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Abstract

The 2008 presidential election was historic in many respects. The campaign included the first African American major-party candidate, and neither candidate was an incumbent president or vice president. In addition, one candidate took public funding and the other candidate did not. This latter disparity resulted in an imbalance of resources across the two campaigns, especially in the purchase of political advertising. But did that imbalance matter for who won? Did advertising move voters, and if so, by how much? This article examines patterns of presidential ad buys in 2008 and compares them with presidential ad buys in 2004. It also examines the impact of advertising on county-level vote returns in both years. The results demonstrate some important differences in advertising patterns across years, especially in terms of ad sponsorship and market-level advertising advantages. We also find significant and strong advertising persuasion effects in 2008.

Keywords

political advertising, campaigns, elections, 2008 presidential election, political persuasion

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Presidential general election campaigns in the United States are surely the most studied campaigns in the world, and yet they are among the most difficult in which to isolate the effects of the mass media in general and of political advertising in particular. There are several reasons for this. Going into a general election campaign, for instance, most Americans already know a lot about the candidates. A presidential nominee is almost always a prominent politician, perhaps a sitting president or vice president. The candidates who achieve their parties' nominations have also been the subject of intense media scrutiny during the presidential primary campaign. Furthermore, presidential campaigns typically display balanced message flows, with media reports about the candidates fairly even in amount and tone (Holbrook, 1996, p. 85; Johnston, Hagen, & Jamieson, 2004, p. 89), and television advertising campaigns fairly equal in volume (Althaus, Nardulli, & Shaw, 2002, p. 16; see also their figure 1). Part of this balance stems from the public financing of general election campaigns, which, until recently, all candidates accepted.

The 2008 presidential general election, however, might present a much better context in which to find an impact of political advertising. Although Americans learned a lot about Barack Obama during the primary campaign, he was relatively new to the national stage, having made his national debut a mere 4 years earlier during a speech he gave at the 2004 Democratic National Convention. McCain was certainly better known than Obama, thanks in part to his near-successful run for the Republican presidential nomination in 2000, but he was also less known than a sitting president or vice president, one of which had been on every presidential ballot since 1952. Thus, two relative unknowns faced each other in 2008. Moreover, the 2008 race was unique in that Obama had a strong financial advantage over McCain, the type of disparity that had not been seen in recent election cycles.

We have two goals in this article. First, we tell the story of political advertising in the 2008 presidential general election. In doing so, we find important differences in the air war between 2004 and 2008, both in terms of ad volume and ad sponsorship. Second, we examine the impact of advertising on vote choice by examining the relationship between market-level ad buys and county-level vote returns. Our findings show that in both election cycles advertising had a small, yet significant, impact on vote share. Thus, Obama's financial advantage in 2008—to the extent that it was spent on advertising—was one of many components leading to his victory. In sum, our research demonstrates that the air war is still a crucial feature of contemporary American elections.

Advertising Persuasion

Researchers have taken several approaches to studying the impact of televised political advertising on vote choice. One such approach is experimental.

Several experimental studies that have analyzed the impact of advertising on people's candidate preferences have concluded that advertising does matter (e.g., Chang, 2001; Clinton & Owen, 2006; Kahn & Geer, 1994; Meirick, 2002; Pinkleton, 1997, 1998; Valentino, Hutchings, & Williams, 2004). This research has searched for persuasion effects in multiple electoral environments and has considered how the impact of advertising varies depending on the tone of the ads and the characteristics of the voters who watch them. Experimental research has high internal validity, but one major disadvantage of this approach is its inability to speak to the effects of advertising in the real world. What does it mean for the number of votes that a candidate gets on Election Day if an experiment shows that exposure to an ad in the laboratory increases the number of people reporting they will vote for that candidate?

Other scholars have relied on surveys to investigate the impact of political advertising on people's vote choices, an approach that can enhance external validity. For instance, Goldstein and Freedman (2000) examined the impact of advertising in several U.S. Senate races using the 1996 cross-sectional American National Election Studies. Combining an extensive database of ads aired in the country's 75 largest media markets 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. Franz and Ridout (2007) adopted a very similar approach—but with panel data instead of a cross-sectional sample—in their study of how advertising influenced vote choice in several U.S. Senate races in 2004 and in that year's presidential election. They, too, found that advertising had a significant impact on vote choice.

Johnston et al. (2004) also conducted an individual-level analysis of advertising's impact on vote choice, using ad tracking data at the market level to measure the information environment. Their setting was the 2000 presidential contest, and their key measure of advertising was the difference in the number of ads aired between Al Gore and George W. Bush in the previous week. Using the National Annenberg Election Survey, which was a rolling cross-section in the general election phase, they found that overall 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.

Huber and Arceneaux (2007), studying the same election campaign and using the same data as Johnston et al. (2004), reached a slightly different conclusion, suggesting that the impact of advertising on persuasion was higher than that estimated by previous researchers. Their research took

advantage of the “natural experiment” provided by the fact that, although most ads air in battleground states, some ads spill over and are seen in non-battleground states.

Survey-based studies give a better idea of the impact of advertising in the real world of political campaigns than do experiments, but it is still difficult to translate the kind of conclusions made by these studies—that, for example, increasing an individual’s exposure by one ad increases the likelihood of voting for a certain candidate by a certain amount—into firm conclusions about how a candidate’s percentage of the vote will rise or fall given an increase or decrease in how many ads his or her campaign airs.

To better answer such questions about the magnitude of the persuasive effects of advertising, other researchers have examined ad effects at the aggregate level through the use of actual vote tallies or poll standings. For instance, Shaw (1999) investigated the impact of advertising in the 1988, 1992, and 1996 presidential campaigns, matching the number of ads aired in a state with the percentage of the vote the candidates earned in that state. In general, his statistical models supported the conclusion that advertising had its intended impact, increasing the vote share of the candidate who had an ad advantage. He found, however, that the impact of advertising varied depending on the presidential election campaign, with ads mattering the most in 1996, the least in 1992, and with 1988 in between.

Shaw’s approach to the study of ad effects has one important advantage: It allows for the calculation of how many votes the airing of an ad gets a candidate. In the cross-sectional models (of state-level vote returns), 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. This is the equivalent of airing 100 ads during programs with an average rating of 5 (i.e., moderately popular programs). His pooled time series models (of available poll data) 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.¹ A follow-up study (Shaw, 2006) discovered a significant impact for advertising in the 2000 and 2004 presidential races, but the size of the impact was small in these races. In both 2000 and 2004, a 1,000-GRP advantage for Bush was estimated to produce a 0.1% increase in the Republican share of the vote during the fall campaign.

All told, there is a wealth of research available on the persuasive effects of advertising in presidential elections, and the consensus is that ads can move votes. Each approach to studying this phenomenon has certain advantages (e.g., experiments can identify strong causal effects of exposure, whereas surveys can look for real-world impacts in individual-level candidate evaluations) and also certain drawbacks (the standard trade-offs between external

and internal validity). Our research design allows us to examine the effects of advertising at the end of the day; we can explore how the volume of advertising during certain time periods mattered for county-level returns. We recognize that the approach can say little about individual voters, or about the effect of advertising at any point in time during the campaign, but the ultimate concern of campaigns and their media consultants is the final aggregated result once the ballots are cast and all the ads are aired. Thus, we can offer an answer to the simple but important question: How much did the air war contribute to the final result?

Expectations

Whether they use the term or not, many scholars who examine how advertising influences vote choice adopt a dosage-resistance model of persuasion (Krosnick & Brannon, 1993). The key first step in this model is exposure to messages or arguments, whereas the second step is acceptance of or resistance to those messages. The more messages to which a viewer is exposed, the more likely the voter is to be influenced by them. Yet certain voters have more capacity to reject the messages to which they are exposed, depending on their partisan identifications and levels of political sophistication and knowledge (Zaller, 1992). Strong partisans are more likely to reject messages inconsistent with their prior beliefs, but the ability to recognize a message as inconsistent with their beliefs also depends on their level of political knowledge or sophistication. Therefore, those with more political knowledge are more likely to reject a political message, and thus are less likely to be influenced by it.

The exposure stage of the dosage-resistance model suggests our first hypothesis, which is that, all else being equal, *the greater the candidate's ad advantage in a county, the higher percentage of the vote that candidate should get in the county*. The presumption in most presidential campaigns is that advertising buys are commonly balanced between candidates in the general election phase (Zaller, 1996). This is because candidates have historically accepted public funding for the general election, and campaigns are fairly efficient in identifying and deploying resources in crucial states (Bartels, 1985; Brams & Davis, 1974; Colantoni, Levesque, & Ordeshook, 1975; Shaw, 2006). Much has changed in recent election cycles, however, including campaign financing practices that have resulted in significant investments from party committees and interest group allies (Franz, 2008; La Raja, 2007). In other words, as parties and independent groups air advertising to promote and defend candidates limited by public funding, the amount of money invested in the general election campaign has skyrocketed. The presumption of balanced resources was challenged even further in 2008 when

Barack Obama opted out of public funding for the postconvention phase of the campaign and John McCain did not.

The dosage-resistance model suggests that individuals who have more political knowledge in general should be less susceptible to the influence of political advertising, but we believe this idea can be extended to varied election contexts as well. Specifically, in years when knowledge of the presidential candidates is high, political advertising is likely to have less impact than in years when knowledge of the presidential candidates is low. Thus, our second hypothesis is that *advertising in 2008 should have a greater impact on the candidates' share of the vote than advertising in 2004* given the difficulty of changing people's impressions of George W. Bush in 2004. For example, according to a CBS News poll from mid-July 2004, 13% of Americans were either undecided about whether they were favorable toward Bush or reported that they had not heard enough about him to have an impression. Twenty-nine percent reported the same about John Kerry. The comparable figures for 2008 from another CBS News poll taken in mid-July were 28% for Obama and 39% for McCain.

This logic with regard to how information influences the effectiveness of political advertising can extend geographically as well. In areas in which the information environment is dominated by political advertising—perhaps those counties that receive spillover advertising but are in nonbattleground states—advertising should have a greater impact on vote share than in those areas in which advertising competes with other messages, such as candidate mail, door knocking, and mass telephone calls. In this latter situation, voters have other sources of information that help them resist the messages provided by advertising.

Consider, for example, the Philadelphia media market, which covers counties in three states: Pennsylvania (8 counties), New Jersey (8 counties), and Delaware (2 counties). Pennsylvania is a perennial battleground state, but New Jersey and Delaware are typically solid blue states. Voters in the spillover counties in New Jersey and Delaware should not receive much direct mail, canvassing, or phone calls but should see a healthy dose of presidential advertising on television. Thus, our final hypothesis is that *advertising should have less of an impact in battleground counties than in nonbattleground counties* given the wealth of other campaign activity in battleground states.²

Lessons Learned in 2004 and 2008

Before examining whether advertising was able to influence vote share, we want to provide some description of the ad war in 2004 and 2008. We use data

from the Wisconsin Advertising Project, which has coded and collected frequency data on political advertisements in the country's largest media markets since 1998. The comparison between 2004 and 2008 is ideal because the project tracked ads in all 210 markets in both years for the presidential campaign.³

Table 1 shows the breakdown of total pro-Democratic and pro-Republican ads (including party and interest group ads) aired between various points in each campaign. For 2004, we show the totals from March 3 to Election Day because March 3 was the unofficial beginning to the general election campaign, one day after Kerry secured enough delegates to claim the Democratic nomination. In 2008, the general election effectively began in early-June after Senator Hillary Clinton finally conceded the Democratic nomination to Barack Obama. In almost every comparable time frame, Obama and McCain aired more ads than Kerry and Bush. For example, between September 1 and Election Day, pro-Kerry forces broadcast 260,092 ads, but Barack Obama benefited from 318,045. Similarly, Bush and his allies aired 200,994 ads between September and Election Day in 2004, but McCain aired 224,154 spots during the same time period in 2008. The table also lists the number of markets with at least some advertising, and here the data show that the air war in 2008 covered more markets than the air war in 2004: 189 markets received ads in 2008 after August 31, compared with 146 markets in 2004. In short, if one examines the same time period in the two election years, the air war was more intense in 2008, both in its volume and geographic scope.

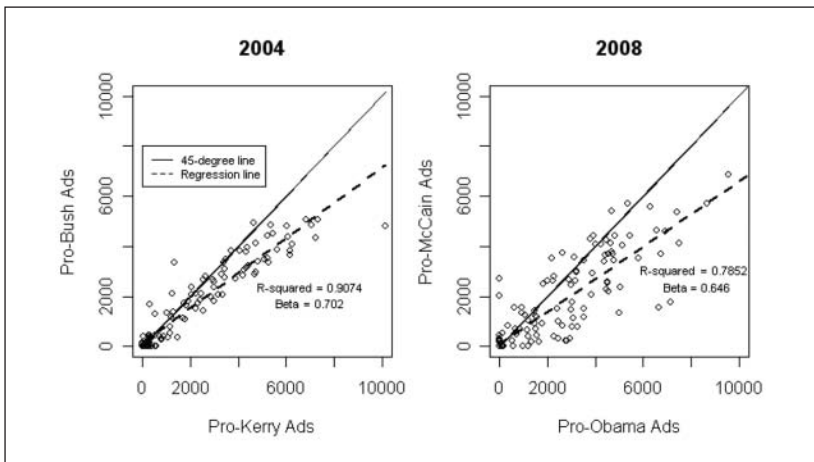
The data from Table 1 also provide information on how balanced advertising was across candidates in each election year. In 2004, John Kerry (and his party and interest group allies) had consistent advantages over the Bush camp in spots aired, particularly for ads over the course of the entire general election. Between September 1 and Election Day, the ratio of Kerry ads to Bush ads was 1.29. The Democratic advantage was even greater in 2008, when the ratio of Obama to McCain ad airings was 1.41. Obama was able to hold such an advantage over McCain thanks to Obama's unprecedented ability to raise campaign money. For example, Obama raised about \$150 million⁴ in September 2008 alone, whereas McCain was limited to the public funding grant of \$84 million for the entire fall campaign.

Figure 1 allows us to see whether the competitors were putting their advertising into the same media markets or choosing to follow disparate strategies. The figure plots the number of pro-Democratic and pro-Republican ads (including all candidate, party, and interest group ads) aired in each media market in each year (for ads aired after August). Each panel also includes a fitted regression line, which should have a slope of 1 and pass through the intercept at 0 if the candidates' ad airings were at parity. In 2004 Kerry ad buys pull the fitted regression line away from the expectation of ad

Table I. Ad Totals in 2004 and 2008

	March 3 to Election Day	June 5 to Election Day	September 1 to Election Day	October 1 to Election Day
2004				
John Kerry	605,533	448,252	260,092	171,274
George Bush	408,604	293,285	200,994	132,650
No. of markets with ads	198	199	146	121
2008				
Barack Obama		438,912	318,045	215,846
John McCain		341,183	224,154	153,671
No. of markets with ads		189	189	188

Totals include all procandidate ads from party committees and interest groups.
Source: Wisconsin Advertising Project.

**Figure I.** Market-level ad buys for fall campaign

parity, and the slope indicates that for every 100 pro-Kerry ads aired, pro-Bush ads numbered 70. The Kerry advantage was fairly uniform across markets, however, and the Bush camp aired ads (albeit fewer) in almost all the places that Kerry was on television. Indeed, pro-Kerry ad buys explain 90% of the variance in pro-Bush ad buys.

In 2008, however, the pattern is more dispersed, suggesting slightly different targeting strategies for each candidate. The R^2 in 2008 falls to .78, meaning that Obama ad buys explain only 78% of the variance in McCain ad buys. Moreover,

there were many markets in which Obama secured a huge advantage in the number of ads aired. For example, Obama aired more than 3,000 more ads than McCain in Miami and Tampa, Florida, and in several media markets in Indiana and Wisconsin. That said, there were some markets in 2008, such as Davenport, Iowa, Amarillo, Texas (which spills over into New Mexico), and Minneapolis, Minnesota, in which McCain aired more ads than Obama. Indeed, McCain had an ad advantage over Obama in more markets than Bush had over Kerry. There were 7 markets in 2004 in which Bush aired 300 or more ads than Kerry in the fall campaign; there were 19 such markets for McCain in 2008.

The over-time pattern of ad airings is shown in Figure 2. In almost every week of the 2004 campaign Kerry had an ad advantage. This was particularly noticeable in April, May, and June, and in the closing weeks of the campaign. There were three significant drops in pro-Kerry ads during the spring and summer—the last weeks of May, June, and July; the latter drop, and also the smallest, was during the Democratic National Convention. By comparison, in the key months of the early fall campaign, there was near parity between the Kerry and Bush campaigns in ads aired, though pro-Bush advertisers reduced their ad buys significantly during the Republican National Convention in late August.

In 2008, the story of ad advantages comes only after August, when McCain was limited to general election funds, and when he briefly suspended his campaign in late September (the 24th). Obama held significant advantages in every week of the fall campaign, gaining significant separation in the early weeks of October. Only in the final week of the campaign, when McCain made a final all-out push, did the two candidates air similar levels of advertising (Mosk, 2008).

To this point, we have only considered the total frequency of ads aired by both campaigns and their allies. But one of the most important differences in 2004 and 2008—a difference that makes Obama's advertising advantage all the more stark—is ad sponsorship. Table 2 breaks down the sponsorship of all general election ads in both years. Consider 2004 first. The Kerry campaign sponsored only 42% of all pro-Kerry spots and coordinated with the Democratic Party on an additional 7%. Thus, the Kerry campaign controlled the message of just under half of all ads aired on his behalf. The Democratic Party sponsored 25% of all ads as independent expenditures, and pro-Kerry groups sponsored 26%. This pattern of sponsorship was the consequence of Kerry's decision to take federal funding, which limited the amount his campaign could spend after the Democratic convention.

George Bush also took public funding for the general election period, but his campaign found a loophole that allowed it to stay under spending limits while still maintaining control over the campaign's message. Although the Bush campaign sponsored only 52% of all pro-Bush ads aired, they also engaged in considerable coordinated spending with the Republican party,

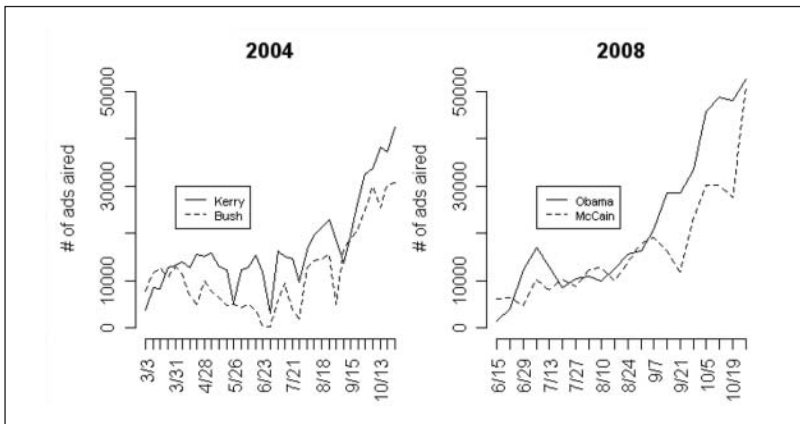


Figure 2. Number of ads per week

Table 2. Sponsorship of All General Election Ads in 2004 and 2008

	Candidate	Party Independent	Party Coordinated	Interest Group	No. of Ads Aired
2004					
	John Kerry	0.42	0.25	0.07	605,533
	George Bush	0.52	0.04	0.34	408,604
2008					
	Barack Obama	0.94	0.00	0.01	438,912
	John McCain	0.43	0.20	0.32	341,183

Entries are proportion of total ads aired.

Source: Wisconsin Advertising Project.

buying so-called hybrid ads, which contained procandidate messages and a more generic reference to congressional races. By using such ads, Bush and the Republicans were effectively able to coordinate without limit, which allowed for central control of the GOP message (Corrado, 2006).

By 2008, the circumstances were completely different for the Democrats. By opting out of public funding, Obama was unconstrained in fundraising and spending. As a consequence, his campaign sponsored 94% of the more than 438,000 pro-Obama ads aired during the general election campaign. This allowed the Democratic Party to skip the air war almost entirely, and it largely precluded the need for independent spending by interest groups. Indeed, political action committees and 527 groups accounted for only 4% of all pro-Obama TV spots.

McCain, on the other hand, accepted public money, and his campaign sponsored only 43% of his ads. The Republican Party accounted for 52% of pro-McCain ads (20% aired independently and 32% as coordinated or hybrid spots).

All told, the comparisons between 2004 and 2008 suggest a number of key conclusions. First, when examining comparable time periods, there were more ads and ads in more places in 2008 than in 2004. In 2004, Kerry benefited from an advantage in ads aired, but this advantage owed to the support of independent groups and independent expenditures from the Democratic Party, which may have limited the ability of pro-Kerry advertisers to speak with one clear voice. In 2008, Obama's advantage over McCain in number of ads aired was even larger than Kerry's over Bush—and was even more impressive when one considers that the Obama campaign sponsored the vast majority of those ads, in contrast to McCain's campaign, which had to rely on the Republican Party and outside groups to pay for the majority of pro-McCain advertising.

In the end, though, airing more ads than one's opponent is meaningless if ads do not increase one's share of the vote. And as this section has demonstrated, the traditional assumption of balanced resources in a presidential campaign does not hold in either year. So how much of a difference in the final vote did advertising make in 2004 and 2008? How many more ads would Kerry have had to air in order to have won Ohio—and thus the presidency—in 2004? Could McCain have made the 2008 race close if he had been able to keep up with Obama in the advertising races? These are the types of questions to which we now turn.

Identifying Persuasion Effects in 2004 and 2008

To assess the impact of political advertising in 2004 and 2008, we use a data set with the county as the unit of analysis. This leaves us with more than 3,000 counties in the contiguous 48 states. These data also included information on two important forms of campaigning—political advertising buys and candidate visits. The advertising data come from the Wisconsin Advertising Project, as discussed above. The data are aggregated to the media market level and appended to the county file. Nielsen is responsible for assigning counties to one of the 210 media markets, and we rely on their 2004-2005 county-market match.⁵ We estimate all our models using a Democratic advertising advantage measure, which is simply the number of pro-Obama ads minus the number of pro-McCain ads in 2008 and the number of pro-Kerry ads minus the number of pro-Bush ads in 2004.⁶ Each of these measures is recalculated depending on the time period of interest in the specific model (either the entire general election campaign, September through Election Day or October through Election Day).

A couple of things need to be said about these measures. The first is that these are unlogged measures. Although scholars who employ survey-based research sometimes take the natural log of advertising exposure (see Stevens, 2008) to account for diminishing marginal returns of viewing ads, we are more convinced by the logic of Johnston et al. (2004), which makes particular sense for a county-level analysis:

Ads are not repeated *ad nauseam* so that an individual finally surrenders to just stop the pain. They are repeated to guarantee that the ad gets seen in the first place—and perhaps a few more times—by an audience that is not motivated to seek it out. Given the general inpenetrability of the audience, more . . . is better. (pp. 82-83)

In the end, however, the specific form of the ads measure does not matter empirically, as our substantive findings about the impact of advertising hold even when we reestimate the models using a logged measure of advertising.

Second, because these are cumulative measures, we are assuming within a specific model that a candidate's ad advantage early during the campaign has the same impact on vote share as a candidate's ad advantage later during the campaign. In other words, any advertising that contributes to an advantage is weighted equally within the measure. But because some research suggests that the impact of advertising is strongest at the end of the campaign, when most voters finally turn their attention to the election (Ansolabehere & Iyengar, 1997; Huber & Arceneaux, 2007, p. 975), we do test for the impact of alternative time frames on the advertising advantage measure.

We estimated a series of ordinary least squares regression models predicting the change in support for the Democratic presidential candidate from the previous election; that is, for 2004, the dependent variable is Kerry's percentage of the vote minus Gore's percentage of the vote in 2000. For 2008, the dependent variable is Obama's percentage of the vote minus Kerry's percentage of the vote. This is identical to the measure used by Huber and Arceneaux (2007) in their county-level model using data from the 2000 campaign.⁷

There are several statistical concerns in estimating a model such as this, and these are outlined nicely by Huber and Arceneaux (2007). The first is the possibility that candidates are systematically advertising more in counties in which they have historically done well (p. 959). If this is the case, then an observed positive relationship between advertising volume and vote share might be a spurious one. To address this issue, we included separate measures of the Democratic and Republican share of the vote in the county in the previous presidential election. We did experiment with some alternative measures of the normal vote, including the average Democratic percentage of the

vote in the previous three elections and separate measures of the Democratic percentage of the vote in the previous three elections, but regardless of the measure of the normal vote we used, the substantive impact of political advertising did not change.⁸ A second potential (and similar) issue is that the volume of advertising might be higher in those states that are competitive (p. 959). We take into account this possibility by conducting a separate analysis of the relationship between ad volume and vote share in nonbattleground states to control for competitiveness.⁹

The third potential problem is that the volume of advertising in a state is likely correlated with other campaign efforts, such as candidate visits and mailings (p. 960). To take account of this possibility, we took two steps. First, we included in our models two separate measures of the count of Democratic candidate visits and Republican candidate visits to each media market.¹⁰ A presidential candidate visit to a state generally attracts abundant and largely favorable local media coverage for that candidate, and this, in turn, may translate into increased vote share (Herr, 2002; Shaw, 1999). We collected candidate visit data for the fall campaign (August through Election Day) from the Democracy in Action Project at George Washington University.¹¹ Second, by estimating the model separately for nonbattleground states, we took advantage of the “natural experiment” described by Huber and Arce-neaux (2007) by which people living in some nonbattleground states still are exposed to spillover advertising from battleground states. Thus, we have counties that are experiencing advertising and no other form of campaign activity. Examining just these counties, then, provides us with a relatively “clean” approach to assessing the impact of political advertising on vote share.

Our models also contain state-level fixed effects, which allow for the possibility that campaigning for other races within a state might somehow affect the presidential race. And finally, each of our models also contains a series of sociodemographic measures (percentage male, percentage Black, percentage White, percentage Asian, percentage Hispanic, median income in the county, percentage below the age of 25 years, and percentage above 65 years).¹²

For each election year, we estimated six separate models. The first three models are for all 3,111 counties in the contiguous 48 states, with different time horizons for ad buys (the entire general election, the fall campaign, and the October ad buys). The second set of three models repeats this for nonbattleground states. Table 3 lists the values on the advertising coefficient in all 12 models, and full model results may be found in the appendix.

In line with our first hypothesis—that advertising advantages translate into changes in county-level vote share—the results are largely confirming. In 2004, Kerry’s ad advantage as measured in all counties for the entire general election

Table 3. Effect of Advertising on County-Level Vote Share Improvement in 2004 and 2008

Dependent Variable = Democratic Improvement Over Previous Election	Democratic Ad Advantage (1,000s)
2004	
All counties (all general)	0.115*
All counties (September/October)	0.083
All counties (October)	0.225
Nonbattleground (all general)	0.191*
Nonbattleground (September/October)	0.290
Nonbattleground (October)	0.770**
2008	
All counties (all general)	0.551**
All counties (September/October)	0.584**
All counties (October)	0.636**
Nonbattleground (all general)	0.600**
Nonbattleground (September/October)	0.780**
Nonbattleground (October)	1.081**

Entries are coefficients from separate regression models with state-level fixed effects. See the appendix for full model results.

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

is a significant predictor of his vote share at the $p < .05$ level. A 1,000-ad advantage moves the vote by about 0.11 percentage points. The ad advantage had a positive effect on vote share for the fall and October-only time periods as well, but the coefficients were not statistically significant predictors in these models. Our first hypothesis is also supported by our findings from 2008, where an increased ad advantage—regardless of the time period over which it is measured—results in an increased vote share.¹³

By and large, however, the effects observed in 2004 are smaller than those in 2008. This confirms our second expectation—that the air war should have more impact in a race with comparatively less well-known candidates. In each model, advertising in 2008 has a larger impact on the vote than advertising in 2004. For example, in the models using all advertising in all nonbattleground counties, a 1,000-ad advantage results in an increased vote share of 0.19 in 2004; the comparable figure for 2008 is 0.60. Using October ad buys for nonbattleground counties, a 1,000-ad advantage is expected to swing 0.77% of the vote. In 2008, a similar ad advantage for Obama swings the vote by just under 1.1 percentage points.¹⁴

If we focus in more on the findings for nonbattleground counties, we note that in five of six models, an increased Democratic ad advantage has a

positive and statistically significant impact on the Democrat's vote share. That advertising still matters in these spillover markets—places where advertising is not targeted but occurs only incidentally—suggests that the relationship between advertising and vote share revealed by our models is a real one, not merely the result of endogeneity between candidate ad targeting and a candidate's likelihood for success in a certain area.

The results from the nonbattleground states also tend to confirm our third hypothesis about ads having a greater impact in nonbattleground states, where reinforcing messages from the ground game are not present. The coefficient on advertising in each of the three time periods in both years is greater for nonbattleground states than in the analysis using all states. A more accurate comparison, however, is between ad effects in battleground states and ad effects in nonbattleground states. To test whether these effects were different, we estimated some additional models in which we interacted the advantage measure with a dummy variable indicating battleground state status (results are shown in Table A3 in the appendix). What we find is that the impact of advertising is significantly different in nonbattleground states (the main effect) and battleground states (the main effect plus the interactive effect) in two instances in 2004 (for all ads and for October ads) and almost so in a third instance (September and October ads). In 2008, the effect of advertising in battleground states is also smaller than its effect in nonbattleground states, though this difference is statistically significant only for the October time period.

To demonstrate the effect of the air war in both years, Figure 3 shows the expected change in the county-level vote for a shift in the October advertising advantage. (We indicate a 2 *SD* change, but estimate values across the full range of the measures.) In 2004, for a typical county with mean values on all other measures, Kerry is expected to do worse than Al Gore's performance in 2000—which is why the expected values are almost all in negative territory—but the ad buys partially make up for that loss in support. The expected range of the 2 *SD* shift is rather small, however, implying that the respective campaigns' ad buys tracked quite closely, as we demonstrated with Figure 1. This indicates that Kerry was unable to secure a large and consistent enough advantage over Bush (as measured in October ad buys) to overcome the systematic loss in support relative to 2000. In 2008, in contrast, Obama improved over Kerry across the board, but especially in places where Obama had large advertising advantages.

We can summarize the results this way: Kerry did systematically worse than Al Gore, with the air war mitigating the loss. Obama did systematically better than John Kerry, with the air war amplifying the gain. This also makes clear one enduring fact of campaigns—that their actual impact on vote outcomes is typically small and at the margins. In other words, much of the outcome of any presidential election is determined by the distribution of

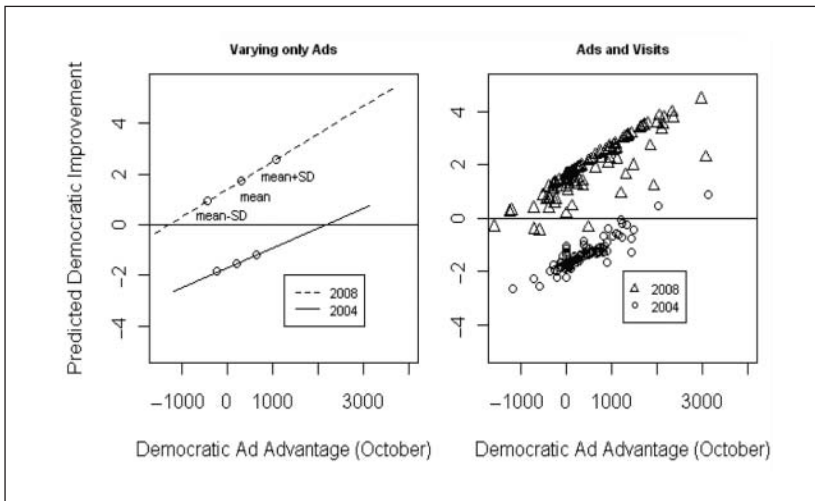


Figure 3. Predicted effects of advertising on vote share improvement in 2004 and 2008

Graph on right allows impact to vary on actual values of ads and visits, and both graphs estimate effects across the full range of the advertising advantage measures. Estimates in both graphs are from a county-level model of nonbattleground states, holding all control variables at their mean values.

partisanship among the electorate, as well as the status of key external factors, such as the state of the national economy (Holbrook, 1996). Campaigns can work to move votes at the margins in key locations, and as we suggest, the effect is greater in some years than in others, but is usually responsible for only a small portion of the final result. To that end, advertising can move votes, but in the context of a larger environment that is either beneficial or detrimental to the candidates.

The importance of advertising in 2008 may be best understood with a counterfactual. What would have happened had Obama had fewer resources with which to purchase ads? Imagine that Obama had been able to purchase only 75% of the total ads he actually bought in October. Using the model estimates reported above, we entered values for a lower Obama advantage, producing an expected vote for each county, which was then aggregated to the state level. The results predict losses in North Carolina and Florida. Furthermore, his razor-thin win in Indiana, 28,000 votes out of nearly 2.8 million, is reduced by more than 22,000.¹⁵ All told, with these lower advertising numbers, more than 300,000 votes nationwide are expected to have changed.

(Keep in mind, also, that Obama lost Missouri by only about 4,000 votes. Even a minimally *larger* investment by Obama in that state would have very likely shifted it to his column.) Of course, even with these lower ad buy numbers, Obama was still expected to have won over 300 electoral votes. Indeed, most forecasting models predicted a Democratic win in 2008, given the unpopularity of the incumbent Republican president and the downturn in the national economy. As such, the air war was not the cause of Obama's win, but we can safely attribute some of the size of that victory to his heavy ad campaign made possible by his large campaign war chest.

We have said very little about the effects of candidate visits so far, but these estimates are reported in full model results in the appendix. We do not change the time horizon on visits, like we do with ads, so the effect changes little across model specifications. Bush and Kerry visits had a small and insignificant influence on the vote in 2004, though it was in the expected direction, but both Obama and McCain visits were correlated with a significant shift in the vote in 2008 (at about twice the size of the shifts that resulted from Kerry and Bush visits). The effect in nonbattleground states dissipates for Obama, but McCain visits net stronger support for counties in nonbattleground states. This spillover effect is still important in nonbattleground contexts. Because people in counties in spillover markets watch major network affiliates in the battleground states, they are exposed to local news coverage of the candidate visits in those states and are presumably susceptible to the positive press that these visits might engender. This was largely true for McCain in 2008.

The right panel of Figure 3 allows for this McCain effect to show up in the predicted results. We reestimated the model shown in the left panel, but using the actual values of ads and candidate visits. Because visits had a weaker effect in 2004, the estimates are essentially linear (driven mostly by the ad war). But because McCain visits were able to compete with any Obama ad advantage in these nonbattleground counties, the increased support secured by Obama's ads was undermined in markets with a good number of McCain visits.

There is one final consideration, however. Some have suggested that a county-level unit of analysis does not provide enough variation to enable effective statistical analysis (Krasno & Green, 2008). Because we measure advertising buys and candidate visits at the level of the media market, and because candidates and their allies purchase air time at that level, it might be more useful to consider larger aggregations of voters. We thus adopt the approach used by Krasno and Green (2008) and aggregate the data to the level of the market-state. In doing so, we consider all the counties that fall within a unique state-market combination as one unit (counties in the Philadelphia market in Pennsylvania are one zone; counties in the Philadelphia market in New Jersey are a separate zone, etc.). Consistent with their

argument—which focused only on turnout—we also use state-level fixed effects.

The estimates from an ordinary least squares regression model predicting Democratic vote share and estimated on market zone-level data are reported in Table A4. In 2004, we find that the impact of advertising is generally larger in magnitude than the impacts we estimated in the county-level analysis. Moreover, some of the ad effects in 2004 actually compete in size with the effects found in 2008, undermining our contention that ads should matter more in the Obama/McCain race. Nonetheless, the advertising effects in 2008 are more consistently statistically significant, including the models for late advertising in media zones in nonbattleground states.¹⁶ All told, the results in these models suggest that ads matter—and matter in the ways expected by scholars and media consultants.

Discussion and Conclusions

The 2008 presidential election was a historic one, and the air war played some part in earning it that designation. When one examines comparable time periods, advertising in 2008 was greater in volume than in 2004 and reached a greater portion of the country than did advertising in 2004. Moreover, the advertising advantage of the Democratic candidate grew, as Obama's campaign took the unprecedented step of opting out of general election public funding, allowing the campaign to raise huge sums of money to spend on advertising.

Was that advertising effective in moving votes? In short, yes. Our findings suggest that the 30-second political spot—in spite of the rise of online campaigning and the increased attention given to face-to-face campaigning—is still an effective way to increase one's share of the vote. We also found that the advertising had more of an impact on vote share in nonbattleground states than in battleground states. This is likely because advertising faces much more competition for the minds of voters in the battleground states. This competition comes in the form of canvassers knocking on doors, the mailings that overflow mailboxes, and extensive local news coverage of candidate visits to the state. By examining the spillover effects of ads in nonbattleground states, we were able to effectively isolate the specific impact of televised political advertising.

And this advertising was even more effective in 2008 than 2004, partly, we suggest, because the candidates were not as well known in 2008 as 4 years earlier. But it also may have something to do with the differences in ad sponsorship between 2004 and 2008. One reason Obama's ad

advantage may have produced a larger shift in vote share in 2008 than Kerry's ad advantage in 2004 is that the Obama campaign bought and paid for almost all its ads and thus had control over its message. In contrast, the McCain campaign (and Kerry campaign in 2004) was forced to let the party and independent groups air over half of its advertising. In doing so, the campaign ceded control of the message. We might speculate, then, that a consistent message about Obama from the Obama campaign was more effective than an inconsistent message coming from multiple sources about McCain.¹⁷

There are some important caveats to make. First, although we found that advertising mattered in the sense of having a statistically significant impact on a candidate's vote share, it is important to note that the estimated impact of advertising was never huge. Having a 1,000-ad advantage across the entire campaign, for instance, resulted in about a 0.5 percentage point improvement in a candidate's share of the vote in 2008. Given that the greatest observed difference between candidate advertising in one media market was about 5,000 ads, a 2.5 percentage point improvement seems a realistic upper limit on the effect of advertising on vote share. Certainly, given a year in which economic conditions and other fundamental factors conspired to make a close election, that 2.5 percentage points could be crucial for determining a winner. But in other years, such as 2008, advertising just is not going to decide the race.

A second caveat is that our findings do not examine the effects of ads over time in the way that Shaw (1999, 2006) has done with polls and Johnston et al. (2004) have done with rolling cross-sectional surveys. Given that Obama's ad advantages were strongest (and most consistent) in the fall campaign, however, our county-level final results might not differ greatly from a more dynamic study of ad effects in 2008.

In future American elections, voters will undoubtedly experience campaigns in different ways. TiVo and DVRs, as well as narrow-targeting and media diffusion, might weaken campaigns' reliance on ad buys and 30-second messages. Early voting will amplify the actions of campaigns in the summer months, as campaigns try to reach voters at earlier stages of the campaign. Microtargeting will expand, and Internet organizing and fundraising will grow more sophisticated. Obama was a pioneer in some of these strategies, with his extensive online social networks (i.e., the My.BarackObama application on his campaign Web site) and innovative online media buys (such as his placement of ads in online video gaming; Kaye, 2009). This will be exciting to see and experience, not to mention study. But, for now, the future is not here: Political advertising on television is still ubiquitous and still has the power to move voters.

Appendix

Full Model Results and Different Specifications

Table A1. 2004 Results

Dependent Variable = Kerry Improvement Over Gore	All Counties			Nonbattleground Counties		
	Entire Campaign	Fall Campaign	October	Entire Campaign	Fall Campaign	October
Kerry Ad Advantage (1,000s)	0.115*	0.084	0.225	0.191*	0.290	0.770*
Kerry visits	0.090	0.111*	0.108*	0.166	0.170	0.163
Bush visits	-0.107*	-0.071	-0.082	-0.155	-0.104	-0.124
Gore % in 2000	-1.480**	-1.480**	-1.479**	-1.472**	-1.470**	-1.469**
Bush % in 2000	-1.405**	-1.405**	-1.405**	-1.376**	-1.375**	-1.374**
% Black	0.025**	0.026**	0.026**	0.026*	0.026*	0.026*
% White	-0.088**	-0.087**	-0.087**	-0.098**	-0.098**	-0.098**
% Hispanic	0.024**	0.023**	0.024**	0.022**	0.021**	0.021**
% Asian	0.169**	0.166**	0.166**	0.151**	0.145**	0.146**
% Above 65	0.048*	0.047*	0.047*	0.028	0.025	0.026
% Below 25	-0.005	-0.005	-0.005	0.002	0.001	0.002
% Male	-0.095**	-0.096**	-0.095**	-0.079*	-0.079*	-0.077*
Median household income (10,000s)	0.201**	0.195**	0.199**	0.193*	0.184*	0.193*
Constant	148.318**	148.388**	148.304**	146.051**	146.049**	145.762**
Adjusted R ² (overall)	0.4479	0.4453	0.4459	0.4247	0.4234	0.4218
N	3,111	3,111	3,111	2,011	2,011	2,011

Entries are coefficients from regression models with state-level fixed effects. All percentage variables are coded from 0 to 100.

* $p < .05$, two-tailed. ** $p < .01$, two-tailed.

Table A2. 2008 Results

Dependent Variable = Obama Improvement Over Kerry	All Counties				Nonbattleground Counties			
	Entire Campaign	Fall Campaign	October	October	Entire Campaign	Fall Campaign	October	October
Obama ad advantage (1,000s)	0.551**	0.584**	0.636**	0.600**	0.780**	1.081**		
Obama visits	0.205**	0.224**	0.244**	0.121	0.049	0.041		
McCain visits	-0.192**	-0.238**	-0.199**	-0.232**	-0.270**	-0.228**		
Kerry % in 2004	-1.377**	-1.400**	-1.420**	-1.379**	-1.388**	-1.395**		
Bush % in 2004	-1.313**	-1.331**	-1.350**	-1.306**	-1.311**	-1.319**		
% Black	0.132**	0.134**	0.133**	0.162**	0.162**	0.162**		
% White	-0.020*	-0.023*	-0.023*	-0.021	-0.024*	-0.022		
% Hispanic	0.155**	0.157**	0.158**	0.167**	0.170**	0.169**		
% Asian	-0.008	-0.005	-0.003	-0.044	-0.039	-0.040		
% Above 65	0.132**	0.138**	0.139**	0.147**	0.153**	0.152**		
% Below 25	0.224**	0.224**	0.223**	0.238**	0.238**	0.237**		
% Male	-0.080**	-0.081**	-0.081**	-0.052	-0.053	-0.054		
Median household income (10,000s)	1.104**	1.124**	1.121**	1.321**	1.358**	1.346**		
Constant	124.285**	126.310**	128.395**	119.632**	120.344**	121.191**		
Adjusted R ² (overall)	0.1562	0.1586	0.1508	0.1738	0.1725	0.1695		
N	3,111	3,111	3,111	2,020	2,020	2,020		

Entries are coefficients from regression models with state-level fixed effects. All percentage variables are coded from 0 to 100. *p < .05, two-tailed. **p < .01, two-tailed.

Table A3. Effect of Battleground State Status on Impact of Advertising

	2004			2008		
	Coefficient	SE	t Score	Coefficient	SE	t Score
Democratic ad advantage, all ads (1,000s)	0.206	0.067	3.10	0.569	0.073	7.81
All ads × battleground	-0.146	0.078	-1.87	-0.040	0.104	-0.38
Democratic ad advantage, September/October (1,000s)	0.333	0.198	1.68	0.648	0.093	6.94
September/October × battleground	-0.332	0.216	-1.54	-0.119	0.119	-0.99
Democratic ad advantage, October (1,000s)	0.789	0.289	2.73	0.880	0.139	6.31
October × battleground	-0.773	0.323	-2.39	-0.508	0.190	-2.67

Entries are from three models in each election year where different ad advantage horizons were interacted with a battleground state indicator. Control variables are not shown, but the model specification is identical to the full models reported in Tables A1 and A2.

Table A4. Advertising Results for “Media Zones”

Dependent Variable = Democratic Improvement Over Previous Election	Democratic Ad Advantage (1,000s)	Number of Zones
2004		
All media zones (all general)	0.209*	344
All media zones (September/October)	0.553*	344
All media zones (October)	0.860*	344
Nonbattleground (all general)	0.287 ($p = .059$)	211
Nonbattleground (September/October)	0.713 ($p = .106$)	211
Nonbattleground (October)	1.05 ($p = .100$)	211
2008		
All media zones (all general)	0.446*	344
All media zones (September/October)	0.428*	344
All media zones (October)	0.479*	344
Nonbattleground (all general)	0.546*	223
Nonbattleground (September/October)	0.723*	223
Nonbattleground (October)	0.951*	223

Entries are coefficients from separate regression models with state-level fixed effects. “Media Zones” are all counties in a market–state combination (e.g., counties in the Philadelphia market in Pennsylvania are one zone; counties in the Philadelphia market in New Jersey are a separate zone). Full model results are available from the authors on request.

* $p < .01$, two-tailed.

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Notes

1. Althaus, Nardulli, and Shaw (2002) examine county-level vote returns, the same unit of analysis that we use in this article. They focus on the 1992, 1996, and 2000 presidential campaigns and find a significant impact of market-level advertising buys on a candidate's share of the vote only in 1996.
2. See Huber and Arceneaux (2007) and Krasno and Green (2008) for other analyses that take advantage of market spillovers.
3. Information on the project is available at <http://wiscadproject.wisc.edu>. We rely on ad data originally gathered by the commercial firm TNS Media Intelligence/CMAG in 2008. Because this firm tracked only the 100 largest media markets in the country in 2004, however, we rely on data originally collected by Nielsen Media Research for our 2004 analyses. Both data sources are housed at the Wisconsin Advertising Project. Our comparison of the Nielsen data with the TNS Media Intelligence/CMAG data in the 100 media markets in which they overlapped in 2004 reveals close agreement on the number of presidential ads aired in each market. The correlation between Democratic ads per market in the two data sets, for example, is .99. The correlation between Republican ads per market is .98. The median difference in the number of Democratic ads per market between the two data sets is 2, whereas it is 1 for Republicans. Thus, differences in advertising patterns between 2004 and 2008 are true differences, not a methodological artifact.
4. This number is from the October filing report of Obama's presidential candidate committee (FEC ID: C00431445). The report is available through the Commission's searchable database at http://www.fec.gov/finance/disclosure/imaging_info.shtml.
5. Media markets often cross state boundaries but almost never cut through counties. Generally, Nielsen updates the county-market allocation yearly, but in practice few counties change markets. We compared the county-market match in 1995 with the match in 2005

and found that only 3% of all U.S. counties changed media markets. These changes were in counties with disproportionately small populations.

6. Some scholars prefer the use of GRPs over spots aired (see Ansolabehere, Iyengar, & Simon, 1999, p. 903; Johnston et al., 2004, p. 70; Shaw 1999, p. 349). Our access to the 2008 data did not include a measure of GRPs. But the correlation between total GRPs and total spots aired at the market level in the 2004 presidential data is more than 0.95.
7. We also estimated the models using the Democratic percentage of the vote (both the actual percentage—allowing for an influence from third-party candidates—and the share of the two-party vote) as the dependent variable. Our substantive findings were unaffected by this alternative specification.
8. For these control variables and for our dependent variables, we purchased county-level election data from Dave Leip's Web site (<http://uselectionatlas.org>).
9. Battleground states were assigned as follows. In 2004: Arkansas, Arizona, Colorado, Florida, Iowa, Louisiana, Maine, Michigan, Minnesota, Missouri, New Hampshire, New Mexico, Nevada, Ohio, Oregon, Pennsylvania, Washington, Wisconsin, and West Virginia. These were classified by the University of Wisconsin's Center for the Study of Politics in its targeted battleground polling. These states also track quite closely with Daron Shaw's "public list" of battleground states that year (2006, p. 57). If we restrict the list to the 15 states he identifies as "real" battlegrounds, the reported results actually become stronger for the remaining 33 nonbattleground states. In 2008, the list of battleground states is from a *Washington Post* assessment from June of that year. They include Colorado, Florida, Iowa, Michigan, Minnesota, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, North Carolina, Ohio, Oregon, Pennsylvania, Virginia, and Wisconsin.
10. We also reestimated all our models with an alternative Democratic visits advantage (similar to the ad measure), and the substantive results were unaffected.
11. The candidate travel data are reported by Eric M. Appleman at <http://www.gwu.edu/~action/P2008.html> and <http://www.gwu.edu/%7Eaction/P2004.html> (accessed in February 2009). Appleman uses public schedules provided by the campaigns supplemented by press accounts to record in which city or cities McCain/Obama and Bush/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. We also excluded vacations and visits to the candidate's home media market when no public appearances were scheduled. This is consistent with the classification of candidate visits in Shaw (2006).
12. These county-level data come from estimates reported by the Census Bureau. Specifically, the demographics are from the yearly Current Population Survey (<http://www.census.gov/popest/counties/>), and median income data are from the Bureau's Small Area Income and Poverty Estimates (<http://www.census.gov/did/www/saipe/index.html>).

13. We also tested for one additional time horizon, ads aired in the final week of the campaign. The effects of ads in the final week for 2004 are statistically significant and in the predicted direction ($\beta = .743$; $p < .05$). The effects for 2008, however, are statistically insignificant. Figure 2 may help explain this result. In the last few weeks of 2004, Kerry had a healthy advantage over Bush in ads aired, thus allowing him to gain some vote share. In the last week of the 2008 campaign, McCain finally began to match Obama in terms of ads aired, and so the relative lack of an ad advantage means there is little variation in vote share for that final week's advertising to explain. Rather, it is Obama's ad advantage over a larger time frame that better explains variations in the vote.
14. To explicitly test for this, we stacked the 2004 and 2008 data on top of each other, producing a data set in which each county is included twice. We estimated a pooled fixed-effects regression model, interacting the advertising advantage measure with a dummy variable for 2004. In all the models, the interactions were negative and statistically significant, indicating a smaller effect for ads aired in the Kerry–Bush contest of 2004 than in the Obama–McCain race of 2008.
15. Such an alternative reality is not so simplistic, of course. With fewer resources, Obama might have distributed his ads differently.
16. To ensure that heteroskedasticity was not an issue, we reestimated both our county-level and market-zone models to account for this potential, modeling the variance as a function of logged population size. This change had no effect on the size and significance of the advertising advantage measures.
17. We can offer one possible (though not definitive) test of this assertion. We reestimated the models with two additional measures capturing the percentage of ads aired in the market controlled by the Democratic and Republican candidates (i.e., Kerry candidate ads plus Kerry/Party coordinated ads divided by total pro-Kerry ads). The hypothesis in this instance would be that Kerry in 2004 and McCain in 2008 would do better in markets where they controlled a higher proportion of ads aired. There was little evidence of this in either case, as both measures were in the predicted direction but were statistically insignificant.

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