

# How Campaign Advertising Shapes Political Conversation\*

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## Abstract

Each election cycle, political campaigns spend billions of dollars on ads, yet the academic literature remains divided on ads' effectiveness. Experimental evidence consistently finds that ads have little effects on persuading voters, while observational studies detect meaningful aggregate effects. We argue that existing work overlooks an intermediate outcome: ads may not directly change minds, but they shape the conversations through which citizens engage with politics. We provide two pieces of evidence tracing this pathway. First, we show that quasi-exogenous variation in exposure to presidential campaign advertising leads to greater campaign interest and a higher likelihood of discussing politics with friends and family. Second, to examine how advertising shapes the substance of these conversations, we conduct a survey experiment in which respondents view real ads embedded in a local newscast and then provide open-ended discursive outcomes. Respondents exposed to co-partisan advertising write in a more opinionated and emotionally charged way, express more negative views of the out-party candidate, and engage with richer issue content. Negative advertising drives these patterns. Together, our findings identify a previously underexplored way through which elite communication shapes mass politics: not by directly altering what citizens think, but by structuring how they talk about it.

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# 1 Introduction

In the 2024 election cycle in the U.S., political campaigns spent roughly \$11 billion on political advertising, a figure that has risen in real terms in every cycle for the past two decades (Fowler et al., 2021; AdImpact, 2024). Whether that spending is well-spent has been the subject of two decades of careful empirical work that has produced conflicting results. Observational studies that leverage quasi-random variation in ad exposure routinely detect meaningful effects of advertising on vote share, particularly in down-ballot races and on unknown candidates (Huber and Arceneaux, 2007; Urban and Niebler, 2014; Spenkuch and Toniatti, 2018; Sides et al., 2022). Field and survey experiments that randomize exposure to individual ads, by contrast, find average persuasive effects close to zero, with whatever effects that appear decaying within days (Hill et al., 2013; Gerber et al., 2011; Kalla and Broockman, 2018; Coppock et al., 2020; Broockman and Kalla, 2023).

We propose an explanation that seeks to resolve this tension. Advertising shapes how citizens talk about politics with one another. Rather than shifting individual vote intentions or attitudes directly, ads affect what people recall in discussions, which issues they raise, how opinionated and emotionally engaged they are, and whether they draw contrasts between competing candidates, among other conversational dynamics. Thus, while advertising may have negligible effects on outcomes measured within a short window of time and restricted to detecting changes in respondents' privately held opinions, it may have slower, socially driven effects on aggregate opinion through shaping the tenor of the public discourse. Seen from this vantage, the relevant outcome of ad exposure goes beyond viewers' political opinions, intended vote choice, and intended turnout into the

realm of discursive material and styles.

The 1988 Willie Horton advertisement illustrates the point. Produced by a pro-Bush PAC, the ad aired on cable in a limited buy and was seen directly by only a small fraction of the eventual electorate. It nevertheless became one of the most consequential ads in modern American political history, and the mechanism was not direct persuasion of viewers. The imagery of a menacing Black man and a white victim communicated a racial frame without any overtly racial language (Mendelberg, 2001). The ad was picked up by network and local news, discussed on talk radio, and made the subject of countless interpersonal conversations about crime, race, and Michael Dukakis's fitness for the presidency (Mendelberg, 2001). Voters who never saw the original ad encountered its content through this secondary discourse, and Dukakis's connection to Horton became a reference point that organized how millions of Americans talked and thought about the campaign.

This paper provides causal evidence of the first stage of the theorized conversational pathway by showing that advertising increases political conversation and shapes the language citizens use to describe politics. We further show this pathway operates primarily through negative advertising, consistent with negative ads' greater memorability and emotional salience (Lau et al., 2007; Geer, 2006; Mattes and Redlawsk, 2014; Fridkin and Kenney, 2019).

Our first study is observational. Our empirical design relies on non-battleground-state counties on the borders of battleground media markets that receive presidential ad volumes determined largely by the partisan competitiveness of the other side of the state boundary, generating plausibly exogenous variation in ad exposure that is uncorrelated

with local political characteristics (Huber and Arceneaux, 2007; Urban and Niebler, 2014). Pairing this with the 2000, 2004, and 2008 National Annenberg Election Surveys, we find that exposure to more presidential advertising increases the probability of reporting campaign interest by 2.2 percentage points and the probability of reporting a political discussion with friends or family in the past week by 3.3 percentage points.

The second study is a survey experiment fielded on Prolific in December 2025 following the Virginia gubernatorial election in November. 1,103 American voters were randomly assigned to view a co-partisan positive ad, a co-partisan negative ad, or a control video, each embedded in a simulated local newscast commercial break. Our central outcomes are human-coded features of open-ended responses in which participants describe each candidate. Exposure to political advertising reduces expressed apathy, increases the specificity and sophistication with which respondents discuss candidates, heightens emotional tone and opinion expression, and increases the number of people and issues mentioned. These effects are similarly driven by negative advertising and are concentrated in evaluations of the out-party candidate, where political advertising produces large negative shifts in both ideological and personal valence assessments.

The paper makes three contributions. First, with respect to the literature on political campaigns, we offer a reconciliation of the observational-experimental tension. Ads can be effective tools for campaigns, consistent with what observational designs detect, even when their per-viewer persuasive effect is small, consistent with what experiments find, if their primary product is the agenda, tone, and emotional content that partisan supporters carry into their social networks. Second, with respect to the literature on political conversation, we provide what is, to our knowledge, the first causal evidence that

elite stimuli systematically shape not just whether citizens discuss politics but also how they discuss it. Existing work has examined who talks to whom and the consequences of conversation; we identify and estimate the effect of an upstream input. Third, we make a methodological case for taking the public discourse seriously as an outcome in its own right. A literature that measures only privately held attitudes will systematically underestimate the reach and consequence of elite communication where that communication does its work through what people say to each other rather than what they think alone (Druckman et al., 2022; Moore-Berg et al., 2020).

Our paper proceeds as follows. The next section reviews the literature on advertising effects, political conversation, and historical conceptualizations of public opinion, from which we derive our theory and preregistered hypotheses. We then present the observational and experimental designs, data, and results, followed by a discussion of what these findings imply for our understanding of public opinion, political campaigns, and mass-elite dynamics.

## **2 Public Discourse as Public Opinion**

A central conjecture of this paper is that political advertising and elite communication more broadly affect public opinion beyond changing privately held attitudes. To see how that is possible, it helps to recall an older conception of public opinion that the survey era has largely displaced. For Tarde (1901), Park (1972), Cooley (1909), Blumer (1946), and, in a more recent synthesis, Price (1992), public opinion was not an aggregation of privately held attitudes but the emergent product of discussion among citizens confronting a shared

problem. Habermas (1989)'s influential account of the public sphere belongs to the same tradition: opinion emerges from supposedly rational conversation and debate among citizens, not from the simultaneous private reflection of millions of isolated individuals. By contrast, V. O. Key's (1961) influential definition of public opinion as "those opinions held by private persons which governments find it prudent to heed" (p. 14) typifies the modern conception of public opinion as the sum of survey responses. Most contemporary work on campaign advertising, our own work partly included, has operationalized this latter conception, asking whether ads shift privately held attitudes while setting aside the question of whether they change the texture of the political conversations from which those attitudes are partly constructed.

The distinction is more than terminological. Attitudes have often been distinguished from opinions on the grounds that opinions involve articulation. Citizens try out positions in conversation, gauge reactions, and revise (Thurstone, 1928; Wiebe, 1953; Price and Roberts, 1987; Hochschild, 1981). Opinions gain coherence and stability through repeated expression and social feedback (Price, 1992). Views that have never been articulated tend to remain labile and loosely held (Converse, 1964). In this view, the measurement noise that the opinion-as-individual-aggregation framework treats as problematic (Ansolabehere et al., 2008) may partly reflect the fact that many respondents have not yet passed their views through the discursive process that gives opinions their structure. Recent methodological work makes the same point in a different vocabulary. Wasow (2026) proposes treating text as behavior rather than as content alone, arguing that features of open-ended expression such as length, nonresponse, and time taken are themselves informative behavioral signals that index commitments and dispositions closed-ended

scales miss. The implication for the study of campaigns is that what citizens say when prompted to talk about a candidate, and how much and how readily they say it, is itself an outcome of substantive interest, not just a window onto some underlying attitude that could in principle be measured better with a closed-ended survey item. An ad that changes no one's private attitude but equips tens of thousands of viewers with a memorable claim to relay at the dinner table is consequential because it has altered the raw material from which loosely held opinions are subsequently constructed.

A long-standing line of theory in political communication makes the connecting mechanism concrete. Lazarsfeld et al. (1944) and Katz and Lazarsfeld (1955)'s two-step flow framework held that mass-media messages reach most citizens indirectly, through conversations with more attentive intermediaries who watched or read the news and passed along what they learned. Zaller (1992) and Zaller and Feldman (1992) later formalized a related claim about the cognitive dynamics of opinion formation, namely that elite messages do not necessarily persuade on first exposure but add to the stock of considerations citizens draw on when forming and expressing opinions, considerations that can be activated by later stimuli, including conversations with other citizens (see also Devine, 1970; Neuman, 1986).

Recent work has begun reviving these ideas with sharper measurement and identification. Druckman et al. (2018) show experimentally that partisan media influence spreads through conversation, demonstrating that estimates based on direct viewership understate the total impact of elite messaging. Carlson and Settle (2022) examines political conversation in situ and finds that political information often travels through indirect, nonverbal, off-hand cues without being articulated as opinion. Carlson (2024) shows that information

transmitted through political talk is biased, sparse, and selectively emotional in ways that systematically shape what considerations citizens have available to them. What this literature has not yet established is the upstream causal link. We do not yet know what causes citizens to talk more about politics, nor what shapes what they say when they do.

## **Campaign Ad Effects: Beyond The Persuasion Paradigm**

Previous work suggests that conversation is more frequent and more substantive within election contexts than between them (Mutz, 2025), suggesting that election-specific stimuli, of which advertising is a major component, plausibly contribute to the volume and content of political talk. Yet, the central question in the empirical literature on political advertising has been whether ads change voting, i.e., whether they persuade or turn citizens out.

Early studies in the Columbia school found that exposure to mass-media campaign content rarely changed how citizens voted, instead reinforcing the predispositions voters already brought to the campaign (Lazarsfeld et al., 1944; Berelson et al., 1954). Later work revisited this minimal-effects finding and identified larger effects on other targets, namely, that ads and news coverage shaped which issues voters considered important when evaluating candidates and how those candidates were perceived (Iyengar and Kinder, 1987; Ansolabehere and Iyengar, 1995). In this latter perspective, advertising could affect vote choice indirectly by changing the criteria voters used to choose between candidates and policies, even if it rarely flipped votes outright.

More recent work is structured by a methodological divide that has produced different estimates of how much advertising matters. On the one hand, observational studies,

which leverage sources of plausibly exogenous variation in ad exposure, have found that advertising moves vote shares. Huber and Arceneaux (2007) use the non-correspondence between media market and state boundaries to identify the effects of presidential advertising on candidate evaluation. Spenkuch and Toniatti (2018) apply a related design to estimate effects on turnout and vote share, and Urban and Niebler (2014) use a similar approach to estimate dollar-per-vote efficiency. In the most comprehensive recent treatment, Sides et al. (2022) find that televised advertising has measurable effects across the ballot, with effect sizes considerably larger in down-ballot than in presidential contests. The picture these studies paint is one in which advertising can be consequential, especially when accumulated across the large volume of spots that characterize modern campaigns.

On the other hand, field- and survey-experimental work over the past two decades has tested the persuasion claim more directly and reached more skeptical conclusions. Meta-analyses and large-scale randomized studies find that the average persuasive effect of a political ad in a U.S. general election is close to zero, with effects clustered well below a single percentage point of vote share (Kalla and Broockman, 2018; Coppock et al., 2020), and that any effects decay rapidly, often within days of exposure (Hill et al., 2013; Gerber et al., 2011; Coppock, 2023). Broockman and Kalla (2023) test the persuasive-effects-are-small claim against a range of alternative explanations and conclude that the difficulty of moving voters is not an artifact of any particular study design. Effects appear larger in low-information races and on unknown candidates, where voters have fewer prior attachments to update against (Coppock et al., 2020), consistent with the down-ballot pattern in Sides et al. (2022). But, in the presidential general-election context that absorbs the bulk of advertising spending, the marginal viewer appears very hard to move directly.

The magnitude and persistence of the gap in results between observational studies and experiments suggests a number of possibilities. One is that observational designs are recovering omitted-variable bias that the experimental designs eliminate. Another is that experiments, by isolating the individual viewer at the moment of exposure, are measuring only one component of the total effect of an ad campaign and miss indirect effects of elite communications that propagate through the social environment. Our argument follows the second line. The dominant paradigm conceives of an ad's effect as something that happens inside the viewer's head between exposure and the post-test, but ads, like other forms of mass-mediated political communication, also operate on the discursive environment in which the viewer is embedded.

Moreover, that conversation can move political attitudes is a claim experimental research supports. Broockman and Kalla (2016) and Kalla and Broockman (2020) show that brief, non-judgmental interpersonal conversations, often called "deep canvassing," durably reduce out-group prejudice and shift political attitudes in ways that direct mail, television advertising, and standard canvassing scripts have repeatedly been unable to match. We ask whether campaign communication can naturally induce similar conversations.

What types of advertisements does the literature suggest are particularly potent? As indicated by the aforementioned Willie Horton example, negative ads, particularly shocking ones, may be especially able to provoke discussion. This argument resonates with the work of other scholars who have highlighted the unique characteristics of negative ads. Ansolabehere et al. (1994) and Ansolabehere and Iyengar (1995) argued that exposure to attack ads suppresses participation by depressing belief in political efficacy and trust in the political system. Subsequent replications produced mixed results. Whereas some

studies recovered demobilizing effects (Ansolabehere et al., 1999), others found that attack ads actually stimulate turnout among voters who are already engaged (Wattenberg and Briens, 1999; Finkel and Geer, 1998; Goldstein and Freedman, 2002).<sup>1</sup> Mechanistically, attack ads may be more memorable than positive ads and viewers subsequently retain their content for longer (Lau et al., 2007). Scholars have argued that attack ads also tend to be more substantive than positive ads, in the sense that they make verifiable claims about a candidate’s record or policy positions rather than affect-laden claims about character or biography (Geer, 2006; Mattes and Redlawsk, 2014; Fridkin and Kenney, 2019).

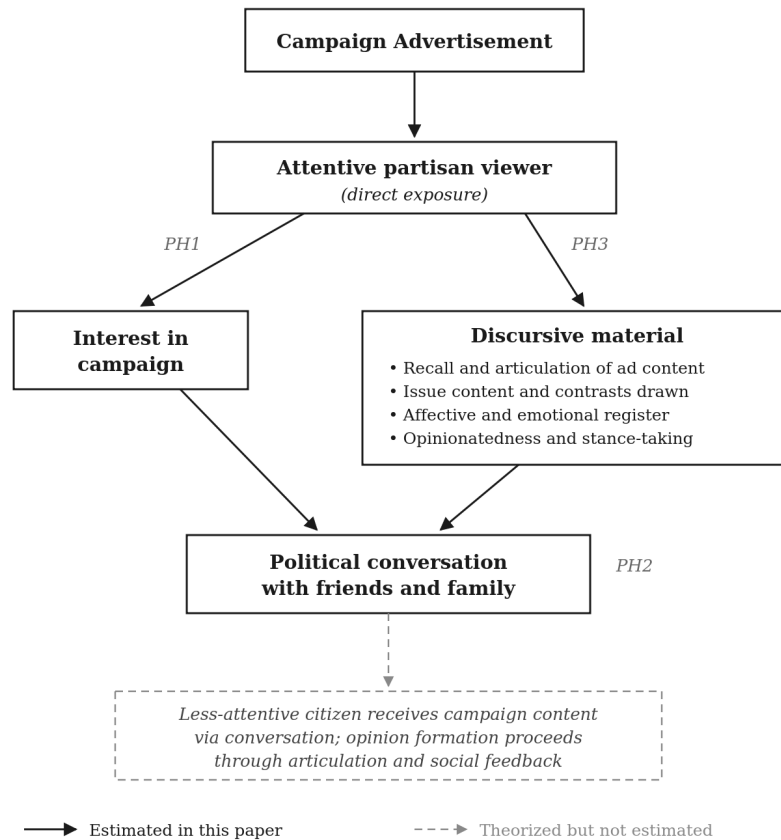
### **3 Theory & Hypotheses**

Two sets of theoretical expectations emerge from this synthesis. The first concerns the volume of political talk. If ads function as conversational inputs, providing viewers with memorable content they can relay to others, then exposure should increase political interest and the frequency of political discussion. But the alternative is also plausible: a viewer who has already received the campaign’s message through an ad may feel less need to seek out further information or discussion, satisfying rather than stimulating the desire for political engagement (cf. the “sufficiency threshold” in Zaller, 1992).

The second set of expectations concerns the quality of subsequent discourse. One possibility is that ads serve as informational subsidies, providing viewers with issue positions, policy contrasts, and candidate records that enrich the content of their political talk. Through this lens, we should observe that ad-exposed respondents produce more

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<sup>1</sup> See Lau et al. (1999, 2007); Lau and Rovner (2009) for meta-analytic syntheses.



**Figure 1:** Theorized pathway by which campaign advertising shapes public political discourse. Solid arrows denote effects estimated in this paper. Dashed arrows denote effects implied by the theoretical framework but not directly estimated.

specific, rich, and accurate accounts of the candidates and the campaign. The alternative is that ads primarily activate partisan affect without transmitting substantive content, in which case exposure should increase the emotional intensity of discourse without increasing its informational density. There is also the possibility that both mechanisms operate simultaneously.

Accordingly, we test in this paper a set of predictions<sup>2</sup> about the effects of political advertising on political interest, conversation, and discursive style (Figure 1).<sup>3</sup>

<sup>2</sup> We organize these as primary hypotheses (PH), secondary hypotheses (SH), and exploratory questions.

<sup>3</sup> See Appendix H for information regarding the pre-registration for this study.

Our primary predictions concern the following conversational consequences of advertising: **PH1 (Interest)**. Exposure to a political advertisement increases respondents' expressed interest in politics relative to exposure to a non-political commercial; **PH2 (Discussion)**. Exposure to a political advertisement increases respondents' expressed willingness to discuss politics relative to exposure to a non-political commercial; and **PH3 (Discursive style)**. Exposure to a political advertisement changes the discursive features of how respondents talk about candidates and the campaign—including willingness to discuss, ability to recall and articulate ad content, emotional and opinionated register, and substantive content—relative to exposure to a non-political commercial.<sup>4</sup>

Several dimensions of treatment heterogeneity are worth examining as exploratory questions. In particular, we ask: To what extent are the effects of political ads moderated by (a.) ad tone (attack vs. promote); (b.) political knowledge and sophistication; and (c.) partisanship and ideology?

The remainder of the paper tests these predictions across two studies. Study 1 estimates the population-level effects of presidential advertising on interest and discussion using a media-market design, and Study 2 isolates the experimental effects of advertising on affect, issue outcomes, and, most importantly, on the discursive features of open-ended conversational responses.

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<sup>4</sup> Our secondary predictions concern the attitudinal outcomes that have predominated in the campaign-effects literature. The discursive framework we develop predicts that political advertising should affect the discursive material citizens carry into political talk without necessarily moving their issue stances. In particular we predict the following: **SH1 (Candidate affect)**. Political advertisements increase favorability toward the co-partisan candidate and decrease favorability toward the out-partisan candidate among partisan respondents; and **SH2 (Issue positions)**. Political advertisements do not meaningfully change respondents' issue positions relative to non-political commercials.

## 4 Do Campaigns Stimulate Interest and Conversation?

### Data & Design

The first study estimates the causal effect of political advertising on campaign interest and interpersonal political discussion using an observational design. We compare counties in the same state that straddle the borders of two different media markets. Presidential advertising concentrates heavily in battleground states, but media market boundaries do not align perfectly with state lines. Critically, border counties that fall outside a battleground state but within a battleground designated market area (DMA) receive a large volume of presidential TV ads despite not being primary targets for ad spending. Campaigns focus their resources on the main metro markets, yet these border counties receive the same media content. Campaigns do not intentionally target these locations, and we exploit this plausibly exogenous variation in ad volume along FCC media market boundaries for causal inference.

We adopt the specification used in Spenkuch and Toniatti (2018), restricting the sample to counties in non-battleground states following Huber and Arceneaux (2007) and Urban and Niebler (2014). The specification takes a stacked form, enumerating all possible adjacent cross-media market border county pairs; counties adjacent to multiple counties in a different media market appear multiple times. We pair these border constructions with individual survey responses from the 2000, 2004, and 2008 National Annenberg Election Surveys (NAES). The estimating equation is:

$$Y_{iyp} = \text{Ad advantage}_{yp} + X\beta_{iyp} + \text{Year} \times \text{Pair FE}_{yp} + \varepsilon_{iyp} \quad (1)$$

$Y$  is the outcome of interest. We focus on two variables: campaign interest and self-reported political discussion with friends or family. The survey questions are: (1) “Would you say you have been very much interested, somewhat interested, or not much interested in the presidential campaign?” and (2) “How many days in the past week did you discuss politics with your family or friends?” For the first question, we construct a binary indicator for whether the respondent reports being interested or somewhat interested; we do so because the response scale shifts slightly across NAES waves. For the second, we present results using both the original numeric scale (0–7) and a binary indicator for whether the respondent discusses politics at least once per week.

“Ad advantage” denoting whether the survey respondent  $i$  in year  $y$  resides on the side of the media market boundary with more presidential campaign ads—that is, the battleground DMA side. Pair fixed effects ( $Year \times Pair FE_{yp}$ ) aggregate across all border-county pairs as if stacking multiple cross-sectional experiments.  $X\beta_{iyp}$  allows individual-level covariates such as party ID, household income, education, and age to enter estimation in some specifications.

## Results

Table 1 reports effects on campaign interest and political discussion (results are robust to individual-level demographic controls; standard errors clustered at the DMA level). Columns 1 and 2 show that presidential advertising increases both outcomes. Exposure to more presidential ads on the battleground side of a media market boundary increases the probability of reporting campaign interest by 2.2 percentage points and the probability of

**Table 1:** The Effect of Presidential Advertising on Political Engagement

	Interest	Discussion (binary)	Discussion (continuous)
Battleground DMA ads	0.0218* (0.0093)	0.0334** (0.0107)	0.1622*** (0.0457)
N	11,921	11,443	11,443
Year × Pair FE	✓	✓	✓

*Note:* “Battleground DMA Ads” is an indicator for whether the survey respondent resides within a Designated Media Area (DMA) that aired presidential television advertisements in a battleground state. The dependent variables are: (1) a binary indicator of interest in the presidential campaign, (2) a binary indicator of whether the respondent discussed politics with friends or family in the past week, and (3) the number of days in the past week the respondent discussed politics. Standard errors are clustered at the DMA level. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$  (two-tailed test)

reporting a political discussion with friends or family in the past week by 3.3 percentage points. These estimates correspond to 5.1% and 4.5% of the respective dependent variable means, or shifts of 0.04 and 0.08 standard deviations. While modest in absolute terms, these effects are notable given the near-zero persuasion effects typically attributed to advertising; they suggest ads are doing meaningful work through a channel that prior research has largely ignored.

Appendix Table A1 examines whether effects vary with campaign tone. Ad negativity varies considerably across media markets within the same election year; for each year, we bin media markets into terciles of negativity and estimate the treatment effect within each. Negativity moderates conversational engagement: respondents in non-battleground counties within high-negativity battleground DMAs report discussing politics more frequently, while the effect on discussion is negative in low-negativity markets.

These findings establish that advertising increases both campaign interest and the frequency of interpersonal political discussion, with attack ads appearing to drive the

conversational effect. The observational design, however, cannot speak to how advertising shapes what people actually say. The next section uses a survey experiment to directly test how exposure to different kinds of ads shapes the content and tone of citizens' political expression, moving from the question of whether advertising stimulates conversation to the question of what kind of conversation it produces.

## **5 How Do Campaign Ads Change the Way People Talk About Politics?**

### **Experimental Design**

Two other findings from adjacent literatures bear on our argument. First, political conversation is overwhelmingly homophilous, as most citizens discuss politics primarily with co-partisans and rarely with people who disagree with them (Huckfeldt and Sprague, 1995; Mutz, 2006; Eveland and Hively, 2009). Campaign content propagates, then, largely within partisan camps rather than across them, which is part of why our experimental design focuses on co-partisan ad exposure.

The previous section establishes that campaign advertising increases the frequency of political discussion. This section turns to the question of how advertisements shape the content and tone of what people actually say about candidates.

To test our argument, we field a survey experiment in the context of the 2025 Virginia gubernatorial election. Following Governor Glenn Youngkin's ineligibility for re-election, Democrat Abigail Spanberger competed against Republican Winsome Earle-Sears, ultimately

winning with 57.6% of the popular vote. While Spanberger maintained a consistent polling lead in the months before the election, the race attracted national attention: Youngkin had narrowly won the blue-leaning state in 2021 (50.6% to 48.6%), and the election was widely read as an early referendum on President Trump’s performance in office. Central issues included cost of living, immigration, and reproductive rights.

The campaign generated a rich body of advertising material. We catalogue all television advertisements aired by each campaign through mid-October 2025 and classify them as positive (promoting the sponsoring candidate’s qualifications, biography, or policy positions) or negative (attacking the opposing candidate). Table 2 enumerates these advertisements by title. Spanberger’s ads attacked Earle-Sears on economic grounds, emphasizing affordability and rising health care costs while highlighting her record in the CIA and House of Representatives. Earle-Sears echoed Trump’s 2024 campaign strategy, attacking Spanberger on transgender rights, focusing heavily on school policies and gender-affirming care for youth, while promoting her own experience as lieutenant governor under Youngkin.

We supplemented these with non-political commercials from brands with clear partisan associations among the American public—outdoor retailers (REI and Bass Pro Shops), fast food chains (Ben & Jerry’s and Chick-fil-A), and automobile manufacturers (Subaru and Ford)—drawing on brand-partisanship data from YouGov’s 2024 bipartisan brand rankings (YouGov, 2024).

We recruited 1,103 respondents through the Prolific online survey platform during the week of December 8, 2025, restricting the sample to adults residing outside Virginia to ensure respondents had not previously encountered the advertisements. This constitutes a

**Table 2:** Experimental Stimuli: Advertisements by Candidate and Type

	Type	Spanberger (D)	Earle-Sears (R)
<b>Political</b>	Negative	“Raise Costs,” “Clinics,” “Real Issues”	“Room,” “The Pain,” “Angers Me,” “Transform,” “They/Them”
	Positive	“Tour,” “Dad,” “Halls”	“Always,” “Forward,” “Constant,” “Republicans”
<b>Commercial</b>	—	REI “Don’t let life distract you from living”, Ben & Jerry’s “Cookie Dough Wich!”, Subaru “Dog-tested Crosstrek”	Bass Pro Shop “Making Memories On The Water”, Chick-fil-A “Chicken Sandwich”, Ford “F150 Exterior Design & Functionality”

*Note:* Political ads are candidate-produced campaign advertisements. Commercial ads serve as filler stimuli and are matched to each candidate’s ideological audience profile. Ad titles reflect shortened internal labels.

demanding empirical test: around 60% of our sample reported no prior awareness of the Virginia gubernatorial race.

Respondents watched an online recording of a three-minute clip from an actual local television newscast from WVEC, an ABC affiliate in Hampton, Virginia, covering changes in election rules. Both candidates appeared briefly in the segment. A professional videographer spliced a 30-second commercial break into the newscast to simulate the experience of an advertisement interrupting an online news broadcast.

Respondents were randomly assigned to one of three treatment conditions: (1) a positive political advertisement from a co-partisan candidate, (2) a negative political advertisement from a co-partisan candidate, or (3) a non-political commercial from a brand associated with the respondent’s partisan identity. Co-partisan assignment was determined by each respondent’s pre-treatment party identification: Democrats viewed Spanberger advertisements and Democratic-leaning commercials, while Republicans viewed Earle-Sears advertisements and Republican-leaning commercials. Within each condition, the

specific advertisement shown was randomly selected from the available pool (see Table 2).

Following video exposure, respondents provided open-ended evaluations of each candidate. They were invited to “carefully consider how you feel about” each gubernatorial candidate and to “describe, evaluate, and talk about her candidacy” as if speaking to friends or family. On average, respondents wrote approximately 131 words about Earle-Sears and 138 words about Spanberger. As a treatment check, respondents were also asked at the end of the survey to describe the advertisement they had watched “in as much detail as possible, as if you wanted to relay the contents to a friend or family member,” including how the ad made them feel and what it was about.<sup>5</sup>

## Measurement and Estimation

We score each open-ended response along interest, ability, tone, and content, using human coders recruited through Prolific. Table 3 summarizes the full coding instrument for candidate evaluations.<sup>6</sup> At least four human coders, recruited on Prolific and blind to

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<sup>5</sup> We also asked human coders to categorize these write-ins along the same dimensions as the candidate evaluations. Results, reported in Appendix B, closely mirror the patterns documented below.

<sup>6</sup> To be precise about what our open-ended coding scheme is designed to detect: each coding dimension connects to a specific strand of the theoretical framework developed above. The *apathy* code captures the basic two-step-flow prediction that ad exposure activates the desire to engage with political content. The *specificity* and *sophistication* codes measure what Zaller (1992) calls the “informational content” available to a citizen when constructing a response—the factual substrate from which conversational contributions are built. If ads function as informational subsidies for political talk, we should see higher specificity and richer content among treated respondents. The *opinion-taking* and *emotionality* codes capture the degree to which respondents move beyond factual reporting to construct evaluative, affectively charged arguments, connecting to the elaboration mechanisms emphasized in the discursive tradition (Tarde, 1901; Price, 1992) and to Carlson’s (2024) finding that socially transmitted political information tends to be emotionally selected. The *ideology valence* and *personal valence* codes map onto the well-established distinction in the candidate-evaluation literature between assessments based on policy agreement and assessments based on competence and character, which matters because attack ads and promote ads are expected to differentially activate these dimensions: attack ads tend to emphasize policy contrasts and ideological positioning (Geer, 2006), while promote ads tend to emphasize biographical and character-based appeals. Finally, the *issue count* and *people/groups mentioned* codes test whether ad exposure enriches the substantive density of discourse or merely raises its affective temperature—the key prediction that discriminates between the informational-subsidy and affective-activation accounts. Each of these

treatment conditions, independently coded each response; we take the mean across coders for each dimension. The coding instrument was finalized before data collection and is reproduced in Appendix G.

To measure engagement, coders record instances of apathy: whether a respondent explicitly expresses disinterest (e.g., “I don’t watch ads,” “not interested”). This is an appropriate measure given that many respondents had not previously thought about Virginia politics and lacked strong prior opinions. We also compute objective text-level features, including word count, as a proxy for engagement.

Two items capture respondents’ capacity to discuss the candidates: the specificity of the response on a three-point scale, and the sophistication of language on a three-point scale.<sup>7</sup> We analyze each item individually and as a scaled composite.

Four items capture affective dimensions: (i) the extent to which the respondent expresses opinions beyond listing basic facts about the candidate ; (ii–iii) the positivity or negativity of candidate evaluations along ideological and personal valence dimensions separately; and (iv) the emotionality of language. We construct scaled composites from the valence items and also analyze each item individually.

Finally, two items capture the substantive content of responses: the count of specific politicians or groups mentioned and the specific issues enumerated.

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dimensions is independently coded by human coders blind to treatment condition, allowing us to decompose the overall effect of advertising on discourse into its constituent informational, evaluative, and affective channels.

<sup>7</sup> For advertisement recall text, we also ask coders to record whether the respondent recalls the advertisement and if they correctly describe it.

**Table 3:** Coding of Open-Ended Candidate Evaluations

<b>Category</b>	<b>Indicator</b>	<b>Coder Question / Instruction</b>
<b>Interest</b>	Apathy	Does the respondent explicitly express apathy (e.g., “I don’t watch ads,” “not interested,” “don’t know enough”)? [ <i>Yes / No</i> ]
	Text length & readability	Word count, character count, and Flesch–Kincaid readability score computed automatically.
<b>Ability</b>	Specificity	How specific is the respondent’s answer, ranging from merely mentioning politics to discussing multiple issues and topics from the ad? [ <i>Not at all / Moderately / Highly specific</i> ]
	Sophistication	How sophisticated is the language used in the response? [ <i>Not at all / Moderately / Highly sophisticated</i> ]
<b>Tone &amp; Emotion</b>	Opinion-taking	To what extent does the respondent take a stance beyond listing basic facts about the candidate (e.g., gender, race, party)? [ <i>Not at all / Moderately / Highly opinionated</i> ]
	Ideology valence	How negative or positive does the response seem about the candidate’s political ideology (issue positions, ideological stances)? [ <i>Much more negative → Much more positive</i> ]
	Personal valence	How negative or positive does the response seem about the candidate’s personal qualities (qualifications, competence, integrity, character)? [ <i>Much more negative → Much more positive</i> ]
	Emotionality	How emotional does the language used by the respondent seem? [ <i>Not at all / Moderately / Highly emotional</i> ]
<b>Content</b>	# politicians mentioned	Count the number of specific people or groups (e.g., parties, agencies) mentioned. [ <i>Numeric</i> ]
	Types of people mentioned	List the specific people or groups mentioned, excluding Spanberger and Earle-Sears. [ <i>Open list</i> ]
	# issues mentioned	Count the number of political issues mentioned. [ <i>Numeric</i> ]
	Types of issues mentioned	List the specific political issues mentioned by the respondent. [ <i>Open list</i> ]

*Note:* All items are coded for both the ad memorability and candidate evaluation open-ended responses unless noted. Objective measures (text length, readability) are computed automatically; all other indicators are coded independently by human coders.

**Table 4:** Sample Responses of High and Low Scores on Subjective Measures

Category	Indicator	High Score Example	Low Score Example
Interest	Apathy	<i>"I don't know enough about the candidates to make any type of evaluation."</i>	<i>"She seems nice, she wants to steer the state in the right direction and be honest about it"</i>
	Specificity	<i>"She's a strong conservative and very much aligned with Trump's fascist policies. She is anti-LGBTQ+ and is not in touch with the will of Virginia voters or the country at large. Vote for her and you'll lose me as a friend or family member."</i>	<i>"Seems like a pretty standard Republican. I don't like her."</i>
Ability	Sophistication	<i>"I don't know a lot about her, but what I do know is that she seems to be more interested and ran on policies that promote transgender rights in schools and sports. I know she is very liberal and wants to make a lot of changes in the state but she was not able to articulate these very well in her debate and instead she started to run on her opponent being an angry black woman. That's not a good look for someone who wants to govern a state."</i>	<i>"If she's Democrat I'm all for her"</i>
	Opinion-taking	<i>"I like that she wad a Marine, is a person of color, a woman, and graduated from college. She sounds like someone who would not let anyone shut her up or stop her. She seems delightfully bold and genuine, for everyday people."</i>	<i>"I am not familiar with Winsome Earle-Sears so I cannot confidently say anything about the candidate. I don't know their stance or policies, so it wold be a disservice to speak about it"</i>
Tone & Emotion	Ideology valence	<i>"She's the common sense candidate with the best agenda for the state of Virginia."</i>	<i>"She is far left, almost a communist. Unhinged liberal, soft on crime. More concerned about criminals than the victims."</i>
	Personal valence	<i>"Earle sears offers a very strong and experienced leadership and is endorsed by Youngkin. Her military background also suggests competence and order."</i>	<i>"Winsome Earle-Sears panders to existing prejudices and inflates anxieties without offering any substantive plans or ideas."</i>
	Emotionality	<i>"Another classic example of the "inbred" rubes that lie and cheat that the democrat/nazi/fascist party loves and celebrates! The typical low brow puppet that is guided by the "masters"!"</i>	<i>"Not knowing her or ever heard of her, I would want to know more about her stances on things such as healthcare and living costs. I would ask friends if they knew what polices she stood for and what her views on abortion were."</i>

*Note:* Examples are drawn from actual open-ended responses in the survey. High and low scores are defined relative to the coding rubric described in Table 3.

Our primary estimating equation, pre-specified in the analysis plan, is:

$$Y_i = \alpha + \beta_1 \text{AdType}_i + \gamma' \mathbf{X}_i + \varepsilon_i \quad (2)$$

where  $Y_i$  is the outcome for respondent  $i$ ,  $\text{AdType}_i$  is a pair of indicators for the positive and negative political ad conditions (with the commercial condition as the reference category), and  $\mathbf{X}_i$  is a vector of pre-treatment covariates selected via LASSO from the full set of dummy-encoded baseline survey variables to improve precision while guarding against ad hoc covariate selection. All regressions use heteroskedasticity-robust standard errors.

We use two-sided tests throughout, treating  $p < 0.05$  as our primary significance threshold. For each family of related outcomes, we report Holm–Bonferroni-corrected p-values alongside uncorrected estimates. We define testing families along primary (PH1–PH3) and secondary (SH1–SH2) hypothesis families are corrected separately. Multiple robustness specifications for the same hypothesis are not subject to multiple-testing correction, as they address the same estimand under different modeling assumptions.

Appendix E tests for differential attrition and covariate balance across treatment arms. Attrition is minimal and covariates are well-balanced, consistent with successful randomization.

## Results

Figure 2 plots the average effect of exposure to a co-partisan political advertisement, relative to a neutral commercial, on open-ended evaluations of the sponsoring (co-party) and opposing (out-party) candidate. The pattern of results is consistent across both targets

and broadly supports our theoretical expectations.

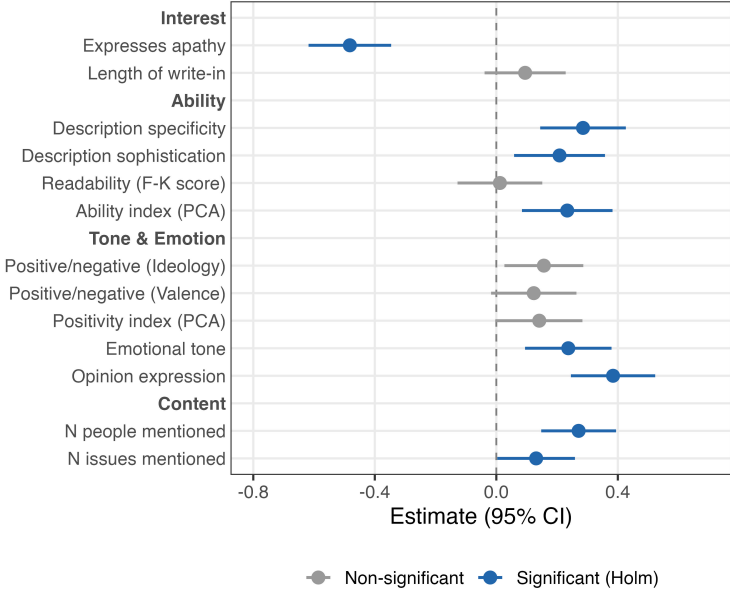
Beginning with evaluations of the co-party candidate (Figure 2a), political advertising substantially reduces expressed apathy. Respondents who viewed a political ad were 21.1 percentage points less likely to report disinterest in the candidate, against a control-condition apathy rate of 39.6%, an effect of  $-0.48$  standard deviations. Effects on the ability dimensions are positive and statistically significant after Holm correction. Description specificity increases by 0.29 SDs, shifting the average response from 0.28 to roughly 0.35 on the 0–1 scale, and the averaged ability index increases by 0.27 SDs. Sophistication moves in the same direction (0.21 SDs) but does not survive Holm correction. Advertising thus prompts respondents to write about co-partisan candidates in more detailed and articulate terms.

The picture on tone and emotion is more mixed. Emotional tone and opinion expression both increase significantly, by 0.23 and 0.38 SDs respectively. The valence indices, by contrast, show small positive point estimates (0.14 SDs for ideology valence, 0.12 SDs for personal valence) that do not survive correction. Political advertising, in other words, makes co-partisan evaluations more emotionally engaged and opinionated without reliably shifting their directional valence toward the sponsoring candidate. On content, exposure to advertising increases the number of named people and groups by 0.28 SDs, an increase of roughly 0.26 entities from a control mean of 1.07. The effect on issues mentioned is smaller (0.13 SDs) and does not survive correction.

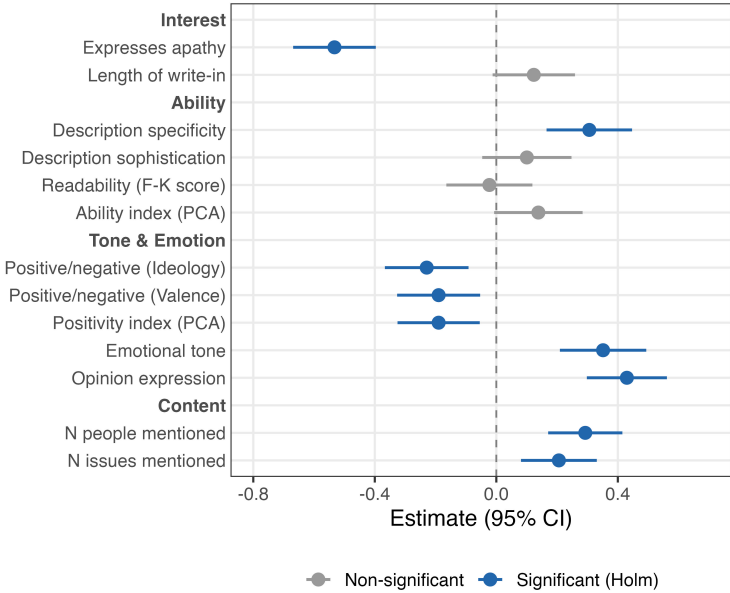
Evaluations of the out-party candidate (Figure 2b) tell a sharper story. The apathy reduction is larger than for the co-party target—24.2 percentage points from a base of 45.1%, or  $-0.53$  SDs—and the ability effects are again positive and Holm-significant,

**Figure 2: Effect of Co-party Advertisement on Written Candidate Evaluations**

**(a) Evaluations of the Sponsoring Candidate (Co-party candidate)**



**(b) Evaluations of the Opposing Candidate (Out-party candidate)**



*Note:* The figure plots the effect of watching a political advertisement (relative to a neutral commercial) on how respondents describe a co-partisan or out-partisan candidate in open-ended evaluations. Human coders scored each response along dimensions of interest, ability, tone, and content. Coefficients in blue remain statistically significant after Holm correction for multiple comparisons within each outcome category. Error bars represent 95% confidence intervals.

with specificity rising by 0.31 SDs and the averaged ability index by 0.23 SDs. The tone effects, however, are strongly negative in direction. Respondents exposed to advertising rate the out-party candidate's ideological positioning more negatively by 0.21 SDs, and the averaged positivity index falls by 0.22 SDs. Personal valence and the PCA-based positivity index decline by similar magnitudes ( $-0.19$  SDs each) but fall just short of Holm significance. Opinion expression and emotional tone rise substantially, by 0.43 and 0.34 SDs. Content effects on people and issues mentioned are again significant: 0.29 SDs for people, corresponding to roughly 0.26 additional named entities from a control mean of 1.05, and 0.21 SDs for issues, a near-doubling of the low control base of 0.14 issues per response.

The pattern across the two targets is striking. Across both targets, the substantive density of discourse rises alongside its emotional temperature, suggesting that ads operate as both informational and affective inputs to subsequent talk. Yet, the primary evaluative consequence of co-partisan advertising is not to warm respondents toward the sponsoring candidate but to harden their views against the opponent. This pattern is thus more consistent with affective polarization than with direct persuasion of the candidate's case for office. Indeed, when analyzing our close-ended measures in Appendix C, we find that exposure to advertising sharply moves respondents' affective evaluations of each candidate on a 101-point scale, but does not change their opinions on key policy issues highlighted in the Virginia gubernatorial race.<sup>8</sup>

Figure 3 disaggregates these average effects by ad type, and the asymmetry between

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<sup>8</sup> We also examine whether effects vary by ideology extremity, political knowledge, and partisan strength (Appendix D). The results are broadly homogeneous, suggesting that the conversational effects of advertising are not concentrated among any particular type of voter.

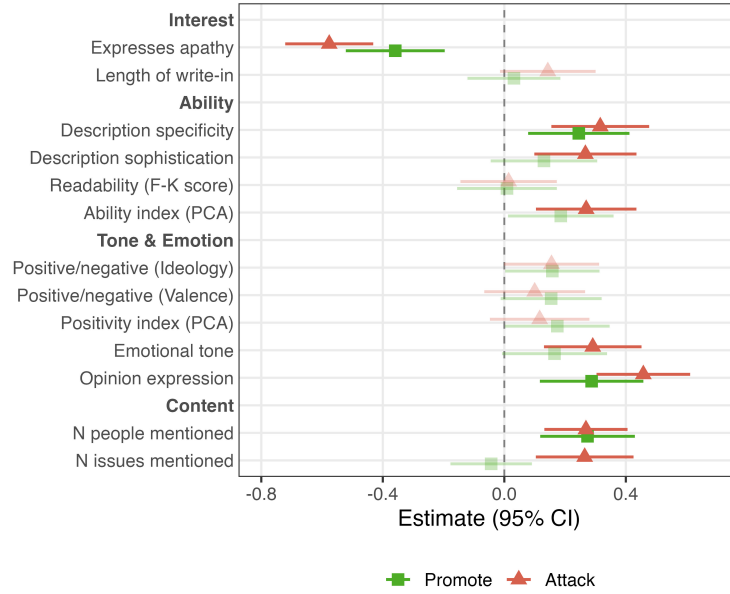
attack and promote advertisements is most pronounced in out-party evaluations (Figure 3b). Attack ads drive large negative shifts across ideology valence ( $-0.41$  SDs), personal valence ( $-0.38$  SDs), and the averaged positivity index ( $-0.42$  SDs), alongside substantial increases in opinion expression ( $+0.59$  SDs) and emotional tone ( $+0.51$  SDs). Promote ads, by contrast, produce near-zero effects on all four valence dimensions ( $|\hat{\beta}| \leq 0.05$  SDs, none significant) and do not significantly move emotional tone or opinion expression after Holm correction. Attack ads also produce a Holm-significant increase in issues mentioned when respondents describe the out-party candidate ( $+0.35$  SDs), against a near-zero effect for promote ads.

For co-party evaluations (Figure 3a), the two ad types produce broadly similar patterns on the interest and ability dimensions, with both reducing apathy (attack:  $-0.58$  SDs; promote:  $-0.36$  SDs) and increasing opinion expression (attack:  $+0.46$  SDs; promote:  $+0.29$  SDs). Attack ads produce a Holm-significant increase in emotional tone ( $+0.28$  SDs); the corresponding promote-ad estimate is smaller and imprecise ( $+0.16$  SDs). The valence indices show little movement for either type, reinforcing the broader finding that advertising does not reliably shift the directional valence of co-partisan evaluations regardless of tone.

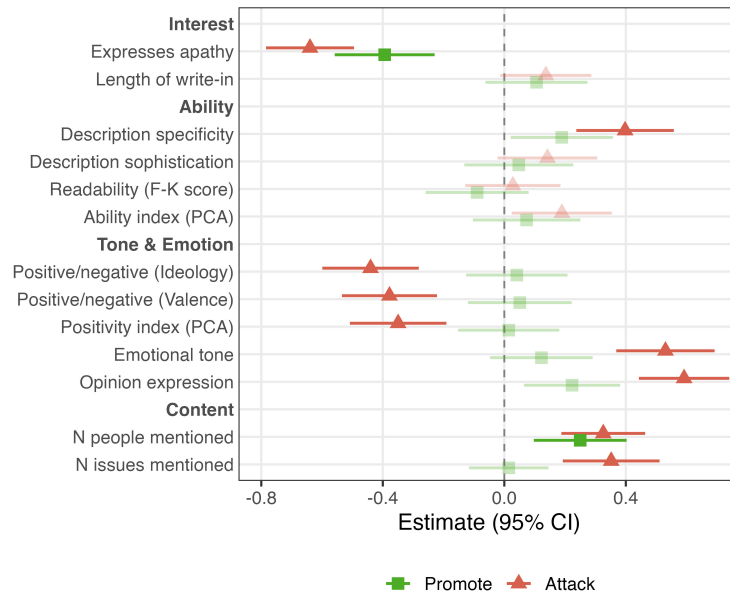
Together, these results indicate that the overall average effects documented in Figure 2 are driven primarily by negative advertising. Attack ads are particularly consequential for how respondents characterize the out-party candidate, both in the negativity of their evaluations and in the substantive content they raise.

**Figure 3: Attack vs. Positive Ads and Written Candidate Evaluations**

**(a) Evaluations of the Sponsoring Candidate (Co-party candidate)**



**(b) Evaluations of the Opposing Candidate (Out-party candidate)**



*Note:* The figure plots the effect of watching a negative or positive political advertisement (relative to a neutral commercial) on how respondents describe a co-partisan or out-partisan candidate in open-ended evaluations. Coefficients are shown in full opacity when the estimate remains statistically significant after Holm correction for multiple comparisons within each outcome category, and faded otherwise. Error bars represent 95% confidence intervals.

## 6 Conclusion

Political scientists have long sought to understand how elite communication shapes mass opinion. The dominant paradigm for studying advertising effects has focused narrowly on whether they directly persuade and turn out voters. This paper has pursued a different question, that of whether ads motivate and change how citizens talk about politics with one another. The answer, across two studies, is yes. Our observational study has established that exposure to presidential advertising increases both campaign interest and the frequency of interpersonal political discussion, and our experimental study has demonstrated that particularly negative ads heighten emotional engagement and opinion expression, and arm citizens with greater specificity in issue and associative content.

These findings build upon the body of work studying the two-step flow model of political communication. Where prior work has documented that citizens talk to one another about politics and that the content of those conversations is often sparse, biased, and emotionally charged, our paper identifies an upstream cause. Advertising, and particularly attack advertising, is part of what loads the conversational environment with the material citizens subsequently carry into their social networks.

Consequently, the implication of this work is that the total effect of advertising on public opinion is systematically underestimated by studies that measure only direct attitude change in exposed individuals because a significant share of the effect travels through the people those individuals subsequently talk to. If attack ads systematically prime citizens to discuss the out-party in more negative, emotionally charged, and opinionated terms, and if those citizens then carry that material into their networks, then elite communication

may be propagating polarization through a social diffusion process that standard survey instruments are not designed to detect.

These findings should be interpreted with two limitations in mind. First, the experiment draws on a single electoral context and generalizability to other offices, cycles, and advertising environments remains an open question. Second, our experimental outcomes are open-ended written evaluations, which serve as a measure of conversational priming rather than direct observation of interpersonal discussion. Whether the discursive patterns we document in survey responses translate into what citizens actually say to friends and family is an assumption the present design cannot directly test, and one that future work using naturalistic conversation data could productively examine.

We end with a broader methodological discussion regarding public opinion research. The open-ended measures we employ reveal systematic variation in how citizens think about candidates. We do not argue that discourse should replace conventional attitude measures, but we do argue that it captures something consequential that the field has largely set aside. A literature that treats only privately held attitudes as the relevant output will draw incomplete conclusions about what campaigns actually do. Future work in this vein might examine how conversational priming effects propagate through networks, whether the discursive consequences of advertising persist longer than direct attitudinal effects, and whether the patterns documented here generalize across electoral contexts and ad modalities. The present paper demonstrates that the conversations that citizens have about politics constitute a tractable outcome, and these conversations are caused and shaped in consequential ways by the advertising that campaigns invest in so heavily to produce.

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# Appendix

## A Additional Results for Observational Study

**Table A1:** The Effect of Presidential Advertising on Political Engagement: Heterogeneity by Ad Negativity

	Interest	Discussion (binary)	Discussion (continuous)
Battleground DMA ads	0.0402 (0.0345)	-0.1345* (0.0608)	-0.5423* (0.2520)
Volume negative ads (Med.)	-0.0758 (0.0517)	-0.1115 (0.0684)	-0.5430 (0.3784)
Volume negative ads (High)	-0.0129 (0.0428)	-0.1113. (0.0654)	-0.4211 (0.2970)
Battleground DMA ads × Vol. neg. (Med.)	0.0631 (0.0714)	0.1755. (0.0963)	0.7687. (0.4457)
Battleground DMA ads × Vol. neg. (High)	-0.0342 (0.0406)	0.1834** (0.0624)	0.7682** (0.2679)
N	8,657	8,316	8,316
Year × Pair FE	✓	✓	✓

*Note:* Standard errors are clustered at the DMA level. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$  (two-tailed test)

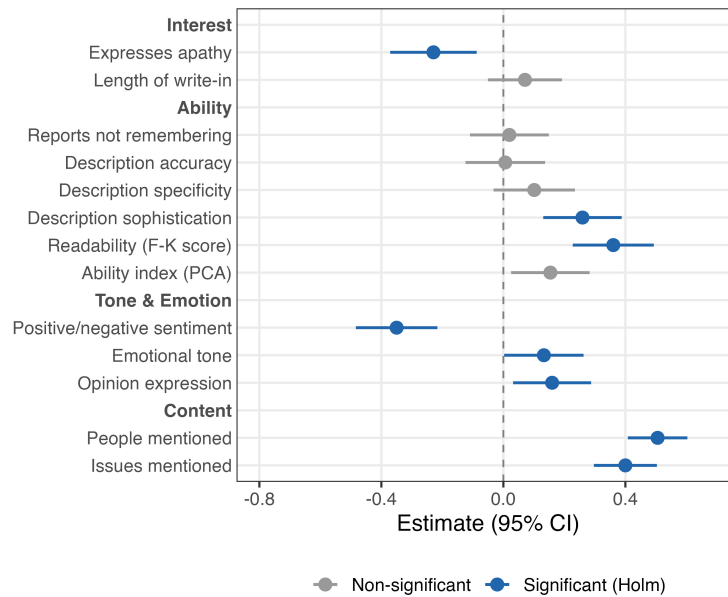
## **B Experimental results for advertisement write ins**

At the end of the survey, we asked every respondent to write a long-form response to the question “Please describe the advertisement (not the newscast) you watched earlier in as much detail as possible, as if you wanted to relay the contents to a friend or family member. How did watching the ad make you feel? What was the ad about?” Manual review of these responses confirmed that the treatment worked as intended: many respondents appeared to treat the ad as genuine, expressing annoyance and recalling attempts to skip forward (we had disabled this functionality).

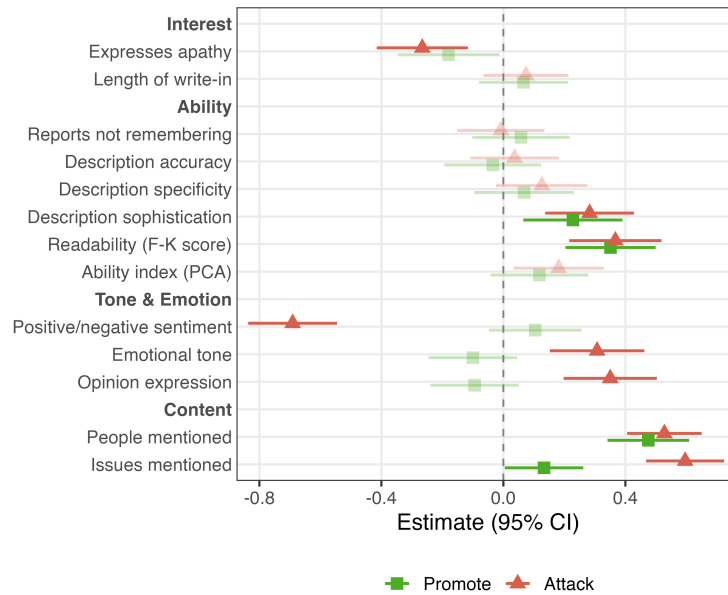
We asked an external sample of Prolific respondents to code these open-ended responses along dimensions similar to those used for the candidate evaluation items. The general patterns closely mirror those observed for candidate evaluations. Respondents who viewed political advertisements express less apathy, exhibit greater descriptive sophistication, and produce more negative, emotional, and opinionated responses. These effects also appear to be driven more prominently by attack ads.

**Figure B1: Effect of Co-party Advertisement on Description of Advertisement Watched**

**(a) Average effect of watching political ads**



**(b) Heterogeneity by attack or promote ads**



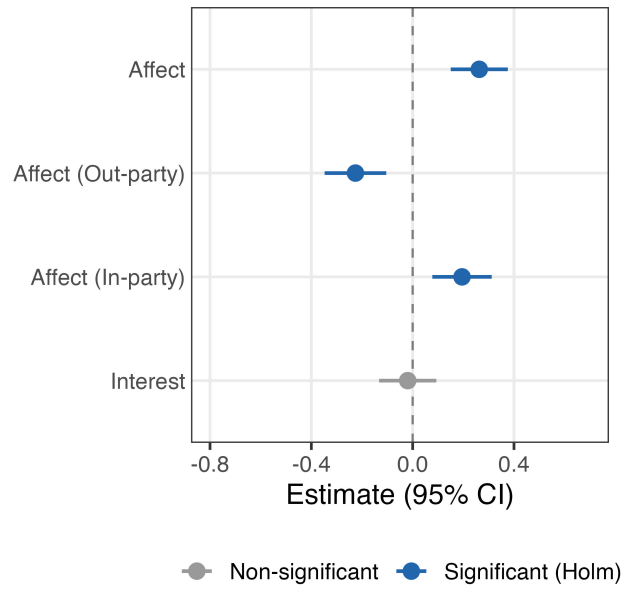
*Note:* The figure plots the effect of watching a political advertisement (relative to a neutral commercial) on how respondents describe the treatment stimuli at the end of the survey. Human coders scored each response along dimensions of interest, ability, tone, and content. In Panel A, coefficients in blue remain statistically significant after Holm correction for multiple comparisons within each outcome category. In Panel B, coefficients are displayed at full opacity when statistically significant after Holm correction for multiple comparisons within each outcome category. Error bars represent 95% confidence intervals.

## C Close-ended results from Survey Experiment

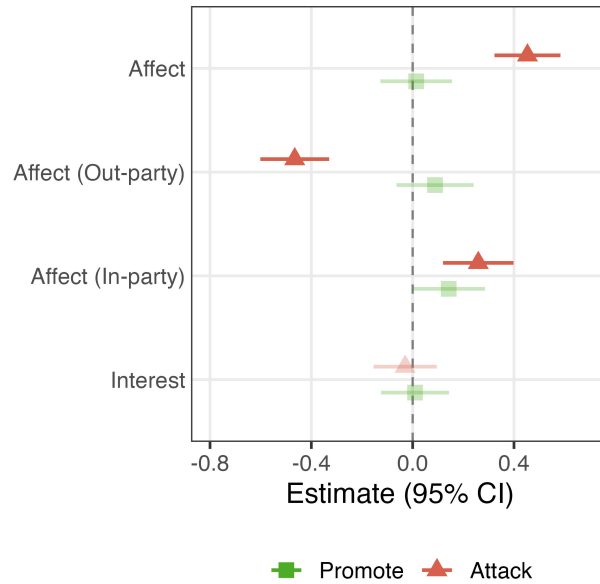
The survey experiment also measured close-ended responses to candidate affect, interest in the Virginia election, and policy positions. Across both the any-ad and attack-ad specifications, affect moves reliably, while interest and policy attitudes remain unchanged. Exposure to political advertising increases overall affective polarization. Attack ads boosts warmth toward the in-party candidate and reduce warmth toward the out-party. Contrary to our pre-registered expectations, we find no effect of ad exposure on political interest. One possible explanation is that a single exposure to an out-of-state gubernatorial race is unlikely to shift respondents' general engagement with politics; by contrast, the observational analyses capture sustained real-world exposure to presidential advertising, which may be more consequential for interest mobilization. Policy attitudes are similarly unaffected across all issue domains, except a negative shift on transgender bathroom access among Democrats. We believe this is most plausibly a false positive: the ads contained no content related to transgender issues, and no theoretical mechanism predicts this pattern. We interpret this result cautiously given the number of simultaneous hypothesis tests conducted across issue domains.

**Figure C2: Effect of Co-party Advertisement on Affect and Interest**

**(a) Average effect of watching political ads**



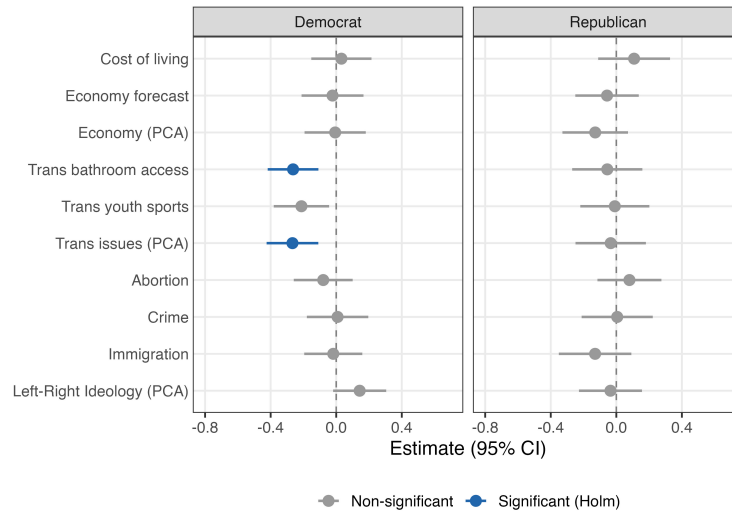
**(b) Heterogeneity by attack or promote ads**



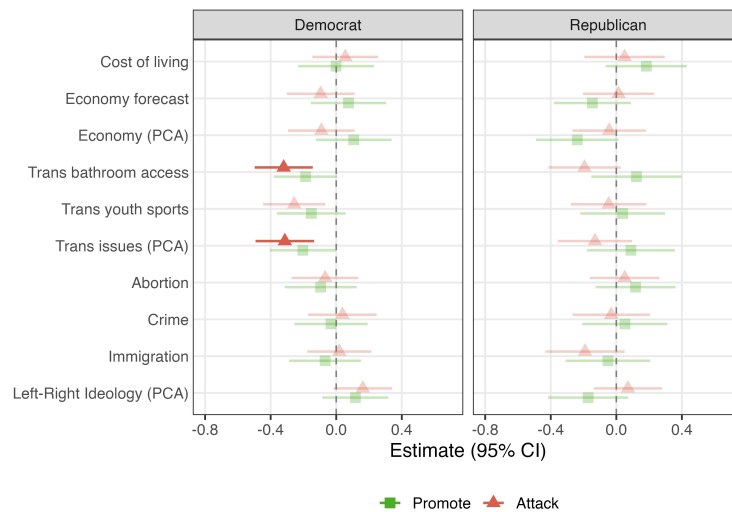
*Note:* The figure plots the effect of watching a political advertisement (relative to a neutral commercial). Outcomes are listed vertically on the y-axis. In Panel A, coefficients in blue remain statistically significant after Holm correction for multiple comparisons within each outcome category. In Panel B, coefficients are displayed at full opacity when statistically significant after Holm correction for multiple comparisons within each outcome category. Error bars represent 95% confidence intervals.

**Figure C3: Effect of Co-party Advertisement on Issue Positions**

**(a) Average effect of watching political ads**



**(b) Heterogeneity by attack or promote ads**



*Note:* The figure plots the effect of watching a political advertisement (relative to a neutral commercial). Outcomes are listed vertically on the y-axis. In Panel A, coefficients in blue remain statistically significant after Holm correction for multiple comparisons within each outcome category. In Panel B, coefficients are displayed at full opacity when statistically significant after Holm correction for multiple comparisons within each outcome category. Error bars represent 95% confidence intervals.

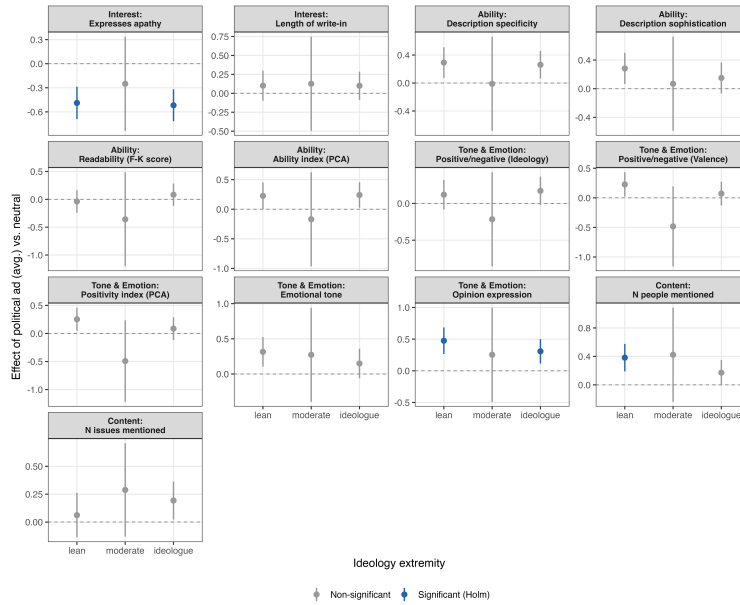
## D Heterogeneity Analysis for Survey Experiment

We examine whether the effects of political advertising on open-ended candidate evaluations vary by ideology extremity, political knowledge, and partisan strength. Figures D4–D6 present heterogeneous treatment effects for both co-partisan and out-partisan candidate evaluations across these three moderators.

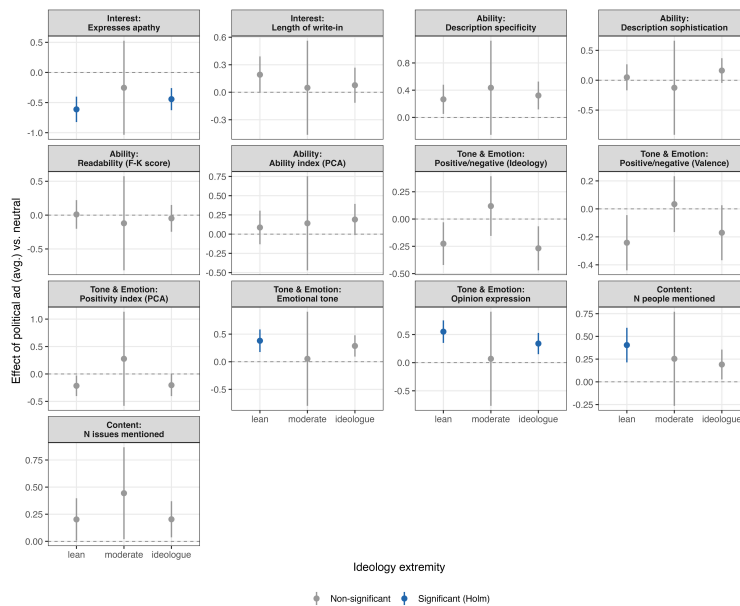
The overarching finding is one of homogeneity: ad-induced reductions in expressed apathy, and increases in emotional tone and opinion expression are broadly consistent across ideological, partisan, and knowledge subgroups, suggesting that the effects of political advertising on candidate talk are not concentrated among any particular type of voter. Some significant estimates cluster among lower-knowledge respondents on ability and content dimensions, which could reflect greater malleability among those with less pre-existing political information; however, given the number of simultaneous comparisons and the pattern of wide confidence intervals, we are cautious about interpreting this as evidence of meaningful moderation rather than a power artifact.

**Figure D4: Heterogeneity by Ideology Extremity: Effect of Political Advertisement on Written Candidate Evaluations**

**(a) Evaluations of the Sponsoring Candidate (Co-party candidate)**



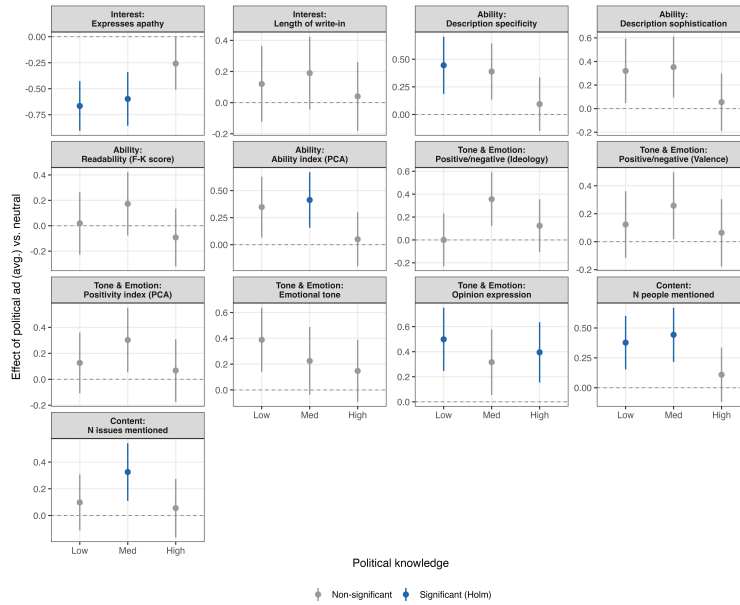
**(b) Evaluations of the Opposing Candidate (Out-party candidate)**



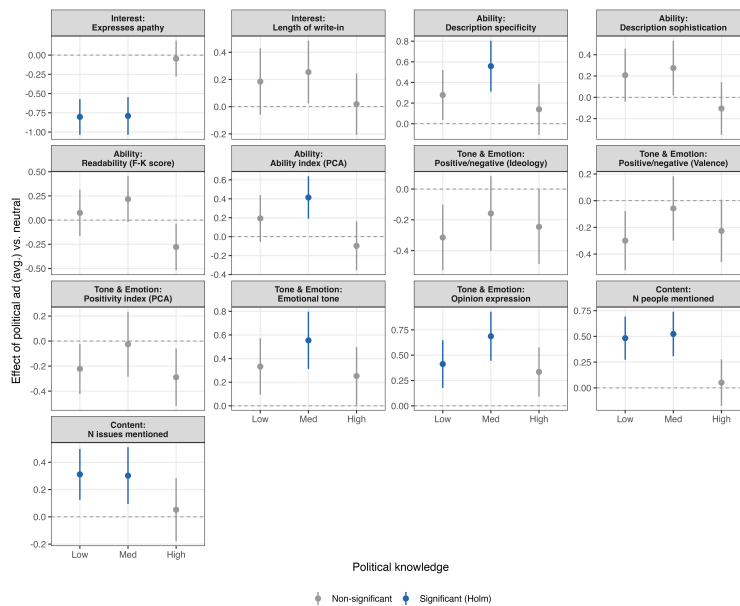
*Note:* The figure plots the effect of watching a political advertisement (relative to a neutral commercial) on how respondents describe a co-partisan or out-partisan candidate in open-ended evaluations, estimated by interacting the treatment with ideology extremity (lean, moderate, ideologue). Each facet represents one regression. Human coders scored each response along dimensions of interest, ability, tone, and content. Coefficients in blue remain statistically significant after Holm correction for multiple comparisons within each outcome category. Error bars represent 95% confidence intervals.

**Figure D5: Heterogeneity by Political Knowledge: Effect of Political Advertisement on Written Candidate Evaluations**

**(a) Evaluations of the Sponsoring Candidate (Co-party candidate)**



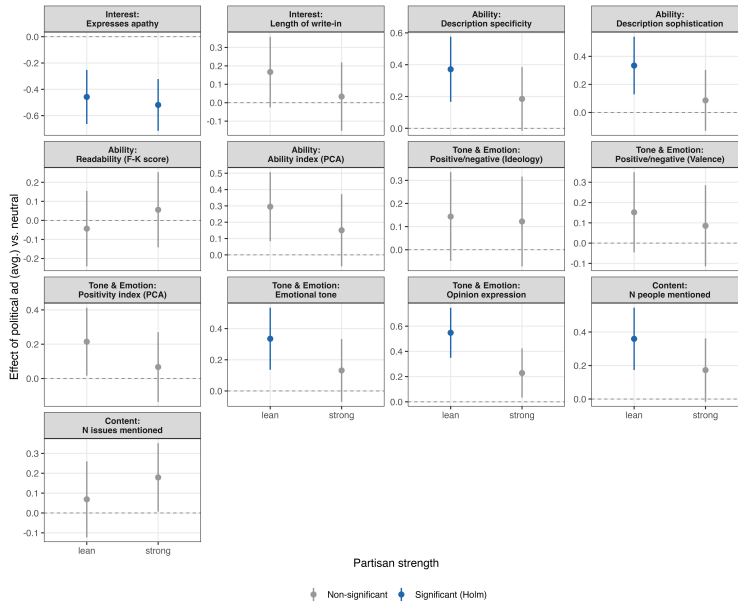
**(b) Evaluations of the Opposing Candidate (Out-party candidate)**



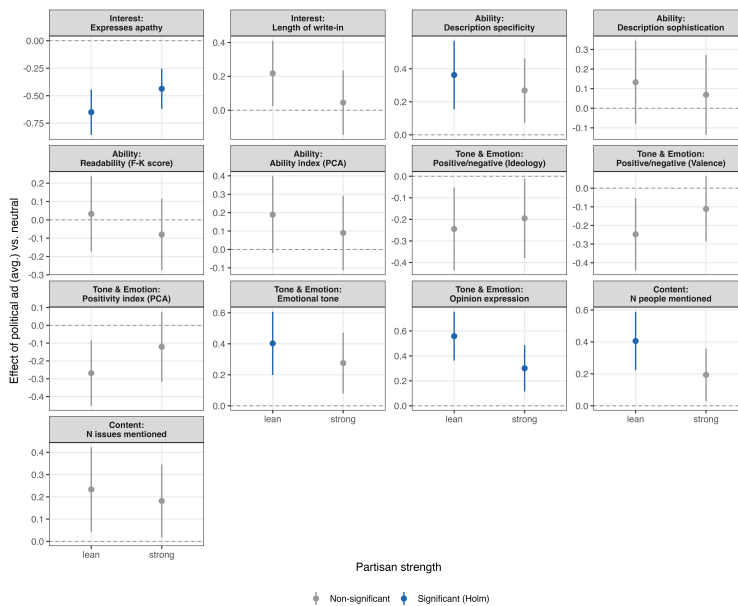
*Note:* The figure plots the effect of watching a political advertisement (relative to a neutral commercial) on how respondents describe a co-partisan or out-partisan candidate in open-ended evaluations, estimated by interacting the treatment with political knowledge (low, medium, high). Each facet represents one regression. Human coders scored each response along dimensions of interest, ability, tone, and content. Coefficients in blue remain statistically significant after Holm correction for multiple comparisons within each outcome category. Error bars represent 95% confidence intervals.

**Figure D6: Heterogeneity by Partisan Strength: Effect of Political Advertisement on Written Candidate Evaluations**

**(a) Evaluations of the Sponsoring Candidate (Co-party candidate)**



**(b) Evaluations of the Opposing Candidate (Out-party candidate)**



*Note:* The figure plots the effect of watching a political advertisement (relative to a neutral commercial) on how respondents describe a co-partisan or out-partisan candidate in open-ended evaluations, estimated by interacting the treatment with partisan strength (lean, strong). Each facet represents one regression. Human coders scored each response along dimensions of interest, ability, tone, and content. Coefficients in blue remain statistically significant after Holm correction for multiple comparisons within each outcome category. Error bars represent 95% confidence intervals.

## E Balance & Attrition

Of the 1,103 respondents who began the survey, attrition was low and balanced across treatment arms. Approximately 3.9% of respondents did not complete the open-ended candidate evaluation questions, and 6.9% did not reach the final survey item (the advertisement write-in). Regressing binary indicators of missingness on treatment assignment yields coefficients that are substantively small and statistically indistinguishable from zero for both outcomes (Table E2). Neither the promote nor the attack condition predicts differential attrition relative to the commercial control, indicating that the treatment did not differentially cause respondents to leave the survey.

We assess covariate balance across the three experimental arms in two ways. First, Table E3 reports the mean and standard deviation of each pre-treatment covariate by treatment condition, along with  $p$ -values from pairwise two-sided Welch  $t$ -tests. Of the 120 pairwise comparisons conducted across 40 covariates and three treatment pairs, 6 are statistically significant at the  $p < 0.05$  level—exactly the number expected by chance under the null hypothesis of no systematic imbalance. No single covariate is significantly different across all three pairwise comparisons.

Second, Table E4 reports the results of regressing binary treatment indicators (promote and attack, each against the commercial control) on the full set of pre-treatment covariates. The joint  $F$ -tests fail to reject the null that all covariates are jointly zero for both the promote arm ( $F = 1.12$ ,  $p = 0.29$ ) and the attack arm ( $F = 1.01$ ,  $p = 0.46$ ), confirming that randomization successfully balanced observable characteristics across conditions. Together, these results support the internal validity of the experimental design.

Table E2: Attrition rates by treatment status

	Open-ends	End point
Treated: Promote Ad	0.00 (0.02)	-0.00 (0.02)
Treated: Attack Ad	-0.01 (0.01)	0.02 (0.02)
N	1,103	1,103
SE Clustered by	Heteroskedasticity-robust	Heteroskedasticity-robust

*Note:* This table presents regression results where the dependent variable is a binary indicator of whether the respondent does not answer the survey. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$  (two-tailed test)

**Table E3: Covariate Balance Across Treatment Arms**

	Mean (SD)			<i>p</i> -value (Welch <i>t</i> -test)		
	Commercial ( <i>N</i> = 368)	Promote ( <i>N</i> = 311)	Attack ( <i>N</i> = 424)	P vs. C	A vs. C	A vs. P
Hispanic	0.095 (0.294)	0.145 (0.352)	0.073 (0.261)	0.049*	0.269	0.003**
White	0.734 (0.443)	0.717 (0.451)	0.792 (0.406)	0.629	0.053	0.020*
Black	0.149 (0.357)	0.158 (0.365)	0.130 (0.336)	0.771	0.426	0.291
Asian	0.082 (0.274)	0.080 (0.272)	0.078 (0.268)	0.957	0.849	0.899
Native American	0.030 (0.171)	0.026 (0.159)	0.019 (0.136)	0.742	0.320	0.539
Hawaiian/Pacific Islander	0.003 (0.052)	0.010 (0.098)	0.000 (0.000)	0.263	0.318	0.083
PID: Closer to D	0.079 (0.270)	0.061 (0.240)	0.099 (0.299)	0.366	0.317	0.057
PID: Closer to R	0.054 (0.227)	0.055 (0.228)	0.042 (0.202)	0.986	0.439	0.452
PID: Lean D	0.188 (0.391)	0.183 (0.388)	0.160 (0.367)	0.888	0.317	0.419
PID: Lean R	0.163 (0.370)	0.180 (0.385)	0.156 (0.363)	0.559	0.778	0.385
PID: Independent	0.090 (0.286)	0.090 (0.287)	0.087 (0.283)	0.987	0.905	0.897
PID: Strong D	0.283 (0.451)	0.280 (0.450)	0.295 (0.456)	0.934	0.706	0.656
Ideology: Lean conservative	0.215 (0.411)	0.196 (0.398)	0.184 (0.388)	0.552	0.282	0.679
Ideology: Lean liberal	0.239 (0.427)	0.260 (0.440)	0.238 (0.426)	0.524	0.976	0.493
Ideology: Moderate	0.092 (0.290)	0.113 (0.317)	0.106 (0.308)	0.391	0.519	0.784
Ideology: Strong conservative	0.152 (0.360)	0.174 (0.379)	0.182 (0.386)	0.452	0.267	0.780
Education: Some college	0.543 (0.499)	0.566 (0.496)	0.545 (0.499)	0.558	0.970	0.570
Education: College+	0.160 (0.367)	0.170 (0.377)	0.184 (0.388)	0.725	0.379	0.634
Income: \$10–19k	0.054 (0.227)	0.061 (0.240)	0.038 (0.191)	0.708	0.269	0.156
Income: \$20–29k	0.076 (0.265)	0.093 (0.291)	0.090 (0.286)	0.426	0.490	0.867
Income: \$30–39k	0.117 (0.322)	0.087 (0.282)	0.097 (0.296)	0.195	0.362	0.646
Income: \$40–49k	0.095 (0.294)	0.096 (0.296)	0.097 (0.296)	0.952	0.940	0.992
Income: \$50–59k	0.079 (0.270)	0.074 (0.262)	0.099 (0.299)	0.813	0.317	0.228
Income: \$60–69k	0.065 (0.247)	0.087 (0.282)	0.104 (0.305)	0.293	0.050	0.437
Income: \$70–79k	0.068 (0.252)	0.071 (0.257)	0.085 (0.279)	0.886	0.369	0.477
Income: \$80–99k	0.109 (0.312)	0.135 (0.342)	0.106 (0.308)	0.298	0.908	0.239
Income: \$100–119k	0.082 (0.274)	0.071 (0.257)	0.066 (0.249)	0.597	0.408	0.804
Income: \$120–149k	0.101 (0.301)	0.096 (0.296)	0.094 (0.293)	0.859	0.770	0.923
Income: \$150–199k	0.071 (0.257)	0.035 (0.185)	0.047 (0.212)	0.038*	0.165	0.423
Income: \$200–249k	0.030 (0.171)	0.023 (0.149)	0.021 (0.144)	0.547	0.444	0.907
Income: \$250–349k	0.005 (0.074)	0.003 (0.057)	0.007 (0.084)	0.658	0.770	0.457
Income: \$350–499k	0.003 (0.052)	0.006 (0.080)	0.009 (0.097)	0.483	0.216	0.646
Income: \$500k+	0.003 (0.052)	0.006 (0.080)	0.000 (0.000)	0.483	0.318	0.158
Male	0.446 (0.498)	0.428 (0.496)	0.415 (0.493)	0.638	0.387	0.734
Age: 18–34	0.266 (0.443)	0.312 (0.464)	0.219 (0.414)	0.193	0.125	0.005**
Age: 35–44	0.247 (0.432)	0.193 (0.395)	0.226 (0.419)	0.088	0.492	0.269
Age: 45–54	0.245 (0.430)	0.222 (0.416)	0.222 (0.416)	0.486	0.449	0.996
Age: 55–64	0.149 (0.357)	0.161 (0.368)	0.217 (0.413)	0.686	0.014*	0.052
Age: 65–74	0.082 (0.274)	0.103 (0.304)	0.106 (0.308)	0.340	0.235	0.887
Age: 75+	0.011 (0.104)	0.010 (0.098)	0.009 (0.097)	0.875	0.841	0.977

*Note:* Each cell in the first three columns reports the covariate mean with the standard deviation in parentheses. The last three columns report *p*-values from two-sided Welch *t*-tests of equal means between the indicated pair of treatment arms. Reference categories omitted: Strong Republican (party), Strong Liberal (ideology), High School (education), Less than \$10k (income). \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ .

**Table E4:** Covariate balance

	Promote ad	Attack Ad
Not Hispanic	-0.13* (0.05)	0.08 (0.05)
Not White	0.02 (0.06)	-0.08 (0.06)
Not Black	-0.02 (0.06)	-0.01 (0.06)
Not Asian	0.02 (0.06)	-0.05 (0.07)
Not Native American	-0.03 (0.08)	0.11 (0.10)
Not Hawaiian	-0.50* (0.24)	0.35*** (0.07)
PID: Neither	-0.07 (0.09)	0.05 (0.10)
PID: Closer to D	-0.13 (0.09)	0.19 (0.10)
PID: Closer to R	0.03 (0.09)	-0.03 (0.10)
PID: Lean D	-0.07 (0.09)	0.07 (0.10)
PID: Lean R	0.03 (0.07)	0.01 (0.08)
PID: Strong D	-0.04 (0.09)	0.12 (0.10)
Ideology: Neither	0.06 (0.07)	0.08 (0.08)
Ideology: Lean conservative	-0.02 (0.07)	0.07 (0.08)
Ideology: Lean liberal	0.07 (0.05)	0.00 (0.05)
Ideology: Strong conservative	-0.00 (0.08)	0.12 (0.10)
Education: Some college	0.03 (0.03)	-0.01 (0.04)
Education: Advanced degree	0.04 (0.05)	0.03 (0.05)
Income: 10-19k	0.03 (0.09)	-0.09 (0.09)
Income: 20-29k	-0.02 (0.08)	0.03 (0.09)
Income: 30-39k	-0.08 (0.08)	-0.01 (0.08)
Income: 40-49k	-0.04 (0.08)	0.02 (0.08)
Income: 50-59k	-0.10 (0.08)	0.10 (0.09)
Income: 60-69k	-0.06 (0.08)	0.10 (0.09)

*Continued on next page*

Table E4 continued

	Promote ad	Attack Ad
	(0.08)	(0.08)
Income: 70–79k	–0.08	0.08
	(0.08)	(0.09)
Income: 80–99k	–0.01	0.01
	(0.08)	(0.08)
Income: 100–119k	–0.07	–0.01
	(0.08)	(0.09)
Income: 120–149k	–0.06	–0.00
	(0.08)	(0.08)
Income: 150–199k	–0.14	–0.03
	(0.08)	(0.10)
Income: 200–249k	–0.08	–0.03
	(0.11)	(0.12)
Income: 250–349k	–0.18	0.12
	(0.17)	(0.22)
Income: 350–499k	–0.01	0.16
	(0.18)	(0.21)
Income: 500k+	0.35	–0.38***
	(0.29)	(0.08)
Not male	0.01	0.02
	(0.03)	(0.03)
Age: 18–34	0.05	–0.03
	(0.14)	(0.15)
Age: 35–44	–0.04	0.03
	(0.14)	(0.15)
Age: 45–54	–0.01	0.01
	(0.14)	(0.15)
Age: 55–64	–0.02	0.10
	(0.14)	(0.15)
Age: 65–74	0.02	0.04
	(0.14)	(0.16)
N	1,103	1,103
R <sup>2</sup>	0.036	0.039
SE	Heteroskedasticity-robust	

Note: This table presents OLS regression results where the dependent variable is a binary indicator for assignment to the indicated treatment arm. \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$  (two-tailed test).

## F Survey Instrument

This appendix reproduces the full survey instrument. Question wordings, response options, and branching logic are presented in the order in which respondents encountered them. Skip patterns and randomization points are noted in brackets.

### Pre-Treatment Measures

**Party identification.** “Generally speaking, do you usually think of yourself as a Democrat, a Republican, an Independent, or what?”

- Democrat
- Republican
- Independent
- Other party [text entry]

*[If Democrat or Republican]:* “Would you call yourself a strong [Democrat/Republican] or a not very strong [Democrat/Republican]?”

- Strong
- Not very strong

*[If Independent or Other]:* “Do you think of yourself as closer to the Republican Party or to the Democratic Party?”

- Closer to Republican
- Closer to Democratic

**Ideology.** “We hear a lot of talk these days about liberals and conservatives. Below is a seven-point scale on which the political views that people might hold are arranged from extremely liberal to extremely conservative. Where would you place yourself on this scale?”

- Extremely liberal
- Liberal
- Slightly liberal
- Moderate; middle of the road
- Slightly conservative
- Conservative
- Extremely conservative

**Virginia election awareness.** “Have you heard about the 2025 Virginia gubernatorial election before?” (Yes / No)

**Politician identification.** “Please indicate whether you’ve heard of this person and if so which party he or she is affiliated with:”

- Abigail Spanberger [Never heard / Republican / Democrat / Other]
- Winsome Earle-Sears [Never heard / Republican / Democrat / Other]
- Tim Kaine [Never heard / Republican / Democrat / Other]
- Mark Warner [Never heard / Republican / Democrat / Other]

- Glenn Youngkin [Never heard / Republican / Democrat / Other]

**Election knowledge.** “Out of these candidates, who won the 2025 Virginia election?”

- Abigail Spanberger
- Winsome Earle-Sears
- Tim Kaine
- Mark Warner
- Glenn Youngkin

## Treatment Exposure

*[Respondents viewed a 3-minute video comprising a WVEC newscast with a 30-second commercial break. The advertisement shown was randomly assigned from the pool in Table 1, stratified by respondent partisanship.]*

## Post-Treatment Closed-Ended Measures

**Political interest.** “How interested are you in Virginia politics?”

- Not at all interested (0)
- Slightly interested (0.25)
- Moderately interested (0.5)
- Very interested (0.75)
- Extremely interested (1)

**Candidate affect.** “On the feeling thermometer scale of 0 to 100, how would you rate...”

- Abigail Spanberger
- Winsome Earle-Sears

**Issue positions.** *Crime:* “Should government spending on dealing with crime be increased, decreased, or kept the same?” (Increased [1] / Kept the same [0.5] / Decreased [0])

*Immigration:* “Do you think the number of immigrants from foreign countries who are permitted to come to the United States to live should be increased, decreased, or kept the same?” (Increased [1] / Kept the same [0.5] / Decreased [0])

*Economy—forecast:* “What about the next 12 months? Do you expect the economy, in the country as a whole, to get better, stay about the same, or get worse?” (Get better [1] / Stay about the same [0.5] / Get worse [0])

*Economy—cost of living:* “Do you think your family’s income is going up faster than the cost of living, staying about even with the cost of living, or falling behind the cost of living?” (Going up faster [1] / Staying about even [0.5] / Falling behind [0])

*Transgender—bathrooms:* “Do you favor or oppose allowing transgender people to use public bathrooms that match the gender they identify with?” (Favor [1] / Oppose [0])

*Transgender—sports:* “Several states have considered laws that would ban transgender girls from participating in K-12 girls’ sports. Do you favor or oppose such a law?” (Favor [1] / Oppose [0])

*Abortion:* "Which one of the opinions on this page best agrees with your view on abortion?"

- By law, abortion should never be permitted. (0)
- The law should permit abortion only in case of rape, incest or when the woman's life is in danger. (1/3)
- The law should permit abortion for reasons other than rape, incest, or danger to the woman's life, but only after the need for the abortion has been clearly established. (2/3)
- By law, a woman should always be able to obtain an abortion as a matter of personal choice. (1)

## **Post-Treatment Open-Ended Questions**

1. "Please carefully consider how you feel about **Winsome Earle-Sears**. Imagine that you wanted to describe, evaluate, and talk about her candidacy to your friends or family. What would you say?"
2. "Please carefully consider how you feel about **Abigail Spanberger**. Imagine that you wanted to describe, evaluate, and talk about her candidacy to your friends or family. What would you say?"
3. "Please describe the advertisement (not the newscast) you watched earlier in as much detail as possible, as if you wanted to relay the contents to a friend or family member. How did watching the ad make you feel? What was the ad about? Additionally, this question contains one last attention check: please make sure to end your response with the word 'marbles' so that we know you read and understood this task."

## G Codebook for Open-Ended Response Coding

This appendix reproduces the codebook used by research assistants to code open-ended responses. Coders were blind to treatment conditions throughout; correctness coding (item 2.ii) was performed last, after which the treatment condition was revealed only for that specific item.

### Willingness to Discuss (Enthusiasm to Talk)

**1.i. Apathy.** *Applies to:* Ad memorability and candidate affect questions.

*Coder question:* Does the respondent explicitly express apathy (e.g., “I don’t watch ads,” “not interested,” “hard to say,” “don’t know enough”)?

*Response options:* Yes / No.

### Ability

**2.i. Recall for ad.** *Applies to:* Ad memorability question only.

*Coder question:* Does the respondent explicitly say “I don’t remember” or something along these lines?

*Response options:* Yes / No.

**2.ii. Correctness.** *Applies to:* Ad memorability question only.

*Coder instruction:* Does the response match the ad watched by the respondent? [Treatment condition revealed to coders only for this item, after all other items are coded.]

*Response options:* Yes / No.

**2.iii. Specificity.** *Applies to:* Ad memorability and candidate affect questions.

*Coder question:* How specific are the respondents in their answers? Ranging from just mentioning that the ad involved politics to discussing multiple issues and topics.

*Response options:* Not at all specific / Moderately specific / Highly specific.

**2.iv. Sophistication.** *Applies to:* Ad memorability and candidate evaluation questions.

*Coder question:* How sophisticated is the response?

*Response options:* Not at all sophisticated / Moderately sophisticated / Highly sophisticated.

### Tone and Emotion

**3.i. Opinion.** *Applies to:* Ad memorability and candidate evaluation questions.

*Coder instruction:* To what extent does the respondent take a stance beyond just listing basic facts (gender, race, party) about the candidate? How opinionated does the respondent seem about the election?

*Response options:* Not at all opinionated / Moderately opinionated / Highly opinionated.

**3.ii. Negative/Positive—Ideology.** *Applies to:* Candidate evaluation questions only.  
*Coder instruction:* How negative/positive does this response seem about the candidate's political ideology—issue positions or ideological stances?  
*Response options:* Much more negative / Slightly more negative / Neutral / Slightly more positive / Much more positive.

**3.iii. Negative/Positive—Valence.** *Applies to:* Candidate evaluation questions only.  
*Coder instruction:* How negative/positive does the respondent seem about the candidate's valence—qualifications, competence, integrity/trustworthiness, character and moral values?  
*Response options:* Much more negative / Slightly more negative / Neutral / Slightly more positive / Much more positive.

**3.iv. Negative/Positive (General).** *Applies to:* Ad memorability question only.  
*Coder instruction:* How negative/positive does this response seem in general?  
*Response options:* Much more negative / Slightly more negative / Neutral / Slightly more positive / Much more positive.

**3.v. Emotionality.** *Applies to:* Ad memorability and candidate affect questions.  
*Coder question:* How emotional does the language used by the respondent seem?  
*Response options:* Not at all emotional / Moderately emotional / Highly emotional.

## Content

**4.i. Contrast.** *Applies to:* Ad memorability question only.  
*Coder question:* Does this response contrast the two candidates (i.e., compare Earle-Sears and Spanberger)?  
*Response options:* Yes / No.

**4.ii. Number of politicians/people mentioned.** *Applies to:* Ad memorability and candidate evaluation questions.  
*Coder instruction:* Count the number of specific people or groups (e.g., parties, departments, agencies) mentioned and enter numerically.

**4.iii. Types of people mentioned.** *Applies to:* Ad memorability and candidate evaluation questions.  
*Coder instruction:* Enumerate the specific people or groups mentioned, other than Spanberger and Earle-Sears.

**4.iv. Number of issues mentioned.** *Applies to:* Ad memorability and candidate evaluation questions.  
*Coder instruction:* Count the number of political issues mentioned and enter numerically.

**4.v. Types of issues mentioned.** *Applies to:* Ad memorability and candidate evaluation questions.

*Coder instruction:* Enumerate the specific issues mentioned by the respondent.

## H Pre-Registration

This study was pre-registered before data collection. The pre-analysis plan (Version 2) is available at the following link: <https://osf.io/c6txe/overview>. An initial version of the study was fielded on the Harvard Digital Lab for the Social Sciences (DLABSS) between October 26 and November 2, 2025 ( $N \approx 500$ ). A computational power analysis based on estimated effect sizes from that initial study indicated that 1,000–5,000 respondents would be needed to achieve 80% power at  $\alpha = 0.05$  for most outcomes. The Prolific study described in this paper was designed based on these power calculations and incorporates several design refinements detailed in the pre-analysis plan, including: (1) replacing the original newscast baseline (a sheriff press conference) with a newscast about election rules in Virginia; (2) dropping the out-partisan factorial treatment to focus on co-partisan advertisements; (3) adjusting survey language to reflect the post-election fielding date; (4) adding a political knowledge question about the election outcome; and (5) dropping redundant closed-ended discussion items in favor of coded open-ended responses.