Research Article

Research and Politics
January-March 2016: 1–15

DOI: 10.1177/2053168015625078
rap.sagepub.com
SAGE

Going positive: The effects of negative and positive advertising on candidate success and voter turnout

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Abstract

Given the depth of research on negative advertising in campaigns, scholars have wondered why candidates continue to attack their opponents. We build on this research by considering real-world campaign contexts in which candidates are working in competition with each other and have to react to the decisions of the opposing campaign. Our results suggest that it is never efficacious for candidates to run attack ads, but running positive ads can increase a candidate's margin of victory. These results are conditioned by two factors: candidates must both stay positive *and* out-advertise their opponent. Second, the effects of positive advertising are strongest in areas where the candidate is losing or winning by a large margin—areas where they might be tempted to not advertise at all.

Keywords

Negative advertising, campaigns, voter turnout

Despite the millions of dollars that are spent on campaign advertising each election season, scholars studying the effects of campaign advertising have found mixed evidence of the efficacy of these ads. Lau et al. (1999, 2007) conducted a meta-analysis of the studies on campaign tone and campaign advertising tone and summarized the results by stating that

> [a]ll told the research literature does not bear out the idea that negative campaigning is an effective means of winning votes, even though it tends to be more memorable and stimulate knowledge about the campaign. Nor is there any reliable evidence that negative campaigning depresses voter turnout, though it does slightly lower feelings of political efficacy, trust in government, and possibly overall public mood. (p.1176)

They find similar results in the literature pertaining to positive ads—the results of these studies are inconsistent and often null.

Many researchers wonder why campaigns continue to employ negative ads if they seem to have no impact on the election (e.g. Lau and Pomper, 2004). One reason, we suggest, is because few studies focus on actual campaign dynamics and consider how strategies are employed to win elections.

Candidates and political consultants are not generally concerned within the context of an election about topics important to democratic theorists like political efficacy, trust in government, and "political mood." For a candidate or campaign consultant, if only a handful of people vote in the election because everyone else believes their vote does not matter, distrusts the government, or is turned off, that is fine as long as their candidate wins the majority of the few votes that are cast. Using this logic, if attack ads drive down turnout, as long as it's the opposition's supporters who do not show up at the polls, attack advertising is to the candidate's strategic advantage. Thus, the germane question to campaigners is "which type of advertising will help or hurt *my* candidate?" This is a question that is not well addressed in the majority of the literature. Moreover, candidates cannot control the overall "tone" of the election. They can only

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control their own advertising decisions. As a result, the vast majority of the literature on the effects of campaign and advertising tone are not applicable to candidates.

The literature also fails to address another important element of campaign strategy in regard to campaign advertising. Strategic candidates have to make decisions about how much money and time to devote to different geographic areas in addition to the decision about whether they should go "positive" or "negative". As Shaw (2006) notes, there are "blackout" and "battleground" states: battleground states are those states that are considered "competitive" and so presidential candidates focus their campaigns to "win" these votes; blackout states are those in which one candidate is guaranteed to win and so candidates spend very few campaign resources in these areas. While this literature has focused on the strategic decisions of presidential campaigns, this is also a choice that candidates must make within states. Designated Market Areas (DMAs) vary in terms of how competitive they are, and senatorial and gubernatorial candidates must make a choice: devote money to DMAs in which they are guaranteed to win (or lose), or devote more money to areas which are up for grabs.

In this study, we investigate if it is strategic for candidates to air positive or negative ads and we investigate if it matters where they air them. We also build on the literature on advertising effects in campaigns that take into account proportionality in advertising (see Stevens (2009) for a full review). While most studies control for the overall negativity or positivity of a campaign, candidates can only make choices about their campaign and they have to decide how to react to the actions of the opposing candidate. Specifically, candidates have to consider "if my opponent goes negative, should I?" This study takes into account these strategic considerations to investigate three research questions: 1) Is it strategic to advertise in DMAs in which a candidate is likely to win or lose by significant margins? 2) In both competitive and noncompetitive DMAs, does the tone of the ads used by candidates matter to electoral outcomes? 3) Does the relative or proportional tone between positive and attack advertising of a candidate's ads affect their electoral results?

Our findings suggest that advertising in general increases a candidate's vote share only in noncompetitive areas and only when a candidate can out-advertise her opponent, suggesting that campaign advertising is like an arms race. However, the effect of out-advertising the opponent only works if the candidate airs positive ads. Particularly for Republicans, the beneficial effects for advertising only appear when the candidate airs exclusively positive ads. In regards to voter turnout, our findings indicate that a candidate can increase the rate at which her voters go to the polls if she airs positive ads mainly in noncompetitive areas. Our findings, in sum, suggest that advertising in competitive areas is largely ineffective. Likewise, attack advertising appears to be ineffective in either increasing a candidate's margin of victory or driving up turnout for the candidate or driving down turnout for the competition.

Does advertising matter?

Early research on political propaganda downplayed the effects of persuasion campaigns which ushered in the idea that political communication of this type had "minimal effects" (e.g. Patterson and McClure, 1976). Zaller (1992, 1996) explains that the extent to which voters are susceptible to media information is contingent upon the campaign context and their level of political sophistication. The most informed voters are the least susceptible to persuasive messages from elites they do not already support and the least sophisticated voters are the most susceptible to campaign messages; however, low sophistication voters are also the least likely to see news about the campaign. As a result, the most susceptible voters are those in the middle—listening but open to opposing views–a relatively small subset of voters.

Likewise, Lau et al. (2007) performed a meta-study of over 100 articles on the effect of campaign advertising and found that advertising, negative or positive, appears ineffective at increasing turnout or persuading voters. However, the vast majority of these studies utilize experiments in which subjects are exposed to hand-picked advertisements in a controlled setting that lack the full set of circumstances of an actual campaign in which voters are exposed to some civil advertisements discussing candidate qualifications and policy positions and some attacks on an opponent. Very few studies take into account the proportion of ads seen in the electoral environment which simulates the real world where candidates may air both ads highlighting the candidate's strengths and ads attacking an opponent (e.g. Stevens, 2009). Both Clinton and Lapinski (2004) and Garramone et al. (1990) conducted experiments in which subjects were exposed to either all positive, all negative, or a mix of positive and negative advertisements. Ansolabehere et al. (1999) and Brooks (2006) used newspaper coverage in the state to aggregate to a three-category variable rating the overall tone of the campaign as positive, negative, or mixed.[1] Finkel and Geer (1998) utilized survey data and aggregate turnout data, combined with an assessment of the proportion of positive appeals minus the proportion of negative appeals in the ads aired in Presidential elections from 1960 to 1992 for each candidate, and then combined them to produce an overall continuous variable of "campaign tone." Djupe and Peterson (2002) used the proportion of negative-to-positive news stories in an investigation of Senate primaries. Finally, Geer (2006) and Geer and Lau (2006) employed a measure of the number of negative ads minus the number of positive ads at the election level to produce a proportional variable of advertising tone (see Table 1 in Stevens (2009) for a full review).

Stevens (2009), in the most comprehensive study of proportionality to date, matches American National Election Study (ANES) respondents to an estimate of the proportion of

negative-to-positive advertisements they were likely to see leading up to their ANES interview. However, Stevens, like many of the other aforementioned studies, tests this measure on survey respondents and thus, cannot test if it is to a strategic candidate's advantage.

Given the research to date, candidates have to weigh competing goals in their decision about whether to air predominantly positive or negative advertisements. Airing positive ads could recruit voters by: a) increasing the positive traits associated with the candidate (e.g. Ackerberg, 2001) and increasing the availability of that quality to the voter's mind (Gabrielcik and Fazio, 1984; Schwarz et al., 1991); and b) by leaving the electorate with the sense that the candidate is likely to be civil towards opposing views. Attacking one's opponent in this sense comes with a cost: attack ads could "backfire" and turn off voters who might otherwise have voted for the candidate (e.g. Allen and Burrell, 2002; Brooks and Murov, 2012). However, attack ads could also be used to persuade voters away from voting for the rival candidate either through persuasion or reducing turnout of the other candidate's supporters (Slovic et al., 2002, 2007).

We engage these questions by testing to see which type of ads are more effective at increasing a candidate's vote share. Given the research to date (e.g. Lau et al., 2007), we hypothesize that *relatively more positive advertising from a candidate should increase the share of votes for that candidate and increase voter turnout* (H1). Second, *relatively more negative advertising directed at a candidate from her opponent should reduce votes for that candidate and decrease the candidate's voter turnout* (H2). However, we also argue that there is a "cancelling out" effect: *while both negative and positive ads may affect candidate support, when candidates advertise equally, neither positive nor negative ads should have any effect at all* (H3).

We also build on the existing studies by considering the fact that there are different electoral contexts within statewide and national elections. Presidential elections are known for focusing explicitly on "battleground states" because the popular vote is not relevant to the election's outcome (Shaw, 2006). However, even within states, political parties do not have an equal amount of support in every area of the state. Instead, parties have areas in which they are strong and areas in which they are weak (Pearson-Merkowitz and McTague, 2008). Candidates need to be strategic in how they allocate their resources. They can spend campaign resources buying airtime in competitive DMAs in which they must battle the other candidate for support, or they can divide their money between competitive areas in which equal advertising between candidates may cancel out as in an arms race, and noncompetitive areas in which they already are likely to either win in a landslide in the hopes of increasing their electoral margin by increasing turnout among their "base" or lose in a landslide in the hopes of gaining some votes and not losing others.[2] We argue that given candidates can win an election through two different avenues—by convincing voters in the middle to vote for them over the other candidate or by driving up turnout of their supporters We argue that given candidates can win an election through two different avenues—by convincing voters in the middle to vote for them over the other candidate or by driving up turnout of their supporters—candidates should be mindful of how advertising affects voters in different contexts.

Research design

To test our hypotheses, we use data from the Wisconsin Advertising Project (WAP) (Goldstein and Freedman, 2002a 2002b). The WAP measures and categorizes the campaign advertisements in Gubernatorial, Senatorial, and Presidential elections for the election years, 1996 (presidential only), 2000, 2002, 2004, and 2008. The data categorize each advertisement as positively highlighting a candidate, contrasting the two candidates, or attacking a candidate.[3] One question then is, how should we handle contrasting advertisements? We follow Jamieson et al. (2000) in including them as positive ads. Promoting ads may focus exclusively on the candidate's positive characteristics or may draw contrasts between the two candidates, but both are aimed at positively highlighting the airing candidate. Attack advertisements are unique in that they try to tear down the opponent. These are designed not to get the voter to vote for the ad's sponsor, but to not vote for their opponent (see Brooks and Geer, 2007; Geer, 2008; Jackson et al., 2008). Moreover, the normative literature on the effects of negativity focuses largely on attack ads—not on ads about substantive policy. We attempt to make this distinction by grouping promoting and contrasting ads as positive advertisements and comparing them to attack ads.[4]

The data also provides the total number of times each advertisement was aired in each of the top designated market areas (DMAs) as defined by Neilson Research. Because DMA-county matches are not readily available for each year, we start with the core-based statistical areas (CBSAs) as an approximate measure of the DMA, and then adjust based on 2012–2013 definitions of the DMAs.

In order to compare the correct geographic area, we aggregate voter turnout and results by county (from Gomez et al., 2007) and election results (from Leip, 2013) into the appropriate CBSA/media market. We focus on state-wide elections: Presidential, Senatorial, and Gubernatorial. Appendix Table 1 provides the summary statistics for the main variables, while Appendix Table 2 provides the correlations.[5]

Models and results

To test our hypothesis that more positive ads will increase the margin of victory within the DMA in which the ads are

Table 1. Effects of advertisements on the Democratic margin of victory.

Margin of victory	All	Competitive DMA interaction	All	Competitive DMA interaction
Variable	(i)	(ii)	(iii)	(iv)
Log(TotalDemAds)	2.019***	2.609***		
	(0.533)	(0.667)		
Log(TotalDemAds) × Competitive DMA		−1.701*		
		(0.864)		
Log(TotalRepAds)	−1.543***	−2.456***		
	(0.532)	(0.724)		
Log(TotalRepAds) × Competitive DMA		2.831***		
		(0.912)		
Log(PosDemAds)			3.355**	4.425**
			(1.339)	(1.732)
Log(PosDemAds) × Competitive DMA				−2.558
				(2.257)
Log(NegDemAds)			−0.612	−0.789
			(1.311)	(1.709)
Log(NegDemAds) × Competitive DMA				0.513
				(2.523)
Log(PosRepAds)			−2.042*	−2.979**
			(1.224)	(1.409)
Log(PosRepAds) × Competitive DMA				1.918
				(1.164)
Log(NegRepAds)			0.893	1.075
			(0.968)	(1.286)
Log(NegRepAds) × Competitive DMA				−0.219
				(1.939)
DemMarg(lag)	0.738***	0.713***	0.605***	0.609***
	(0.142)	(0.143)	(0.151)	(0.143)
Democratic incumbent	10.33***	9.615***	6.280***	5.917**
	(2.263)	(2.266)	(2.249)	(2.321)
Republican incumbent	−8.035***	−8.250***	−6.839***	−6.932***
	(1.384)	(1.386)	(1.440)	(1.406)
Log(average income)	−13.48	−11.41	−34.28*	−35.88
	(17.18)	(17.12)	(20.33)	(21.86)
share population Black	−2.046	−1.970	−0.924	−1.006
	(1.578)	(1.510)	(1.999)	(2.026)
Share population Hispanic	1.058	1.045	0.245	−0.00911
	(0.794)	(0.800)	(0.836)	(0.824)
Share population > 65	2.622	2.713	0.671	−0.251
	(2.663)	(2.602)	(3.303)	(3.472)
Share population < 15	5.747	5.831	10.05	9.769
	(5.578)	(5.529)	(6.271)	(6.450)
Share population college	0.200	0.345	0.429	0.280
	(0.617)	(0.584)	(0.786)	(0.801)
Share population male	5.442	6.114	2.890	1.246
	(6.973)	(6.894)	(7.785)	(7.416)
2000 dummy	3.729	2.182	9.274	10.14
	(4.869)	(4.825)	(7.328)	(7.310)
2002 dummy	3.593	1.891	7.889	9.122
	(5.975)	(5.862)	(8.003)	(8.293)
2004 dummy	10.43	8.186	16.06	17.81*
	(6.805)	(6.687)	(10.05)	(10.35)

(Continued)

Table 1. (Continued)

Margin of victory	All	Competitive DMA interaction	All	Competitive DMA interaction
2008 dummy	18.11*	15.02	28.73**	31.55**
	(9.509)	(9.341)	(12.91)	(13.43)
President dummy	−0.506	−0.522	−2.393	−2.289
	(2.637)	(2.616)	(2.950)	(2.859)
Senate dummy	1.192	0.935	−0.460	−0.168
	(1.833)	(1.809)	(1.931)	(1.861)
Competitive DMA		−8.798*		2.347
		(4.590)		(8.280)
Constant	−196.6	−251.1	117.1	230.8
	(362.4)	(355.7)	(451.6)	(464.1)
N	713	713	506	506
R^2	0.819	0.825	0.844	0.846

Robust standard errors clustered at the market level in parentheses.
Competitive = 1 if margin of victory < 10 percentage points and = 0 otherwise.
*p < 0.1; **p < 0.05; ***p < 0.01.

aired, while negative "attack" ads directed at a candidate will decrease her margin of victory within the DMA, we estimate the following equation:

$$DemMarg_{ijt} = \alpha_{ijt} + \beta_1 logDemAds_{ijkt} + \beta_2 logRepAds_{ijkt} + \beta_3 DemInc_{ijt} + \beta_4 RepInc_{ijt} + \beta_5 DemMarg_{ij(t-1)} + \gamma X_{it} + \varepsilon_{ijt}$$

The dependent variable is the Democratic margin of victory (which is, of course, negative if the Republican candidate wins in that DMA).[6] Using the natural logarithm of Democratic and Republican ads allows a more straightforward interpretation of the coefficient β_1 as measuring the percentage point change in the Democratic margin of victory in market *i* for office *j* in year *t* due to a 1% increase in Democratic ads. Similarly, β_2 measures the percentage point change in the Democratic margin of victory in market *i* for office *j* in year *t* due to a 1% increase in Republican ads. The ads are also allowed to vary by type *k*. The main hypothesis is that $\beta_1 > 0$ and $\beta_2 < 0$. The fixed-effects regression allows the constant, α, to vary by market, office, and year. We also control for incumbency effects, the lagged Democratic margin of victory, and a set of Market-Year demographic controls, *X*.

Column (i) of Table 1 gives the results when we look only at the (log) total number of ads. The results suggest that Democratic ads are slightly more effective than Republican ads. A 1% increase in total Democratic ads leads to a 0.02 percentage point increase in the Democratic margin of victory. On the other hand, a 1% increase in total Republican ads leads to a −0.015 percentage point decrease in the Democratic margin of victory. Column (iii) breaks out the ads by whether they were positive or negative. The positive ads were clearly much more effective in total. A 1% increase in positive ads changed the margin of victory by 0.034 and 0.020 percentage points for Democrats and Republicans, respectively. The coefficients on the negative attack ads are smaller and insignificant with the opposite sign than expected (negative for Democrats and positive for Republicans).

While we expected to find that campaigns that advertised more than their opponent were effective, that assumption also implies that candidates will attempt to match their opponents' advertising. In this case, advertising from the two candidates cancels out, much like an arms race. One way to test this hypothesis is to separate DMAs by their level of competitiveness. We create a variable that is equal to 1 when the margin of victory within the DMA is less than 10 percentage points and equal to zero when it is more. Column (ii) of Table 1 looks at the interaction effect of advertising with this variable and shows that the effectiveness of advertising is driven by noncompetitive DMAs. We have modeled these results for ease of interpretation in Figure 1. In competitive DMAs, the effect of more advertisements is almost completely canceled out. In noncompetitive areas (graphs 1(a) and 1(c)), we see the expected upward slope of Democratic ads and the negative slope of Republican ads. However, in competitive areas (Figure 1(b) and (d)), the lines are much flatter, and not statistically different from zero.

Column (iv) of Table 1 repeats the same exercise, but breaks out advertising by type (negative and positive). We see the same general pattern in column (iv) as in column (iii), with positive ads much more effective than negative ads. These positive ads are not nearly as effective in close DMAs; the coefficient for the interaction term switches signs. Negative ads do not seem to be effective at all in increasing the margin of victory, either in competitive or noncompetitive DMAs.

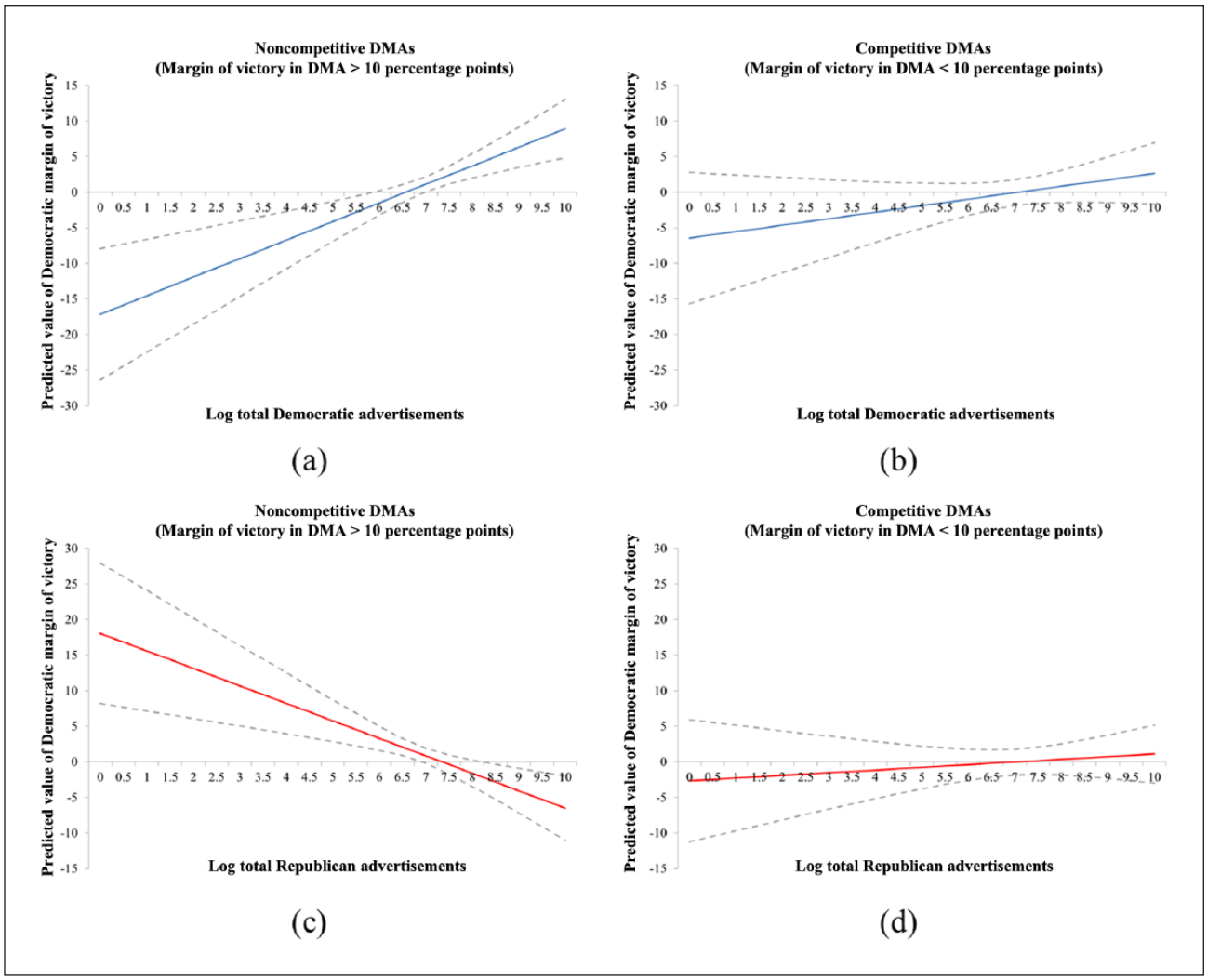

Figure 1. Effects of campaign advertisements in noncompetitive and competitive DMAs.

The results from Table 1 and Figure 1 indicate that positive ads are effective at increasing a candidate's margin of victory but seemingly only in noncompetitive areas. One of our hypotheses (H3) is that ads from each candidate will tend to cancel each other out (e.g. running 100 ads when your opponent runs 10 is effective, but running 100 ads when your opponent also runs 100 is not). This implies that a potentially useful independent variable is not the absolute number of advertisements aired by each campaign, but the relative scale. In order to further test this hypothesis we create a scale variable for office i in market j in year t within the DMA:

$$AdScale_{ijt} = \frac{DemAds_{ijt} - RepAds_{ijt}}{TotalAds_{ijt}}$$

This variable will range from −1, when the Republican candidate does all of the advertising in the DMA, to 1, when the Democrat is the only candidate advertising. If the two candidates advertise in equal amounts, our scale variable is equal to zero. We can do this for total ads and break out the advertisements by tone. The regressions from Table 1 are repeated in Table 2, with the number of advertisements replaced by the scale variable. Because the dependent variable is the Democratic margin of victory and because our scale variable increases as Democrats advertise more, we would expect a positive coefficient on all scale variables.

The results from Table 2 imply that a candidate who can advertise 10% more than her opponent can expect to increase her margin of victory by 0.43 percentage points. If she can run two ads for every one run by her opponent, she can expect to increase her margin of victory in the DMA by 3 percentage points. The coefficient on positive ads is similar to that of total ads, but the coefficient on attack ads is negative, implying that running more attack ads than your opponent is associated with a lower margin of victory within the DMA[7]. This indicates that if a candidate has the funds to run twice as many ads as her opponents, it is critical for the candidate to run positive ads. If she attacks her opponent, her spending may cost her votes. One important

Table 2. Effects of relative levels of advertisements on the Democratic margin of victory.

Margin of victory	All	Competitive DMA interaction	All	Competitive DMA interaction
Variable	(i)	(ii)	(iii)	(iv)
Total ad scale	9.007***	11.20***		
	(1.187)	(1.351)		
Total ad scale × Competitive DMA		−8.766***		
		(2.013)		
Positive ad scale			6.972***	8.493***
			(1.455)	(1.673)
Positive ad scale × Competitive DMA				−5.372**
				(2.097)
Negative ad scale			−1.901*	−1.782
			(1.133)	(1.377)
Negative ad scale × Competitive DMA				0.212
				(2.153)
Dem Marg(lag)	0.777***	0.753***	0.749***	0.741***
	(0.122)	(0.130)	(0.121)	(0.120)
Democrat incumbent	11.95***	11.04***	8.893***	8.400***
	(2.117)	(2.141)	(2.186)	(2.235)
Republican incumbent	−9.120***	−8.890***	−8.685***	−8.681***
	(1.240)	(1.203)	(1.284)	(1.232)
Log(average income)	0.161	0.986	3.776	2.458
	(14.96)	(14.48)	(17.72)	(17.46)
Share population Black	−0.0844	0.227	−0.774	−0.822
	(1.475)	(1.386)	(1.234)	(1.259)
Share population Hispanic	−0.509	−0.533	1.159	1.015
	(0.881)	(0.887)	(0.732)	(0.705)
Share population > 65	0.353	0.679	4.162*	3.830*
	(2.386)	(2.273)	(2.307)	(2.248)
Share population < 15	10.68**	10.66**	9.166*	8.799*
	(4.367)	(4.335)	(5.210)	(5.143)
Share population college	0.666	0.721	0.367	0.412
	(0.709)	(0.664)	(0.566)	(0.569)
Share population male	−4.709	−4.881	3.589	3.497
	(5.885)	(5.801)	(5.790)	(5.578)
2000 dummy	4.715	3.863	2.318	1.974
	(4.321)	(4.207)	(4.724)	(4.588)
2002 dummy	3.782	2.312	0.835	0.640
	(5.397)	(5.270)	(5.573)	(5.477)
2004 dummy	10.91*	9.359	5.647	5.412
	(6.155)	(5.951)	(6.516)	(6.461)
2008 dummy	20.32**	18.22**	11.44	11.67
	(8.599)	(8.264)	(9.366)	(9.274)
President dummy	−2.968	−3.063	−0.778	−0.630
	(2.459)	(2.438)	(2.408)	(2.379)
Senate dummy	−0.371	−0.427	1.869	1.872
	(1.805)	(1.740)	(1.461)	(1.445)
Competitive DMA		0.651		0.389
		(1.384)		(1.478)
Constant	138.6	131.5	−338.7	−312.7
	(331.8)	(320.6)	(318.6)	(313.7)
N	927	927	686	686
R^2	0.813	0.818	0.829	0.831

Robust standard errors clustered at the market level in parentheses.
Competitive = 1 if margin of victory < 10 percentage points and = 0 otherwise.
Scale ranges from −1 (all Republican ads) to 1 (all Democratic ads).
*p < 0.1; **p < 0.05; ***p < 0.01.

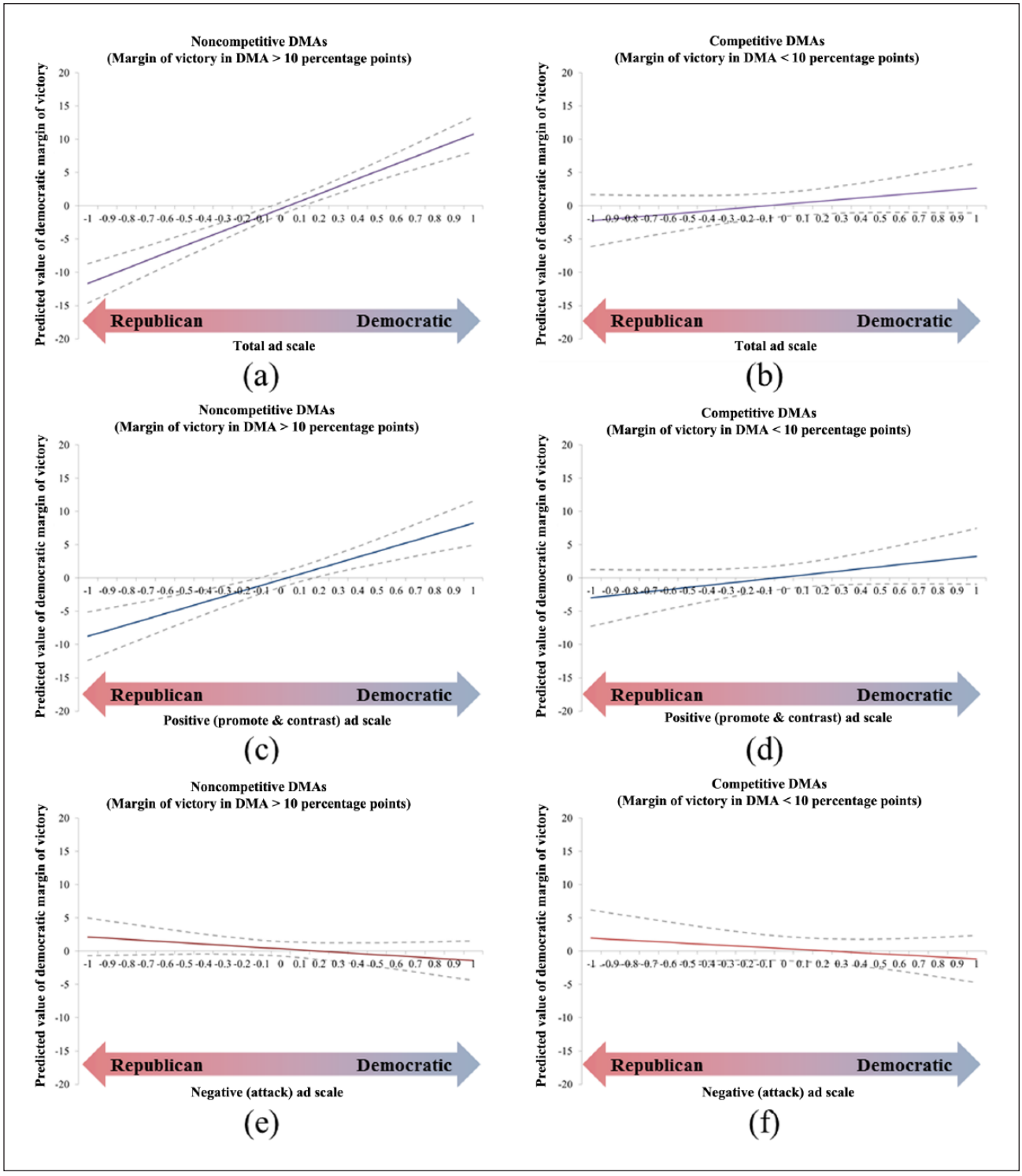

Figure 2. Effects of relative advertisements in noncompetitive and competitive DMAs on margin of victory.

result to note is that out-advertising is only significant in noncompetitive areas. Out-advertising the opponent, through positive or negative advertisements, is ineffective in competitive areas. However, if a candidate can air many more ads than her opponent in an area in which she is winning (or losing) by a large margin, she can potentially increase her vote share significantly.

Figure 2 models the results in Table 2 with the ad scale as the horizontal axis. Both the total ad scale (Figure 2(a)) and positive ad scale (Figure 2(c)), slope up significantly in

noncompetitive DMAs but are not significant in competitive DMAs (Figure 2(b) and (d)). They also cross the horizontal axis very close to zero, implying that campaigns that advertise evenly have little to no effect on the margin of victory in that area. Negative ads in both noncompetitive DMAs (Figure 2(e)), and competitive DMAs (Figure 2(f)), are not significantly different than zero and have a downward slope.

Another potentially important measure of proportionality is the balance between negative and positive ads (as opposed to the proportion of the Democratic candidate vs. the Republican candidate that we already captured). This is the proportionality tested by Stevens (2009). In order to test this, we construct a scale variable for each candidate in each DMA that is equal to:

$$ToneScale_{ijt} = \frac{Pos_{ijt} - Neg_{ijt}}{Total_{ijt}}$$

This variable ranges from −1 (all ads are negative) to 1 (all ads are positive). The variable is equal to 0 if there is an equal amount of positive and negative ads. We repeat the regressions from Table 2 with this measure ("tone scale") as our main explanatory variable. The results presented in Table 3 show that tone appears to matter more for Republican candidates than for Democratic candidates. The coefficient for Republicans is more than twice as large (5.6 vs. 2.6) and the *p*-value is also much smaller. This implies that there is a larger benefit to Republicans for staying positive and avoiding negative ads.

Figure 3 shows that while we have the expected slope for both parties' candidates (more positive advertising leads to a larger margin of victory), it is especially important for Republican candidates to be positive and avoid attacks. A focus on attacking the opponent by Republican candidates, especially in noncompetitive DMAs, significantly increases the Democratic candidate's margin of victory. These results indicate that in noncompetitive areas (Figure 3(a) for Democrats and Figure 3(c) for Republicans), candidates who focus on positive advertising and steer completely clear of attacking their opponent can increase their margin of victory. The effects in competitive DMAs (Figure 3(b) for Democrats and Figure 3(d) for Republicans) have the correct slope but are not statistically significant.

Our results thus far cast doubt on why candidates would ever run negative advertisements. They do not appear to be effective and they even seem to have the opposite effect to what the campaign intends. So far, we have only investigated if the tone of ads affects the margin of victory for candidates. However, because candidates can increase their likelihood of winning via increasing turnout of their supporters or decreasing turnout among the opposition's supporters, we investigate if the tone of ads will affect voter turnout.

Because voter turnout is not available by party, in order to estimate this variable, we calculate the percentage change in party votes in the DMA compared to the previous election. To control for population growth and overall change in turnout, we use the percent change in the Democratic vote within the DMA as the dependent variable and the percent change in Republican vote as a control variable.

$$\%\Delta DemVote_{ijt} = \alpha_{ijt} + \beta_1 AdScale_{ijkt} + \beta_2 \%\Delta RepVote_{ijt} + \beta_3 Turnout_{ijt} + \beta_4 DemInc_{ijt} + \beta_5 RepInc_{ijt} + \gamma X_{it} + \varepsilon_{ijt}$$

Our hypothesis is that β_1 will be positive for both the positive ad scale (Democratic turnout increases as Democrats advertise more than Republicans) and negative ad scale (Democratic turnout decreases as Republicans advertise more than Democrats). Table 4 provides the results for the effect of relative campaign advertising on the change in Democratic vote totals using the same advertising scale variable as in Table 2. Column (i) shows that advertising 50% more than your opponent will increase your turnout in the DMA by 0.85 percentage points, controlling for the change in your opponent's (and overall) turnout. Column (iii) breaks out advertisements by type, and we can see once again that it is only positive advertisements that are effective in driving turnout. Attack ads have the opposite effect, reducing turnout for the candidate who is more negative.

Columns (ii) and (iv) of Table 4, graphed in Figure 4, look at competitive vs. noncompetitive DMAs. Here, we can see why candidates will advertise in close DMAs, even though Tables 1 and 2 appear to show that this form of advertising is ineffective. Consistent with the literature on competitive elections and turnout (e.g. Fraga and Hersh, 2010), competitive DMAs seem to drive turnout independent of advertising (the coefficient on the competitive dummy variable is 4.1). With this additional turnout, advertising is less effective in competitive DMAs than in noncompetitive areas, but the sum of the coefficient on the advertising scale variable and the interaction term is still positive, although not statistically significant. Effects on turnout for total advertising are graphed in Figure 4(a) for noncompetitive DMAs and Figure 4(b) for competitive DMAs.

Column (iv) makes it clear that it is positive advertising that drives turnout. The sum of the positive advertising scale variable and the interaction term with competitive DMAs is positive and significant. The coefficient on negative advertising and the interaction term are both negative (with the F-test showing the sum to be significant), suggesting that negative advertising reduces your party's turnout in both competitive and noncompetitive DMAs. The effect of positive advertising is graphed in Figure 4(c) for

Table 3. Effect of proportional tone on Democratic margin of victory.

Variable	All	Competitive interaction
	(i)	(ii)
Democratic ad tone scale	2.610*	3.103*
	(1.408)	(1.674)
Democratic ad tone scale × Competitive DMA		−2.124
		(2.816)
Republican ad tone scale	−5.606***	−6.311***
	(1.626)	(1.717)
Republican ad tone scale × Competitive DMA		2.603
		(1.835)
DemMarg(lag)	0.769***	0.771***
	(0.125)	(0.122)
Democratic incumbent	10.29***	10.08***
	(2.132)	(2.148)
Republican incumbent	−10.07***	−10.13***
	(1.428)	(1.414)
Log(average income)	−5.278	−6.275
	(18.50)	(17.89)
Share population Black	−1.763	−1.968
	(1.519)	(1.466)
Share population Hispanic	1.288*	1.075
	(0.767)	(0.708)
Share population > 65	3.264	2.738
	(2.552)	(2.428)
Share population < 5	4.209	3.810
	(5.300)	(5.166)
Share population college	−0.182	−0.213
	(0.584)	(0.576)
Share population male	3.696	2.974
	(6.624)	(6.384)
2000 dummy	7.542	7.525
	(4.948)	(4.890)
2002 dummy	7.290	7.711
	(6.139)	(6.071)
2004 dummy	13.77**	14.44**
	(6.932)	(6.903)
2008 dummy	21.15**	22.43**
	(9.970)	(9.846)
President dummy	−0.587	−0.592
	(2.551)	(2.533)
Senate dummy	2.313	2.397
	(1.711)	(1.684)
Competitive dummy		−0.520
		(2.078)
Constant	−191.3	−131.6
	(358.0)	(349.3)
N	713	713
R^2	0.818	0.819

Robust standard errors in parentheses.
***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

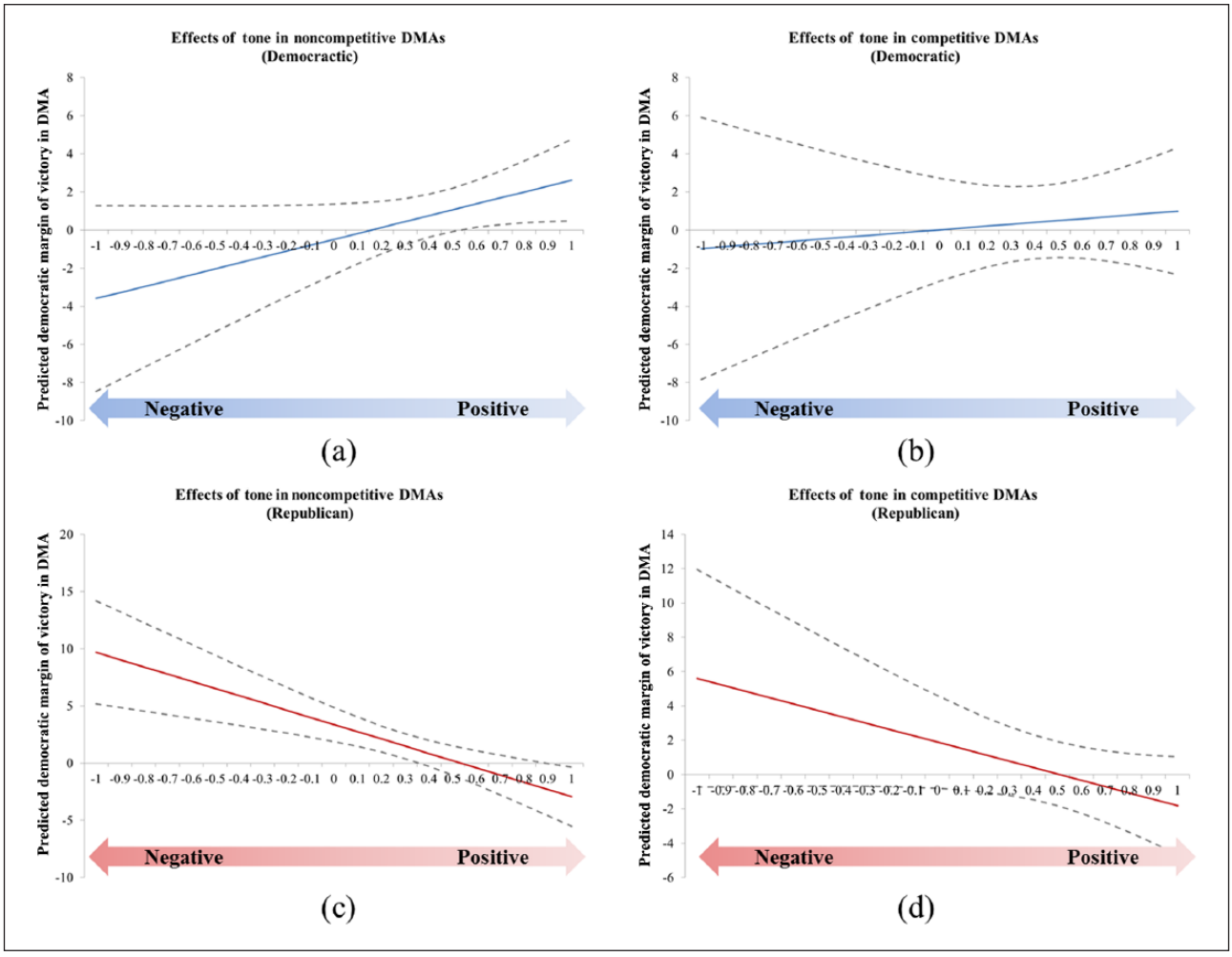

Figure 3. Effects of proportional tone on margin of victory in competitive and noncompetitive DMAs.

Table 4. Effect of relative advertising on percent change in Democratic vote totals.

Variable	All	Competitive DMA interaction	All	Competitive DMA interaction
	(i)	(ii)	(iii)	(iv)
Total ad scale	4.230***	5.284***		
	(1.139)	(1.399)		
Total ad scale × Competitive DMA		−4.649**		
		(1.966)		
Positive ad scale			4.997***	5.757***
			(1.327)	(1.510)
Positive ad scale × Competitive DMA				−2.754
				(1.917)
Negative ad scale			−2.783***	−2.259**
			(0.973)	(1.120)
Negative ad scale × Competitive DMA				−1.954
				(1.836)
Turnout	1.963***	1.943***	1.741***	1.734***

(Continued)

Table 4. (Continued)

Variable	All	Competitive DMA interaction	All	Competitive DMA interaction
	(i)	(ii)	(iii)	(iv)
	(0.551)	(0.543)	(0.534)	(0.533)
Turnout (lagged 1 period)	−1.595***	−1.585***	−1.497***	−1.494***
	(0.517)	(0.509)	(0.534)	(0.526)
% Republican vote change	−0.692***	−0.690***	−0.598***	−0.604***
	(0.0723)	(0.0708)	(0.0865)	(0.0854)
Democratic incumbent	3.820*	3.797*	4.257*	4.087*
	(2.091)	(2.067)	(2.533)	(2.460)
Republican incumbent	−3.540**	−3.052**	−3.930***	−3.534***
	(1.379)	(1.339)	(1.343)	(1.335)
Log(average income)	26.75	30.06	33.94	37.09*
	(19.21)	(18.67)	(22.04)	(22.02)
Share population Black	4.364**	4.525**	3.525	3.522
	(2.185)	(2.152)	(2.260)	(2.183)
Share population Hispanic	1.150	1.333	1.739	1.920
	(1.814)	(1.801)	(1.632)	(1.609)
Share population > 65	3.134	4.051	4.958	5.747*
	(2.906)	(2.919)	(3.211)	(3.153)
Share population < 5	23.45***	23.80***	23.37***	23.47***
	(5.600)	(5.508)	(6.347)	(6.225)
Share population college	1.559	1.520	1.151	1.215
	(1.364)	(1.312)	(1.371)	(1.336)
Share population male	−11.83	−10.76	−7.519	−6.504
	(7.442)	(7.763)	(8.500)	(8.493)
2000 dummy	5.578	4.883	7.588	6.694
	(4.704)	(4.614)	(5.373)	(5.183)
2002 dummy	−23.23*	−25.01**	−22.36*	−24.44**
	(12.51)	(12.34)	(11.39)	(11.31)
2004 dummy	13.88	12.06	14.00	11.83
	(8.800)	(8.678)	(9.425)	(9.368)
2008 dummy	−0.185	−2.937	0.974	−2.129
	(13.75)	(13.58)	(14.00)	(13.96)
President dummy	2.108	2.083	2.506	2.597
	(1.981)	(1.931)	(1.973)	(1.920)
Senate dummy	−1.480	−1.246	0.941	0.899
	(1.264)	(1.233)	(1.271)	(1.273)
Competitive DMA		4.119***		3.794***
		(1.160)		(1.284)
Constant	−0.786	−103.7	−290.3	−384.9
	(378.7)	(394.5)	(442.5)	(449.3)
N	924	924	684	684
R^2	0.864	0.868	0.877	0.881

Robust standard errors clustered at the market level in parentheses.
Competitive = 1 if margin of victory < 10 percentage points and = 0 otherwise.
*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.
F-tests for sum of coefficients and competitive interaction terms:
(ii): TotalScale + TotalScale * Competitive = 0.
F(1193) = 0.19.
Prob > F = 0.6621.
(iv): PositiveScale + PositiveScale * Competitive = 0.
F(1,173) = 2.98.
Prob > F = 0.0860.
NegativeScale + NegativeScale * Competitive = 0 (note that sum is negative).
F(1173) = 7.00.
Prob > F = 0.0089.

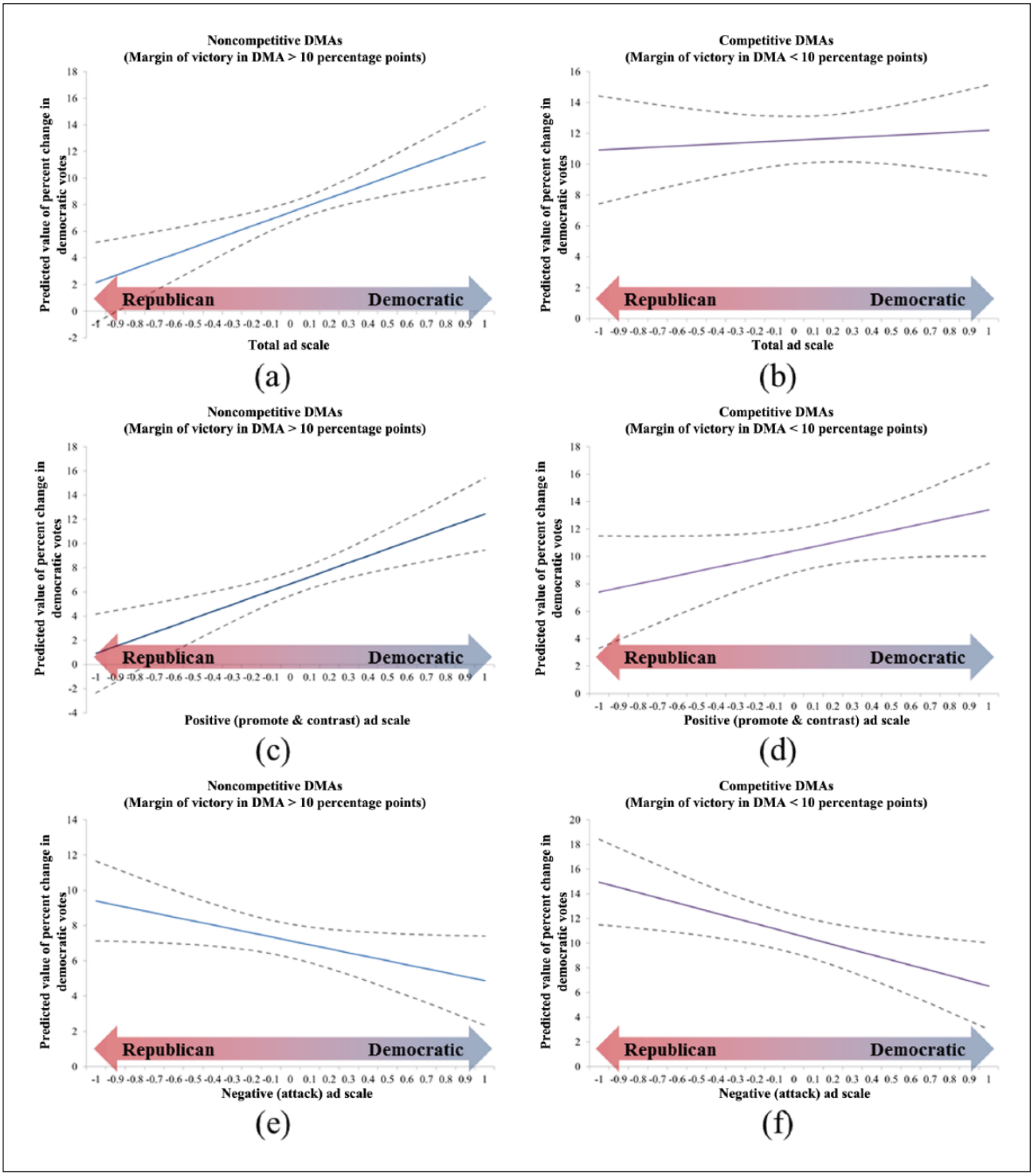

Figure 4. Effects of relative advertisements in noncompetitive and competitive DMAs on voter turnout.

noncompetitive DMAs and in Figure 4(d) for competitive DMAs, while the effect of negative advertising is graphed in Figure 4(e) for competitive DMAs and in Figure 4(f) for competitive DMAs.

Our dataset contains final counts of advertisements aired and final vote totals. This raises the possibility that causality runs in the opposite direction than in our models. For example, it is possible that losing candidates "go on the attack" and that is why attack advertisements are associated with a larger margin of defeat, and that those who are winning are able to attract more campaign funds and advertise more. To identify which way the causal arrow runs would require a real-world

experiment in which a campaign varied its approach (negative and positive) in competitive and noncompetitive areas. Without this impossible experiment, we cannot be absolutely sure about the direction of causality. However, even if it is the case that desperate candidates are those that go on the attack, our results indicate that this is detrimental to their final vote totals. Potential future research, however, could poll a DMA throughout an election and match dynamic poll data to candidate advertising. Unfortunately, we do not believe this data currently exists. While we do not have ideal data to test if candidates go on the attack when they are losing, we can see if in our data candidates are more likely to go on the attack in DMAs in which they lose by large margins. What we do see in the data is that while candidates increase their advertising in close DMAs, they do so with both positive and negative advertising, whether they are winning or losing the area (see Appendix Table 4).

Conclusion

We began this article by asking why candidates and consultants continue to attack their opponents, even if the literature indicates that attack advertising is not particularly efficacious. We suggest that the literature does not address the strategic environment of campaigns in which candidates have multiple decisions to make in the face of different campaign realities. To build on the existing literature, we address several strategic calculations candidates must make, the tone of their advertisements, and the decision about which area to spend their resources.

Our findings indicate that the only beneficial results from campaign advertising are generated from advertising a candidate's strengths and that there are no benefits from attacking one's opponent, even if the opponent has decided to "go on the attack." To the extent that candidates wish to use advertising to increase their margin of victory, the only way to do so is to avoid attacking one's opponent.

Our results also indicate that candidates have good reason to expend resources in areas in which they are either losing or winning by a large margin. It is these places in which, if they stay positive, they are most likely to increase the number of voters who show up and vote for them. Senate candidates in particular regularly focus on areas in which they are competing for votes. On average, senate candidates advertised 50% more in competitive areas than in noncompetitive areas, gubernatorial candidates advertised about 10% less in noncompetitive areas, and presidential candidates aired about a third more ads in competitive areas than they did in uncompetitive areas. While for presidential contenders this may make sense given the importance of the Electoral College, our results suggest that for statewide candidates, this is a poor decision as the greatest impact of advertising is witnessed in noncompetitive DMAs.

Finally, our results suggest that campaign advertising is like an arms race. If both campaigns are able to advertise equally in a given market, these advertisements cancel out and have no effect. But as in an arms race, neither candidate can unilaterally disarm nor stop advertising, as her opponent will be able to take advantage and win that area. But to the extent that strategic candidates can seize the opportunity to out-advertise their opponent while staying positive, our results suggest this is a smart decision.

Declaration of conflicting interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Supplementary material

The online appendix is available at: http://rap.sagepub.com/content/3/1

Notes

1. Also see Lau and Pomper (2004) who assess campaign tone using statements in newspapers about the candidates to assess a proportional measure of negative-to-positive campaign tone.
2. Indeed, our data suggest that Senate candidates in particular tend to not advertise as much in areas in which they are winning or losing by large margins as they do in DMAs that are very competitive.
3. Specifically, coders were asked "In your judgment, is the primary purpose of the ad to promote a specific candidate, attack a candidate, or contrast the candidates?" They were then given the following choices: Contrast, Promote, or Attack.
4. It is important to note that defining a negative advertisement is incredibly difficult. The majority of the literature either uses experiments where the researchers can control the exact content of the ad, or they use qualitative assessments of the overall "tone" of the campaign. Given that we are only one of a few that tries to formalize a quantitative assessment of the number of negative and positively toned ads for each candidate, we have had to use the literature as a guide. This has a significant impact on our results. Comparting all three advertising categories separately generally does not lead to any significant results (consistent with Jackson et al., 2008), although promoting and contrasting advertisements appears to have the same directional effect.
5. The data includes a low of 75 DMAs for the 1996 Presidential election up to a high of 193 DMAs for the 2008 Presidential election. In terms of votes, these markets accounted for 40% of the total votes cast in 1996, up to 48% in 2008. Because these are the largest DMAs in the country, they tend to be more urban and more Democratic than the average voter. For example, in 2008, while President Obama won 52.9% of the popular vote, he won 54.7% in the largest 193 DMAs that make up the sample for that year.

6. We also ran the model with a Democratic-win dummy variable as the dependent variable. The sign and significance of those results were nearly identical to the results presented here.
7. There is the possibility that there are significant differences between Presidential, Senatorial, and Gubernatorial elections. We ran the regressions separately for each office and report the results in Appendix Table 3. Because of the smaller number of observations, it is less likely that we will find any significant results. We found no significant effect of advertising in Presidential elections, significant results in Senatorial elections (matching Table 2), and coefficients that have the same sign (but smaller magnitude) for Gubernatorial elections, although not statistically significant.

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