Does Political Advertising Persuade?

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Abstract Well over $1 billion was spent on televised political advertising in the U.S. in 2004. Given the ubiquity of the 30 second spot, one might presume that ads must affect viewers' vote choices. Somewhat surprisingly, though, scholars have yet to make much progress in confirming this claim. In this paper, we leverage a comprehensive dataset that tracks political ads in the nation's top media markets and a survey of presidential and U.S. Senate voters in 2004. We ask whether exposure to presidential and Senate advertising influences voters' evaluations of candidates and the choices that they make at the ballot box. In the end, we find considerable evidence that advertising persuades—and that its impact varies depending on the characteristics of the viewer.

Keywords Political advertising · Elections · Campaign effects · Persuasion

Introduction

Candidates, parties and other groups spend hundreds of millions of dollars on political advertising each year in the U.S., and the amount spent increases every year at a double-digit rate. According to the Alliance for Better Campaigns,

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ad spending in 2000 was $771 million and increased to around $1 billion in 2002, even though 2002 was not a presidential election year (Memmott & Drinkard, 2004). Total ad spending in 2004 skyrocketed to over $1.6 billion, according to the organization.

Scholars have responded to this proliferation of spending on advertising with a barrage of studies examining the effects of advertising on citizens. Much of this research has explored the impact of the tone of advertising (whether it is positive, negative or mixed) on voter turnout (Ansolabehere & Iyengar, 1995; Ansolabehere, Iyengar, & Simon 1999; Djupe & Peterson, 2002; Goldstein & Freedman, 1999, 2002a; Kahn & Kenney, 1999; Lau & Pomper, 2004; Martin, 2004; Peterson & Djupe, 2005; Wattenberg & Brians, 1999); advertising's impact on candidate impressions (Garramone, Atkin, Pinkleton, & Cole, 1990; Hitchon & Chang, 1995; Kaid & Boydston, 1987); and the relationship between ad exposure and democratic attitudes such as political interest and efficacy (Ansolabehere & Iyengar, 1995; Freedman, Franz, & Goldstein 2004; Freedman & Goldstein, 1999; Martin, 2004; Schenck-Hamlin & Proctor, 2000).

By comparison, though, little research has examined the impact of advertising on voter choice. Why the lack of interest in the relationship between advertising and persuasion? Surely, it cannot be because the topic is unimportant. The very idea that 30 second spots might determine which people represent American citizens in Washington, DC is intrinsically interesting and speaks volumes about the vitality of a democratic society. Perhaps some scholars believe the question has been resolved already, reasoning that advertising *must* matter. After all, candidates would not spend so much money on advertising if it did not buy votes. This logic is, of course, spurious. Other scholars might recognize the potential endogeneity in studying the relationship—that is, while levels of advertising may influence candidate support, candidate decisions about how much to advertise may depend on their current level of support—and shy away from handling this perceived methodological problem. Finally, we may be dealing with a file-drawer problem. In other words, scholars have studied this topic but have been confronted with ''insignificant coefficients,'' and therefore have decided that attempting to publish their work would be futile.

This paper contributes to existing literature by offering a comprehensive examination of advertising's ability to persuade. We employ survey data from 2004 and merge it with detailed, market-level ad tracking data to create precise measures of advertising exposure. Our study is also aided by the use of panel data, which help us address potential endogeneity between ad airings and candidate support, a common methodological pitfall. In addition, we examine both high-profile presidential and lower-profile U.S. Senate contests, moving beyond studies that focus on one race. Finally, we examine the differential impacts of advertising, showing how it varies depending on the partisanship and political knowledge of the viewer. In the end, we find considerable evidence that advertising has a significant impact on candidate evaluation and vote choice, an impact that varies depending on the characteristics of the viewer.

Persuasion

By persuasion we simply mean the ability of a message to influence a person's political beliefs, attitudes or values.[1] The earliest research on political persuasion, as many textbooks note, suggested that the influence of political messages was substantial and direct, like a hypodermic needle. This conclusion was based on the perceived impact of Nazi propaganda in World War II. Yet further research failed to back this supposition. Lazarsfeld, Berelson, and Gaudet (1944), for example, found little evidence of conversion in their study of the 1940 presidential campaign. When people received campaign communications, their candidate preferences rarely changed. Rather, receipt of these messages either activated individuals, turning undecided voters into supporters of candidates in line with their existing political beliefs, or reinforced voters' initial candidate preferences.

One reason given for the lack of media effects was the ''two-step flow'' of communication, by which people made sense of the news not directly, but through opinion leaders, who would pass on information about the events of the day to others. Klapper (1960) dubbed the idea that the media generally did not persuade the ''minimal effects'' hypothesis. He argued that the media were likely to have little impact because of people's selective exposure to media sources they agreed with, and their selective perception and retention of messages.

Believing there was not much to find, scholars' interest in studying the impact of the media waned, and it was not until the 1980s that such interest renewed. Researchers began to report that the media had a variety of different effects, including priming, agenda-setting and framing. Yet the evidence for large, persuasive media effects continued to elude (McGuire, 1986). The new consensus is that the impacts of the media are contingent: effects can be large, but only some of the time and with some of the people (Leighley, 2004).

Both methodological and theoretical issues have held back the search for persuasive media effects. The methodological problems have been two-fold, according to Zaller (1996). First, scholars have lacked good measures of individual-level variation in exposure to political messages. In other words, even if one has good measures of the political messages that are being disseminated, one cannot assume that everyone has been exposed to the same number of messages. If scholars fail to account for the fact that different people are exposed to (and receive) different communications, they will under-estimate the effects of these messages. The second problem facing those who have sought to detect political persuasion has been finding a context in which there is enough variation in the content of the communications to which people are exposed. Scholars often search for campaign effects in situations in which competing messages are likely to cancel out each other. That is, someone may be exposed

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[1] We do not distinguish here between the different processes by which advertising might influence candidate preferences; that is, we do not distinguish between attitude change brought by conversion, the activation of predispositions or the reinforcement of prior preferences.

to 100 John Kerry ads but also be exposed to 100 George W. Bush ads. In such situations, it is not surprising that little net influence takes place. Thus, to detect persuasion, one needs an environment in which there is an imbalanced flow of communications—a situation in which the message flows of one candidate is considerably more intense than that of his or her opponent.

The other issue confronting researchers seeking to find evidence of persuasion has been theory. Zaller (1992), building on the work of McGuire (1969), made the important point that not all individuals are equally likely to receive or accept—and thus be influenced by—political messages. Two of the most important factors influencing the reception or acceptance of a political message in the American context are partisanship and political knowledge. Because partisanship acts as a filter, shaping the way in which one views a political message, political partisans should be less likely to accept candidate messages and thus should be less open to persuasion overall than political independents. On the other hand, political knowledge can both serve to increase one's ability to understand a political message, but it also can increase one's ability to resist that message.

What We Know

Several experimental studies that have examined the impact of television advertising on vote choice have found that advertising matters (Chang, 2001; Kahn & Geer 1994; Meirick, 2002; Pinkleton, 1997, 1998; Thorson, Christ, & Caywood, 1991; Valentino, Hutchings, & Williams 2004). But more than just showing that advertising can persuade, many experimental studies have examined whether ads have different effects depending on the type of ad (positive or negative) and the type of voter (party affiliation, and extent of political knowledge). The benefits of the experimental method are self-evident, as researchers can carefully control the treatment: exposure to advertising. Such experimental research is also vital for clarifying the psychological reactions of citizens to ad exposure. The drawback of experimental research, however, at least when it comes to our aim in this article, is its potentially low external validity. If subjects, on average, are 10% more likely to vote for a candidate after seeing one of that candidate's ads in a laboratory setting, what does that mean for the individual at the ballot box on Election Day? Does it increase that likelihood by 10%, 1%, .01%, .000001%?

To better answer such questions about the magnitude of the persuasive effects of advertising, other researchers have taken different approaches, examining ad effects at both the aggregate level through the use of actual vote tallies and at the individual level through the use of surveys. In the former category, Shaw (1999) investigated the impact of advertising in the 1988, 1992 and 1996 presidential campaigns, finding that increased political advertising in a state led, in some instances, to increased vote share for the sponsoring candidate. In his cross-sectional models, an increase of 500 gross rating points (GRPs) of advertising in a state boosted a candidate's share of the vote by 2.2 percentage

points.[2] This is the equivalent of airing 100 ads during programs with an average rating of 5 (a moderately popular program but by no means a hit). His pooled-time series models predicted similar impacts of advertising: a 500 rating points increase in a state for a candidate would result in a 1.6% increase in candidate support.

While there is much to praise in this article, there are several limitations to this study, many of which Shaw himself recognizes. First, because the level of analysis is the state, the impact of advertising is misstated if advertising is not distributed similarly in all markets across that state. And there is some evidence that this is the case. As Althaus, Nardulli, and Shaw (2001) noted, Illinois received extensive advertising in 1996, but almost all of that was in the Chicago media market. Another potential problem is that the analysis only includes information on candidate advertising, excluding ads by parties and independent groups. This is especially troublesome in 1996, which saw an explosion of independent advertising expenditures. Clearly, Zaller's pre-condition for finding media effects—good measurement of individual-level differences in exposure—is not met.[3]

Shaw (2006) corrected for some of these limitations when he conducted similar analyses on the 2000 and 2004 presidential campaigns. In these years, he found a positive, but fairly small, effect of advertising on voter choice in pooled-time series state-level models. A 1000 GRP advantage for Bush in 2000 was estimated to produce a 0.1% increase in the Republican share of the vote. The effect was almost the same in 2004. Models estimated at the level of the media market, however, failed to find significant impacts of advertising on candidate vote share.

Instead of examining advertising effects at the state or county level, Goldstein and Freedman (2000) examined the impact of advertising at the individual level. And instead of examining presidential races, they conducted their analysis of ad effects using U.S. Senate races. Combining an extensive database of ads aired in the country's 75 largest media markets (which details during which program each ad was aired) and survey-based measures of respondents' television viewing habits, the authors created a relative measure of ad exposure. Their analysis revealed that as exposure to a Senate challenger's advertising increased, the likelihood of voting for that candidate increased as well. The same was true for incumbent advertising. This is certainly very suggestive evidence for the persuasive power of advertising. One caveat, though, is that these findings are

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[2] GRPs are a measure of the size of the audience for a television program. One rating point, on average, is equal to 1% of the television household audience in a particular media market. GRPs are helpful in determining the audience for a particular political commercial. For example, if an ad were aired 80 times, each with an average 10-point rating, that ad would achieve a total 800 GRPs. This is the equivalent of all households with a television viewing the spot 8 times or half of all households with a television viewing the spot 16 times.

[3] Althaus, Nardulli, and Shaw (2001) examined advertising in the 1992, 1996, and 2000 presidential campaigns. Their county-level analysis found significant advertising effects only during the 1996 campaign. And these effects were smaller than those reported by Shaw (1999). It also suffers from some of the same weaknesses of the Shaw study, namely, that it does not account for non-candidate expenditures, which was an even bigger percentage of total spending in 2000 (see Goldstein & Freedman 2002b).

based on cross-sectional data, and thus the findings have lower internal validity than comparable findings based on panel data, which affords the researcher a greater degree of control.

In another survey-based study, West (1994) reported mixed findings about the relationship between advertising and vote choice. Ad exposure and candidate preference were unrelated in the 1992 U.S. Senate race in California that pitted John Seymour against Dianne Feinstein, but in California's other U.S. Senate race that year, people who reported seeing more ads supportive of Barbara Boxer were more likely to vote for her and were less likely to vote for her opponent, Bruce Herschensohn. Unfortunately, though, the author utilized no direct measures of the volume of advertising for each candidate, relying solely on respondents' recall, which has been shown to be a biased measure (Anolabehere, Iyengar, & Simon 1999).

Johnston, Hagen and Jamieson (2004) also conduct an individual-level analysis of advertising's impact on vote choice and use ad tracking data at the market level to measure the information environment. Unlike the other authors, though, their setting is the 2000 presidential contest between George W. Bush and Al Gore, and they do not construct an individual-level measure of ad exposure. Instead, their measure of advertising is the difference in the number of ads aired between the candidates in the previous week. Using the National Annenberg Election Survey, they found, overall, that ad volumes had an impact on the probability of voting for Bush but did not have an impact on the probability of voting for Gore. That said, the net effect of advertising varied over time, ranging from pro-Gore by 2 percentage points to pro-Bush by 4 percentage points.

In sum, the non-experimental research on the persuasiveness of advertising has suggested that advertising's impact in a campaign is sporadic, either non-existent or significant but fairly small in magnitude. In this article, we advance the debate about ad effects in ways that respond to the challenges of both the experimental and survey-based research. Most important, we account for the endogeneity between voters' candidate preferences and candidates' advertising decisions by taking advantage of a panel survey, which allow us to estimate models that include lagged dependent variables. This means that the effect of advertising on a person's vote in the final wave of the panel is conditioned on that person's vote intention in the earlier wave of the panel. Through the use of panel data, we can incorporate both the experimental and survey-based approaches to the study of ad effects, maintaining a relatively high level of internal validity while not sacrificing the real-world setting of the survey-based approaches.

In addition, we take our study of ad effects to a presidential election and 30 different U.S. Senate races. In contrast to most experimental and survey-based studies, which limit their analysis to only a handful of races, the results we present here can be generalized beyond one specific campaign context. We also open up the black box, exploring whether certain types of individuals (namely, people with different partisan identifications and levels of political knowledge) are more or less likely to be persuaded by advertising. Looking for differential ad effects is a

strength of existing experimental work, but it is a weakness of much survey-based scholarship.

Finally, we employ a sophisticated approach to measuring ad exposure that addresses the concerns raised by Zaller (1996). We measure exposure to advertising at the level of the *individual*, not assuming that all are exposed to the same number of ads, and we measure the ad environment at the level of the media market, which provides for considerable variation in the volume of advertising.

Theory and Hypotheses

We adopt as our theoretical framework the so-called dosage-resistance (Krosnick & Brannon 1993) or ''resonance'' (Iyengar & Simon 2000) model of persuasion. Such models understand the impact of a political message in terms of both how many messages one is exposed to and one's ability to reject or accept such messages. These models have a long history in political science (Converse, 1962; McGuire, 1969) and have been resurrected in slightly modified form by Zaller (1992). Adapting the model to our purposes is straightforward. In the initial reception phase, the more campaign ads to which one is exposed, the more one should be influenced by them. In the subsequent resistance stage of the model, attention shifts to the characteristics of voters that equip them to resist messages. Two characteristics commonly associated with resistance are individuals' partisan identifications and their levels of general political knowledge. Messages inconsistent with one's partisan identification—that is, counter-attitudinal messages—are actively resisted, while messages consistent with one's partisan identification are readily accepted. Moreover, having a large store of political knowledge equips one to understand better the political implications of a new message. This allows message receivers to resist those messages inconsistent with their beliefs.

This model of persuasion leads us to several hypotheses about the effects of political advertising on vote choice and candidate evaluations. First, and in keeping with the ''dosage'' part of our theoretical framework, our *persuasion hypothesis* predicts that, all else equal, more exposure to a candidate's ads will boost respondents' favorability toward that candidate, and ultimately raise the probability of voting for the candidate. Our second hypothesis, the *partisan hypothesis*, predicts that persuasive effects will differ depending on the partisanship of the individual who is exposed to advertising. We expect that political independents, because they are unlikely to resist the messages of any candidate as being inconsistent with their existing beliefs, will be influenced by exposure to advertising from both candidates. Democratic advertising will have little impact on Republicans, but we expect it *will* increase support for the sponsor among Democrats, especially among weak Democrats. Strong Democrats, even though they likely will accept the Democratic messages, probably already support the Democratic candidate and so advertising may not have as much influence on them. The same story applies for Republican advertising, which is likely to have its greatest impact on political independents and

weak Republicans. Thus, the overall effect of the campaign should be to bring partisans home, just as Lazarsfeld, Berelson, and Gaudet (1944) noted over a half century ago.[4]

Our final hypothesis, the *knowledge hypothesis*, suggests that advertising should have the most influence on those with lower levels of political knowledge. This is because existing political knowledge enables ''recipients of media messages to counterargue new information and assimilate it to their existing cognitions'' (Joslyn, 2003, p. 442). Thus, people high in political knowledge can resist new information from ads; those low in political information cannot. Zaller (1992) adds a twist to this argument, suggesting in his ''reception axiom'' that those with low levels of political knowledge are unable to cognize and thus receive many political messages, making those with moderate levels of political information the most likely to be persuaded. And Krosnick and Brannon (1993) find some evidence that those high in knowledge ''have a greater ability to interpret, encode, store, and retrieve new information,'' making them more likely to be persuaded (p. 972). We suggest, by contrast, that the nature of the 30 second spot—it is typically expertly designed to convey a simple message, often appealing to emotions—makes it likely that low-information voters will be able to take in, and be affected by, political ads. Indeed, Freedman, Franz, and Goldstein (2004) found evidence that low-information respondents are more responsive to political advertising in terms of knowledge of candidates and interest in the campaign, which they take to be signs of reception. Given such evidence, then, we expect also to find persuasion effects principally among these respondents.

Data and Measurement

To investigate the impact of advertising exposure on reported vote choice, we rely on a three-wave panel survey sponsored by the Center for the Study of Elections and Democracy (CSED) at Brigham Young University and the Center for the Study of Politics at the University of Wisconsin, Madison. The study, with waves in June, September and November of 2004, sampled from the U.S. voting age population, over-sampling potential voters in battleground Senate and presidential states.[5] Here

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[4] Literature speaking to this hypothesis has offered a mixed assessment. Chang (2003) reported that it was partisans who were influenced most by ad exposure, not political independents. Moreover, a series of experiments by Ansolabehere and Iyengar (1995) supported the claim that non-partisans voters are ''the least receptive to political advertising'' (p. 77). Instead, the authors reported that the effect of advertising is mainly reinforcement, moving voters to cast ballots in line with their partisan inclinations. But a different experimental study (Kaid, 1997) found some evidence for the opposite conclusion: that political independents were more influenced by watching a political spot than were partisans. Pfau and his colleagues (Pfau, David, Holbert, & Cho, 2001; Pfau, Holbert, Szabo, & Kaminski, 2002) went further, finding differences between partisans and unaffiliated subjects depending on ad sponsor and type; candidate contrast ads appeared to have the strongest effect on Republicans, while candidate positive ads and interest group ads had the strongest effect on independents.

[5] Survey details are available on the web at http://csp.polisci.wisc.edu/BYU_UW.

we use only the second wave ($N = 1523$) and third wave ($N = 1438$) of the BYU–UW study.[6]

To measure the advertising environment, we use political advertising tracking data from the Wisconsin Advertising Project. The Ad Project has coded and tracked all political advertisements in the top media markets since the 1998 mid-term elections. The unit of analysis is each airing of all political advertisements. We make use of the 2004 data.

From these data sources we created individual-level measures of exposure to political advertising. Following a procedure described by Freedman and Goldstein (1999), we estimated a relative measure of exposure that takes account of both market-level advertising patterns and individual-level television viewing habits. Because the advertising tracking data record the programs during which all political ads aired (top shows include the local news, Jeopardy, Wheel of Fortune, morning news shows, and afternoon talk shows; see Goldstein and Freedman (2002b) for a discussion of the structure of the data) and because the survey asks respondents how often they watched top shows (namely, the ones mentioned above), we multiplied the respondent's viewing habits for these television programs by the number of ads aired during each program in the respondent's media market.[7] We then summed across all of these measures to create a relative measure of exposure.[8]

This measure has a couple of advantages. First, it takes into account variation across individuals in the amount of television they watch. Second, it accounts for variation across media markets, depending on how many ads were aired. Thus a heavy television viewer in a market not receiving any advertising has low exposure; similarly, a light television viewer in a market inundated with advertising has low exposure. Of course, this approach to measuring exposure does not solve all problems; measurement error undoubtedly still exits. That said, previous research that linked exposure measured in this fashion to voter knowledge has confirmed the validity of the measurement strategy (Ridout, Shah, Goldstein, & Franz, 2004).[9]

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[6] Because of panel attrition (and competitive state over-sampling in the BYU/UW survey) we weight all models using the pweight command in STATA.

[7] We match each respondent's reported county of residence with the media market that covers that county.

[8] Our specific formula for creating this ''shows-based'' measure of exposure was: (Number of ads during Jeopardy in respondent's market * Jeopardy viewing) + (Number of ads during Wheel of Fortune * Wheel of Fortune viewing) + (Number of talk show ads * daytime talk show viewing) + (Number of morning news ads * morning news program viewing) + (Number of early evening news ads * early evening news viewing) + (Number of late evening ads * late evening news viewing) + (Number of ads aired during all other programs * mean television viewing).

[9] One assumption of this approach to measuring exposure is that each ad has an equal impact, and we grant that this assumption may not hold in all cases. Some ads may be more effective because of their message or production value; other ads may be more effective because of when they were aired. Given, though, our focus on the overall ad environment of each campaign—an environment in which typically dozens of different ads were aired hundreds of times each over a couple of months—we expect that particularly effective or ineffective ads from competing campaigns will cancel out.

This procedure serves as the basis for the creation of two measures, which we label *Democratic exposure* and *Republican exposure*. These measures are simply logged exposure to advertisements in support of each party.[10] We logged these measures, as has been the practice of many scholars, to account for the potential diminishing marginal returns of advertising, or the idea that ten additional ads are more effective when one has seen only ten ads as opposed to having seen thousands of ads. This is referred to as ''wearout'' in the marketing literature (Scott & Solomon, 1998).

In addition to estimating all models with separate logged Democratic and Republican exposure measures, we re-estimated all of our models using two additional specifications in order to see whether the effectiveness of advertising depends on the characteristics of the viewer. In one specification, we interacted the individual exposure measures with dummy variables indicating five partisan categories: strong Republican, weak Republican, independents (pure and leaners), weak Democrat, and strong Democrat. In the other, we interacted the individual exposure measures with dummy variables indicating three levels of political knowledge: high, medium, and low.[11]

We estimated the impact of advertising on a number of dependent variables. First, we estimated vote choice models for the presidential and Senate races (excluding third party candidates). Moving beyond vote choice, we also estimated models predicting respondents' favorability toward the candidates. Even though advertising may not have a direct impact on vote choice, it might work indirectly through changing people's evaluations of the candidates. Candidate evaluations are tapped by questions that ask respondents to report their favorability toward both Bush and Kerry, and toward the Democratic and Republican Senate candidates. Respondents were allowed to indicate they were ''very favorable,'' ''somewhat favorable,'' ''undecided,'' ''somewhat unfavorable'' or ''very unfavorable'' toward each candidate.

Although ad exposure is the central variable of concern, all of our models also contained several other important control variables, including respondent demographics (educational attainment, age, gender, race, marital status, and region of residence) and respondent attitudes (party identification, ideology, sociotropic evaluations of the national economy, and presidential approval). Years of scholarship have confirmed the importance of these variables in understanding vote choice (see Holbrook (1996), especially Chapter 2). Full summaries of all variables are listed in the Appendix.

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[10] All exposure measures include interest group, party, candidate, and candidate/party coordinated advertisements. Thus, when discussing exposure to Democratic ads in the presidential race, we are referring to all Kerry ads, Democratic Party ads, and pro-Kerry interest group ads (e.g., MoveOn.org).

[11] Twenty-nine percent of respondents were classified as low-information because they incorrectly answered all four knowledge questions (identifying the positions held by Bill Frist, William Rehnquist, Tony Blair and John Ashcroft). Forty-eight percent of respondents were classified as medium-information because they answered one or two questions correctly. Twenty-three percent of respondents answered three or four questions correctly, earning them the high-information designation.

In addition to these controls, which appeared in all models, we included in the presidential models two additional variables: the total number of Kerry visits to each media market and the total number of Bush visits to each media market.[12] We included these visit measures to account for the possibility that the personal appearances of the candidates—and the media coverage that such visits engender—may have had an independent effect on vote choice. This possibility is particularly important because campaign schedulers and media buyers are likely to target the same states and media markets. Thus, candidate visits tend to be correlated with ad volume (Shaw, 2006). In the Senate models, we also included two dummy variables, one indicating that an incumbent Democratic was running for reelection and one indicating that an incumbent Republican was running for reelection. Incumbency provides a large—often decisive—advantage in a congressional race (Jacobson, 1997).

One special concern in estimating these survey-based models is endogeneity in the relationship between how many ads a candidate runs and that candidate's vote share. More to the point, airing additional advertisements should increase a candidate's share of the vote, but candidates generally air the most advertisements in races in which they face stiff competition, the closest races. This concern in the search for advertising effects is similar to the problem confronting those seeking to estimate the effects of congressional spending (e.g., Green & Krasno, 1990, 1988; Jacobson, 1990). To account for this, we included lagged dependent variables (in other words, the value of the dependent variable in wave 2) as predictors in all models.

Finally, we estimated all presidential models using robust standard errors as there may be some non-independence across states and across media markets. For all Senate models, we clustered on state because there are different candidates with different characteristics in each state, and thus observations within each state are not completely independent.

Results

The results that allow us to test the *persuasion hypothesis* are shown in Table 1, which reports the coefficient estimates on the Democratic and Republican ad exposure variables in both the presidential and Senate vote choice and candidate favorability models. We estimated the vote choice models using logistic regression and the candidate favorability models using ordered probit. Full results for all six models are reported in Tables A.1 and A.2 in the Appendix. The evidence strongly supports the hypothesis that ads persuade. In the presidential contest, for example,

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[12] The candidate travel data are reported by Eric M. Appleman of George Washington University at https://www.gwu.edu/~action/2004/ (accessed on June 7, 2005). Appleman uses public schedules provided by the campaigns supplemented by press accounts to record in which city or cities Bush and Kerry made public appearances on each day. We matched each city with its media market to calculate the total number of visits by each candidate to each media market. We do not count visits to a media market in which a candidate attended *only* a fundraiser because fundraisers generally attract a relatively small number of attendees and are not well reported on by the local news media.

Table 1 Testing the persuasion hypothesis

Exposure source	President		
	Vote choice	Democratic favorability	GOP favorability
Democrat	.342 (.175)*	.125 (.047)**	−.062 (.061)
GOP	−.537 (.181)**	−.135 (.051)**	.079 (.065)
N	922	985	999
	Senate		
	Vote choice	Democratic favorability	GOP favorability
Democrat	.288 (.139)*	.039 (.033)	−.031 (.040)
GOP	−.287 (.089)**	−.063 (.053)	.114 (.032)**
N	494	348	406

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

Entries are coefficients and (standard errors) from logit (vote choice) and ordered probit models (favorability)

Full model results are included in the Appendix

logged exposure to Kerry advertising increases one's likelihood of voting for him, and logged exposure to Bush advertising decreases one's likelihood of voting for Kerry. Both exposure measures also explain movement in the Kerry favorability model, with increasing exposure to Democratic ads improving evaluations of him and increasing exposure to Republican ads reducing his favorability. Exposure to advertising does not, however, have an impact on evaluations of President Bush. This is not entirely surprising given that most voters had likely formed evaluations of the incumbent president during his four years in office.

The results from the Senate models are also consistent with the persuasion hypothesis. Turning to the bottom half of Table 1, one can see that both logged Democratic ad exposure and logged Republican ad exposure are related to vote choice, with higher exposure to Democratic ads leading to more support for the Democratic candidate and higher exposure to Republican ads leading to more support for the Republican candidate. In the Republican candidate favorability model, logged exposure to Republican Senate ads significantly boosts evaluations of GOP candidates. Evaluations of Democratic Senate candidates, however, are not significantly related to ad exposure. All told, 7 of 12 exposure coefficients are significant, and, even more importantly, all 12 coefficients are signed in the predicted direction. Clearly, these model estimates provide strong evidence that ads influence people's evaluations of candidates and their candidate preferences.

It is worth mentioning here some of the other variables in the models that were statistically significant predictors of vote choice and candidate favorability. As expected, the strongest predictor in all six models was the pre-election measure of the dependent variable. For example, if a hypothetical respondent (in this case, a 40-year-old, non-southern, moderate independent female) reported a pre-election intention of voting for Kerry, she had .71 probability of doing so on

Election Day. If she expressed a pre-election preference for the Senate Democrat, she had a .81 probability of following through with a Democratic vote at the ballot box.

Controlling for vote choice in the first survey wave, we also found that older respondents and women were less likely to vote for Kerry. This does not necessarily mean that women and the elderly as groups favored Bush; it only means that there was a movement away from Kerry among women and older people between the survey's two waves. For example, if our hypothetical respondent was 50 years old instead of 40 and had expressed a pre-election intention of voting for Kerry, her probability of doing so in the general election would drop from .71 to .65. We also found that three of the four partisan dummies were significant predictors of presidential vote choice; the exception was weak Democrats, who were no different from independents in their support for Kerry. These findings with regard to partisan identification are consistent with a ''partisans coming home'' story. For example, if our 40-year-old independent female were instead a strong Democrat, and expressed a pre-election Kerry vote intention, her probability of voting for Kerry would rise from .71 to .92 between the two waves of the survey.

In the Senate vote choice model, the gender effect found in the presidential vote choice model disappears, and both weak and strong Democrats are no more or less likely than independents to support the Democrat. In both vote choice models, approval of Bush's performance in the first survey wave significantly reduced support for the Democratic candidate, and more liberal respondents became even more likely to vote for the Democratic candidate. Interestingly, in the presidential vote model, the number of Bush visits to the market actually raised the probability of voting for Kerry—an odd effect inconsistent with other assessments of the 2004 election (e.g., Shaw, 2006). Only in the Senate model did assessment of the national economy predict vote choice, in that case lowering support for the Democrat if the assessment was positive.

Two effects in the four favorability models are also noteworthy. First, in the Senate models, respondents evaluate Democratic candidates much lower when there is an incumbent Republican running for reelection than when there is a Democratic incumbent or an open-seat race. Strangely, though, evaluations of Republican candidates are not similarly affected. Evaluations of the Republican candidate are actually higher when there is a Democratic incumbent. We suspect these findings have to do with the specific political context in 2004. The second noteworthy finding is that only the strong Democrat and strong Republican indicator variables are significant predictors of Kerry and Bush favorability (weak partisans on both sides are no different than independents in their evaluations of the candidates), and none of the partisan dummies predict evaluations of Republican Senate candidates. These results suggest that partisanship was already exerting a strong influence on candidate evaluations by September.

In Table 2 we demonstrate the substantive impact of ad exposure by estimating predicted probabilities from the four different models with statistically significant ad coefficients: presidential vote choice, Kerry favorability, Senate

Table 2 Predicted effects of ad exposure

Scenario	Prob. vote Kerry	Prob. somewhat or highly favor Kerry	Prob. vote Senate Democrat	Prob. somewhat or highly favor Senate Republican
Mean exposure from both sides	.290	.419	.591	.408
Saturated exposure from both sides	.200	.408	.591	.484
Democratic exposure advantage	.390	.491	.660	.394
GOP exposure advantage	.175	.345	.520	.458

Probabilities are for a 40-year-old married white woman who identifies as a moderate and an independent. She has the mean of all other control variables and was undecided in both her vote choice and favorability during the pre-election interview

vote choice and Senate Republican favorability.[13] In each case, we report predicted probabilities under four hypothetical conditions: a respondent with average ad exposure levels from the Democratic and Republican candidates; saturated exposure levels from both sides (defined as mean exposure + 1 SD); and conditions of Democratic and Republican exposure advantages. In the latter cases, we define an exposure advantage as a respondent who has mean exposure (across the two candidates) from one candidate and exposure from the other candidate that is one-half standard deviation above the mean (across the two candidates). For example, in the presidential case, the mean exposure across the candidates is 4.6 on the logged scale and the measure has a standard deviation of a little over 3. As such, under the Bush advantage condition, exposure to Kerry advertising is held at 4.6 and exposure to Bush advertising is held at 6.1 (4.6 + 1.5).

One might object that an advantage in advertising such as this is unrealistic given the tendency for rival candidates to air similar amounts of advertising, especially in the presidential race. Although there is some merit to this claim, there are also several instances in our data in which a respondent was exposed to substantially more advertising from one candidate than that candidate's opponent. Figure 1 demonstrates this by plotting each respondent's exposure to Democratic ads by exposure to Republican ads. Although the observations tend to cluster around a 45-degree line, a balanced flow of ad exposure was not always the case. What is more, these imbalances appear to be almost as widespread in the Senate races, depicted in the left panel, as in the presidential race, shown on the right.

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[13] We estimated probabilities for a non-southern, married, 40-year-old white woman who identifies as a moderate and an independent. She has the mean of all other control variables, and she was undecided in both her vote choice and favorability during the pre-election interview. To simulate predicted probabilities, we used the Clarify program developed by King, Tomz, and Wittenberg (2000).
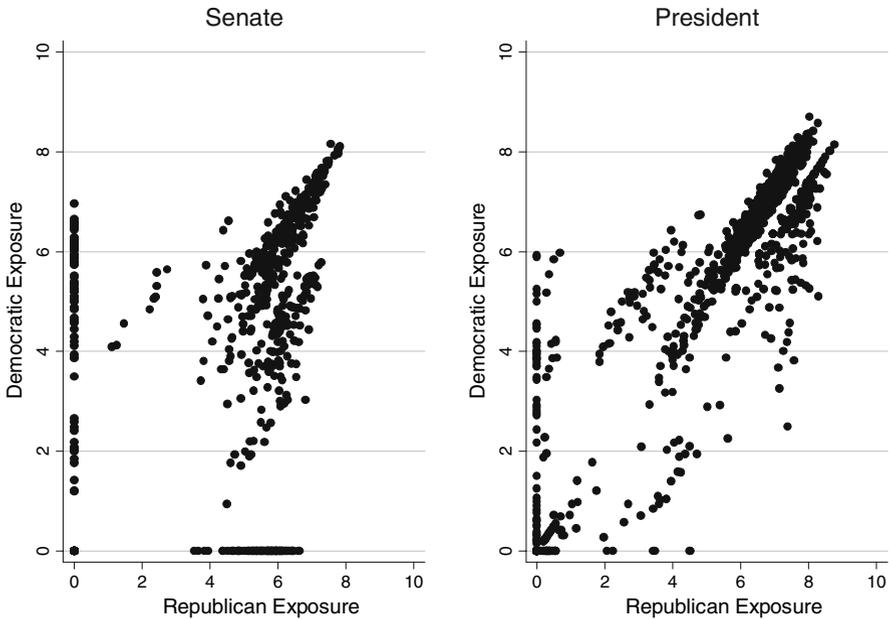
Fig. 1 Democratic and Republican ad exposure by race

Thus, the predicted values we report in Table 2 reflect a range of real-world campaign environments, and they demonstrate the importance of advertising for vote choice and candidate evaluation. For example, when our same hypothetical respondent has average Republican and Democratic ad exposure, she has a .59 probability of voting for the Senate Democratic candidate and a .29 probability of voting for Kerry. These probabilities are significantly lower for Kerry because, as reported above, older respondents and women have a significantly lower likelihood of reporting a Kerry vote. As exposure approaches saturation from both sides, the probability of voting for Kerry drops to .20. This is because of the larger Bush coefficient on exposure; saturation in this case benefits Bush. On the other hand, because the coefficient sizes in the Senate case are nearly equal and opposite in sign, the net effect cancels. In contrast, when Kerry has an exposure advantage, the probability of voting for him is .39, but it drops to .18 with a Bush exposure advantage. In the Senate case, a Democratic exposure advantage gives the respondent a probability of voting for the Democrat of .66, but that probability drops to .52 with a GOP exposure advantage.

Predicted probabilities for favorability show the same trends. For Kerry, mean exposure from both sides and saturation do not significantly move the predicted probability of viewing Kerry favorably because the estimated coefficients essentially cancel. On the other hand, moving from average exposure to both candidates' ads to a Kerry advantage increases the probability of viewing Kerry favorably by .08 (from .41 to .49). Turning to the Senate races, because Republican favorability is only sensitive to Republican ad exposure, the saturation exposure condition benefits

Republican candidates. In a highly competitive Senate race with thousands of ads broadcast, the Republican candidate receives a significant boost in reported favorability. On the other hand, when the Democratic candidate has an exposure advantage, Republican candidate favorability is only slightly reduced. All told, the mix of ads that one is exposed to has a substantively meaningful impact on candidate favorability and vote choice.

Having found strong support for the persuasion hypothesis, we turn next to the question of whether partisanship and levels of general political information moderate the influence of exposure. Table 3 speaks to the partisanship hypothesis by showing the estimates produced from six different models, three from the presidential race (vote choice and Bush and Kerry favorability) and three from the Senate races (vote choice and Republican and Democratic candidate favorability). In this table, coefficients shown are from ten different interaction terms: Democratic ad exposure by five categories of partisanship and Republican ad exposure by five categories of partisanship. Table 4 speaks to the knowledge hypothesis, reporting estimates from six different models (again, three each from the presidential and Senate races). Here, the reported coefficients are from six interaction terms: Democratic ad exposure by three categories of political knowledge (high, medium and low) and Republican ad exposure by those same categories. In all models reported in both tables, we suppress the constant, and thus there is no reference category.[14] This approach allows us to effectively control for advertising exposure and test directly the ability for message resistance within each sub-group.

To clarify our expectations, we report in each table a column of predictions. Consider Table 3 first. According to our theory, political independents should be significantly influenced by both Republican and Democrat ad exposure. We also expect weak Democrats and weak Republicans will be influenced by exposure to ads aired by their preferred party. But weak Democrats should not be significantly moved by exposure to Republican-sponsored ads, and similarly, Democratic advertising should not have much impact on weak Republicans. Strong partisans should resist messages from the opposite party and accept messages from their own party. But because strong partisans are already highly likely to support candidates of their own party, we do not expect to find much impact of advertising.

As the results in Table 3 make clear, we find exposure effects that are more widespread than predicted. Of the 60 coefficient estimates in all six models, 25 are

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[14] Because we suppressed the constant, STATA reports directly the test of whether the effect for each group is significantly different from 0. It is analogous to estimating the model with the main effect and interactive effects (minus one category) and then testing whether the main and interactive effect are combined to be different from 0. In addition, because the results for control variables are substantively the same as those reported in Table 1, we do not report complete model estimates for either table. These results are, however, available from the authors.

[15] In 23 of those 25 instances, the coefficient is in the expected direction; that is, increasing exposure to Democratic advertising increases the probability of voting for the Democratic candidate or increases favorability of the Democratic candidate, and increasing exposure to Republican advertising boosts the likelihood of voting for the Republican candidate or evaluating the Republican candidate favorably.

Table 3 Testing the partisan hypothesis

Exposure source	Respondent partisanship	Prediction	Senate			President		
			Vote choice	Democratic favorability	GOP favorability	Vote choice	Democratic favorability	GOP favorability
Democrat	Strong D	n.s.	.658 (.212)**	.147 (.041)**	−.066 (.063)	.068 (.226)	.337 (.187)+	−.070 (.142)
Democrat	Weak D	Significance	.570 (.150)**	.261 (.112)*	−.242 (.130)+	−.285 (.381)	.088 (.122)	.094 (.081)
Democrat	Independent	Significance	.051 (.182)	.072 (.078)	−.021 (.056)	.575 (.270)*	.180 (.072)*	.024 (.082)
Democrat	Weak R	n.s.	.394 (.294)	−.070 (.065)	−.012 (.047)	.664 (.327)*	.146 (.106)	−.341 (.110)**
Democrat	Strong R	n.s.	.367 (.224)	.009 (.077)	−.019 (.096)	−.477 (.181)**	−.032 (.078)	.178 (.100)+
GOP	Strong D	n.s.	−.775 (.884)	−.166 (.070)*	.143 (.048)*	−.093 (.375)	−.327 (.191)+	.097 (.149)
GOP	Weak D	n.s.	−1.20 (.845)	−.213 (.094)*	.064 (.098)	−.083 (.335)	−.104 (.126)	−.026 (.075)
GOP	Independent	Significance	−.344 (.143)**	−.064 (.058)	.114 (.067)+	−.764 (.256)**	−.167 (.071)*	−.029 (.083)
GOP	Weak R	Significance	−.353 (.168)*	.039 (.049)	.181 (.039)**	−.712 (.365)+	−.194 (.119)	.336 (.105)**
GOP	Strong R	n.s.	.016 (.219)	−.045 (.072)	.073 (.044)+	−.042 (.232)	.019 (.082)	−.141 (.095)
N			494	348	406	920	983	997

$^{+} p < .10$ $^{*} p < .05$ $^{**} p < .01$

Entries are coefficients and (standard errors) from logit (vote choice) and ordered probit models (favorability). Each cell entry is the coefficient estimate on the interaction of Exposure source and Respondent partisanship

Table 4 Testing the knowledge hypothesis

Exposure source	Respondent information	Prediction	Senate			President		
			Vote choice	Democratic favorability	GOP favorability	Vote choice	Democratic favorability	GOP favorability
Democrat	Low	Significance	.385 (.189)*	.073 (.044)+	−.065 (.051)	−.281 (.228)	.094 (.083)	−.190 (.099)+
Democrat	Medium	Significance	.285 (.143)*	.023 (.038)	−.036 (.052)	.952 (.209)**	.193 (.074)*	−.056 (.103)
Democrat	High	n.s.	.276 (.221)	.040 (.037)	−.008 (.049)	.182 (.313)	.048 (.069)	.049 (.123)
GOP	Low	Significance	−.416 (.195)*	−.156 (.080)+	.132 (.050)*	−.027 (.255)	−.092 (.087)	.183 (.092)*
GOP	Medium	Significance	−.248 (.066)**	−.034 (.060)	.140 (.047)**	−1.10 (.220)**	−.225 (.080)**	.104 (.110)
GOP	High	n.s.	−.333 (.167)*	−.062 (.047)	.087 (.032)*	−.243 (.318)	−.030 (.075)	−.066 (.132)
N			494	348	406	922	985	999

+ p < .10 * p < .05 ** p < .01

Entries are coefficients and (standard errors) from logit (vote choice) and ordered probit models (favorability). Each cell entry is the coefficient estimate on the interaction of Exposure source and Respondent information.

significant predictors at $p < .10$ or better.[15] To summarize, 13 of the 25 significant coefficients were in line with the predictions of the theory; 12 were not. Beginning with the results in accord with our expectations, we found that independents were affected by Democratic exposure in the presidential race (for vote choice and Kerry favorability), and they were influenced by GOP exposure in two of three presidential models and two of three Senate models. Weak Democrats responded as expected to Democratic exposure in all three Senate models (but did not respond in the presidential context), and weak Republicans respond to GOP ad exposure in four of the six models. There is evidence, then, that people with weak partisan ties are being influenced by advertising.

But there are also a number of results inconsistent with our expectations. For example, strong Democrats appear very sensitive to ad exposure, most specifically in the Senate case. Under conditions of high exposure to Democratic ads, for example, strong Democrats were more likely to cast their ballot for a Senate Democrat, in addition to evaluating them more highly. But this is not simply a story of Democrats ''coming home.'' Strong Democrats also respond to Republican ad exposure in both Senate favorability models, and lowered their evaluations of Kerry under conditions of high GOP ad exposure. In sum, strong Democrats appear to be quite open to ad influence—regardless of its source.

In contrast, strong Republicans appear more resistant. For example, GOP ad exposure for these respondents is an insignificant predictor in five of the six models, and both effects for Democratic exposure are in the opposite direction: Exposure to Kerry ads reduces the probability of voting for Kerry and boosts these respondents' favorability of Bush. We did not expect these two findings, but they are consistent with the literature on the victim-syndrome effect, in which viewers feel sorry for attacked candidates and give their support to them (Haddock & Zanna, 1993). Indeed, it makes some intuitive sense that seeing a spate of Kerry ads (many of which were likely attacking Bush) would make strong Republicans even more likely to vote for Bush. We were surprised, however, to find that strong Democrats and strong Republicans act so differently, with the former being far more persuadable than the latter.

Weak partisans were also inconsistently responsive to advertising from the opposing party. Weak Democrats, for example, responded in one instance to GOP ads, lowering their favorability of Democratic Senate candidates. Weak Republicans responded in two instances to Democratic ads, both in the presidential race; they were more likely to support Kerry and were less favorable toward Bush after exposure to Democratic ads.

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[15] In 23 of those 25 instances, the coefficient is in the expected direction; that is, increasing exposure to Democratic advertising increases the probability of voting for the Democratic candidate or increases favorability of the Democratic candidate, and increasing exposure to Republican advertising boosts the likelihood of voting for the Republican candidate or evaluating the Republican candidate favorably.

All told, these results provide only limited evidence for the partisanship hypothesis. Although a (bare) majority of significant coefficients fall in line with expectations, persuasion appears to be widespread among partisan sub-groups. With the exception of strong Republicans, both partisans and independents were influenced by messages received from both sides.

In Table 4, we switch to an evaluation of the knowledge hypothesis. The third column of the table again shows our predictions. As made clear earlier, although some research has suggested that political messages are most influential among those with moderate (or high) levels of political information (because those with lower levels of political information have difficulty processing new messages), we believe that the nature of political advertising—easy-to-digest 30 second commercials, rife with appealing graphics and music—makes these messages easier to receive than television news reports or newspaper articles. As such, we expect both low- and medium-information respondents to be more likely than high information respondents to be influenced by advertising appeals. Indeed, because high-information respondents have more ability to resist political messages, exposure should have less impact on them.

We interpret the evidence in Table 4 as consistent with our expectations. Of 36 coefficient estimates, 16 are statistically significant predictors, and all are in the expected direction. Fourteen of them are found among low- and medium-information individuals; in only 2 instances do high information respondents yield to ad exposure.

Consider first the presidential models in the three columns on the right. Low-information respondents are weakly influenced by Democratic and Republican ads in their evaluation of Bush. But medium-and high-information respondents are not. This make sense given that these people likely already had developed well-formed impressions of the president given the abundance of messages about him in the previous four years. In contrast, advertising influences Kerry favorability only among medium-information respondents, who likely had still rather malleable impressions of the Democratic nominee (in contrast to higher information respondents). In terms of vote choice, advertising had an influence only among those with medium levels of existing political knowledge. In no case do high-information respondents yield to ad exposure. This pattern of findings makes sense given the capacity of those high in political sophistication to resist the messages that are incongruent with their political predispositions.

The results from the Senate model are a bit more dispersed. Low-information respondents are significantly influenced by advertising in five of six Senate models; medium-information respondents are influenced in four of six; and high-information respondents move in only two of six. Still, this fits with our general expectation that individuals high in political sophistication will be better able to resist ad messages with which they disagree. In the vote choice model, low- and medium-information respondents are influenced by both Republican and Democratic advertising. At the same time, however, Republican advertising also had an influence on high-information respondents. Perhaps this is the case here, and not in the presidential models, because knowledge of Senate candidates is, on the whole, much lower than knowledge of presidential candidates. Turning to Democratic favorability,

advertising influences only low-information respondents, albeit weakly. And as for Republican favorability, only Republican advertising is influential, but for all three categories of knowledge.

Discussion and Conclusion

This article reports the results of dozens of different statistical models designed to gauge the impact of political advertising. We have constructed a sophisticated individual-level measure of ad exposure, and we have searched to see if advertising's impact might be conditional on the partisanship and general political knowledge of those exposed to it. We have taken pains to account for the endogeneity between where ads are aired and levels of candidate support. And we have examined two types of campaigns—presidential and Senate.

In the end, we find ample evidence that exposure to advertising can move vote choice and influence attitudes towards candidates. Further still, we find that advertising's influence is moderated most consistently through political knowledge, with those lower in political information more influenced by ad messages. This is consistent with the research of Freedman, Franz, and Goldstein (2004), who focused only on reception, but who found stronger differential effects among those lower in generalized political knowledge. These findings point to an important distinction in the way types of political information influence citizens. If the dissemination of political information through more difficult-to-process media (news reports and print media, for example) influences only the politically knowledgeable (as some evidence suggests), but political ads influence mostly the political ignorant, this suggests an important gap in the information resources of voters. The implications of the gap depend in part on the information differences (content, tone, etc.) across sources. In general, we interpret the results here as advancing the theoretical and methodological debate about persuasion and the moderating influence of political knowledge.

But contrary to our expectations, we do not find that the effect of advertising was greatest among political independents and those with weak partisan attachments. Rather, the effects were more widespread, affecting independents, weak partisans and even some strong partisans. Interestingly, though, there was some evidence that it was strong Democrats who were most likely to yield to advertising appeals (especially in the Senate context); in most instances, strong Republicans seemed more immune to advertising's influence.

Why did these partisan differences appear? We can only speculate at this point that it either had something to do with the political environment in 2004—for instance, Republicans may have been firmer in their support for their candidates early on—or with the way Democrats and Republicans view the world and thus how they respond to political advertising (Ansolabehere & Iyengar, 1995). If the former, then it might be that the larger political environment (specifically the manner in which the electoral context favors a particular party), affects how resistant partisans are to political advertising. This possibility stands in contrast to our hypothesis,

which suggested partisans would always be resistant to appeals from the opposition. Perhaps the only thing we can say definitively is that the question of partisan differences in ad effectiveness deserves more in-depth analysis.

Inevitably, one must ask whether and how far our findings about the persuasive power of advertising generalize. Given the research here, we cannot claim that ads matter in all elections—or even all presidential or U.S. Senate elections. That said, we believe our results are at least suggestive of wider effects. For one, our finding of persuasive ad effects in the 2004 presidential race is a finding on a ''least likely case.'' Theoretically, ads are least likely to matter in a presidential race, in which typically both major candidates are very well known by the electorate. Second, our conclusion that ads matter in the Senate races is based on combining more than two dozen Senate contests. It is not a conclusion drawn on the basis of one or two cases, which, because of measurement error or idiosyncrasy, could lead one to find ad effects when there were none.

Finally, we want to stress that our focus is the effectiveness of the complete advertising environment following the respondent's pre-election interview. And our dependent variable is vote choice on Election Day. As such, we do not account for those situations in which a particularly effective ad aired repeatedly one week sways a number of voters, or even temporarily changes voters' preferences. No doubt such situations exist. And yet, in the end, what most interests both political scientists and those running for office is whether the total advertising environment has made a difference when it counts: on Election Day. And our evidence suggests that the answer to that question is an emphatic yes.

Appendix

Table A.1 Full presidential model results from Table 1

	Vote Kerry	Kerry favorability	Bush favorability
Kerry ad exposure	.342 (.175)*	.125 (.047)**	−.062 (.061)
Bush ad exposure	−.537 (.181)*	−.135 (.051)**	.079 (.065)
Pre-election Kerry vote	1.480 (.743)*		
Pre-election Bush vote	−1.567 (.712)*		
Pre-election Kerry favorability		.618 (.075)**	
Pre-election Bush favorability			.496 (.068)**
Age	−.173 (.070)*	−.028 (.022)	.023 (.027)
Age-squared	.002 (.0006)*	.0003 (.0002)+	−.0002 (.0002)

Table A.1 continued

	Vote Kerry	Kerry favorability	Bush favorability
Education	.162 (.121)	.024 (.031)	.042 (.041)
South	−.330 (.596)	.068 (.138)	.390 (.162)*
Married	−.564 (.500)	−.008 (.123)	.081 (.161)
African-American	.923 (.799)	.161 (.237)	−.274 (.283)
Female	−1.093 (.473)*	−.160 (.115)	.094 (.133)
Weak Democrat	.839 (.733)	.037 (.144)	−.134 (.175)
Weak Republican	−2.225 (.602)**	−.081 (.223)	.279 (.208)
Strong Democrat	1.884 (.786)*	.791 (.221)**	−.263 (.210)
Strong Republican	−2.128 (.871)*	−.078 (.205)	.768 (.213)**
Ideology	.770 (.431)[+]	.185 (.091)*	−.096 (.108)
Economic evaluations	−.107 (.399)	−.051 (.095)	.038 (.104)
Bush visits	.286 (.147)[+]	.051 (.034)	−.052 (.041)
Kerry visits	−.071 (.090)	.020 (.028)	.061 (.036)[+]
Bush job approval	−2.842 (.479)**	−.365 (.125)**	1.135 (.128)**
Constant	9.055 (1.953)**		
Threshold 1		−2.178 (.630)	1.227 (.767)
Threshold 2		−1.133 (.604)	2.348 (.759)
Threshold 3		−.976 (.607)	2.576 (.768)
Threshold 4		.724 (.607)	4.128 (.760)
N	922	985	999

[+] $p < .10$ * $p < .05$ ** $p < .01$

Entries are coefficients and (standard errors) from logit (vote choice) and ordered probit models (favorability)

Table A.2 Full Senate model results from Table 1

	Vote Democrat	Democratic favorability	GOP favorability
Democratic exposure	.288 (.139)*	.039 (.033)	−.031 (.040)
GOP exposure	−.287 (.089)*	−.063 (.053)	.114 (.032)**
Pre-election Democratic vote	1.259 (.699)[+]		
Pre-election GOP vote	−1.466 (.893)		
Pre-election Dem favorability		.646 (.066)**	
Pre-election GOP favorability			.787 (.106)**
Age	−.127 (.087)	−.006 (.028)	.019 (.025)
Age-squared	.001 (.0008)	.0001 (.0002)	−.0001 (.0002)
Education	−.036 (.075)	−.002 (.029)	.030 (.024)
Married	−.120 (.398)	−.021 (.170)	−.202 (.152)
African-American	.960 (.942)	.458 (.499)	−.256 (.343)
Female	−.462 (.407)	.024 (.172)	−.019 (.131)
South	−.545 (.579)	−.723 (.263)**	−.033 (.312)
Weak Democrat	.039 (.637)	.013 (.234)	.085 (.310)
Weak Republican	−1.206 (.548)*	−.455 (.266)[+]	−.022 (.166)

Table A.2 continued

	Vote Democrat	Democratic favorability	GOP favorability
Strong Democrat	1.015 (.743)	.594 (.267)*	−.227 (.160)
Strong Republican	−1.611 (.949)+	−.443 (.206)*	−.006 (.200)
Ideology	.553 (.282)*	.082 (.082)	−.104 (.147)
Economic Evaluations	−.632 (.310)*	−.072 (.091)	−.072 (.111)
Incumbent Democrat	−.235 (.664)	−.370 (.312)	.532 (.252)*
Incumbent GOP	−.124 (.549)	−.934 (.2229)**	.222 (.317)
Bush Job Approval	−.846 (.239)**	−.326 (.115)**	.233 (.098)*
Constant	6.917 (2.326)**		
Threshold 1		−3.062 (.714)	.025 (.739)
Threshold 2		−1.831 (.714)	1.064 (.770)
Threshold 3		−1.634 (.718)	1.253 (.770)
Threshold 4		−.116 (.702)	2.896 (.780)
N	494	348	406

+$p < .10$ * $p < .05$ ** $p < .01$

Entries are coefficients and (standard errors) from logit (vote choice) and ordered probit models (favorability)

Variable Coding

2004 BYU–UW Study

Presidential Vote Intent (Wave 2)—''If the election for President were held today, would you vote for'' 0 = Bush, 1 = Kerry, other = missing

Presidential Vote (Wave 3)—''In the November general election for president, who did you vote for?'' 0 = Bush, 1 = Kerry, other = missing

Senate Vote Intent (Wave 2)—''If the election for Senate were held today, would you vote for'' 0 = Republican candidate, 1 = Democratic candidate, other = missing

Senate Vote (Wave 3)—''In the election for U.S. Senate, who did you vote for?'' 0 = Republican candidate, 1 = Democratic candidate, other = missing

Kerry (Bush) favorability (Wave 2 and 3)—''Is your opinion of [Bush, Kerry] very favorable ... very unfavorable?'' Ranging from −2 (very unfavorable) to 2 (very favorable)

Democratic (Republican) Senate candidate favorability (Wave 2 and 3)—''Is your opinion of [partisan Senate candidate] very favorable ... very unfavorable?'' Ranging from −2 (very unfavorable) to 2 (very favorable)

Bush job approval (Wave 3)—''How would you rate the overall job President George W. Bush is doing as president: Excellent, pretty good, only fair, or poor?'' 1–4 scale with 4 indicating ''excellent.''

Educational attainment (Wave 1 only)—''What is the highest level of education you completed?'' 1 = Elementary school only; 2 = Some high school, did not finish; 3 = Completed high school; 4 = Some college, didn't finish; 5 = two-year college degree/A.A./A.S; 6 = four-year college degree/B.A./B.S; 7 = Some graduate work; 8 = Completed Masters or Professional degree; 9 = Advanced graduate work or Ph.D.

Age (Wave 1)—in years

South—1 = the respondent lives in the south (Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, Kentucky, Maryland, Oklahoma, West Virginia), non-South respondent = 0

Married (Wave 1 only)—''Are you currently married, widowed, divorced, separated or never been married?'' 1 = married, 0 = all other responses

Race (Wave 1 only)—''Would you describe yourself as white, black, Asian, Hispanic, American Indian, other?'' 1 = black, 0 = all else

Sex (Wave 1 question)—1 = female, 0 = male

Party (Wave 3 branching questions used to create five dummy variables)—strong Democrat, weak Democrat, Independents (includes party leaners and pure independents), weak Republicans, and strong Republicans

Ideology (Wave 2 only)—''Do you consider yourself generally liberal, moderate or conservative?'' −1 = conservative; 0 = moderate; 1 = liberal

Sociotropic Economic Evaluation—''Would you say that over the past year the nation's economy has gotten worse, gotten better, stayed about the same?'' 1 = gotten worse; 2 = stayed about the same; 3 = gotten better

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