children’s Healthcare	72	0.33	0.23
	Right to sue HMOs	72	0.33	0.23
2004	Bush Tax Cuts	10	0.49	0.37
	Job Creation	16,90	0.64	0.11
	Universal Healthcare	72,90	0.47	0.31
	Prescription Drugs	72,90	0.47	0.31
	Stem Cells	20,72, 90	0.47	0.32
	Medical Malpractice	72	0.47	0.31

(Note that those issues which include the CMAG code “90” include ads coded under the “other” issue banner; the specific keywords used for each can be provided upon request.)

Appendix D: Panel Data Analysis Strategy

The general election panel component of the NAES is different from most two-wave panel surveys in that both the date of the first-wave interview and the interval between waves vary greatly between respondents. This comes about from the fact that the general election panel is an offshoot of the main rolling cross-sectional survey that is the primary focus of the NAES; a random subsample of respondents first interviewed before election day are recontacted after the election and asked to complete a follow-up survey.

The variation in pre-election interview dates creates problems for comparing individuals based on pre-election responses. In a panel study with common interview dates across respondents, a typical approach would be to model changes between waves as a Markov transition process—that is, respondents would be sorted based upon their initial responses, and then whether or not their responses changed in a predicted direction would be attributed to the differences in explanatory variables between respondents in that subgroup. In the case of the NAES, these initial responses may well be correlated with the date of the initial interview, which is itself correlated exposure to advertising (the primary independent variable in these analyses). As such, more needs to be done to make respondents comparable to one another.

For each of the analyses conducted herein, survey responses are assumed to be manifestations of an underlying continuous latent variable; the changes in these variables over time are the true quantities of interest. Because there is unobserved measurement error in translating these latent variables into survey responses, it is insufficient to simply include a lagged dependent variable in regressions, because this error could be correlated with other explanatory variables. Instead, it would be ideal if the latent variable itself could be controlled for, but by definition it is unobserved. As proxies for this latent variable in models of post-election responses, I use instead a pair of variables: the lagged survey response and a linear prediction of the latent variable at the time of the pre-election interview, based upon a model of cross-sectional responses.

Mathematically, the motivation behind using both variables is as follows. Let y_t be an individual's categorical survey response at time t . This response is the sum of the latent continuous variable y_t^* and an error term τ_{y^*} produced by converting y_t^* into the categorical response y_t :

$$y_t = y_t^* + \tau_{y^*} \tag{1}$$

The latent variable y_t^* is itself the sum of $x_t\beta$, the product of a vector of coefficients and a vector of observable independent variables; λ , which reflects the individual's unobserved heterogeneity; and ϵ_t , reflecting a random error term in the present period. Thus:

$$y_t^* = x_t\beta + \lambda + \epsilon_t$$

$$y_t = x_t\beta + \lambda + \epsilon_t + \tau_{y^*} \quad (2)$$

Because ϵ_t is a period-specific error, it will drop out as random noise when the variable is applied in the following period's model. Therefore these expressions can be simplified to:

$$\begin{aligned} y_t^* &= x_t\beta + \lambda \\ y_t &= x_t\beta + \lambda + \tau_{y^*} \end{aligned} \quad (3)$$

Because y_t^* is never observed, the goal is to find the best proxy for y_t^* to use as a control variable in the follow period, $t + 1$.³⁰ By modeling y_t as a function of x_t , with minimal assumptions (e.g., proper model form) we can generate efficient, unbiased estimates of $x_t\beta$ —denoted z_t —which we will assume to be the true values for this purpose.³¹ To create the best proxy for y_t^* , I take the weighted average of z_t and y_t :

$$\begin{aligned} \hat{y}_t^* &= \omega y_t + (1 - \omega)z_t \\ \hat{y}_t^* &= \omega y_t + (1 - \omega)x_t\beta \\ \hat{y}_t^* &= \omega(x_t\beta + \lambda + \tau_{y^*}) + (1 - \omega)x_t\beta \\ \hat{y}_t^* &= x_t\beta + \omega(\lambda + \tau_{y^*}) \end{aligned} \quad (4)$$

The weight variable ω is not known *a priori*, but is instead determined empirically. If y_t^* were observed and could be used as a lagged dependent variable in the following period, it would produce a coefficient β_{y^*} . Using both variables above (y_t and z_t), two coefficients are produced; these coefficients will reflect both the coefficient of the latent variable and the weights of the two proxies. If the weighted combination of the two proxies were equal to the actual latent value, then the coefficients would relate to each other as follows:

$$\beta_y = \omega\beta_{y^*} \quad (5)$$

$$\beta_z = (1 - \omega)\beta_{y^*} \quad (6)$$

Using the $t + 1$ period's regression to determine the weights on z_t and y_t , the tradeoff is between

³⁰This procedure could be thought of as imputing values of the latent variable, which raises the question of whether it might be best to *multiply* impute those values, as suggested by Mislevy (1991). Given the precision of the estimates generated from the full NAES cross-sections (each of which has more than 60,000 respondents), however, there would be very little variation across these datasets; any bias from the imputation process would almost certainly be the fault of misspecification, not sampling error, and MI would not help in that case.

³¹The math in the subsequent equation is equivalent if you assume a random error in this process—that is, that $x_t\beta = z_t + \epsilon$ —and just includes another error term to carry through. I choose to exclude it here for parsimony.

increased precision from greater weight on λ and increased noise (and more significantly, potential bias) from greater weight on τ_{y^*} .³² Determining these weights empirically provides a more flexible solution than using observed responses alone, because it allows the weight given to the individual and random error terms to be adjusted while keeping the weight on $x_t\beta$ constant, as shown in the previous equation.³³

³²If there were no bias from τ_{y^*} —for example, if y_t^* were equal to y_t plus an uncorrelated random error—the optimal solution would likely be to put all the weight on the observed responses. As the bias introduced by τ_{y^*} increases, however, the best solution is to decrease the weight on observed responses.

³³In the course of this research, I conducted additional tests to verify the improvements in accuracy over other commonly-used approaches; these results were presented at the 2011 Society for Political Methodology annual meeting and are available upon request.

Appendix E: Full Models and Derivations

In this section, I first introduce the general approach to modeling the dependent variables used in my analyses, and then describe the specific models used in the analyses of panel data.

Three dependent variables are used: perceptions of candidate positions, respondent policy preferences, and vote preferences. As mentioned above, each is conceived of as having a latent continuous variable which is manifested in categorical survey responses. Given the immense sample size of the NAES cross-sectional data, I am able to include a wide range of control variables (measured pre-election) in modeling each variable. These variables include:

- Demographics (age, gender, race, ethnicity, religion, income, retirement status, education, urbanity, and region, with interactions between age, education, and gender; Catholic and Latino; region and urbanity; and urbanity and African-American)
- Media consumption (attention to political coverage from network and cable news; local news; newspapers; and online sources)
- Party ID (7-point ANES-style scale, using indicators for each level)
- Ideology (5-point scale, using indicators)
- Interest in politics (whether R follows politics generally and the presidential election in particular)
- Swing-state status (dummy for presidential vote margin less than 10%)
- Time trend (days between pre-election interview and election day, with a basis spline providing separate slopes for days 1–15, 16–30, 31–60, 61–120, and 121+, and separate splines for swing and non-swing states)³⁴

In the models that follow, each of these sets of variables will be referred to by its category name with a single coefficient (e.g., “ $\beta_1 Time$ ”), as a stand-in for the full vectors of variables and associated coefficients listed above.

The individual’s perception of the position of candidate c on issue j at time t — Z_{cjt} —is assumed to be oriented so that positive values are closer to the candidate’s true position. This perception then leads to C_{cjt} , an indicator for whether the respondent correctly places the candidate in a survey:

$$C_{cjt} = 1 \text{ if } Z_{cjt} > 0, 0 \text{ otherwise.} \quad (7)$$

³⁴The variable for 121+ days is only included for 2000, as panel respondents in 2004 were all first interviewed less than 120 days before the election.

In other words, respondents will correctly identify each candidate’s position when their perceptions of that candidate’s position are closer to the candidate’s true position than to the other candidate’s position, and vice versa.

The perception Z_{cjt} at time $t = T$ is modeled as a linear function of ads by each candidate, on that issue in the respondent’s market up until that date, and the control variables listed above:³⁵

$$\begin{aligned}
Z_{cjt} = & \beta_0 + \beta_1 \text{KerryAds}_{j,t < T} + \beta_2 \text{BushAds}_{j,t < T} \\
& + \beta_3 \text{Demographics} + \beta_4 \text{Media} \\
& + \beta_5 \text{PartyID} + \beta_6 \text{Ideology} + \beta_7 \text{Interest} \\
& + \beta_8 \text{SwingState} + \beta_9 \text{Time} + \epsilon_t
\end{aligned} \tag{8}$$

This model is used on pre-election cross-sectional responses (denoted $t = 0$), which include both panel and non-panel respondents. Since the dependent variable in the applied models is the survey response C_{cjt} , a binary probit model (which assumes normally-distributed errors) is run on survey responses as manifestations of Z_{cjt} :

$$Pr(C_{cjt} = 1) = \Phi(Z_{cjt}) \tag{9}$$

The results of this model are used to generate estimates \hat{Z}_{cj0} of pre-election perceptions.

Assuming the coefficients on and values of respondent demographics, media consumption, partisanship, ideology, and political interest are time-invariant, post-election perceptions Z_{cj1} are modeled as a function of pre-election perceptions Z_{cj0} (which accounts for all of the time-invariant factors as well as ads run before the pre-election interview)³⁶, ads run after the pre-election interview, swing state status, and time:

$$\begin{aligned}
Z_{cj1} = & \beta_0 + \beta_1 \text{KerryAds}_{j,0 < t < 1} + \beta_2 \text{BushAds}_{j,0 < t < 1} \\
& + \beta_3 \text{SwingState} + \beta_4 \text{Time} \\
& + \beta_5 Z_{cj0} + \epsilon_1
\end{aligned} \tag{10}$$

As noted in the previous appendix, the prediction \hat{Z}_{cj0} and observed value C_{cj0} are used as a proxy for Z_{cj0} ,

³⁵Where appropriate, substitute “GoreAds” for “KerryAds” in models using data from 2000; the models are essentially equivalent.

³⁶These are included in the pre-election models rather than those of post-election responses, both because the much-smaller sample size of the post-election dataset greatly increases the risk of overfitting and also because the larger pre-election sample allows for the coefficients of these models to be more accurately determined. Evidence demonstrating these properties is available upon request.

so the final model used in the analysis is:

$$\begin{aligned}
Z_{cj1} = & \beta_0 + \beta_1 KerryAds_{j,0<t<1} + \beta_2 BushAds_{j,0<t<1} \\
& + \beta_3 SwingState + \beta_4 Time \\
& + \beta_5 \hat{Z}_{cj0} + \beta_6 C_{cj0} + \epsilon_1
\end{aligned} \tag{11}$$

The model for respondent policy preferences X_{jt} is equivalent, but also controls for partisans' perceptions of their candidates' positions:³⁷

$$\begin{aligned}
X_{jt} = & \beta_0 + \beta_1 KerryAds_{j,t<T} + \beta_2 BushAds_{j,t<T} \\
& + \beta_3 C_{Kerry,ijt} \times Democrat \\
& + \beta_4 C_{Bush,ijt} \times Republican \\
& + \beta_5 Demographics + \beta_6 Media \\
& + \beta_7 PartyID + \beta_8 Ideology + \beta_9 Interest \\
& + \beta_{10} SwingState + \beta_{11} Time + \epsilon_t
\end{aligned} \tag{12}$$

Using predicted values from this model applied to cross-sectional respondents, and creating $Learn_{cj}$ variables (coded from -1 to 1) to track changes in the accuracy of respondents' perceptions of candidate positions between waves, the final model of policy preferences is:

$$\begin{aligned}
X_{j1} = & \beta_0 + \beta_1 KerryAds_{j,0<t<1} + \beta_2 BushAds_{j,0<t<1} \\
& + \beta_3 Learn_{Kerry,ij} \times Democrat \\
& + \beta_4 Learn_{Bush,ij} \times Republican \\
& + \beta_5 SwingState + \beta_6 Time \\
& + \beta_7 X_{j0} + \beta_8 \hat{X}_{j0} + \epsilon_1
\end{aligned} \tag{13}$$

Lastly, the vote choice model used to test the meaningful effects hypothesis assumes that voters cast ballots according to a random utility model. In this model, the probability of voting for Kerry is a function

³⁷The X_{jt} variable is modeled in the regressions as if it were a continuous dependent variable because it encapsulates a many-categorized scale; because this scale does still include error on account of its translation from the underlying latent variable, however, both the observed pre-election variable and the predicted value from the pre-election model are included in as proxies for the respondent's true preference. In robustness checks, an alternative specification using ordered logit was tried and similar results obtained, but the quasi-continuous version used here was chosen for simplicity.

of the voter's latent utilities from voting for each candidate $\{U_{Kerry,it}, U_{Bush,it}\}$:

$$\begin{aligned} Pr(\text{Vote}_t = \text{Kerry}) &= 1 \text{ if } U_{Kerry,it} > U_{Bush,it}, \\ &= 0 \text{ otherwise.} \end{aligned} \tag{14}$$

These utilities are linear functions of the same set of control variables introduced above, plus the voter's perceptions of the candidates' positions on each issue, their own policy preferences on each issue, and the interaction between the two on each issue.³⁸ The voters's utility functions from supporting each candidate are thus:³⁹

$$\begin{aligned} U_{Kerry,it} &= \beta_{0,Kerry} + \sum_j (\beta_{1j,Kerry} C_{Kerry,ijt} + \beta_{2j,Kerry} X_{jt} \\ &\quad + \beta_{3j,Kerry} C_{Kerry,ijt} \times X_{jt}) \\ &\quad + \beta_{4,Kerry} \text{Demographics} + \beta_{5,Kerry} \text{Media} \\ &\quad + \beta_{6,Kerry} \text{PartyID} + \beta_{7,Kerry} \text{Ideology} + \beta_{8,Kerry} \text{Interest} \\ &\quad + \beta_{9,Kerry} \text{SwingState} + \beta_{10,Kerry} \text{Time} + \epsilon_t \end{aligned} \tag{15}$$

$$\begin{aligned} U_{Bush,it} &= \beta_{0j,Bush} + \sum_j (\beta_{1j,Bush} C_{Bush,ijt} + \beta_{2j,Bush} X_{jt} \\ &\quad + \beta_{3j,Bush} C_{Bush,ijt} \times X_{jt}) \\ &\quad + \beta_{4,Bush} \text{Demographics} + \beta_{5,Bush} \text{Media} \\ &\quad + \beta_{6,Bush} \text{PartyID} + \beta_{7,Bush} \text{Ideology} + \beta_{8,Bush} \text{Interest} \\ &\quad + \beta_{9,Bush} \text{SwingState} + \beta_{10,Bush} \text{Time} + \epsilon_t \end{aligned} \tag{16}$$

Because the voters' characteristics do not vary based upon which candidate is being considered, these separate functions can be combined into a single relative utility function:⁴⁰

$$U_t = U_{Kerry,it} - U_{Bush,it}$$

³⁸In the 2000 model, because only 3 issues are used in the other analyses (compared with 6 in 2004), I include 3 additional issues in the vote model for comparability: what to do with the Medicare surplus, whether to privatize Social Security, and whether abortions should be made more difficult to obtain. These were not included in the other analyses because they were not sufficiently emphasized in the candidates' ads, but they do have candidate- and self-placement questions which can be used to model votes.

³⁹In the model described here and used in my analysis, votes are modeled using respondent's placements of the candidates and themselves, in place of their latent counterparts.

⁴⁰In these relative utility models, I use a single term— C_{jt} —to reflect placement of *both* candidates' positions. This is done merely to simplify the presentation of these models; in practice, placement of each candidate (C_{cjt}) is included separately.

$$\begin{aligned}
&= (\beta_{0,Kerry} - \beta_{0,Bush}) + \\
&\quad + \sum_j ((\beta_{1j,Kerry} - \beta_{1j,Bush})C_{jt} + (\beta_{2j,Kerry} - \beta_{2j,Bush})X_{jt}) \\
&\quad + (\beta_{3j,Kerry} - \beta_{3j,Bush})C_{jt}X_{jt} \\
&\quad + \beta_{4,Kerry} - \beta_{4,Bush})Demographics + (\beta_{5,Kerry} - \beta_{5,Bush})Media \\
&\quad + (\beta_{6,Kerry} - \beta_{6,Bush})PartyID + (\beta_{7,Kerry} - \beta_{7,Bush})Ideology \\
&\quad + (\beta_{8,Kerry} - \beta_{8,Bush})Interest \\
&\quad + (\beta_{9,Kerry} - \beta_{9,Bush})SwingState + (\beta_{10,Kerry} - \beta_{10,Bush})Time + \epsilon_t \tag{17}
\end{aligned}$$

$$\begin{aligned}
&= \beta_0 + \sum_j (\beta_{1j}C_{jt} + \beta_{2j}X_{jt} + \beta_{3j}C_{jt}X_{jt}) \\
&\quad + \beta_4Demographics + \beta_5Media + \beta_6PartyID + \beta_7Ideology + \beta_8Interest \\
&\quad + \beta_9SwingState + \beta_{10}Time + \epsilon_t \tag{18}
\end{aligned}$$

which then leads to:

$$\begin{aligned}
Pr(Vote_t = Kerry) &= 1 \text{ if } U_t > 0, \\
&= 0 \text{ otherwise.} \tag{19}
\end{aligned}$$

Because the disturbances are normally distributed (by assumption), this leads to a simple probit model:

$$Pr(Vote_t = Kerry) = \Phi(U_t) \tag{20}$$

As with the previous models, pre-election responses are used to generate linear predictions of the latent pre-election wave utility. The final model is then reached by subtracting U_0 from U_1 , so that post-election responses are a function of changes in perceptions; changes in policy preferences; the interactions between them; time trends; and the lagged responses and predictions.

The changes in each factor can be simplified by defining change variables for each:

$$\Delta C_j = C_{j1} - C_{j0} \tag{21}$$

$$\Delta X_j = X_{j1} - X_{j0} \tag{22}$$

With regard to the relative utility function's interaction term, accounting for changes between waves is slightly more complex. The calculation can be broken down in terms of the above change variables and the

first-wave values:

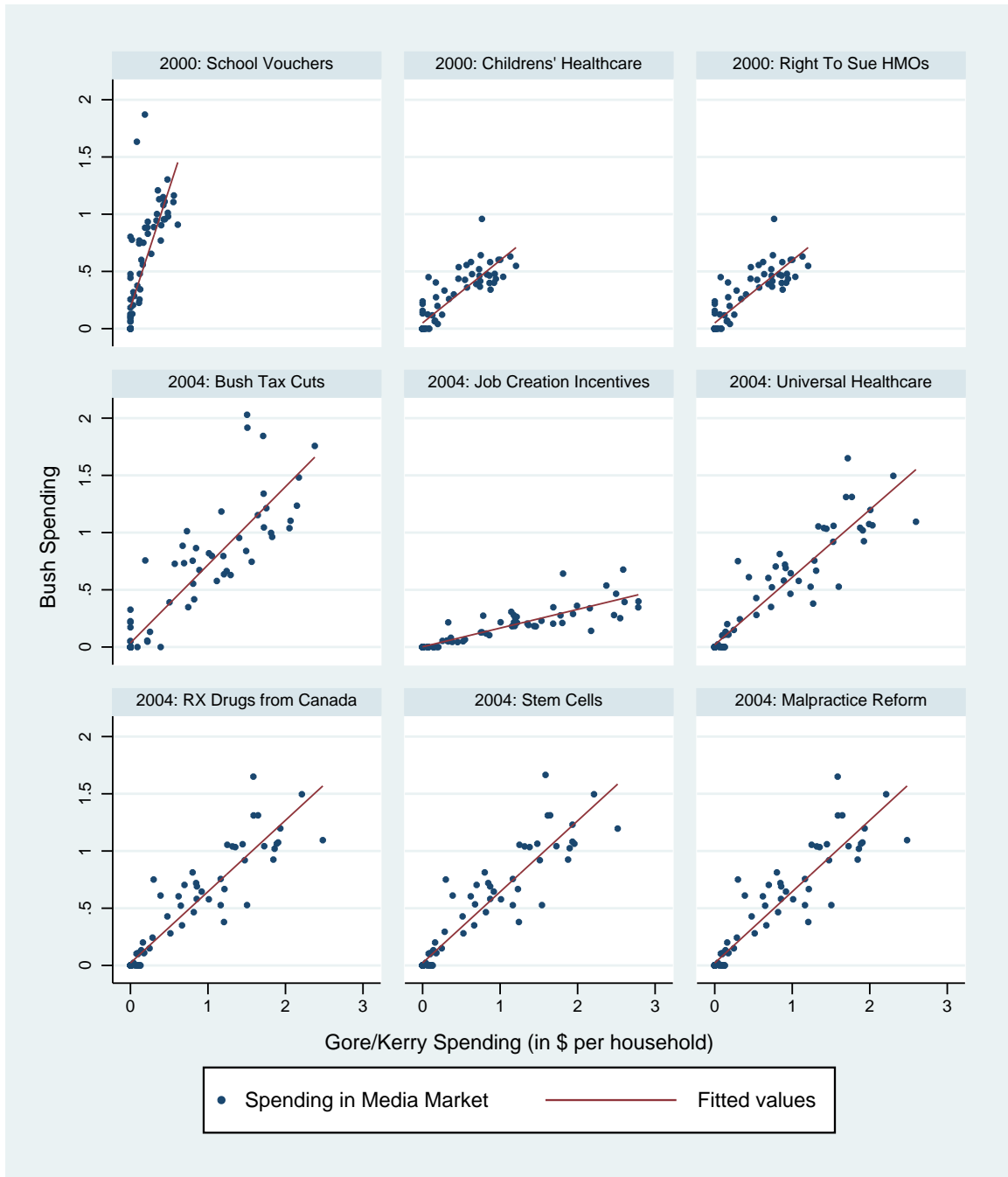
$$\begin{aligned}
\Delta(C_j X_j) &= C_{j1} X_{j1} - C_{j0} X_{j0} \\
&= (C_{j0} + \Delta C_j)(X_{j0} + \Delta X_j) - C_{j0} X_{j0} \\
&= C_{j0} X_{j0} + C_{j0} \Delta X_j + \Delta C_j X_{j0} + \Delta C_j \Delta X_j - C_{j0} X_{j0} \\
&= C_{j0} \Delta X_j + \Delta C_j X_{j0} + \Delta C_j \Delta X_j
\end{aligned} \tag{23}$$

This ultimately leads to a model of post-election vote preference which is as follows:

$$\begin{aligned}
U_1 &= \beta_0 + \sum_j (\beta_{1j} \Delta C_j + \beta_{2j} \Delta X_j \\
&\quad + \beta_{3j} \Delta C_j \times X_{j0} + \beta_{4j} \Delta X_j \times C_{j0} + \beta_{5j} \Delta C_j \times \Delta X_j) \\
&\quad + \beta_6 \textit{SwingState} + \beta_7 \textit{Time} + \beta_8 \hat{U}_0 + \beta_9 \textit{Vote}_0 + \epsilon
\end{aligned} \tag{24}$$

Figure 1: Television Ad Spending Across Issues and Media Markets

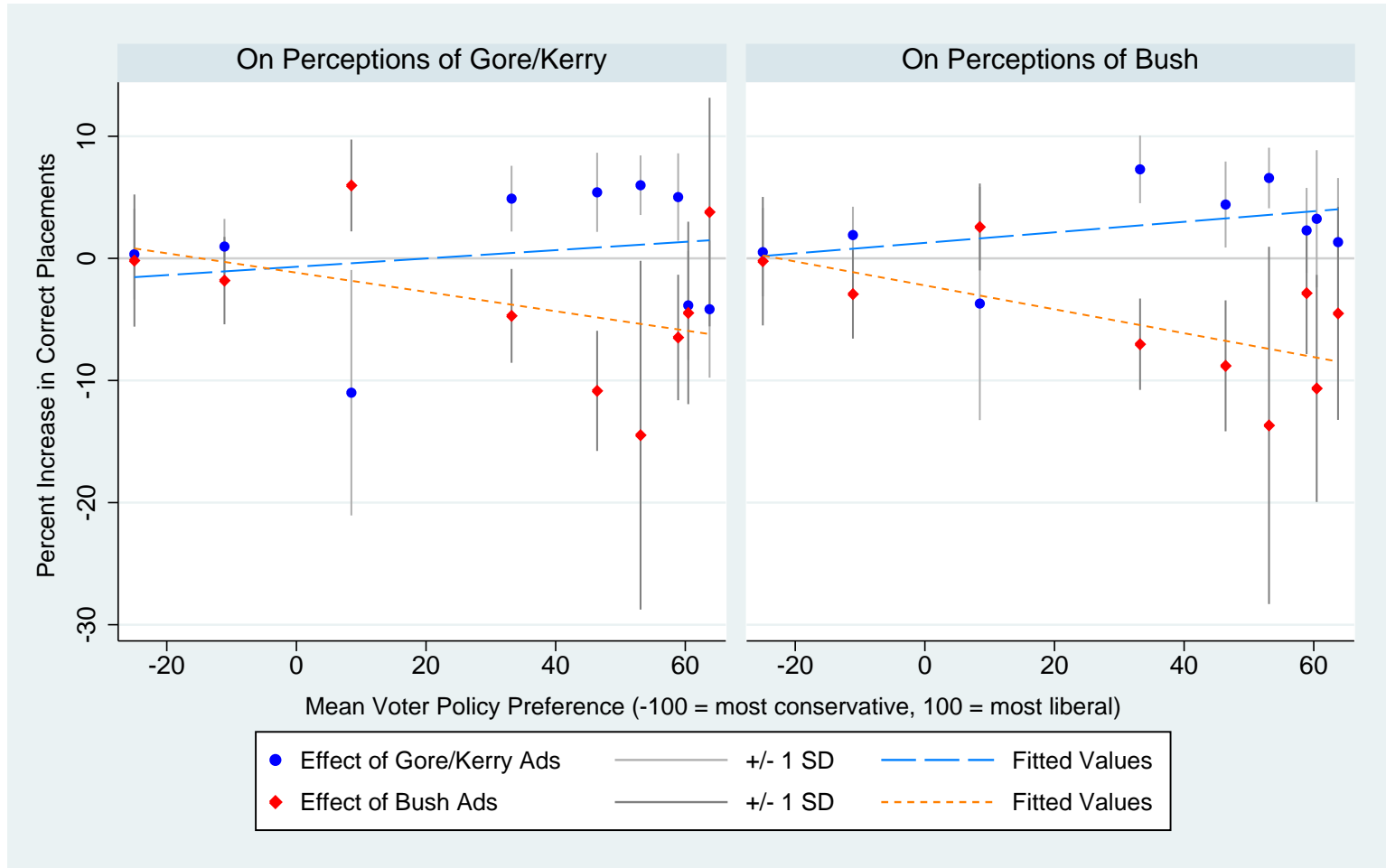
Total per-household spending by each candidate on each issue in each media market in final 100 days



Data from 2000 and 2004 CMAG/WiscAds datasets, which cover the 75 largest media markets in 2000 and 100 largest in 2004. Totals include all spending in last 100 days before the election on ads which relate to the given issue; the estimated cost of each ad is provided in the CMAG dataset, and the totals in each market are divided by the number of households in that market so as to produce a figure which is comparable across markets. See Appendix C for additional details on the coding of this data.

Figure 2: Informing Effects of Ads on Voters' Perceptions of Candidates' Issue Positions

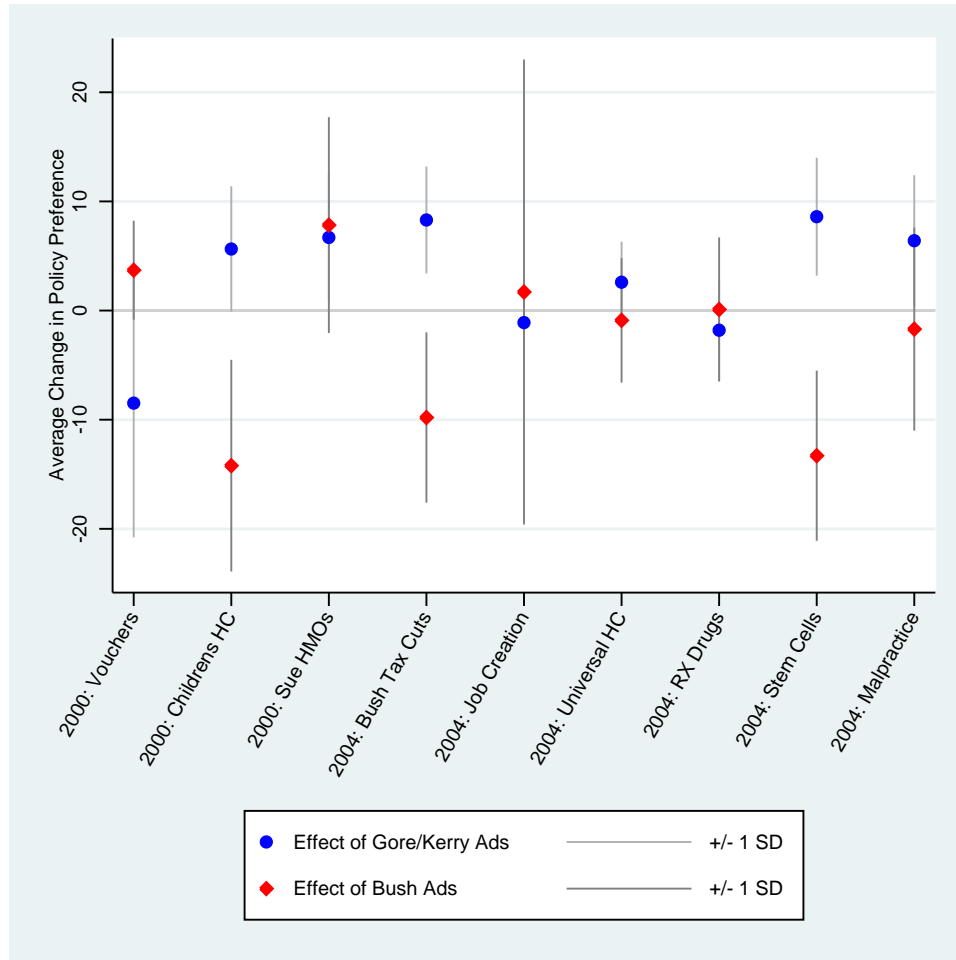
Estimated marginal effects from an additional \$1 per household in spending by each candidate, for each of 9 issues (organized by mean voter policy preference)



Marginal effects are estimated from probit model results shown in Appendix Tables A1 and A2. Fitted lines show the relationship between the voters' policy preferences on each issue and the informativeness of each candidate's ads. As public opinion becomes more liberal on an issue, ads by Gore and Kerry tend to make voters better able to place the candidates, while Bush's ads make voters less able to do so. From left to right, the issues shown above are medical malpractice, Bush tax cuts, school vouchers, stem cells, universal healthcare, job creation, prescription drug reimportation, children's healthcare, and HMOs; see Table 2 for more information on these issues.

Figure 3: Persuasive Effects of Ads on Voters' Policy Preferences, By Issue

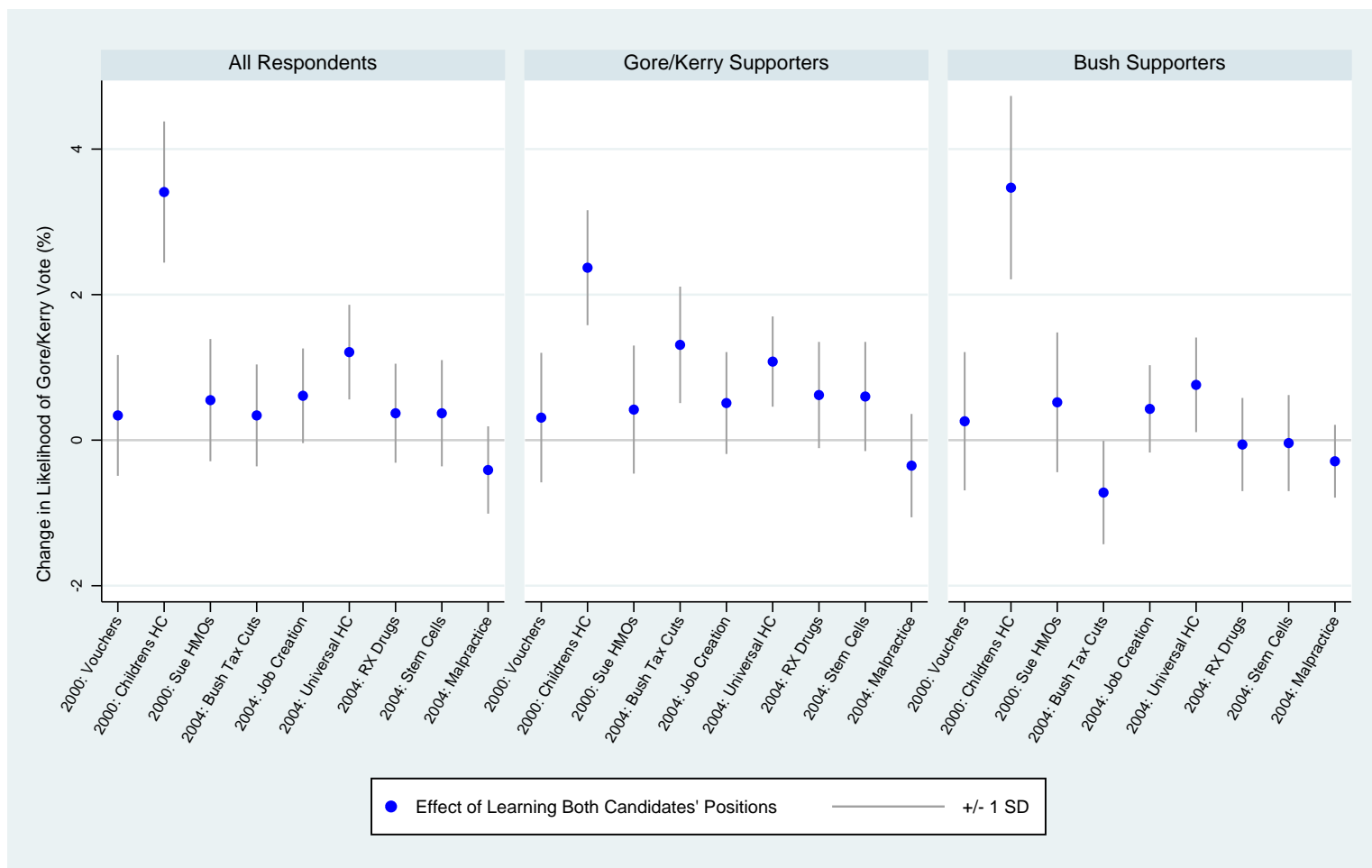
Estimated marginal effects on voters' policy preferences—coded from -100 (most conservative) to 100 (most liberal)—from an additional \$1 per household in spending by each candidate



Marginal effects are estimated from probit model results shown in Appendix Table A3. The model includes indicator variables for partisan respondents learning the positions of the candidates between waves, so these results already control for the form of cue-taking in which partisans learn their nominees' positions and adopt them as their own.

Figure 4: Effects of Learning Candidates' Positions on Vote Choice

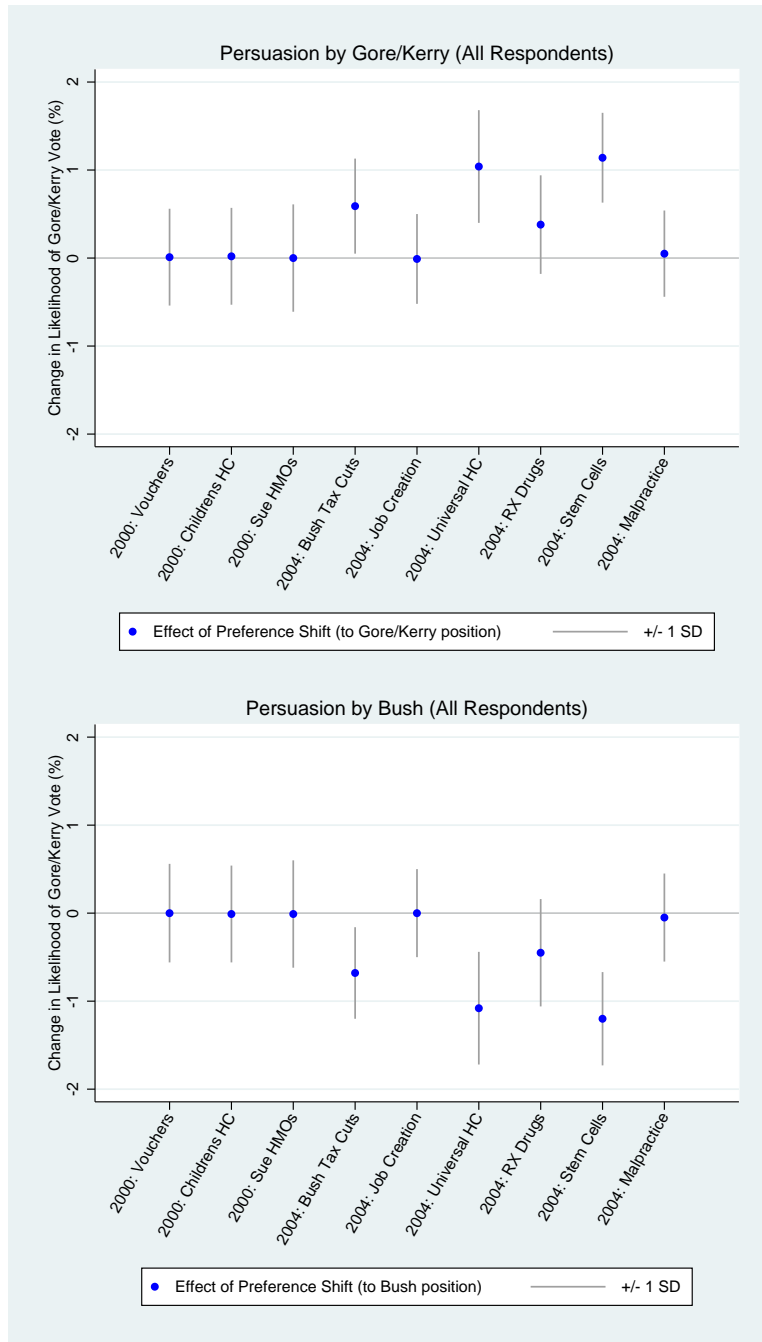
Estimated change in probability of voting for Gore/Kerry from learning candidates' positions on each issue between panel waves



Marginal effects are estimated from models of vote choice shown in Appendix Tables A4 (2000) and A5 (2004). These effects show the *difference* in the estimated average probability of voting for Kerry or Gore for each group (where groups are defined based on pre-election vote-preferences) between two hypothetical scenarios. In the first scenario, respondents cannot place either candidate correctly on the given issue in either wave of the panel—that is, they do *not* learn the candidates' positions in that interval. In the second scenario, respondents similarly cannot place the candidates in the pre-election wave, but they *can* place both candidates correctly by the time of the post-election wave—they do learn the candidates' positions in that interval. Each point estimate is thus the expected difference in outcomes between those two hypothetical scenarios, subtracting the average probability in the “voters learn” scenario from the scenario in which they do not learn to show the effect of learning on votes. Estimates are calculated for each issue independently; all other variables (including voters' policy preferences and their perceptions of candidates on all other issues) are kept at their actual pre- and post-election values for each individual respondent.

Figure 5: Effects of Being Persuaded on Vote Choice

Estimated change in probability of voting for Gore/Kerry from a shift in policy preferences toward each candidate's position, by issue



Marginal effects are estimated from models of vote choice shown in Appendix Tables A4 (2000) and A5 (2004). These effects show the difference in the estimated average vote probabilities across all respondents between the hypotheticals of (a) respondents do not express a policy preference on the given issue in the pre-election wave, but agree with either Gore's (top graph) or Bush's (bottom graph) position in the post-election wave (*voters are persuaded between waves*), and (b) respondents do not express a policy preference in either wave (*voters are not persuaded*). These estimates are calculated for each issue independently; all other variables (including policy preferences on all other issues) are kept at their actual pre- and post-election values for each individual respondent.

Table 1: Examples of Conflicting Messages about Candidates' Positions

Policy Issue	Gore/Kerry Statements	Bush Statements
<i>Tax incentives for domestic job creation (2004), supported by Kerry and opposed by Bush</i>	“John Kerry will give companies tax breaks for creating jobs here.” (Kerry ad, 10/19/04)	“[Under Kerry’s plan,] small business owners would pay higher tax rates than most multi-national corporations. Tax increases would hurt jobs.” (Bush/RNC ad, 9/17/04)
	“Bush protects tax breaks favoring companies that move their headquarters overseas.” (DNC ad, 8/7/04)	“[BUSH:] We need to make our economy more job friendly to keep American jobs here in America.” (Bush ad, 9/7/04)
<i>Universal healthcare for children and workers (2004), supported by Kerry and opposed by Bush</i>	“John Kerry does have a plan. Tax credits to help small businesses provide health insurance.” (DNC ad, 8/18/04)	“Kerry... voted against giving small businesses tax credits to buy healthcare for employees.” (Bush ad, 3/26/04)
	“The Bush Record? A \$139 billion dollar giveaway to the big drug companies. A 17% percent increase in Medicare premiums. 5 million more Americans without health insurance.” (Kerry ad, 9/17/04)	“President Bush and our leaders in Congress have a plan... Lower health care costs... Health centers in every poor county... Every eligible child with health coverage.” (Bush/RNC ad, 9/6/04)
<i>Universal healthcare for children (2000), supported by Gore and opposed by Bush</i>	“When Congress passed a law to help states provide health insurance for kids, Bush opposed its expansion to 220,000 children in Texas.” (DNC ad, 9/15/00)... “George W. Bush says he has a plan for children’s healthcare, but why hasn’t he done it in Texas? Texas ranks 49th out of 50 in providing health coverage to kids.” (DNC ad, 9/6/04)	“Governor Bush has made children one of his top priorities... he has worked hard to improve children’s healthcare... he knows the value of healthy, well-educated children.” (Bush ad, 2/10/00)

Excerpts taken from TV ad storyboards compiles by TNS Media Intelligence / CMAG and included as part of the 2000 and 2004 Wisconsin Advertising Project datasets. Statements referenced come from ads found under Creative ID numbers A0072A2C.ESB, A007PUKL.ESB, A007P2SF.ESB, 3507285, 3599852, 3556826, 3542104, 3340872, 3541121, 3520945, and 3557486.

Table 2: Trends in Voters' Candidate Perceptions and Policy Preferences

Overall trends among Annenberg panel respondents between pre- and post-election waves, in CMAG-covered media markets

<i>Year</i>	<i>Policy Issue</i>	Percent Correctly Identifying:						Mean Policy Preference:		
		<i>Gore's/Kerry's Position</i>			<i>Bush's Position</i>			<i>(-100 to 100 scale)</i>		
		Pre	Post	Change	Pre	Post	Change	Pre	Post	Change
2000	School Vouchers	48.8	57.2	+8.4	56.6	67.5	+10.9	8.5	18.7	+10.2
	Children's Healthcare	76.6	79.1	+2.5	47.1	45.6	-1.5	60.5	57.5	-3.0
	Right to Sue HMOs	48.5	56.1	+7.6	39.9	70.1	+30.2	63.8	62.2	-1.6
2004	Extending Bush Tax Cuts	79.9	83.7	+3.8	76.8	82.5	+5.7	-11.1	-16.5	-5.4
	Job Creation Tax Incentives	64.9	68.4	+3.5	64.7	67.9	+3.2	53.1	48.2	-4.9
	Universal Healthcare	72.4	74.8	+2.4	68.0	66.0	-2.0	46.4	41.3	-5.1
	RX Drug Reimportation	68.1	71.9	+3.8	72.8	74.5	+1.7	58.9	55.9	-3.0
	Funding Stem Cell Research	85.5	85.9	+0.4	84.4	85.5	+1.1	33.2	33.7	+0.5
	Medical Malpractice Reform	63.0	68.1	+5.1	64.1	69.1	+5.0	-25.0	-15.2	+9.8

Data from 2000 and 2004 National Annenberg Election Survey general election panels; see Appendix 1 for a list of specific questions, dates fielded, and sample sizes. Respondents who "correctly identify" each candidate's position are those who choose the correct answer (as indicated in the NAES codebook) when asked whether each candidate favors or opposes the given policy (e.g., offering school vouchers or providing universal healthcare). Those who choose the opposite position or who give "don't know" responses are coded as not correctly identifying that position. (In some cases, respondents are asked to identify whether the policy is supported by Bush, Gore/Kerry, both, or neither; I infer binary placements of each candidate individually from these combined responses.) Respondents' own policy preferences are taken from questions which ask whether the respondent personally favors or opposes each policy. Liberal positions are coded as 100, conservative positions as -100, and "neither favor nor oppose" and "don't know" responses as 0. Some question wordings allow for respondents to indicate the strength of their preferences; when allowed, "somewhat" liberal and conservative responses are coded as 50 and -50, respectively, while "strong" responses are coded 100 and -100.

Table A1: Effects of Ads on Perceptions of Gore's and Kerry's Positions
 Dependent Variable: Correct placement of Gore / Kerry on each issue, post-election binary probit model

	School Vouchers	Kids' Healthcare	HMOs	Tax Cuts	Job Creation	Universal Healthcare	RX Drugs	Stem Cells	Tort Reform
Gore/Kerry ads related to issue, in \$ per household between waves	-0.33 (0.31)	-0.15 (0.18)	-0.12 (0.16)	0.05 (0.12)	0.19 (0.08)	0.19 (0.12)	0.17 (0.12)	0.26 (0.14)	0.01 (0.12)
Bush ads related to issue, in \$ per household between waves	0.18 (0.11)	-0.17 (0.30)	0.11 (0.26)	-0.09 (0.19)	-0.46 (0.47)	-0.37 (0.17)	-0.22 (0.17)	-0.25 (0.21)	0.00 (0.17)
Swing state	0.71 (0.41)	-0.35 (0.47)	0.52 (0.42)	-0.05 (0.22)	0.02 (0.17)	0.01 (0.19)	-0.10 (0.18)	-0.10 (0.21)	-0.09 (0.17)
Days until election: 1–15	0.00 (0.03)	-0.02 (0.03)	0.01 (0.03)	-0.01 (0.01)	0.02 (0.01)	0.01 (0.01)	-0.02 (0.01)	0.00 (0.01)	0.00 (0.01)
Days until election: 16–30	0.02 (0.02)	0.02 (0.02)	0.00 (0.02)	-0.01 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.05 (0.01)	0.01 (0.01)	-0.01 (0.01)
Days until election: 31–60	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.00 (0.00)	0.01 (0.00)	0.00 (0.00)	-0.01 (0.00)	0.00 (0.01)	0.01 (0.01)
Days until election: 61–120	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.02 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.01 (0.00)	0.00 (0.00)
Days until election: 121+	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Swing state x Days: 1–15	0.07 (0.04)	0.07 (0.04)	-0.02 (0.04)	0.00 (0.02)	-0.02 (0.02)	0.00 (0.02)	0.00 (0.02)	0.03 (0.02)	0.01 (0.02)
Swing state x Days: 16–30	-0.03 (0.03)	-0.06 (0.03)	0.00 (0.02)	0.00 (0.02)	0.01 (0.01)	0.00 (0.01)	0.00 (0.01)	-0.04 (0.02)	0.01 (0.01)
Swing state x Days: 31–60	0.00 (0.01)	0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Swing state x Days: 61–120	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.02 (0.00)	0.00 (0.00)	-0.01 (0.00)	0.01 (0.01)	0.00 (0.00)
Swing state x Days: 121+	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.01)	0.00 (0.00)
Correct placement in pre-election wave	0.56 (0.06)	0.49 (0.08)	0.46 (0.06)	0.76 (0.06)	0.50 (0.05)	0.62 (0.05)	0.49 (0.05)	0.58 (0.13)	0.37 (0.06)
Estimated pre-election wave perception	1.08 (0.07)	0.73 (0.07)	0.86 (0.08)	0.82 (0.05)	0.78 (0.05)	0.68 (0.05)	0.95 (0.05)	0.67 (0.04)	0.70 (0.05)
Constant	-0.29 (0.26)	0.05 (0.33)	-0.20 (0.27)	-0.04 (0.16)	-0.25 (0.12)	-0.23 (0.13)	-0.26 (0.12)	-0.05 (0.17)	0.15 (0.12)
<i>n</i>	2486	2382	2382	4766	4766	4766	4766	4756	4763

Cell entries are binary probit coefficients, with robust standard errors in parentheses. Dependent variables coded 1 if respondent correctly identifies candidate position, 0 otherwise. Additional information on model specification, data, and coding procedures is given in the text and in Appendix E.

Table A2: Effects of Ads on Perceptions of Bush's Positions
 Dependent Variable: Correct placement of Bush on each issue, post-election binary probit model

	School Vouchers	Kids' Healthcare	HMOs	Tax Cuts	Job Creation	Universal Healthcare	RX Drugs	Stem Cells	Tort Reform
Gore/Kerry ads related to issue, in \$ per household between waves	-0.12 (0.31)	0.09 (0.16)	0.04 (0.16)	0.10 (0.11)	0.21 (0.08)	0.15 (0.12)	0.08 (0.12)	0.38 (0.15)	0.02 (0.12)
Bush ads related to issue, in \$ per household between waves	0.08 (0.12)	-0.30 (0.27)	-0.14 (0.27)	-0.15 (0.18)	-0.43 (0.46)	-0.28 (0.17)	-0.10 (0.18)	-0.37 (0.21)	-0.01 (0.17)
Swing state	-0.21 (0.43)	-0.10 (0.40)	0.56 (0.46)	-0.40 (0.22)	-0.11 (0.17)	-0.17 (0.17)	-0.17 (0.18)	-0.63 (0.20)	-0.24 (0.17)
Days until election: 1–15	0.00 (0.03)	0.01 (0.02)	0.03 (0.03)	-0.03 (0.01)	0.01 (0.01)	0.00 (0.01)	-0.03 (0.01)	-0.01 (0.01)	-0.01 (0.01)
Days until election: 16–30	0.00 (0.02)	0.01 (0.01)	-0.02 (0.02)	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.04 (0.01)	0.03 (0.01)	-0.01 (0.01)
Days until election: 31–60	0.01 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.00 (0.00)	0.01 (0.00)	0.00 (0.00)	-0.01 (0.00)	0.00 (0.00)	0.02 (0.01)
Days until election: 61–120	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.01 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.01 (0.00)	-0.01 (0.00)
Days until election: 121+	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.01)	0.00 (0.00)
Swing state x Days: 1–15	0.03 (0.04)	0.03 (0.04)	-0.08 (0.04)	0.02 (0.02)	0.00 (0.02)	0.03 (0.02)	0.02 (0.02)	0.07 (0.02)	0.01 (0.02)
Swing state x Days: 16–30	-0.02 (0.03)	-0.03 (0.02)	0.06 (0.03)	0.01 (0.02)	0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)	-0.06 (0.02)	0.02 (0.01)
Swing state x Days: 31–60	0.00 (0.01)	0.01 (0.01)	-0.02 (0.01)	0.00 (0.01)	-0.01 (0.01)	0.00 (0.01)	0.01 (0.01)	-0.01 (0.01)	-0.02 (0.01)
Swing state x Days: 61–120	0.00 (0.00)	0.00 (0.00)	0.01 (0.00)	0.00 (0.00)	0.01 (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.01)	0.01 (0.00)
Swing state x Days: 121+	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.01 (0.01)	0.01 (0.00)
Correct placement in pre-election wave	0.63 (0.06)	0.05 (0.06)	0.33 (0.07)	0.91 (0.05)	0.50 (0.05)	0.60 (0.04)	0.55 (0.05)	0.50 (0.11)	0.42 (0.06)
Estimated pre-election wave perception	0.86 (0.07)	0.09 (0.07)	0.72 (0.09)	0.72 (0.04)	0.77 (0.05)	0.71 (0.04)	0.87 (0.05)	0.72 (0.05)	0.68 (0.04)
Constant	-0.23 (0.27)	-0.31 (0.27)	0.50 (0.28)	0.23 (0.16)	-0.22 (0.12)	-0.32 (0.12)	-0.12 (0.13)	0.12 (0.16)	0.29 (0.13)
<i>n</i>	2486	2382	2382	4766	4766	4766	4766	4756	4763

Cell entries are binary probit coefficients, with robust standard errors in parentheses. Dependent variables coded 1 if respondent correctly identifies candidate position, 0 otherwise. Additional information on model specification, data, and coding procedures is given in the text and in Appendix E.

Table A3: Effects of Ads on Respondents' Policy Preferences

Dependent Variable: Respondent preference on issue, scaled -100 (most conservative) to 100 (most liberal), post-election linear regression model

	School Vouchers	Kids' Healthcare	HMOs	Tax Cuts	Job Creation	Universal Healthcare	RX Drugs	Stem Cells	Tort Reform
Gore/Kerry ads related to issue, in \$ per household between waves	-8.51 (12.16)	5.65 (6.19)	6.66 (5.98)	8.32 (5.60)	-1.07 (3.57)	2.64 (3.90)	-1.81 (4.60)	8.53 (5.50)	6.47 (6.74)
Bush ads related to issue, in \$ per household between waves	3.70 (4.39)	-14.19 (10.02)	7.87 (9.86)	-9.80 (9.43)	1.77 (21.35)	-0.85 (5.93)	0.12 (6.83)	-13.23 (7.96)	-1.77 (9.79)
Learned Gore's/Kerry's position x Democrat	9.68 (3.60)	8.48 (3.87)	9.23 (3.30)	28.44 (4.97)	16.75 (3.56)	7.29 (2.41)	11.93 (2.85)	26.81 (4.39)	21.39 (3.90)
Learned Bush's position x Republican	-11.52 (3.69)	-25.79 (4.48)	-7.61 (4.25)	-16.58 (5.27)	-9.00 (2.85)	-12.56 (2.35)	-7.15 (2.76)	-38.86 (4.53)	-12.59 (3.67)
Democrat pre-election	7.05 (2.77)	7.27 (2.16)	3.01 (2.32)	-6.11 (3.03)	-0.40 (2.38)	3.53 (1.66)	2.88 (1.98)	-1.07 (2.35)	2.90 (3.05)
Republican pre-election	-5.26 (3.07)	1.23 (3.05)	-4.82 (3.21)	8.66 (3.12)	-3.84 (2.31)	-2.70 (1.94)	-7.33 (2.31)	-3.33 (2.93)	-5.72 (3.07)
Swing state	8.89 (16.50)	-14.09 (17.08)	-38.22 (15.94)	13.68 (8.23)	3.69 (8.22)	-1.34 (5.49)	-1.29 (6.59)	0.69 (7.54)	-12.13 (9.48)
Days until election: 1–15	0.14 (1.00)	-0.38 (0.92)	-1.21 (0.76)	-0.48 (0.54)	0.06 (0.57)	-0.32 (0.39)	-0.40 (0.46)	-0.53 (0.54)	-0.45 (0.65)
Days until election: 16–30	0.20 (0.68)	-0.88 (0.62)	-0.51 (0.62)	0.94 (0.42)	-0.20 (0.41)	0.02 (0.28)	0.39 (0.34)	1.46 (0.41)	0.54 (0.50)
Days until election: 31–60	0.09 (0.25)	0.38 (0.22)	0.09 (0.23)	-0.42 (0.19)	-0.21 (0.18)	-0.23 (0.13)	-0.40 (0.14)	-0.15 (0.18)	-0.45 (0.26)
Days until election: 61–120	-0.11 (0.12)	-0.08 (0.09)	0.02 (0.10)	0.21 (0.16)	-0.01 (0.13)	0.02 (0.10)	-0.02 (0.11)	0.14 (0.14)	0.28 (0.17)
Days until election: 121+	0.03 (0.04)	-0.01 (0.04)	0.00 (0.03)						
Swing state x Days: 1–15	-0.58 (1.55)	-0.43 (1.53)	1.50 (1.46)	-0.45 (0.82)	-0.44 (0.83)	0.07 (0.56)	0.65 (0.66)	0.47 (0.76)	1.32 (0.95)
Swing state x Days: 16–30	0.07 (1.00)	1.51 (0.94)	1.49 (0.96)	-0.76 (0.62)	0.04 (0.63)	0.15 (0.42)	-0.88 (0.48)	-3.02 (0.65)	-0.61 (0.72)
Swing state x Days: 31–60	-0.51 (0.38)	-0.18 (0.33)	-0.26 (0.35)	0.37 (0.27)	0.02 (0.28)	-0.31 (0.19)	0.21 (0.20)	0.03 (0.29)	0.29 (0.32)
Swing state x Days: 61–120	0.32 (0.17)	0.07 (0.14)	-0.13 (0.15)	-0.26 (0.24)	0.13 (0.19)	0.21 (0.14)	0.23 (0.16)	-0.06 (0.21)	-0.37 (0.22)
Swing state x Days: 121+	-0.09 (0.06)	0.00 (0.05)	0.03 (0.05)						
Pre-election wave response	0.49 (0.01)	0.34 (0.02)	0.28 (0.02)	0.42 (0.02)	0.16 (0.02)	0.41 (0.02)	0.32 (0.02)	0.17 (0.02)	0.13 (0.02)
Estimated pre-election wave position	0.50 (0.04)	0.64 (0.05)	0.53 (0.07)	0.82 (0.04)	0.73 (0.08)	0.52 (0.03)	0.56 (0.06)	0.77 (0.03)	0.59 (0.06)
Constant	6.88 (10.66)	8.50 (10.69)	33.71 (8.88)	-3.65 (5.72)	9.00 (7.16)	4.73 (4.30)	12.26 (5.51)	7.03 (5.75)	5.92 (6.87)
<i>n</i>		4868				4766			

Cell entries are ordinary least squares regression coefficients, with robust standard errors in parentheses. Additional information on model specification, data, and coding procedures is given in the text and in Appendix E.

Table A4: Campaign Effects and Vote Choice in 2000

Dependent Variable: Voted for Gore / would have voted for Gore, post-election binary probit model

	Coefficient	Robust SE
<i>Change in knowledge of Gore's positions, on:</i>		
Medicare surplus	0.023	0.116
Social Security	-0.025	0.113
School vouchers	0.043	0.101
Healthcare for children	0.258	0.177
Right to sue HMOs	0.085	0.098
Abortion	0.020	0.091
<i>Change in knowledge of Bush's positions, on:</i>		
Medicare surplus	0.007	0.115
Social Security	-0.078	0.101
School vouchers	-0.053	0.077
Healthcare for children	0.025	0.104
Right to sue HMOs	-0.170	0.103
Abortion	0.032	0.112
<i>Change in respondents' policy preferences, on:</i>		
Medicare surplus	0.000	0.001
Social Security	0.001	0.001
School vouchers	0.001	0.001
Healthcare for children	0.001	0.001
Right to sue HMOs	0.000	0.001
Abortion	-0.002	0.001
<i>Change in Gore knowledge x pre-election policy preferences, on:</i>		
Medicare surplus	0.001	0.001
Social Security	0.001	0.001
School vouchers	0.001	0.001
Healthcare for children	0.000	0.002
Right to sue HMOs	0.001	0.001
Abortion	0.000	0.001
<i>Change in Bush knowledge x pre-election policy preferences, on:</i>		
Medicare surplus	0.001	0.001
Social Security	0.000	0.001
School vouchers	0.001	0.001
Healthcare for children	0.001	0.001
Right to sue HMOs	0.001	0.001
Abortion	0.000	0.001
<i>Change in policy preferences x pre-election Gore knowledge, on:</i>		
Medicare surplus	-0.017	0.021
Social Security	0.001	0.002
School vouchers	0.002	0.002
Healthcare for children	0.001	0.002
Right to sue HMOs	0.004	0.002
Abortion	0.001	0.002
<i>Change in policy preferences x pre-election Bush knowledge, on:</i>		
Medicare surplus	0.018	0.022
Social Security	0.001	0.002
School vouchers	-0.003	0.002
Healthcare for children	0.000	0.002
Right to sue HMOs	-0.002	0.002
Abortion	0.003	0.002
<i>Change in Gore knowledge x change in policy preferences, on:</i>		
Medicare surplus	-0.016	0.021
Social Security	0.002	0.002
School vouchers	0.002	0.002
Healthcare for children	0.001	0.002
Right to sue HMOs	0.003	0.002
Abortion	0.000	0.002
<i>Change in Bush knowledge x change in policy preferences, on:</i>		
Medicare surplus	0.018	0.021
Social Security	0.000	0.002
School vouchers	0.000	0.002
Healthcare for children	0.000	0.002
Right to sue HMOs	-0.001	0.002
Abortion	0.002	0.001

Swing state	-0.190	0.524
Days until election: 1-15	0.044	0.036
Days until election: 16-30	-0.038	0.025
Days until election: 31-60	0.014	0.009
Days until election: 61-120	0.005	0.004
Days until election: 121+	-0.001	0.001
Swing state x Days: 1-15	0.019	0.050
Swing state x Days: 16-30	-0.009	0.033
Swing state x Days: 31-60	-0.011	0.014
Swing state x Days: 61-120	0.004	0.006
Swing state x Days: 121+	0.003	0.002
Gore vote intention, pre-election wave	1.044	0.120
Bush vote intention, pre-election wave	-0.827	0.118
Estimated pre-election wave preference for Gore	0.749	0.038
Constant	-0.609	0.337
<i>n</i>	3580	

Dependent variable coded 1 if voted for Gore or would have but did not vote, 0 if voted for Bush or would have. “Change” variables indicate the difference between pre- and post-election values of the indicated variable. Additional information on model specification, data, and coding procedures is given in the text and in Appendix E.

Table A5: Campaign Effects and Vote Choice in 2004

Dependent Variable: Voted for Kerry / would have voted for Kerry, post-election binary probit model

	Coefficient	Robust SE
<i>Change in knowledge of Kerry's positions, on:</i>		
Bush tax cuts	0.117	0.106
Job creation	0.056	0.146
Universal healthcare	-0.009	0.123
Prescription drugs	0.102	0.119
Stem cells	-0.104	0.164
Medical malpractice	0.004	0.109
<i>Change in knowledge of Bush's positions, on:</i>		
Bush tax cuts	-0.023	0.099
Job creation	0.029	0.133
Universal healthcare	0.038	0.123
Prescription drugs	-0.101	0.131
Stem cells	0.061	0.191
Medical malpractice	-0.045	0.096
<i>Change in respondents' policy preferences, on:</i>		
Bush tax cuts	-0.004	0.001
Job creation	0.000	0.001
Universal healthcare	0.002	0.002
Prescription drugs	-0.003	0.001
Stem cells	-0.001	0.002
Medical malpractice	0.000	0.001
<i>Change in Kerry knowledge x pre-election policy preferences, on:</i>		
Bush tax cuts	0.003	0.002
Job creation	-0.001	0.002
Universal healthcare	0.002	0.002
Prescription drugs	0.001	0.002
Stem cells	0.000	0.003
Medical malpractice	0.000	0.002
<i>Change in Bush knowledge x pre-election policy preferences, on:</i>		
Bush tax cuts	0.000	0.001
Job creation	0.001	0.002
Universal healthcare	0.001	0.002
Prescription drugs	0.000	0.002
Stem cells	0.002	0.003
Medical malpractice	0.001	0.002
<i>Change in policy preferences x pre-election Kerry knowledge, on:</i>		
Bush tax cuts	0.005	0.002
Job creation	0.001	0.002
Universal healthcare	-0.001	0.004
Prescription drugs	0.003	0.002
Stem cells	0.001	0.003
Medical malpractice	0.001	0.001
<i>Change in policy preferences x pre-election Bush knowledge, on:</i>		
Bush tax cuts	0.001	0.002
Job creation	-0.001	0.002
Universal healthcare	0.001	0.004
Prescription drugs	0.003	0.002
Stem cells	0.002	0.003
Medical malpractice	0.000	0.001
<i>Change in Kerry knowledge x change in policy preferences, on:</i>		
Bush tax cuts	0.003	0.002
Job creation	-0.001	0.002
Universal healthcare	0.001	0.003
Prescription drugs	0.003	0.002
Stem cells	0.000	0.003
Medical malpractice	0.000	0.002
<i>Change in Bush knowledge x change in policy preferences, on:</i>		
Bush tax cuts	0.001	0.002
Job creation	0.001	0.002
Universal healthcare	-0.001	0.003
Prescription drugs	0.001	0.002
Stem cells	0.003	0.003
Medical malpractice	0.000	0.002

Swing state	-0.312	0.344
Days until election 1–15	-0.017	0.025
Days until election 16–30	0.010	0.016
Days until election 31–60	0.009	0.007
Days until election 61+	-0.012	0.006
Swing state x Days 1–15	0.036	0.034
Swing state x Days 16–30	0.003	0.025
Swing state x Days 31–60	-0.013	0.011
Swing state x Days 61+	0.000	0.008
Kerry vote intention, pre-election wave	1.373	0.111
Bush vote intention, pre-election wave	-0.155	0.116
Estimated pre-election wave preference for Kerry	0.528	0.035
Constant	0.068	0.270
<i>n</i>		4443

Dependent variable coded 1 if voted for Kerry or would have but did not vote, 0 if voted for Bush or would have. “Change” variables indicate the difference between pre- and post-election values of the indicated variable. Additional information on model specification, data, and coding procedures is given in the text and in Appendix E.