Campaign Advertising and Democratic Citizenship

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Concern about the state of American democracy is a staple of political science and popular commentary. Critics warn that levels of citizen participation and political knowledge are disturbingly low and that seemingly ubiquitous political advertising is contributing to the problem. We argue that political advertising is rife with both informational and emotional content and actually contributes to a more informed, more engaged, and more participatory citizenry. With detailed advertising data from the 2000 election, we show that exposure to campaign advertising produces citizens who are more interested in the election, have more to say about the candidates, are more familiar with who is running, and ultimately are more likely to vote. Importantly, these effects are concentrated among those citizens who need it most: those with the lowest pre-existing levels of political information.

Central to most notions of representative democracy is the simple idea that citizens ought to participate in the process of choosing leaders and expressing opinions on matters of policy. Engaged, attentive, and informed citizens, it is widely held, should be able to select representatives and make other meaningful political choices consistent with their preferences and interests. Key to this exercise of informed democratic decision making is the assumption that there will be sufficient, relevant data available in the political environment and that citizens will be able and inclined to draw on this information in making their choices.

Democratic reality, of course, falls far short of this ideal, and the project of saving democracy from the shortcomings of the American citizen has been an ongoing challenge for political science. How is it that a disengaged, ill-equipped, and poorly informed citizenry has managed to maintain a democracy? Specifically, how can people with little interest in and even less knowledge about politics arrive at more or less reasoned political judgments? While a number of alternative solutions have been proposed, we suggest that over the last several decades the informational needs of the American citizen have been subsidized by an important but overlooked source: the thirty-second television campaign advertisement.

Although much maligned by scholars and popular commentators alike, television campaign advertising actually fulfills a vital democratic function. To be sure, it is easy to identify particular ads that are silly, offensive, uninformative, or even misleading and to argue that such ads have a detrimental effect on democratic citizenship. Nevertheless, political advertising has the potential to bring about a more attentive, more informed, and more participatory citizenry. We show that exposure to campaign advertising can produce citizens who are more interested in a given election, have more to say about the candidates, are more familiar with who is running, and are ultimately more likely to vote. And importantly, these effects tend to be concentrated among those citizens who have the greatest need: those who possess less political information to begin with. This last finding not only makes us more sanguine about the impact of television advertising, it also contradicts arguments that even when exposed to political messages, less politically informed Americans do not have the cognitive ability or interest to receive or comprehend such messages.

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This research was funded by a grant from the Pew Charitable Trusts. All advertising data used in this article are publicly available from the University of Wisconsin Advertising Project: http://www.polisci.wisc.edu/tvadvertising. Direct all correspondence to Paul Freedman.

American Journal of Political Science, Vol. 48, No. 4, October 2004, Pp. 723–741

 ISSN 0092-5853

The Disquieting Gulf

Political science has long wrestled with the gulf between the ideals of democratic citizenship and the reality of the American citizen. In a classic, oft-cited formulation, Berelson, Lazarsfeld, and McPhee explained that, "The democratic citizen is expected to be interested and . . . to be well informed about political affairs. He is supposed to know what the issues are, what their history is, what the relevant facts are, what alternatives are proposed, what the party stands for, what the likely consequences are. By such standards the voter falls short" (1954, 308).

Indeed, in the half century since Berelson and his associates delivered their dismal verdict on the American citizen, the weight of the supporting evidence has been definitive: when it comes to politics and political information, most Americans are severely malnourished. We are inattentive to most things political; we care little, know less, and participate in politics only when absolutely necessary (and often not even then). Our political views are peripatetic, hastily assembled, unconstrained by ideology, and unencumbered by data (Bartels 1986; Campbell et al. 1960; Converse 1964; Delli Carpini and Keeter 1996; Kinder 1983; Zaller 1992). Americans, in short, fail to meet the dictates of even the most charitable versions of democratic theory.

Still, in spite of this anemic citizenry, American democracy has managed to endure: leaders are chosen, public policy is made, and popular preferences, such as they are, are often translated into political outcomes. How is it that democracy can survive—some might claim thrive—when citizens are so disengaged, so preoccupied with interests and anxieties distant from the world of politics?

Scholars have provided a number of answers, all of which are predicated upon the availability of at least some politically relevant information from which citizens can draw. Whether one puts faith in miracles of aggregation (Converse 1990; Page and Shapiro 1992), looks to the discourse of competing elites (Zaller 1992), or falls back on cognitive shortcuts (Lau and Redlawsk 2001; Sniderman, Brody, and Tetlock 1991), someone, somewhere, must be in possession of some supply of information. Where does such information come from? What is the source of the raw informational ingredients that make democracy possible?

One common answer is that elites provide relevant information through election campaigns. Campaigns are often seen as capturing the attention of citizens, activating their political predispositions and, at least potentially, shedding some light on the political choice at hand (Alvarez 1997; Coleman and Manna 2000; Finkel 1993; Gelman and King 1993; Simon 2002). Candidates and parties help subsidize the costs of information, and their interest group allies do their part as well, distributing voting guides, candidate scorecards, and primers designed to make a given set of electoral choices more comprehensible. Organizations such as the National Rifle Association, the Sierra Club, and NARAL Pro-Choice America all attempt to subsidize the costs of acquiring politically relevant information in an easily digestible form.

And yet, when it comes to campaigns as vehicles for the transmission of political information, an important distinction is often drawn between "good" and "bad" information flows. Put simply, speeches, debates, and policy papers are seen as normatively valued and substantively valuable sources of information, with the potential to enlighten citizens. In contrast, campaign advertising is viewed with a skeptical eye at best; at worst it is seen as a cynical, self-serving effort to obfuscate or mislead. This distinction is even enshrined in the Bipartisan Campaign Reform Act (BCRA), the most recent effort to reform the federal campaign finance system. A central component of the legislation (upheld in 2003 by the Supreme Court) focuses explicitly on television advertising, considering such communications a suspect class of campaign discourse that is by implication misleading, duplicitous, and potentially harmful to democratic decision making. According to BCRA, political groups are permitted to communicate messages over the phone and in the mail that they are not allowed to convey through television advertisements.

Even Madison Avenue pioneer David Ogilvy has referred to political ads as "the most deceptive, misleading, unfair and untruthful of all advertising" (cited by Zhao and Chaffee 1995, 42), and the chorus of criticism of television advertising is a predictable staple of media coverage in election after election. Typically, we are told that campaign ads are ruining democracy, that the rough and tumble of political advertising repulses average Americans. Such claims are not new: writing in 1980 about the presidential contest between Ronald Reagan and Jimmy Carter, veteran *New York Times* reporter Adam Clymer quoted Lois Haines of Goshen, Ohio, "People are being turned off by dirty politics, our country did not start out that way," said second-grade teacher Patricia Williams, who complained that, "there's an awful lot of mudslinging" (Clymer 1980, 5). In 1992, writing about the race between Bill Clinton and George Bush, chief *New York Times* political writer Richard Berke grumbled, "the view from America's living rooms is not a pretty one" and "the campaigns are leaving unmistakably depressing images" (Berke 1992, 7). And in 2002, David Broder

opined, "These ads are killing our Democracy" (Broder 2002, B07).

These examples are typical of the scores of articles that appear each year—often by the same reporters. The argument is usually the same: campaign advertising has a detrimental impact on American democracy. The theme is echoed by scholars claiming that negative advertising in particular has a demobilizing effect on voters (Ansolabehere and Iyengar 1995; Ansolabehere, Iyengar, and Simon 1999). And while much of the scholarly debate has focused on negative ads in particular, discussion of campaign advertising tends to assume that most ads are negative (although they are not), and that in any case advertising has little to offer when it comes to creating an engaged, informed electorate.

Campaign Advertisements as Information Supplements

We disagree with this conventional wisdom. Campaign ads tend to be rich in informational content, and advertising conveys information in an efficient, easily digestible way. Like product advertising, political commercials are carefully tested and skillfully produced. Text, image, and music work to complement and reinforce each other. And an ad's basic message—its bottom line—is usually simple to identify (it is often the first and the last line of the ad). Exposure to advertising can help citizens to learn about the candidates and issues and is thus an efficient means for campaigns to communicate with potential voters. Ultimately, if the political diet of most Americans is lacking in crucial information, campaign ads represent the multivitamins of American politics.

Equally important, this informational content is contained in an easy-to-swallow emotional coating. Campaign ads are rarely presented in dispassionate, emotionally neutral terms. Rather, ads tend to be emotionally rich; they provoke diverse responses including fear, pride, and sympathy, either directly, through the script of the ad, or indirectly, through the use of images and music. As a result, ad exposure can facilitate use of the *likeability heuristic*, by which people make informational inferences on the basis of their likes and dislikes (Sniderman, Brody, and Tetlock 1991). Ads can also produce demonstrable change in viewers' levels of anxiety about the election and enthusiasm for the candidates, which in turn can increase political awareness and interest (Marcus and MacKuen 1993; Marcus, Neuman, and MacKuen 2000). In short, due to the cognitive and emotional content of campaign advertising, there is good reason to expect ad exposure to produce citizens who are both more informed about the candidates, more interested in the race, and in general more engaged by the campaign.

Prior work provides some measure of support for these proposed effects, particularly for the idea that campaign ads can help inform citizens. Most famously, Patterson and McClure found campaign advertising during the 1972 presidential election to be rife with issue content, leading them to conclude that "presidential advertising contributes to an informed electorate" (1976, 117). Indeed, according to Patterson and McClure television advertising led to a greater degree of issue learning than did television news (at least among the voters of Onondaga County), and a number of other studies have shown—or at least hinted—that citizens can learn from ads (Ansolabehere and Iyengar 1995; Atkin and Heald 1976; Brians and Wattenberg 1996; Coleman 2001; Coleman and Manna 2000; Dalager 1996; Just, Crigler, and Wallach, 1990; Kahn and Kenney 2000; Valentino, Hutchings, and Williams 2002; Zhao and Chaffee 1995; Zukin and Snyder 1984). However, prior work on the informational impact of campaign advertising has necessarily relied on relatively indirect measures of ad exposure to campaign advertising. Inferring exposure to ads outside of the laboratory (where such inference is unnecessary) has been a tenuous project at best. In some cases scholars have relied on contextual measures of campaign spending or advertising activity. More commonly, studies have used survey measures of self-reported ad exposure to demonstrate that advertising can boost knowledge and increase campaign interest (e.g., Zhao and Chaffee 1995). There are, however, important methodological problems with using self-reported exposure to campaign advertising; concerns about endogeneity when relying on self-reports are especially pronounced in models of political learning (Ansolabehere, Iyengar, and Simon 1999; Goldstein and Freedman 2002).

Nevertheless, on the basis of prior work as well as the arguments set out above, we believe there is good reason to propose a number of possible effects from campaign ad exposure: First, the ***information hypothesis*** holds that citizens exposed to campaign advertising will actually learn something about the candidates and their messages. Second, the ***engagement hypothesis*** suggests that, due in part to its information-enhancing function and in part to the emotional content of much campaign advertising, ad exposure will cause people to be more interested in a particular election, more cognitively and affectively involved with the campaigns, and ultimately more likely to participate by turning out on Election Day.

Finally, we propose a ***differential effects hypothesis***, suggesting that these effects will be greatest among those who need the information most: citizens who have lower

levels of political information to begin with. This expectation is grounded in common sense: those who know least obviously have the most to learn. Moreover, past research provides some support for the hypothesis.[1] However, it rubs against assumptions underlying existing models of media effects.

Theories of media effects usually differentiate among three components of the communications process: *exposure*, *reception*, and *acceptance* of new information (Hovland et al. 1953; Price and Zaller 1993; Zaller 1992, 1996). Exposure involves the physical encounter with a media message, while reception refers to the process of "taking in" or comprehending a message, and acceptance involves "yielding" to a message that has been received (leading to, under certain conditions, attitude change). Our focus is on reception. We are concerned primarily with whether information conveyed by advertising "gets through" to viewers, rather than whether or not it has a persuasive impact (a question of acceptance). To the extent that advertising leads to increases in political information or campaign interest, we will consider messages as having been received. Importantly, unlike most work conducted outside of the laboratory, we employ independent estimates of advertising exposure that allow us to untangle patterns of exposure from effects on reception. Thus, we ask what information people receive given our estimates of what messages—specifically, patterns of advertising—they have been exposed to.

It is most often assumed that reception of political messages rises with cognitive sophistication and political engagement. In part, this reflects the fact that *exposure* to political messages increases with sophistication, and exposure and reception are usually conflated in nonexperimental studies.[2] In the present study, however, we have independent estimates of exposure, and need not rely on measures of reception to infer exposure.

In addition to differences in patterns of exposure, past work has usually assumed that less-informed citizens will fail to receive messages they encounter because they lack the cognitive skills needed to make sense of new communications. Zaller's "reception axiom," for example, holds that, "the greater a person's level of cognitive engagement with an issue, the more likely he or she is to be exposed to and comprehend—in a word, to receive—political messages concerning that issue" (1992, 42). More generally, the assumption in much of the literature is that as media messages are encountered, "the informationally rich get richer," while those with fewer informational resources get left behind (Price and Zaller 1993, 138).[3]

Our differential effects hypothesis therefore runs counter to Zaller's reception axiom and the expectation that information gains will be concentrated among those who already possess an appreciable store of political information. Given *exposure* to advertising (which, again, we measure separately), we hypothesize that the least sophisticated (as measured by general political information) are the *most* likely to take in new information from political advertising. The difference reflects the nature of the information conveyed by political ads versus other sources of political information like newspapers or television news. The informational content of most political ads is relatively straightforward, requiring little in the way of cognitive processing, and is usually accompanied by simple emotional cues. Ads are, we have argued, information subsidies are akin to multivitamins: attractively (and expertly) packaged, simple to comprehend, easy to digest. The cognitive resources necessary to receive information from advertising are thus much less than might be assumed for other types of political messages. Reception therefore is easier; those who have the most to learn, we hypothesize, will experience the greatest gains. Furthermore, these multivitamins can be accessed from viewing a wide variety of shows. While much campaign advertising is aired on news programs, ads appear on a wide variety of other broadcasts as well. Compared to information conveyed by newspapers and television news, ads present more readily digestible information, to which viewers can be exposed without purposively seeking it out.

Data: Campaign Advertising in 2000

To test these hypotheses, we use Campaign Media Analysis Group (CMAG) data from the 2000 election, made available by the University of Wisconsin Advertising

[1] Patterson and McClure (1976), for example, find the greatest learning among the least politically informed, and Iyengar and Kinder (1987) find greater effects from television news among those who have fewer resources and are less politically involved. However, Ansolabehere and Iyengar (1995) and Valentino, Hutchings, and Williams (2002), who take experimental approaches to the question of informational effects from advertising, find evidence of equal or greater learning among subjects with relatively *higher* levels of information.

[2] This is a serious liability. Just as it is a mistake to use self-reported exposure as a measure of reception (Price and Zaller 1993), it can be equally misguided to infer exposure from measures of reception. Doing so tells us little about individuals who were exposed to but failed to receive particular messages.

[3] When it comes to questions of persuasion, there is an expected curvilinear relationship. This expectation is grounded in the assumption that citizens with intermediate levels of political sophistication and engagement will be more likely than their less-informed compatriots to encounter political messages through the media, but that they will be less likely than their more informed counterparts to resist information that is inconsistent with their predispositions (Zaller 1992).

Project, to construct an estimate of campaign ad exposure. These data provide a comprehensive record of every ad broadcast on the national broadcast and cable television networks, and more importantly for the study of political advertising (which is bought primarily at the local market level), in each of the nation's top 75 media markets. The unit of analysis in the dataset is the broadcast of a single advertisement, with information on where it aired (what media market and television station) and when it aired (what time of day and during what television show), and the coded content of the ad (what issues it dealt with, for example). Thus, we can aggregate the data in a variety of ways to yield a range of descriptive inferences—determining, for example, the number of ads that aired during a particular show in a particular media market or the volume of advertising for a particular candidate in a given market.

Overall in the 2000 election, almost one million (970,410) political television advertisements were aired in the country's top 75 markets. Of these, about 94% (908,068) had a specific electoral objective, the rest (62,342), were genuine "issue ads," designed to shape opinion or spur activity on some policy issue. Electoral spots included 302,000 presidential ads and almost half-a-million commercials for House and Senate candidates (the rest were spots for state and local candidates as well as ballot propositions). Included in these figures are not only the hard-money ads aired by the campaign committees themselves, but coordinated expenditures with parties and soft-money party ads, along with issue advocacy campaigns by interest groups.

One important advantage of the CMAG system is that it not only tracks ads from all sources (campaign, party, and interest group), it also tracks ads in all races in a given election. Lacking such comprehensive data, prior work has focused on ads from a single race at a time, ignoring the fundamental fact that election campaigns in the United States are rarely isolated events. Ballots are often crowded, with many offices typically up for grabs simultaneously. More important, although crowded ballots are common to many states, election contests can vary in competitiveness from state to state (and even within states), thus drawing more or less advertising, as the volume of campaign advertising is correlated with the competitiveness of the race (Goldstein and Freedman 2002a). As a result, a market that is uncompetitive in one contest might be extremely competitive in another, and focusing on a single race in that market will tend to understate the total volume (as well as the composition) of the advertising broadcast. Understanding advertising effects demands that one take into consideration the full range of electoral contests that voters face. Doing otherwise—looking only at presidential advertising, for example—means risking significant measurement error when it comes to making descriptive and causal inferences.

Yet, this simple fact has been consistently overlooked in the extensive literature on advertising effects, particularly the debate over advertising tone and voter turnout (see Goldstein and Freedman 2002 and Lau et al. 1999 for reviews). To date, most empirical work on the impact of campaign advertising on turnout has considered ads from only a single type of race—even a single electoral contest—at a time. Some have considered ads aired in presidential—and *only* presidential—races (e.g., Finkel and Geer 1998; Goldstein and Freedman 2002); others have focused on ads aired in Senate races during election years when there were hundreds of thousands of ads broadcast for other candidates (Kahn and Kenney 2000). These studies are unable to consider the cumulative effects of multiple ads from multiple races. This strategy may make sense when looking at the persuasive effects of ads in a particular race, but is problematic when the focus is on turnout or learning. Although citizens may be drawn to the polls to vote one or two particular races, and although some races may have a bigger influence on turnout than others, citizens often vote all races on the ballot and all races contribute to the full campaign environment. In short, no citizen can avoid being bombarded with advertisements from the full range of races, regardless of whether he or she plans to vote in a given contest, and the CMAG data enable us to capture more of this information environment than possible in the past.

What, then, is the potential informational content of campaign advertising in the 2000 elections? More, perhaps, than critics might expect. Campaign advertising is rich in informational content. The majority of campaign ads broadcast in the general election—including more than two-thirds of all presidential advertising—focused primarily on policy issues such as heath care, education, social security, and taxes (see Table 1). And even among ads that focus on the personal attributes of candidates (such as questions of character), there is usually some mention of issue stands. All told, nearly 95% of presidential spots and 90% of all general election ads contain some issue-related content. Moreover, advertising claims are widely supported by references to specific sources. Almost 70% of all general election ads (and 73% of presidential spots) include at least one claim backed up with a cited source.[4]

[4]To be sure, the on-screen text of such references is often invisibly small, but that is beside the point. The inclusion of such information—even if not legible—lends the information credibility, increasing the probability that the information it will be accepted.

Table 1 Content of General Election Campaign Ads

	All Ads* 670,606	Presidential Ads** 247,639
Policy issues primary focus	62.7	68.6
Supporting source cited	69.3	72.9
Top issues		
Health Care/Medicare	39.0	32.9
Education	27.6	32.4
Social Security	23.2	26.7
Taxes	21.2	21.7
Budget/Surplus/Deficit	10.5	16.7

*Includes post-primary ads for contests with a primary; all ads for races with no primary
**All presidential ads aired after May 31, 2000

Table 2 General Election Campaign Ads by Television Program

Show	Number of Ads
News	294,376
Today	29,934
Good Morning America	24,876
Early Show	15,933
Wheel of Fortune	12,999
Jeopardy!	11,778
Oprah Winfrey	11,292
Live With Regis	10,205
Judge Judy	10,036
Nightline	9,357
Other programs	239,820
Total	670,606

Creating a Measure of Exposure

Although the CMAG data provide detailed information about what was aired, they contain no information about exposure at the individual level. They are thus a necessary but insufficient first step in building a measure of exposure to television advertising and in making inferences about the impact of this exposure. To construct a valid measure, one needs information about two factors: the frequency with which an advertisement is broadcast in a particular media market and the quantity of television viewing by a particular respondent (Freedman and Goldstein 1999). Even the most faithful television watcher is unlikely to see a campaign ad that has not been broadcast in his or her media market. Similarly, living in a media market that is saturated with campaign advertisements will mean little to an individual who never watches television. Thus, one needs estimates of what was aired *and* what was watched to estimate accurately levels of advertising exposure. CMAG provides the former. For the latter, we turn to the 2000 National Election Study.

As Table 2 indicates, 10 shows drew about 64% of campaign advertising during the 2000 general election season. Almost half (44%) of all political advertising in 2000 was aired on local news. Morning news shows attracted another 11% of ads, and two game shows, *Wheel of Fortune* and *Jeopardy!* each hosted 2% of general election political spots in 2000. In all, only 14 shows drew more than 1% of political advertising. Since political advertising is so heavily concentrated, NES targeted its media exposure questions accordingly, asking questions about local news viewership (both early and late), morning news viewership, daytime talk shows, and *Wheel of Fortune*- and *Jeopardy*-watching. We then created a measure of ad exposure, weighting the number of ads broadcast on each show in a given market by each respondent's viewing pattern for that particular show (see Appendix B for details).

Our estimate of exposure is, of course, only an estimate; and because ultimately we don't know whether a respondent was actually watching a given commercial (as opposed to, say, muting the volume or leaving the room), it is most likely an *over*estimate of how many ads a respondent has seen. It is best, therefore, to think of our measure as an upper bound on the number of spots that respondents were likely to have seen and as a measure of *relative* exposure among respondents in our sample. This makes it possible to compare different respondents in different markets in terms of their relative exposure to different types of campaign ads.

Two additional points bear emphasizing with respect to our measure of exposure: First, the measure relies in part on respondents' own reports of exposure to television programming, which are clearly subject to measurement error (as are all survey self-reports). However, prior work has found such measures to be valid indicators of exposure to news and entertainment programming (e.g., Bartels 1996). In general, we expect recall of television program exposure (which is usually deliberate and often regular, if not habitual) to be a more valid and reliable measure of actual exposure than recall of television advertising (which is neither deliberately chosen nor subject to regular viewing patterns). Put simply, people should more accurately recall television-watching behavior that they seek out and that they engage in regularly, as opposed to recalling advertising stimuli that they neither deliberately choose nor encounter on a predictable basis. Moreover,

it is important to note that we rely on recall measures to help differentiate among respondent exposure *within a given media market*; we rely on the CMAG data to draw distinctions *across* markets.

Second, to the extent that heavy viewers of certain television shows (local news in particular) are more likely to be well-informed, highly educated, or especially interested in politics, if we were to find that exposure to advertising leads to increased political information or engagement it could be an artifact of the measure itself. That is, people might appear to be more informed or interested not because of the impact of political advertising, but because informed people are more likely to be exposed to advertising by virtue of the shows they watch.

Fortunately, this is not the case. For the six sets of television shows that comprise our exposure measure, frequency of watching is positively correlated with a measure of general political information in only one case: evening television news. In three other cases there is no relationship between political information and viewership, and watching *Wheel of Fortune* and daytime talk shows is *negatively* correlated with information. Similarly, only news viewership (morning, evening, and late night) is associated with campaign interest (and here only moderately, with correlations in the .15 to .20 range); watching the other shows has no relationship to interest whatsoever. The weak association between local news viewing and campaign interest is not surprising, given why most people watch television news: for information about crime, health, sports, weather, and community information (Pew Research Center 2002). Nevertheless, to be safe, we include local news viewing in our multivariate models in order to control for any remaining association. Finally, in every case, viewership declines with education. Thus, we are on firm footing in using these measures to estimate the impact of ad exposure on information and political engagement, unencumbered by concerns about selection effects.

Analysis and Findings

We use pre- and post-election questions from the 2000 National Election Study to test our main hypotheses. To test our information hypothesis, we look at whether respondents were able to recall the name of one of the House candidates running in their district, as well as the accuracy of their reports, along with relative issue placements for the presidential candidates. To test the engagement hypothesis—that exposure to advertising leads people to become more involved with the candidates, more attentive to the election, and more likely to participate—we explore pre- and post-election measures of campaign interest, the number of likes and dislikes respondents were able to offer for each of the major party presidential and House candidates, and voter turnout. Finally, we investigate the differential effects hypothesis by looking at the effects on our dependent variables separately for respondents both high and low in pre-existing political information.

Each of our models includes a measure of campaign ad exposure as the primary explanatory variable. Ad exposure is operationalized in a number of ways, depending on the dependent variable. For questions that were asked on the NES post-election survey (such as voter turnout) we use our estimate of exposure to advertising from June 1, 2000 through Election Day. For questions asked on the pre-election survey (such as House-candidate recall), we use our measure of exposure to ads from June 1 up to the date of the respondent's pre-election interview (thus the end-date varies by respondent). Table A1 in Appendix C shows the relevant exposure measure or measures for each model.

Additionally, depending on the model, we use exposure to advertising of one of three types: presidential ads, congressional ads, and total ads (which includes presidential, congressional, and all other electoral ads). In each model we control for variables that could plausibly affect our outcome measures, including education, age, race, income, education, strength of partisanship, newspaper reading, and general political information. Following the logic laid out by Zaller (1992), we measure information with a familiar battery of questions asking respondents to identify the "job or office" held by William Rehnquist, Trent Lott, Tony Blair, and Janet Reno, along with questions about partisan control of the House and Senate. (Descriptions of all variables appear in Appendix A.) We also include measures of the competitiveness of the House, Senate, and presidential races for each respondent, to account for the possibility that electoral competition leads to higher levels of information and engagement for reasons other than increased advertising (Rosenstone and Hansen 1993; Jacobson 1997). The full models appear in Appendix C.

Each model includes two additional measures of the level of general campaign activity that could affect citizens' level of information and degree of campaign engagement. First, we include the logged number of total spots broadcast in each respondent's media market (one of the constituents of our exposure measure) to ensure that any observed effects are due to ad exposure and not another form of activity targeted at the market level. Second, we include an individual-level measure of campaign mobilization—a dummy variable set at one if a respondent reports having been contacted by a political party or

TABLE 3 Impact of Ad Exposure on House-Candidate Recall and Accuracy of Bush-Gore Issue Placements

	House Candidate Recall		Accuracy of House Recall		Bush-Gore Issue Summary
Exposure to congressional ads	**.122 (.037)****	–	**.130 (.045)****		–
Exposure to presidential ads	–	−.011 (.032)	–	−.020 (.041)	**.025 (.015)***
Exposure to total ads	–		–		–
Total spots aired in media market	−.127 (.119)	.063 (.126)	−.093 (.143)	.129 (.160)	−.056 (.057)
Estimated Ad Exposure	**Prob. Recall**		**Prob. Accurate**		**Prob. >5 correct**
Low exposure	.123 (.024)	–	.034 (.012)	–	.083 (.016)
Mean	.164 (.026)	–	.048 (.015)	–	.094 (.015)
High	.216 (.036)	–	.068 (.021)	–	.107 (.018)
High-Low	.093 (.030)	–	.033 (.015)	–	.024 (.015)

*p < .10; **p < .05. Cell entries are logit, OLS, or ordered probit coefficients with standard errors in parentheses. See Appendix C for full models and details on estimation.

having received campaign mail—to ensure that it is ad exposure doing the explanatory work and not another form of mobilization that high-exposure citizens might also be subject to.

Finally, notwithstanding the assurances discussed earlier, we include the respondent's mean level of television news viewing. Together, these controls should allay any concern about endogeneity in our models; that is, they allow us to capture the impact of campaign ad exposure on our measures of information and engagement, without undue concern that those who are already engaged and informed will find themselves more exposed to campaign ads.

Information Effects

We first examined the effect of exposure on respondents' ability to recall the candidates running for the U.S. House of Representatives in their district. We estimated two models, one for citizens' *claims* about knowing the names of the candidates, and one for the *accuracy* of their reports. Not surprisingly, given the social desirability of being politically informed, a higher percentage of citizens *say* they know who was running (26.6%) than can accurately identify at least one of the candidates by name (14.8%). Importantly, as Table 4 illustrates, both reported knowledge and recall accuracy increase with exposure to congressional campaign advertising. Increasing exposure from one standard deviation below the mean to one standard deviation above the mean raises the probability of claiming to know who is running by .093 for a hypothetical "average" respondent.[5] When this baseline respondent is exposed to a relatively small amount of advertising, there is a .123 probability that she will claim to know who is running for the House of Representatives, at higher levels of ad exposure, this probability rises to .216. When it comes to the ability to recall a candidate's name accurately (as opposed to simply claiming to know), the probability rises from .034 when ad exposure is one standard deviation below the mean, to .068 at exposure a standard deviation above.[6] Thus, exposure to congressional advertising leads people to *feel* more informed (and therefore more likely to claim to know the candidates running), and to actually *be* more informed about their House candidates.

Importantly, these effects are evident for exposure to congressional advertising, but not for exposure to presidential spots. As Table 3 reveals, exposure to presidential ads has no effect at all either on assertions of knowledge or on recall accuracy. We take these nonfindings as

[5]These simulations are based on models estimated using the Clarify routines in STATA (King et al., 2000; Tomz, Wittenberg, and King et al. 2001). We hold total advertising in the market, local news viewing, newspaper reading, age, education, income, partisan strength, and political information constant at their means. All three electoral competitiveness indicators are set to zero, and probabilities are estimated for a hypothetical white woman who was not mobilized by a political party. Note that Tables 3 and 4 include estimates for selected variables; the full models appear in Appendix C.

[6]Because we set our mobilization contact variable to zero in these simulations, the overall level of our estimates is lower than it is for the sample as a whole. Rerunning the estimates for mobilized respondents, increasing ad exposure raises the probability that a respondent will claim to know the names of the candidates from .198 to .314, and the probability of an accurate response from .079 to .154.

strong evidence supporting the hypothesis that people are learning from relevant information contained in the ads themselves.

Over and above the effect of ad exposure, other variables in our model affect levels of information (see Appendix C for the full model). Reported recall and accuracy both rise with education, newspaper reading, and general political information, but are unaffected by the total volume of advertising in the media market or, once congressional ad-exposure has been controlled for, by watching the local news.[7] Mobilization is strongly related to recall: those who were contacted during the campaign by parties and campaigns are significantly more likely to recall a candidate (and do so accurately) than their unmobilized counterparts, which may say as much about the kinds of people who get contacted as about the informational impact of mobilization itself (Rosenstone and Hansen 1993).

Finally, as the full model reported in Appendix C indicates, campaign context—specifically electoral competition—matters for House-candidate recall. Even controlling for all the other variables in our model, people are more likely to recall the name of at least one candidate—and much more likely to do so accurately—when they live in a district with a competitive House race. Holding ad exposure constant at its mean across types of House races (clearly an unrealistic assumption but a conservative one), our hypothetical "average" respondent would have a .164 probability of saying she remembered the name of a House candidate if she lived in an uncompetitive district, and a probability of .273 if she lived in a competitive one. Similarly, the probability of an accurate recall more than triples from .048 in an uncompetitive district to .136 in a competitive one. Importantly, living in a state with a competitive Senate or Presidential race has no impact on House-candidate recall. The effect of electoral competitiveness is thus confined to the context of the House race itself.

We estimated an additional set of information models, using respondents' ability to situate correctly the presidential candidates on eight issue questions. The candidates were evaluated separately, and respondents were coded as having provided a "correct" answer each time they placed the Democratic candidate, Al Gore, to the left of the Republican candidate, George Bush.[8] Correct placements varied widely by issue: Only 13% of respondents, for example, were able to correctly order the candidates on the question of defense spending, 62% could identify Gore as being more amenable to restrictions on gun sales, and almost two-thirds could identify Bush as more pro-life than Gore.

We regressed (using ordered probit) the number of correct placements for each respondent on the independent variables in the models reported above.[9] We found that in general, presidential candidate issue knowledge rises with general political information, education, strength of partisanship, and party and campaign mobilization (see Appendix C). More to the point, exposure to presidential election ads raises slightly but significantly the number of issues for which respondents can place the candidates. At the lowest level of exposure, our hypothetical average respondent would have only a .083 probability of correctly ordering the candidates on six or more out of the eight issues At a standard deviation above the mean level of exposure, this rises slightly to .107. Consistent with our findings at the congressional level, the impact of ad exposure is domain specific: Only presidential ads contribute to respondents' issue knowledge; congressional ads have no effect.

Engagement Effects

We tested the hypothesis that campaign advertising boosts engagement with the candidates and campaigns in several ways. First, we looked at general campaign interest. Both before and after the election, NES asks respondents whether they were "very much interested, somewhat interested, or not much interested in following the political campaign." As Table 4 reveals, exposure to campaign ads increases the pre-election measure of interest, but has no effect on post-election interest. For our hypothetical average respondent, the probability of being in the "very interested" category before the election is almost five points higher at the highest level ad exposure (.226) than when exposure is a standard deviation below the mean (.181). Both measures of interest rise with newspaper reading, local news viewing, education,

[7] Interestingly, local news watching does have a discernable impact on recall when only presidential-ad exposure is included in the model, presumably because news viewing in this case serves as a proxy for congressional-ad exposure.

[8] This is admittedly a crude measure of campaign information. Conceivably, candidates could take positions inconsistent with their party and general ideology. More likely, they may move toward the center and/or seek to blur distinctions with their opponent. However, in the context of the 2000 election, and given the issues at hand, such a crude approach seems to be a reasonable one. It is also similar to approaches others have taken, e.g., Alvarez (1997). Our measure of relative issue position placement is correlated with education ($r = .36$) as well as general political information ($r = .55$).

[9] We recoded correct placements into a four-category variable ranging from 0 (one or fewer correct candidate issue placements) to 3 (six or more correct placements).

TABLE 4 Impact of Ad Exposure on Campaign Interest, Candidate Likes and Dislikes and Voter Turnout

	Pre-Election Interest	Post-Election Interest	Bush-Gore Likes	Bush-Gore Dislikes	Turnout
Exposure to congressional ads	–	–	–		–
Exposure to presidential ads	–	–	**.041 (.023)***	**.068 (.023)****	–
Exposure to total ads	**.031 (.017)***	.016 (.018)	–		**.095 (.038)****
Total spots aired in market	−.034 (.057)	.012 (.055)	−.062 (.090)	.134 (.087)	−.093 (.130)
Estimated Ad Exposure	**Prob. Very Interested**	**Prob. Very Interested**	**Mentions**	**Mentions**	**Prob. Turnout**
Low	.181 (.026)	.337 (.036)	2.33 (.151)	2.12 (.152)	.641 (.046)
Mean	.203 (.024)	.352 (.032)	2.45 (.135)	2.32 (.134)	.694 (.039)
High	.226 (.029)	.367 (.036)	2.56 (.150)	2.52 (.148)	.742 (.040)
High-Low	.046 (.026)	.030 (.033)	.235 (.133)	.396 (.138)	.100 (.041)

*p < .10; **p < .05. Cell entries are logit, OLS, or ordered probit coefficients with standard errors in parentheses. See Appendix C for full models and details on estimation.

political information, mobilization, and strength of partisanship. And controlling for the other variables in the model, interest is higher among African Americans than among nonblack respondents. Total ad volume in the respondent's media market and electoral competitiveness, in contrast, have no impact on campaign interest (Appendix C, Table A3).

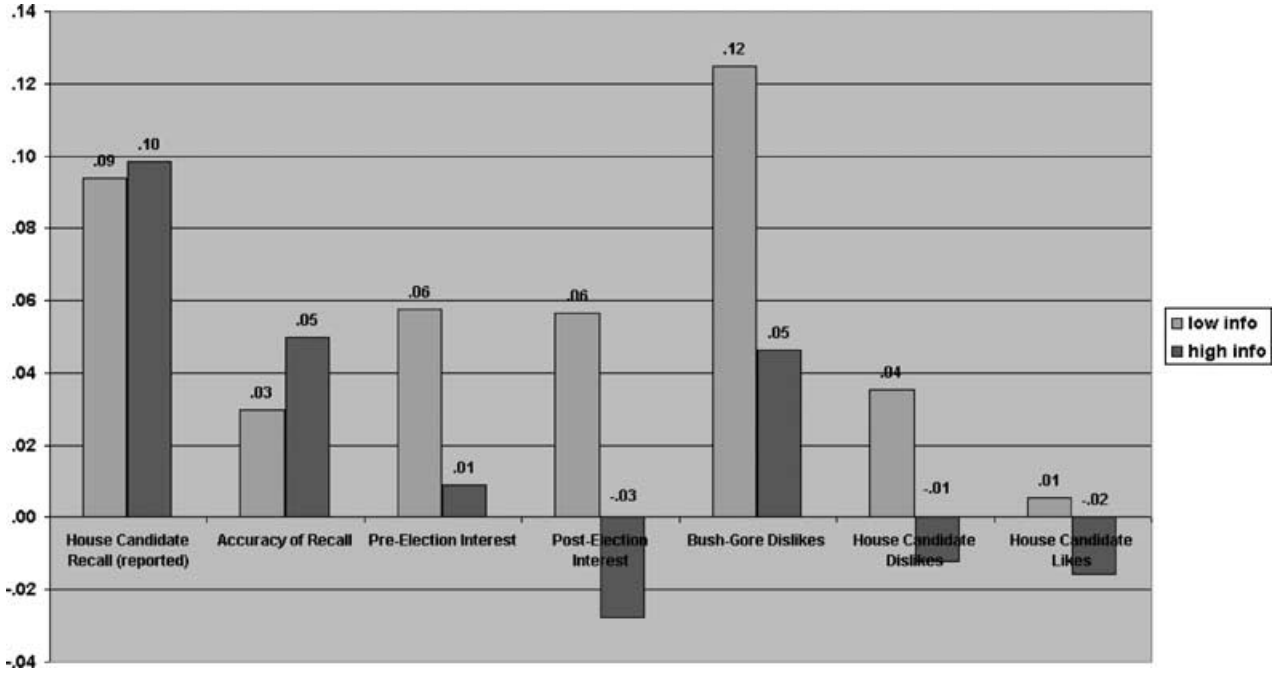
Our second measure of electoral engagement involved perceptions of the candidates themselves. Specifically, we looked at the ability to articulate likes and dislikes about the major party presidential and House candidates. Past research has established the importance of candidate affect for understanding vote choice as well as turnout, and the NES "likes" and "dislikes" battery taps into cognitive as well affective engagement with the candidates (Holbrook et al. 2001; Jacobson 1997; Kelley 1983; Marcus and MacKuen 1993). NES asks respondents whether there was anything in particular that they liked about each of the major party presidential candidates; up to five mentions are accepted for each candidate, including everything from past experience and leadership ability, to physical appearance and other personal qualities. Respondents are also asked whether there are reasons to *dislike* each of the candidates. Again, up to five responses—ranging from comments about the candidate's character to criticisms of his policy positions—are accepted.

On average, NES respondents in 2000 were able offer slightly more than one reason for liking each of the presidential candidates, for a combined mean of 2.2 mentions (out of a maximum 10). They could provide slightly fewer reasons for disliking the candidates (an average of 2.0 out of 10). When it comes to candidates in House races, Americans are at an even greater loss, providing on average only one reason for liking either the Republican or Democratic candidate in their district, and only 0.38 reasons for disliking them (again, out of a possible 10).

As with interest, likes and dislikes increase with education and political information. Strong partisans are somewhat more likely to mention something that they like (but not dislike) about the presidential candidates. More important for our purposes, presidential-candidate likes and dislikes rise with exposure to campaign advertising, as Table 4 reveals. Increasing exposure to presidential ads from a standard deviation below to a standard deviation above the mean increases the number of likes offered ever so slightly, by around a quarter of a mention for our average respondent. The effect on dislikes is slightly more pronounced, rising by four-tenths of a mention. And in the aggregate, there are no significant effects of ad-exposure on House-candidate mentions.

Our final measure of campaign engagement is voter turnout. There is, of course, a considerable literature on the impact of campaign advertising—in particular, negative campaign advertising—on turnout. Here we are concerned with a simpler hypothesis: does exposure to advertising in the aggregate (holding aside questions of tone) mobilize, demobilize, or have no effect on citizens when it comes to the simple act of voting? The answer is unambiguous: in the aggregate, exposure to campaign advertising stimulates turnout, increasing the probability that our hypothetical citizen will vote by as much as 10 percentage points (Table 4). To some extent, of course, this effect is due to the impact of advertising on each of the variables discussed above: information, interest,

FIGURE 1 Effects of Media Exposure on High- and Low-Information Respondents



Source: Appendix C, Table A4.
Note: Effects on House-candidate recall refer to the change in probability of recalling the name of a candidate; effects on interest refer to the change in probability of being "very interested" in the election; effects on candidate likes and dislikes refer to the probability of offering more than two mentions (for presidential candidates) or more than one mention (for House candidates).

and the ability to articulate likes and dislikes are all associated with a increased probability of voting, and as we have seen, they are all affected by campaign advertising. However, even in an expanded model in which we control for *all* of these additional variables, advertising continues to exert an independent and significant effect on turnout. When it comes to voting, therefore, exposure to campaign ads has both direct and indirect stimulation effects.

Differential Effects Hypothesis

Our final hypothesis is that the effects of campaign ad exposure are not uniform. Rather, some people, specifically those who are less politically sophisticated, stand to gain more in terms of information and campaign engagement. As our multivariate analysis demonstrated, and consistent with a vast literature on political sophistication, citizens with higher levels of general political information were more interested, more likely to participate, and more knowledgeable about the candidates than their less-informed counterparts. To test for heterogeneity in the effects of exposure based on political sophistication, we split our general political information index at the median (two questions correct out of six), and reestimated each of our models with interaction terms for high- vs. low-information respondents.[10]

The results, although inconsistent, provide a clear measure of support for the differential effects hypothesis. The impact of ad exposure does not vary by political sophistication (measured by information) when it comes to turnout, presidential candidate likes, or knowledge of presidential issue positions. However, for both measures of campaign interest, the impact of exposure is indeed more pronounced among the relatively uninformed. As Figure 1 illustrates, increasing ad exposure from one standard deviation below the mean to one standard deviate above raises the probability of being "very interested" in the election (as measured during the campaign) by six points for those with low levels of political

[10]We also examined the middle third of respondents, to test the hypothesis that some threshold of cognitive ability would be needed before information gains could be reported (and of course, this is the group for whom past work has shown persuasion to be most likely). We found no distinct effects among this group, however.

information, and but only one point among those who are more informed. Particularly noteworthy is the post-election measure of interest: Although ad exposure had no significant effects in the aggregate, it turns out that there are indeed engagement effects, but they are confined to low-information respondents. As in the pre-election wave, these respondents are six points more likely to report having been "very interested" in the campaign, while ad exposure actually *lowers* interest slightly among the more informed.

A similar pattern holds for presidential candidate dislikes, and both positive and negative House-candidate mentions: in each case, low-information respondents articulate more things they like or dislike as their exposure to advertising increases. In the case of House-candidate mentions, like the post-election interest measure, these ad exposure effects are masked in the aggregate. Had one not been paying attention to differential effects by sophistication, in other words, one would have missed the impact of ad exposure on these measures.

It is only in the case of House-candidate recall (both self-reported recall ability as well as the accuracy of the report) that the impact of ad exposure seems to matter more for more informed respondents. Moving from a standard deviation below the mean level of exposure to a standard deviation above increases the probability of claiming to know the name of at least one House candidate by 10 points for high-information respondents, but only nine points for those with less information, and increases the probability of correctly identifying at least one candidate by five and three points, respectively. It is worth noting, however, that these differences are smaller than in the other cases; moreover, because the levels of candidate recall are so very low to begin with, especially for low-information respondents, the impact is significantly higher in percentage terms: Ad exposure leads to a 46% gain in the probability or reported House-candidate recall for high-information respondents, but a full 132% increase for low-information respondents (see Table A4 in Appendix C). When it comes to the accuracy of recall, the gains are 72% and 194%, respectively. Thus even when it comes to candidate recall, although the absolute differences in effects are modest, less-informed citizens get a bigger percentage boost simply because they start off at such low levels.

In sum, we found little evidence to support the notion that the politically sophisticated are more likely to learn from and be affected by campaign ad messages. To the contrary, where differential effects exist they are consistent with an alternative hypothesis: that information gains and increases in engagement are concentrated among those more in need of a political supplement: the informationally undernourished sector of the citizenry.

Conclusion

Hand wringing over the state of American democracy is a longstanding tradition. Pundits and scholars alike worry that citizen participation and knowledge are disturbingly low and that ubiquitous political advertising contributes to the problem. To be sure, campaign advertising is often petty, sometimes offensive, and infrequently uplifting or inspiring. Nevertheless, we have argued that there are good theoretical reasons to suspect that campaign ads—rich in information and laden with emotional content—have the potential to bring about a more attentive, more informed, and more participatory citizenry. Television advertisements can help increase the aggregate store of politically relevant information that voters have at their disposal, which in turn can help activate the heuristics that voters use in making decisions and making sense of the political world.

Using comprehensive data from the 2000 elections on the content, timing, and targeting of all political advertising in the country's top 75 media markets, in combination with National Election Study survey data, we have provided strong empirical evidence to support the notion that advertising can inform and mobilize the citizenry. Specifically, our findings show that exposure to campaign advertising produces citizens who are more interested in the election, have more to say about the candidates, are more familiar with who is running, and ultimately, are more likely to vote. To be sure, these effects are relatively modest, particularly when compared with the impact of factors such as education, strength of partisanship, and mobilization, but they remain significant. And importantly, these effects are mostly concentrated among those citizens who have the greatest need: those with relatively low levels of political information to begin with. In short, people can and do learn from television ads, and campaign advertising can thereby fulfill a vital democratic function.

We are not, however, completely sanguine about the role of advertising in American politics. While we have shown that there are positive effects from political advertising, there may be other ways in which the content and sheer volume of political advertising may adversely affect the political process. Three important caveats should serve to temper undue enthusiasm regarding the salutary effects of campaign advertising.

First, it is important to point out that we have focused on the effects of ad exposure on measures of information and engagement. We have said nothing whatsoever

about advertising as a strategic tool. Although advertising expenditures in relatively evenly matched campaigns may tend to balance one another out, such parity is not always the case. When there are uneven flows of campaign messages—when one side has even a relatively small advantage—there may be important persuasive effects on the electorate. To be sure, such persuasion may be marginal, but of course it is on the margins that most presidential elections are decided. In any case, these types of competitive dynamics constitute an important next step in the study of advertising.

Second, advertisements obviously cost money, and a lot of it. Although instances of flat-out vote buying are difficult to document in contemporary elections, political scientists have demonstrated that money can buy access and can mobilize legislators to be more active on particular pieces of legislation (Hall 1996). Moreover, even in the absence of clear quid pro quo behavior, critics have raised concerns that the appearance of substantial impropriety undermines the integrity of the democratic system. Additionally, potentially strong leaders may be deterred from running for office because of the burden of raising large amounts of money to pay for advertising and other campaign activities. In recruiting candidates, parties clearly have an affinity for wealthy individuals who can finance their own campaigns. But even putting aside considerations about distortions in the candidate recruitment process, the time that it takes *any* candidate to raise the money necessary to mount an effective media campaign clearly detracts from other duties.

Our final caveat involves the larger informational diet of American citizens. We have referred to advertisements as political vitamins, adding to the store of information that voters have at their disposal (and helping them access additional information shortcuts). Still, like all vitamins, political advertisements are most effective when they are supplementing, rather than supplanting, more substantial sources of nutrition. Just as people require a balanced diet and cannot survive on vitamins alone, citizens cannot and should not rely on campaign advertising as their only source of political information. Ideally, campaign ads would simply serve as accompaniments to a more substantial informational diet. However, with declining news coverage of conventions and other political events, diminishing newspaper readership, and a din of heated opinion dominating the news media, campaign ads may be playing a larger and more important role than might otherwise be the case. And like any new nutritional supplement, the long-term effects of ad exposure are unknown. In the short-term, however, campaign advertising can help contribute to a healthy democracy.

Appendix A

2000 National Election Studies Variables

Dependent Variables

Recall of House candidates: NES v000343.

Accuracy of House-candidate recall: NES v000347, v000351, v000355.

Pre-/Post-Election Interest in Campaign: NES v000301, v001201.

Presidential-candidate likes: NES v000306-v000310, v000318-v000322.

Presidential-candidate dislikes: NES v000312-v000316, v000324-v000328.

House-candidate likes: NES v001329-v001333, v001341-v001345.

House-candidate dislikes: NES v001335-v001339, v001347-v001351.

Turnout: NES v001241.

Presidential Candidate Issue Knowledge:

Abortion: NES v000696, v000698.

Gun Control: NES v000735, v000739.

Environment vs. Jobs: NES v000718, v000723.

Environmental Regulation: NES v000783, v000790.

Government Spending and Services: NES v000562, v000568.

Defense Spending: NES v000592, v000597.

Aid to African Americans: NES v000655, v000660.

Jobs: NES v000625, v000630.

Summary: Summed Gore/Bush issue dummy variables (0-8)

Independent Variables

Total Spots in Market: CMAG data (logged).

Local News Viewing: NES v000331, v000332.

Newspaper Reading: NES v000335.

Mobilized: NES v001219, v001222.

Age: NES v000908.

African American: NES v001006.

Sex: NES v001029.

Income: NES v000994.

Education: NES v000913.

Political Information: NES v001446-v001457; v001356-v001357.

Partisan Strength: NES v000523.

House competitiveness: Coded 1 if respondent lives in a competitive House district (source: Cook Political Report): AR04; CA15; CA20; CA27; CA36; CA49; CT02; CT05; FL03; FL08; FL12; FL22; IL10; IL17; IN08; KS03; KY01; KY03; KY06; MI08; MN06; MO06; MS04; MT01; NC08; NC11; NH02; NJ07; NJ12; NM01; NV01; NY02; OH12; OK02; PA04; PA10; PA13; UT02; VA02; WA01; WA02; WA05; WV02.

Senate competitiveness: Coded 1 if respondent lives in a competitive Senate state (source: Cook Political Report): FL; MI; MN; MT; NV; NJ; NY; PA; VA; WA.

Presidential competitive: Coded 1 if respondent lives in a competitive Presidential state (source: Cook Political Report): Arizona, Maine, Ohio, Michigan, New Mexico, Oregon, Missouri, Washington, Wisconsin.

Appendix B

Creating the Exposure Measure

To create our measure of advertising exposure we first assigned every 2000 NES respondent to his or her correct media market. In order to do so, we received permission to use the confidential county-of-residence information from the National Election Studies, which enabled us to map counties to media markets. We then created from the CMAG data a file that contained the total number of ads aired in each market during each of the specific programs that NES asked viewership questions about (along with those aired on all other shows). This file was then merged with the NES dataset, so that for every NES respondent there was information on the total number of ads seen on each show in that respondent's media market. We rescaled the viewership questions to a 0–1 interval and multiplied each by the number of ads of particular types aired during the corresponding show. To account for the fact that most viewers do not watch all three major networks at once, we divided the number of ads aired on the morning, evening, and late evening news show categories by three. (Without this adjustment, the substantive results reported here would be largely the same.) For those shows with no specific NES exposure question (comprising about a third of all spots broadcast in 2000) we used mean viewership as an indicator of general television watching and multiplied this by ads aired on other shows. We then summed results of individual estimates. For example:

Exposure to presidential ads

$$
\begin{aligned}
= (&\textit{Number of presidential ads aired during "Jeopardy" in respondent's market} \\
&* \textit{"Jeopardy" viewing}) \\
&+ (\textit{Number of ads during "Wheel of Fortune"} \\
&* \textit{"Wheel of Fortune" viewing}) \\
&+ (\textit{Number of talk show ads} \\
&* \textit{daytime talk show viewing}) \\
&+ (\textit{Number of morning news ads}/3 \\
&* \textit{morning news program viewing}) \\
&+ (\textit{Number of early evening news ads}/3 \\
&* \textit{early evening news viewing}) \\
&+ (\textit{Number of late evening ads}/3 \\
&* \textit{late evening news viewing}) \\
&+ (\textit{Number of ads aired during all other programs} * \textit{mean television viewing}).
\end{aligned}
$$

Because we expect the marginal impact of advertising to decline as people see more ads, we take the natural log of our exposure measure. We also have a number of general categories of exposure: all ads, all presidential ads, and all Congressional spots. For each category, we create two measures: all ads seen from June1 up to the date of the respondent's pre-election interview (for use with pre-election survey dependent variables), and all spots seen from June 1 through Election Day (for use with post-election analysis).

This procedure reduces the number of NES respondents for whom we can estimate an exposure measure. The total number of NES pre-election respondents is 1,807. Some of these respondents were not in CMAG-covered markets for 2000, and we therefore have no aggregate information on advertising totals for these respondents. This reduces the number of available respondents to 1,434. We conducted extensive analysis to see whether respondents living in top 75 markets differed systematically from other NES respondents. There are no significant differences with respect to political information, campaign interest, voter turnout, and a range of other variables. What differences we could detect were substantively small and did not systematically benefit respondents living in CMAG markets. Although the vast majority of these 1,434

respondents were interviewed in both the pre- and post election surveys, 213 were only interviewed in the pre-election survey. Because the television viewing questions were only asked in the post-election survey, we do not have an exposure estimate for these 213 respondents (who nevertheless live in markets covered by CMAG). Thus, we are left with a potential sample of 1,221 respondents for analysis.

Appendix C

Full Models

Table A1 Independent and Dependent Variables

	Logged Exposure to . . .		
Dependent Variable	**All Ads**	**Pres. Ads**	**Cong. Ads**
Recall of House Candidates (Pre)		X	X
Presidential Candidate Issue Knowledge (Pre)		X	
Campaign Interest (Pre and Post)	X		
Presidential Candidate Likes/Dislikes (Pre)		X	
House Candidate Likes/Dislikes (Post)			X
Turnout (Post)	X		

Table A2 Full Exposure Models House-Candidate Recall

	Self-reported Recall		Accuracy of Recall	
Exposure (Congressional ads)	**.122 (.037)****	–	**.130 (.045)****	
Exposure (Presidential ads)	–	**−.011 (.032)**	–	**−.020 (.041)**
Total Spots in Market	−.127 (.119)	.063 (.126)	−.093 (.143)	.129 (.160)
Local News Viewing	.038 (.036)	.086 (.034)**	.008 (.043)	.060 (.042)
Newspaper Reading	.053 (.027)**	.053 (.027)**	.093 (.034)**	.094 (.035)**
Age	.018 (.005)**	.016 (.005)**	.014 (.006)**	.012 (.006)*
African-American	−.303 (.290)	−.224 (.290)	.080 (.384)	.152 (.382)
Female	−.152 (.151)	−.100 (.150)	−.308 (.190)	−.258 (.188)
Income	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)
Education	.133 (.052)**	.121 (.053)**	.118 (.066)*	.106 (.067)
Political Information	.373 (.051)**	.367 (.050)**	.449 (.069)**	.442 (.069)**
Strength of Partisanship	.022 (.218)	.042 (.216)	−.399 (.268)	−.364 (.264)
Mobilized	.542 (.193)**	.549 (.193)**	.932 (.296)**	.950 (.298)**
House race competitive	.648 (.225)**	.615 (.223)**	1.16 (.280)**	1.11 (.278)**
Senate race competitive	−.073 (.185)	.051 (.186)	−.314 (.236)	−.199 (.240)
Presidential race competitive	.285 (.172)*	.252 (.180)	.069 (.221)	.046 (.229)
Constant	−3.57 (1.02)	−4.77 (1.11)	−4.89 (1.23)	−6.28 (1.41)
N	1,200	1,200	1,200	1,200
Prob. $> \chi^2$	0.000	0.000	0.000	0.000
Log Likelihood	−596.327	−603.0834	−410.063	−414.859

*p < .10; **p < .05.

Cell entries are logit coefficients with standard errors in parentheses. Predicted probabilities estimated with Clarify, with standard errors in parentheses. "High and "low" ad exposure represents changes of one standard deviation above or below the mean. We hold total spots, local news viewing, newspaper reading, age, education, income, partisan strength, and political information at their means. We hold all three competitive dummies at 0, and estimate probabilities for a white woman who was not mobilized by a political party.

TABLE A3 Full Exposure Models, Issues, Interest, Likes and Dislikes, Turnout

	Bush/Gore Issue Summary	Pre-election Interest	Post-election Interest	Bush/Gore Likes	Bush/Gore Dislikes	Turnout
Exposure (all ads)	.025 (.015)*	.031 (.017)*	.016 (.018)	.041 (.023)*	.068 (.023)**	.095 (.038)**
Total Spots in Market	−.056 (.057)	−.034 (.057)	.012 (.055)	−.062 (.090)	.134 (.087)	.093 (.130)
Local News Viewing	−.013 (.016)	.066 (.018)**	.056 (.019)**	.028 (.025)	−.018 (.025)	−.058 (.044)
Newspaper Reading	.001 (.012)	.037 (.013)**	.016 (.013)	−.011 (.020)	.004 (.020)	.064 (.030)**
Age	−.009 (.002)**	.007 (.002)**	.005 (.002)**	.010 (.004)**	−.006 (.003)*	.011 (.005)**
African-American	.223 (.108)**	.373 (.113)**	.422 (.113)**	−.284 (.188)	−.066 (.170)	.723 (.270)**
Female	−.205 (.070)**	.092 (.072)	.012 (.072)	.256 (.115)**	−.024 (.115)	.092 (.174)
Income	.000 (.000)	−.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)	.000 (.000)
Education	.092 (.024)**	.091 (.026)**	.059 (.026)**	.175 (.040)**	.191 (.040)**	.340 (.063)**
Political Information	.323 (.025)**	.234 (.025)**	.228 (.026)**	.235 (.039)**	.371 (.041)**	.363 (.063)**
Strength of Partisanship	.625 (.100)**	.536 (.106)**	.470 (.102)**	.704 (.172)**	.138 (.165)	.898 (.246)**
Mobilized	.198 (.079)**	.290 (.083)**	.220 (.081)**	.244 (.132)*	.282 (.127)**	1.260 (.169)**
House race competitive	.129 (.119)	.013 (.117)	−.202 (.117)*	−.202 (.157)	−.325 (.178)*	−.264 (.275)
Senate race competitive	.092 (.084)	.042 (.081)	−.017 (.082)	−.063 (.140)	−.261 (.133)*	−.221 (.192)
Presidential race competitive	.059 (.082)	−.065 (.083)	−.093 (.085)	.078 (.139)	−.214 (.139)	.022 (.209)
Constant	–	–	–	.378 (.809)	−.621 (.759)	−4.28 (1.23)
Prob. > F	–	–	–	0.000	0.000	–
R^2	–	–	–	.1518	.2192	–
Root MSE	–	–	–	1.857	1.827	–
N	1,203	1,203	1,203	1,183	1,185	1,202
Threshold 1	.098 (.492)	1.043 (.486)	.655 (.484)	–	–	–
Threshold 2	.965 (.491)	2.65 (.487)	2.12 (.489)	–	–	–
Threshold 3	1.79 (.491)	–	–	–	–	–
Prob. > χ^2	0.000	0.000	0.000	–	–	0.000
Log Likelihood	−1407.983	−1060.6294	−1067.4717	–	–	−490.655

*p < .10, **p < .05.
Cell entries are ordered probit (issue summary, interest), OLS (likes and dislikes), or logit (turnout) coefficients with standard errors in parentheses.

TABLE A4 Predicted Values for High and Low-Information Respondents

Dependent Variable	Exposure	Low Info	High Info
House Candidate Recall	Low	.071 (.018)	.214 (.040)
	Mean	.109 (.020)	.259 (.043)
	High	.165 (.032)	.312 (.054)
	Absolute Change (low-high)	**.093 (.029)**	**.098 (.043)**
	Relative % Change (low-high)	**132.4%**	**45.7%**
Accuracy of House Candidate Recall	Low	.016 (.007)	.069 (.023)
	Mean	.027 (.009)	.091 (.027)
	High	.047 (.015)	.119 (.038)
	Absolute Change (low-high)	**.030 (.013)**	**.050 (.027)**
	Relative % Change (low-high)	**193.75%**	**72.4%**

(continued on next page)

TABLE A4 Predicted Values for High and Low-Information Respondents *(continued)*

Dependent Variable	Exposure	Low Info	High Info
Pre-election interest (Prob. very interested)	Low	.108 (.019)	.319 (.040)
	Mean	.135 (.020)	.323 (.037)
	High	.166 (.026)	.328 (.042)
	Absolute Change (low-high)	**.058 (.022)**	**.009 (.037)**
	Relative % Change (low-high)	**53.7%**	**2.8%**
Post-election interest (Prob. very interested)	Low	.236 (.031)	.503 (.046)
	Mean	.263 (.028)	.489 (.042)
	High	.292 (.034)	.476 (.047)
	Absolute Change (low-high)	**.057 (.032)**	**−.027 (.039)**
	Relative % Change (low-high)	**23.7%**	**−5.4%**
House Candidate Likes (Prob. >1 mention)	Low	.096 (.019)	.192 (.034)
	Mean	.112 (.019)	.185 (.031)
	High	.131 (.024)	.179 (.033)
	Absolute Change (low-high)	**.035 (.020)**	**−.012 (.028)**
	Relative % Change (low-high)	**36.45%**	**−6.77%**
House Cand. Dislikes (Prob. >1 mention)	Low	.022 (.007)	.071 (.021)
	Mean	.025 (.008)	.063 (.018)
	High	.028 (.010)	.055 (.018)
	Absolute Change (low-high)	**.005 (.007)**	**−.016 (.015)**
	Relative % Change (low-high)	**27.27%**	**−22.53%**
Pres. Cand. Dislikes (Prob. >2 mentions)	Low	.233 (.031)	.523 (.049)
	Mean	.292 (.030)	.547 (.042)
	High	.358 (.037)	.570 (.044)
	Absolute Change (low-high)	**.125 (.034)**	**.046 (.043)**
	Relative % Change (low-high)	**53.65%**	**8.98%**

Cell entries are predicted probabilities estimated with Clarify. Numbers in parentheses are standard errors for the predicted probabilities. "High" and "low" ad exposure represents changes of one standard deviation above or below the mean. We hold total spots, local news viewing, newspaper reading, education, income, age, and partisan strength at their means; set all three competitive dummies to 0, and estimate probabilities for a white woman who was not mobilized by a political party. To estimate low-information probabilities, we set the interaction term (i.e., between exposure and low information) at the level of exposure (i.e., one standard deviation below, above or at the mean of exposure), and the general political information variable to the mean for all low-information respondents (i.e., those below the median). To estimate high-information probabilities, we set the interaction term to zero and set the political information variable to the mean for all high-information respondents.

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