Ad Tailoring and Polarization

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August 12, 2025

Abstract

Congressional candidates simultaneously seek votes from local residents and money from partisan potential donors who live across the United States. Ad targeting allows political candidates an inexpensive way not only to reach this dispersed partisan audience but also to deliver messages tailored to donors, whose preferences are more extreme than voters'. Using data on geographically-targeted Facebook ads, I find that the national ads of Democratic and Republican candidates have less issue overlap — and are more polarized — than their local, voter-targeted ads. Candidates' ability to direct tailored, extreme communication to receptive audiences via targeted ads facilitates polarized political speech.

Keywords: ad targeting, candidate positioning, political contributions, polarization, digitization

JEL codes: D72, M37

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1 Introduction

> "As a single mom, Katie Porter sticks to a budget — and she thinks Congress should too. That's why she stood up to her party and voted against wasteful spending." - Katie Porter for Congress, local ad (See panel A of Figure A1)

> "I'm Katie Porter. If you don't know me, first and foremost I'm a single parent of three school aged kids. I understand firsthand the challenges families face. Second, I'm a progressive member of Congress. And I don't put up with BS from Wall Street, Big Oil, and Big Pharma executives. I'm fighting for affordable child care, climate action, cheaper health care, and an economy that works for working people..." - Katie Porter for Congress, national ad (See panel B of Figure A1)

Political candidates can benefit from appealing to different subsets of the population with different preferences. In addition to needing votes from local residents, candidates rely on individual donors for the majority of their campaign funds; and these donors tend to be ideologically extreme (Bafumi and Herron, 2010). In contrast to their in-district voters, a candidate's potential donors live across the country, making them difficult to reach with traditional communication technology like television ads.[1]

Digital ad targeting substantially reduces the costs of reaching particular audiences (Goldfarb, 2014; Goldfarb and Tucker, 2011), enabling candidates to speak directly to potential donors. Not only does targeted digital advertising enable candidates to reach new audiences, but it also allows candidates to *tailor* their ad messages. Candidates can outline a different set of legislative priorities to their voters than to their donors, and candidates may want to emphasize more partisan issues to national, donor audiences. Because donors have more extreme preferences, digital ad technology, which enables candidates to reach potential donors, may facilitate — and encourage — polarized political speech.

In this paper, I study whether candidates portray themselves differently — e.g. emphasize different policy issues and use different language — when addressing local voters versus national donors. Candidate statements like the ones at the start of the article suggest that candidates portray themselves differently depending on their audience. In a voter-targeted ad, Democratic candidate Katie Porter portrays herself with centrist messages of "stick[ing] to a budget" and standing "up to her party," while in a donor-targeted ad, she identifies herself as a "progressive member" of Congress fighting for "climate action," among other policies typically attributed to the left.

Systematically documenting whether candidates portray themselves differently depending on

[1] In fact, between 2012 and 2018, while 1,971 House candidate campaigns ran a television ad, only 11 ran an ad targeted to an out-of-state, non-overlapping DMA.

their audience requires observing many candidates' rhetoric explicitly targeted to voters and to donors. Candidate Facebook advertisements provide an auspicious testing ground. Congressional candidates can geographically target their Facebook advertisements, and I observe the distribution of state-level impressions for each ad. Because only a candidate's district residents are eligible to vote for them, I treat ads with predominantly out-of-state impressions as donor-targeted. Using data from the 2022 congressional elections, I observe many congressional candidates advertising both locally and nationally.

I measure the extent to which candidates tailor messages to their audience using the issues they mention and the partisan language they use. Observing the former requires auxiliary information about which words candidates use to talk about various issues. I focus on the seven salient 2022 political issues according to Wesleyan Media Project: abortion, energy/environment, guns, health care, immigration, inflation, and public safety.[2] To this end, I collect all 2022 House candidates' political platforms, which are organized by issue, from their campaign websites. Then, I classify an ad as mentioning an issue if the ad text includes one of the candidates' commonly-used phrases when discussing that issue.

The data allow for within-candidate, across-audience comparisons of message content, which I use to address three specific aspects of tailoring. First, candidates highlight different political issues depending on their audience. I find that the same candidate emphasizes different issues nationally and locally, and the issues they emphasize nationally are more partisan (the parties use less language in common to discuss these issues). In particular, Democratic candidates are more likely to mention abortion nationally compared to locally, while Republican candidates are more likely to mention immigration nationally compared to locally. Second, using an unsupervised text scaling algorithm based on candidate ads' word frequencies, I find that candidates from both parties use more partisan language in their nationally-targeted — versus locally-targeted — ads. And third, the rival Democratic and Republican candidates in a district devote less of their national platforms to discussing the same issues as one another compared to their local platforms. District rival candidates' national platform issue overlap is only a third as large as their local platform overlap.

The paper proceeds as follows. Section 2 presents background information including related literature and the proposed mechanism underlying the current study. Section 3 presents the data, and Section 4 contains the empirical strategy and results. Section 5 concludes.

[2] https://mediaproject.wesleyan.edu/issues-nov22/

2 Background

2.1 Literature

This paper is related to the literature of the role of digital targeting and technologies in ad campaigns. Online advertising substantially reduces the cost of targeting (Goldfarb, 2014) and benefits firms by lowering the cost of advertising to relevant consumers (Goldfarb and Tucker, 2011). Digital targeting has also benefited candidates, as evidenced by the broadened set of candidates who advertise online relative to on television (Fowler et al., 2021; Campbell et al., 1984; Levy and Squire, 2000). Digital technologies, more generally, may amplify the voices of candidates with less campaign funds (Petrova et al., 2021). Yet, events like the Cambridge Analytica episode, in which Facebook users were shown highly targeted political ads based on private information, show that political ad targeting brings with it a new set of concerns about polarization and democratic function (Persily, 2017).[3] While traditional media, like broadcast TV, has reduced polarization (Campante and Hojman, 2013), the rise in more fragmented media channels has the opposite effect (Martin and Yurukoglu, 2017; Levy, 2021; Hillygus and Shields, 2008). Relative to the previous literature, I examine whether and how politicians use ad targeting to convey tailored messages to ideologically extreme potential donors.

This paper also relates to research that explores the trade-off candidates face when appealing to ideologically-distinct voters and donors. Previous research suggests that donors' ideologically extreme preferences may lead candidates to adopt more extreme positions in order to attract donations (Bafumi and Herron, 2010; Barber, 2016; Canes-Wrone and Miller, 2022; Waldfogel, 2024). Existing research explains a candidate's ideology as a function of donor preferences or exposure to fundraising. This paper explores a complementary approach to answering the question by offering a clean, within-candidate test of how candidates present distinct political platforms tailored to different audiences.[4]

Finally, the present works joins recent papers in using Facebook's Political Ad Library data to study candidate ads. For example, Allcott et al. (2025) study the effects of Facebook political ads on individual political behavior, finding that ads do not increase political behaviors like voting and contributing. In addition, Fowler et al. (2021) show that candidates use Facebook's demographic ad targeting capabilities to advertise audience-relevant messages as they pertain to age and gender, while Kim et al. (2025) show that candidates' donor-targeted Facebook ads are more likely to use

[3] https://bipartisanpolicy.org/blog/cambridge-analytica-controversy/

[4] In that sense, it is similar to work that contrasts how candidates portray themselves in primary versus general elections (Acree et al., 2020; Di Tella et al., 2023).

toxic and negative language than locally-targeted ones. Compared to Fowler et al. (2021), the current study explores how candidates use tailored messages to appeal to donors, an ideologically extreme group considered to be a contributing force to polarization (McCarty, 2019; Canes-Wrone and Miller, 2022; Barber, 2016; Waldfogel, 2024). Fowler et al. (2021) do not explore how message content differs between donors and voters because candidates did not use Facebook to advertise to donors during their sample period of study.[5] Relative to Kim et al. (2025), the current study explores how the issue content and political lean of ads differ across audiences, allowing for conclusions about the *ideological* consequences of ad targeting and tailoring.

2.2 Mechanism: Attracting Votes Versus Money

Candidates succeed by attracting votes and money. In the contest for votes, Democratic and Republican district rival candidates compete over the same pool of constituents; and candidates from both parties must appeal to their districts' median voter. In the contest for donations, candidates must appeal to their party's "donorate," an ideologically-extreme subset of their party. Because their electorate and donorate are ideologically distinct, candidates may wish to emphasize different aspects of their political platform depending on the message's intended audience. One might expect candidates to emphasize their party's more partisan issues in their national ads versus their local ads to appeal to ideologically extreme donors, the topic that this paper addresses.

3 Data

In this section, I describe the underlying data sources — Facebook's Political Ad Library and candidate campaign websites — as well as how I construct three analysis datasets from the underlying sources (the *issue mention*, *partisan message*, and *overlap* datasets).

3.1 Data Sources: Facebook Ads and Candidate Websites

Facebook Political Ad Library I collect the Facebook advertisements for all general election Democratic and Republican House candidates who ran Facebook ads during the 2022 election. I observe the ad copy for every ad, the date range through which it ran, the geographic distribution of its impressions, the amount the candidate spent on the ad, and the total impressions the ad

[5] From Fowler et al. (2021): "Although some candidates are certainly using Facebook to appeal for donations from out of state residents, it appears that such candidates are a relatively small minority (page 139)."

received. An ad's number of impressions is the number of times the ad was shown.[6]

Over half (520) of the 851 general election House candidates ran Facebook advertisements in 2022. Candidates in competitive districts were more likely to advertise on Facebook: 84% of candidates running in districts decided by less than a 10 percentage point vote share difference advertised on Facebook, compared to 56% of candidates in more electorally lopsided districts. The median amount candidates spent on Facebook ads in 2022 was $\$15,631$.

I aggregate the raw ad data to the level of a candidate's unique ad copy.[7] The median sample candidate ran 11 unique Facebook ads, and the median ad had 99% of its impressions from within state. The median masks significant targeting heterogeneity, both across and within-candidates. About forty percent (n = 210) of candidates who advertised ran at least one ad that received over 75% of its impressions from within state and one ad that received below 75% of its impressions from within state, suggesting that many candidates advertise both nationally and locally.[8] The distribution of ads' within-state impression percentages is shown in Figure A2.

The data support the notion that an ad's geographic targeting is related to its intended audience (of donors versus voters). For example, the median ad with a vote call-to-action, urging the viewer to vote, had 86% of its impressions from within state, while the median ad with a donate call-to-action had 55% of its impressions from within state. Around 140 candidates had at least one ad that contained the word "donate" (asking the viewer to contribute to their campaign). Ads with at least 50% of their impressions from out of state were four times as likely to include a donation solicitation compared to ads with fewer than 50% of their impressions from out of state (57% versus 14%). These patterns provide evidence that candidates' nationally-targeted ads are intended for donors; it is not merely that Facebook's algorithm happens to show these ads to national audiences.

Finally, the nationally-targeted ads had a broad reach. Ads with fewer than 50% of their impressions within-state received approximately 1.5 billion impressions, accounting for 42% of all impressions in the data.

Candidate Campaign Websites To understand the words candidates use when they talk about various issues, I collect policy platforms from candidates' websites. About three-fourths of general election candidates state their political stances on their campaign websites, and candidates with

[6]Facebook provides an estimate for the final two measures: amount spent and impressions.

[7]The raw data contain potentially many deployments of the same ad copy. I consider ads to be identical if their first 30 characters are identical. Audience targeting can differ across deployments, and I calculate each ad copy's within-state share of impressions as the spend-weighted average across deployments.

[8]I use 75% as a local cut-off threshold. The cut-off is arbitrary. Throughout the paper, I show robustness to different thresholds.

websites are broadly representative of candidates who run for election (Meisels, 2023). I find candidate campaign websites by searching for a candidate's name and "campaign" and collect each candidate's campaign website from the Wayback Machine using the capture closest to November 8^{th}, 2022, the date of the general election.

Figure A3 depicts two examples of such platform pages on candidates' websites. These examples are representative in that the vast majority of candidates organize their website platform by issue category. For example, as shown in Panel A of Figure A3, Julia Letlow (Louisiana, district 5) organizes her issues into the following sections: 100% Pro-Life; Putting LA-05 Back to Work; Protecting the 2nd Amendment; Supporting Farmers, Loggers, and Ranchers; etc. Panel B of Figure A3 shows the website of Jerry Nadler (New York, district 12). I focus my attention on the seven aforementioned political issues deemed salient by Wesleyan Media Project for 2022: abortion, energy/environment, guns, healthcare, inflation, immigration, and public safety and follow a classification process similar to Porter et al. (2025). See Appendix B for details about characterizing candidate stated issues into the seven issue categories.

Using the website texts, I calculate the phrases that candidates most frequently use when referring to each issue. Table 1 shows the most popular phrases (bigrams) used by Democratic and Republican candidates when referring to these seven issues. For example, when talking about abortion, Democratic candidates tend to say "reproductive rights" and "pro choice," while Republican candidates tend to say "pro life" and "human life." When discussing guns, Democratic candidates say "gun violence" and "background checks," while Republican candidates say "2nd amendment" and "national rifle association."

3.2 Three Analysis Datasets

I construct three datasets for the analyses that follow: an *issue mention* dataset, a *partisan message* dataset, and an *overlap* dataset.

***Issue mention* dataset** I construct an *issue mention* dataset to explore whether candidates mention different issues in their national ads versus their local ads. To do this, I use the frequently-used bigrams from candidate websites to observe which issues are mentioned in each candidate ad. A candidate's ad mentions an issue if her ad contains a bigram associated with that issue. For example, if an ad says "gun control," "mass shooting," or "second amendment," the ad mentions the issue of guns.

To measure how common each issue is, Figure A4 shows the number of candidates from each party that mention each issue in their ads. I count a candidate as having mentioned an issue if at least one of her ads mentions that issue. Republican candidates were responsible for most of the mentions of immigration, inflation, and public safety, while Democratic candidates were responsible for most mentions about abortion and healthcare. Energy/environment and guns were mentioned approximately equally across parties.

Candidates run advertisements on Facebook for a host of reasons beyond explaining their policy positions, for example, to urge people to vote or donate, to provide information about an upcoming campaign event, or to introduce their background. Throughout the paper, I restrict the data to include only those ads that mention an issue (approximately one-third of ads, paid for by 407 candidates).[9] Ads that do not mention an issue have little ideological content.[10]

The *issue mention* dataset is an ad-by-issue dataset that includes indicator variables for whether each of the 2,584 ads, a, run by 407 candidates, c, mention each of the seven issues, i (n = 18,088). I refer to this indicator variable as $\mathbb{1}\{\text{Mention}_{iac}\}$. In total, the *issue mention* dataset includes 9,422 Democrat observations and 8,666 Republican observations. In the specifications which rely on within-candidate variation, the data include all ads run by 100 candidates who mention at least one issue both nationally and locally. This sample consists of 653 ads run by 53 Democratic candidates (n = 4,571) and 460 ads run by 47 Republican candidates (n = 3,220). In the baseline specifications, I consider an ad local if over 75% of its impressions are within-state ($\mathbb{1}\{\text{Local}_{ac}\} = 1$).[11]

The 100 candidates in this within-candidate variation sub-sample may differ from other candidates. Table A1 presents how candidates in this sub-sample compare to two other groups of candidates: those who advertise locally and nationally but do not mention an issue both locally and nationally and all other candidates. The 100 candidates in this sub-sample spend more on Facebook advertisements than other candidates (Table A1, row 3) and are more likely to be running in a toss-up district (Table A1, row 5) compared to candidates who do not advertise locally and nationally. While this selected sample could lead to biased estimates, my analyses probe this concern by estimating effect sizes separately for candidates in competitive races and candidates in the top decile of their party's ad spend.[12] Throughout the paper, I find little difference between

[9] A candidate's ad can both mention an issue *and* solicit donations.

[10] Figure A5 shows the most popular bigrams in ads that do not mention an issue and in ads that do mention an issue. The most popular bigrams in ads that do not mention an issue are: "house majority," "election day," and "congressional district," which are not useful to discern a candidate's political position, while the most popular bigrams in ads that mention an issue are: "health care," "gas prices," and "supreme court," which are useful.

[11] I also present robustness to different cut-offs.

[12] I consider candidates to be in a competitive race if Cook's Political Report classifies their district's race as a

baseline results and estimates for these sub-samples, assuaging concerns that the estimated effects are driven by the selected sample.

***Partisan message* dataset** To explore whether candidates use more partisan language in their national ads relative to their local ads, I create a *partisan message* dataset, which aggregates the 407 candidates' ads to the candidate-audience level (local versus national). An observation in the data is the concatenation of all of a candidate c's ads targeted to a particular audience $g \in \{\text{local}, \text{national}\}$. I refer to this concatenation as a candidate-audience *platform*. The local platforms include ads with over 75% of their impressions within-state ($\mathbb{1}\{\text{Local}_g\} = 1$).[13] In total, the *partisan message* dataset contains 507 platforms from 407 candidates. For analyses that rely on within-candidate variation, I use data from the 100 candidates who have both local and national platforms (n = 200).

I calculate each candidate-audience platform's ideological position ($Conservatism_{cg}$) using *wordfish*, an unsupervised text scaling procedure, which recovers unidimensional document-specific latent political positions based on word frequencies (Slapin and Proksch, 2008). The key assumption underlying the *wordfish* method is that document text contain language useful in discriminating between a conservative and liberal dimension (Slapin and Proksch, 2008; Grimmer and Stewart, 2013). I validate this assumption directly. Figure A6 displays the ten most conservative and ten most liberal phrases as recovered by the wordfish procedure. The ten most liberal phrases include "birth control" and "pro-choice," while the ten most conservative include "border patrol" and "illegal immigration." The procedure seems to correctly identify and sort phrases considered conservative (liberal) together, thus validating the notion that Facebook ads contain left-right ideological information. More detail on the *wordfish* procedure and pre-algorithm text processing can be found in Appendices C and D.

***Overlap* dataset** To study whether a district's rival candidates devote more of their local platforms than their national platforms to discussing the same issues, I construct an *overlap* dataset. To do this, I aggregate the *issue mention* dataset, which is at the ad-by-issue level, to the candidate-by-audience level, counting how many of a candidate-by-audience's ads mention each of the seven issues.[14] For each candidate-audience combination, I calculate the proportion of total issue mentions devoted to each issue. I refer to this proportion as $P_{i(g),c(d)}$, the proportion of candidate c's

toss-up.

[13] I present robustness to different cut-offs.

[14] I consider ads local if at least 75% of impressions are within-state and show the results are robust to alternative cut-offs.

(who runs for office in district d) issue mentions (targeted to audience g) that mention issue i.

Then, I construct an audience-specific measure of rival candidate overlap following Kaplan et al. (2006). The *overlap* between rival candidates c and -c running in district d in ads targeted to audience $g \in \{\text{local}, \text{national}\}$ is given by:

$$\text{Overlap}_{dg} = 1 - \left(\sum_i |P_{i(g),c(d)} - P_{i(g),-c(d)}|/2 \right) \tag{1}$$

For example, if a candidate mentions abortion in three of her local ads, inflation in six local ads, and public safety in one, then abortion comprises three-tenths of her local platform. If her rival candidate's local platform is one-tenth abortion, then their local platform difference measure regarding abortion is one-fifth. I sum over all seven issues to create a measure of issue incongruence between rival candidates to a target audience. The sum ranges from zero (reflecting complete congruence) to two (reflecting complete incongruence). I then divide this measure by two and subtract this from one to calculate an audience-specific platform overlap between district rivals. District rival platforms have an audience-specific overlap of one if they devote identical proportions of their audience-specific platforms to each issue. An overlap of zero means candidates share no issues to an audience in common.

The *overlap* dataset contains 107 district-audience overlap measures from 97 districts. For analyses that use within-district variation, I rely on the ten districts that have both local and national overlap measures (n = 20).

4 Empirical Strategy and Results

4.1 National Versus Local Issue Mentions

Do candidates mention different issues locally and nationally? Using the *issue mention* dataset, Figure 1 plots the raw tendency for each party's ads to mention the seven issues depending on the ad's audience.[15] For issues like abortion and immigration, mentions of which tend to be dominated by one party (D and R, respectively), candidates are differentially likely to mention the issue locally and nationally. The top left panel shows that Democratic candidates mention abortion more in national ads than in local ads: 58% of their national ads mention abortion, while only 46% of their local ads do. By contrast, Republican candidates mention immigration more nationally (52% of

[15]For the baseline results, I classify an ad as local if at least 75% of its impressions are within state. I show the results are robust to other cutoff choices.

ads) than locally (33% of ads).

Using the *issue mention* dataset, I systematically explore candidate message targeting via regression. I begin by running a regression of whether an ad, a, run by candidate, c, mentions an issue, i, ($\mathbb{1}\{\text{Mention}_{iac}\}$) on an indicator for whether the ad is locally targeted ($\mathbb{1}\{\text{Local ad}_{ac}\}$). The γ_i^0s control for the average tendencies for each issue i to be mentioned nationally, while γ_i^1s represent the differential tendencies for each issue i to be mentioned locally. I run the regressions separately by party and cluster standard errors at the candidate level.

$$\mathbb{1}\{\text{Mention}_{iac}\} = \gamma_i^0 + \gamma_i^1 \times \mathbb{1}\{\text{Local ad}_{ac}\} + \epsilon_{iac} \tag{2}$$

The results from this specification are shown in the first two columns of Table 2. Democratic candidates, in Column (1), are less likely to mention abortion and energy/environment locally (versus nationally), while they are more likely to mention public safety locally (versus nationally). Republican candidates, in Column (2), are less likely to mention immigration and abortion locally but more likely to mention inflation and healthcare locally (versus nationally). These results indicate that parties emphasize different issues depending on the audience.

However, the results in Columns (1) and (2) could arise if candidates' advertising targeting is correlated with their political platform, for example, if Democratic candidates whose platform emphasizes energy/environment tend to advertise nationally while those whose platform emphasizes public safety tend to advertise locally. This confound motivates the following, preferred regression specification which includes candidate-by-issue fixed effects. Using only within-candidate variation, identification comes from the tendency for the *same* candidate to mention a particular issue as a function of her audience.

$$\mathbb{1}\{\text{Mention}_{iac}\} = \gamma_i^1 \times \mathbb{1}\{\text{Local ad}_{ac}\} + \mu_{ic} + \epsilon_{iac} \tag{3}$$

where the γ_i^0 issue intercepts from regression 2 are replaced with issue-by-candidate fixed effects, μ_{ic}. The γ^1 coefficients capture whether the same candidate is more likely to mention an issue locally rather than nationally and are identical to coefficients one would obtain from estimating seven separate issue regressions.

Column (3) of Table 2 presents the results for Democratic candidates, and the coefficients are similar to the coefficients in Column (1). Results from this specification indicate that Democratic candidates are less likely to mention public safety and more likely to mention abortion in their

nationally-targeted ads compared to their locally-targeted ads. To probe whether the results are driven by the selected sample of candidates, Columns (4) and (5) show the estimates separately for candidates in toss-up districts and candidates in the top decile of Democratic candidate ad spend. Democratic candidates in toss-up races and in the top decile of their party's ad spend are not differentially likely to mention abortion nationally, suggesting the results are not driven by the selected sample.

Parallel results for Republican candidates are presented beginning in Column (6) of Table 2. Results in Column (6), which include candidate-by-issue fixed effects, show that the average Republican candidate is more likely to mention immigration nationally and more likely to mention inflation locally. Columns (7) and (8) report the results for sub-samples of candidates in toss-up races and in the top decile of Republican candidate ad spend, and these sub-samples are not differentially likely to mention immigration nationally.

These findings offer two key takeaways. First, candidates emphasize different issues nationally and locally. Second, the issues candidates emphasize nationally ares ones for which their party dominates mentions (See Figure A4) and for which the parties use little bigrams in common (See Table 1). Taken together, these facts suggest candidates mention fewer issues in common nationally *and* sound less similar doing so. The analyses in Sections 4.2 and 4.3 explore these directly.

Robustness Table A2 reports robustness for a variety of local cutoff definitions: ads with over half, 85%, and 95% of impressions that are within-state, and a specification that replaces the cutoff indicator in the interaction with the ad's home state percentage of impressions. Columns (1) through (4) of Table A2 report results akin to Column (3) of Table 2, while Columns (5) through (8) report parallel results for Republican candidates. Across all specifications, Democratic candidates are more likely to mention abortion nationally rather than locally and less likely to mention inflation or public safety nationally rather than locally. Republican candidates mention immigration more in their national ads.

An alternative possibility is that Facebook's algorithm serves ads to people it predicts will be most interested. If this were the case, then it could be that an algorithm—rather than the candidate—is responsible for the ad's realized geographic targeting. I estimate the results using a sample of ads that are either locally-targeted or nationally-targeted *and* include a donation solicitation. In this sample, candidates intended for the non-local ads to be shown to donors, as evidenced by the ad copy. Table A3 reports robustness using this sample, and the two baseline takeaways

remain unchanged.

4.2 Are National Messages More Partisan?

The preceding section shows that candidates highlight different issues depending on their intended audience. A related, but different question, is: What is the partisan lean of the candidate's message? Relative to the preceding analysis which asks *whether* a candidate mentioned an issue, the following analysis explores which words candidates use. For example, while the phrases "pro-choice" and "pro-life" are related to the issue of abortion, they are associated with different partisan stances on the issue (Gentzkow and Shapiro, 2010). In this subsection, I explore whether candidates use more partisan language in their nationally-targeted messaging.

Figure 2 plots candidates' national and local political platform ideologies (Conservatism$_{cg}$), inferred using *wordfish*. The dotted lines trace candidate positions implied by locally-targeted platforms; the solid lines, nationally-targeted platforms.[16] The national Republican distribution is to the right of the local Republican distribution, as Republican candidates use more conservative language in their nationally-targeted ads relative to their locally-targeted ads. Democratic candidates use more liberal language in their national ads. Candidates from both parties use less partisan language in their local ads.[17]

I begin by estimating a simple regression relating the conservatism of a candidate's audience-specific platform to whether it is locally-targeted to echo the information in Figure 2. Coefficients from this specification are the four party-by-audience average ideologies and are shown in Column (1) of Table 3. Democratic candidates, in their nationally-targeted ads, have the most liberal positions, on average, followed by Democratic candidates in locally-targeted ads. The difference of average ideological positions follows the same pattern for Republican candidates: Republican candidates sound more conservative in their national ads compared to their local ads.

As before, these results could be driven by the selection of candidates into advertising to different audiences. To deal with this confound, I include candidate fixed effects, μ_c, and estimate the following regression. A positive (negative) γ^D (γ^R) indicates the same Democratic (Republican) candidate is more moderate in her local ads than in her national ads.

[16] For the baseline results, I consider an ad as locally-targeted if over 75% of its impressions are local, and nationally-targeted otherwise; I present robustness to this choice.

[17] Recall that words members of both parties tend to use locally are removed. As such, these results are *not* driven by candidates from both parties urging local ad viewers to "vote" or return their "ballot." See Appendix D for additional discussion on this point.

$$\text{Conservatism}_{cg} = \gamma^D \mathbb{1}\{\text{Local}_g \times \text{Dem}_c\} + \gamma^R \mathbb{1}\{\text{Local}_g \times \text{Rep}_c\} + \mu_c + \epsilon_{cg} \quad (4)$$

where the dependent variable is the conservatism of candidate c's platform that is targeted to audience $g \in \{\text{local}, \text{national}\}$. $\mathbb{1}\{\text{Local}_g\}$ is an indicator equal to 1 if the platform is locally-targeted; $\mathbb{1}\{\text{Dem}_c\}$ ($\mathbb{1}\{\text{Rep}_c\}$) is an indicator equal to 1 if candidate c is a Democrat (Republican).

The resulting coefficients in Column (2) measure the average *within*-candidate difference in local relative to national political persona. The point estimates imply that the same Democratic (Republican) candidate uses around 12% (23%) more partisan language when addressing donors than voters, on average. Column (3) presents results that pool parties, using ideological extremeness as the dependent variable (absolute value of conservatism). On average, the same candidate adopts a position that is 17% more extreme in her nationally-targeted ads relative to her locally-targeted ads. Columns (4) and (5) show the estimates separately for candidates in toss-up races and candidates in the top decile of ad spend, and they are not statistically significantly different from the baseline. Table A4 presents robustness checks for various cut-offs for what constitutes a local ad, and the take-aways are unchanged. The ideological distance between candidates' national positions is 17% larger than the distance between their local positions, and this result is not driven by choice of cut-off nor by the selection of candidates who advertise.

4.3 Do Rivals Candidates Discuss the Same Issues Locally?

In a third and final analysis, I ask whether district rival candidates emphasize more similar issues in their local messaging versus national messaging. Candidates engage in overlap when they discuss the same issues as their rival to the same audience. Studying overlap extends the previous analysis beyond the use of partisan language to the issue content itself. The existing literature refers to candidate issue overlap as "dialogue" (Sigelman and Buell, 2004; Kaplan et al., 2006; Anderson et al., 2025).

I compare the tendency for district rival candidates to discuss the same issues as each other in their local ads relative to their national ads. Relative to other political dialogue studies, which compare dialogue across different types of electoral environments, I measure the same two rival candidates' dialogue in messages to local versus national audiences. The difference between national and local overlap between the same two candidates captures the polarizing effect of donors and the ability to communicate distinct messages via targeted ads. I measure the effect of audience on

overlap with the following regression using the *overlap* dataset.

$$\text{Overlap}_{dg} = \alpha_0 + \alpha_1 \mathbb{1}\{\text{Local}_g\} + \epsilon_{dg} \tag{5}$$

where Overlap_{dg} is the overlap measure between candidates in district d targeted to audience g and $\mathbb{1}\{\text{Local}_g\}$ is an indicator equal to 1 if the audience is local. The estimate of α_1, the differential between local and national overlap, is reported in Column (6) of Table 3. Local platforms are 9 p.p. more congruent than national platforms.

Column (7) presents the results for a specification that includes district fixed effects, which limits identifying variation to within rival candidates, so that identification comes from across-audience comparisons of rival candidates' issue overlap. With district fixed effects, candidates' local overlap is 14 p.p. larger than their national overlap (0.21 versus 0.066 in the sample of districts where both candidates advertise locally and nationally). Column (8) shows the overlap estimate separately for candidates in toss-up races, and it is not statistically distinguishable. Rival candidates' local platforms are more congruent than their national platforms, and this finding is not driven by the composition of candidates who advertise locally versus nationally nor by the choice of 75% as the local ad cut-off.[18]

The estimated congruence effect is large: local platforms are three times as congruent as national platforms. Kaplan et al. (2006) finds that highly competitive elections have 15 p.p. higher congruence than non-competitive elections. Thus, the difference in rival candidates' issue overlap to donors relative to voters is comparable to that of the difference in rival candidates' issue overlap in uncompetitive relative to competitive districts.

5 Conclusion

This paper explores the implications of ad targeting and tailoring in political markets made possible by digitization. I find that candidates systematically emphasize different issues to their local voters and national potential donors. In particular, Democratic candidates are more likely to mention abortion nationally rather than locally, while Republican candidates are more likely to mention immigration nationally rather than locally. In addition to mentioning different issues, candidates use more partisan language in their national ads: Candidates' national positions are 17% more distant than their local positions. Finally, rival candidates engage in more issue overlap — "dialogue"

[18] See Columns (4)-(6) of Table A4 for results using different local cut-offs.

— when addressing voters. The estimated effect size is equivalent to the difference in overlap between rival candidates in competitive districts relative to rival candidates in uncompetitive districts (Kaplan et al., 2006). The current paper's results suggest that the incentive to appeal to national audiences has contributed to more polarized messaging across parties and raise concerns about ad targeting's capability to facilitate these diverging messages.

While digitization has lowered the the cost of communicating, it has the potential to increase compartmentalized communication. By giving candidates a means to cheaply reach extreme partisans with distinct messages, digital technologies create new opportunities and incentives for candidates to appeal to these audiences. Relative to product market contexts, where message targeting and tailoring may be benign, message tailoring in political contexts fosters communicating audience-specific political priorities, polarized language, and less political dialogue.

Table 1: Ten most commonly-used phrases by Democratic, Republican candidates

abortion	energy/environment	gun	healthcare	immigration	inflation	public safety
reproductive rights	climate change	gun violence	health care	immigration reform	supply chain	law enforcement
supreme court	clean energy	background check	prescription drug	immigration system	middle class	criminal justice
reproductive health	renewable energy	common sense gun	affordable care	comprehensive immigration	price gouging	public safety
reproductive freedom	climate crisis	gun safety	care act	undocumented immigrants	minimum wage	justice system
abortion care	environmental justice	assault weapons	health insurance	american dream	paying jobs	george floyd
planned parenthood	clean air	red flag law	mental health	border security	gas prices	police officers
protection act	fossil fuels	universal background	pre existing conditions	temporary protected	supply chains	justice reform
health protection	fossil fuel	violence prevention	drug prices	broken immigration	child care	police departments
pro choice	clean water	mass shootings	healthcare system	promise act	rising costs	policing act
birth control	natural resources	weapons ban	affordable health	dream act	class families	communities safe

abortion	energy/environment	gun	healthcare	immigration	inflation	public safety
pro life	energy independence	law abiding	health care	southern border	government spending	law enforcement
planned parenthood	american energy	2nd amendment	pre existing conditions	illegal immigration	gas prices	enforcement officers
human life	natural gas	bear arms	health insurance	border security	middle class	public safety
life begins	energy production	amendment rights	healthcare system	illegal immigrants	national debt	police officers
born alive	climate change	gun owner	prescription drug	border patrol	biden administration	communities safe
protection act	energy independent	national rifle association	care act	immigration system	president biden	violent crime
taxpayer funding	natural resources	gun control	affordable care	legal immigration	joe biden	violent criminals
defund planned parenthood	domestic energy	concealed carry	care system	border wall	control spending	criminal justice
100 pro	energy sources	constitutional rights	healthcare costs	immigration laws	economic growth	law abiding
unborn child	energy costs	background check	insurance companies	national security	reckless spending	local law

Note: This table lists the ten most commonly-used bigrams by issue, by party from candidate campaign websites.

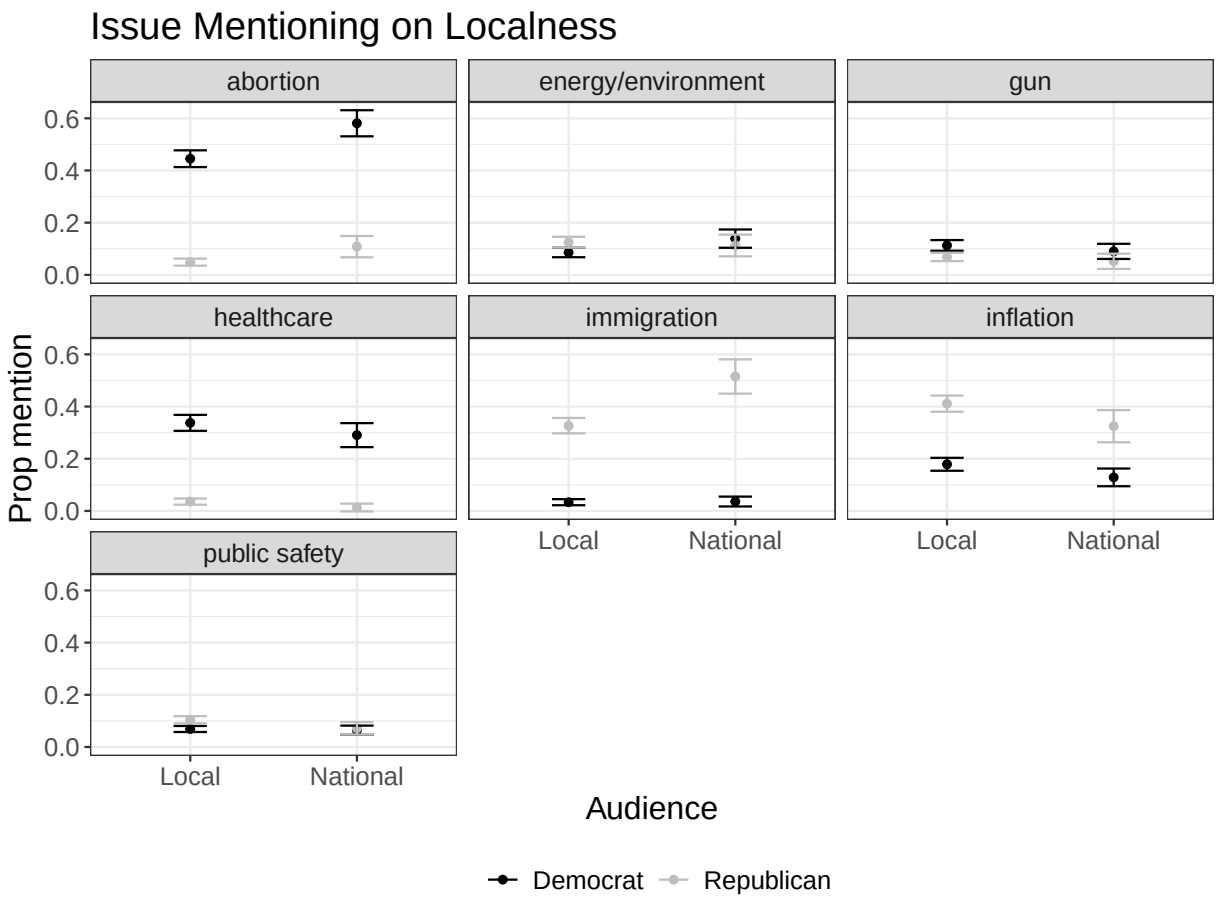


Figure 1: Issue mentioning as a function of ad localness targeting

Note: This figure plots the proportion of local- versus nationally-targeted ads that mention each issue, separately by party.

Table 2: Candidate tendency to mention issues locally

Dependent Variable:	Mention							
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
Abortion x More Local	-0.1358***	-0.0596**	-0.1200**	-0.1330**	-0.1227**	-0.0313	-0.0386	0.0198
	(0.0459)	(0.0297)	(0.0521)	(0.0581)	(0.0609)	(0.0310)	(0.0363)	(0.0247)
Gun x More Local	0.0229	0.0166	-0.0085	-0.0016	-0.0042	-0.0082	-0.0173	-0.0060
	(0.0267)	(0.0162)	(0.0312)	(0.0377)	(0.0265)	(0.0226)	(0.0259)	(0.0231)
Energy/enviro. x More Local	-0.0531*	0.0126	0.0156	0.0479	-0.0115	0.0331	0.0224	0.0143
	(0.0298)	(0.0222)	(0.0380)	(0.0405)	(0.0443)	(0.0366)	(0.0376)	(0.0397)
Immigration x More Local	-0.0026	-0.1884***	0.0017	-0.0002	-0.0072	-0.1612**	-0.1483**	-0.1851***
	(0.0143)	(0.0457)	(0.0146)	(0.0178)	(0.0179)	(0.0602)	(0.0672)	(0.0637)
Public safety x More Local	0.0427*	0.0644*	0.0311*	0.0174	0.0264	0.0179	0.0151	-0.0135
	(0.0242)	(0.0333)	(0.0183)	(0.0202)	(0.0206)	(0.0427)	(0.0483)	(0.0483)
Inflation x More Local	0.0502	0.0864***	0.0573	0.0545	0.0280	0.0935*	0.0796	0.0974
	(0.0375)	(0.0329)	(0.0376)	(0.0410)	(0.0402)	(0.0543)	(0.0555)	(0.0754)
Healthcare x More Local	0.0470	0.0228**	0.0703	0.0755	0.0979	0.0292	0.0408	-0.0011
	(0.0416)	(0.0111)	(0.0609)	(0.0650)	(0.0659)	(0.0259)	(0.0290)	(0.0121)
Group × Abortion x More Local				0.0680	0.0082		0.0487	-0.1339*
				(0.1336)	(0.1155)		(0.0377)	(0.0704)
Group × Gun x More Local				-0.0362	-0.0130		0.0608	-0.0059
				(0.0488)	(0.0836)		(0.0396)	(0.0516)
Group × Energy/enviro. x More Local				-0.1697*	0.0832		0.0715	0.0492
				(0.0973)	(0.0862)		(0.1117)	(0.0811)
Group × Immigration x More Local				0.0100	0.0275		-0.0864	0.0626
				(0.0226)	(0.0293)		(0.1508)	(0.1356)
Group × Public safety x More Local				0.0721	0.0146		0.0184	0.0823
				(0.0437)	(0.0421)		(0.0922)	(0.0907)
Group × Inflation x More Local				0.0146	0.0899		0.0936	-0.0101
				(0.1009)	(0.0850)		(0.1790)	(0.1046)
Group × Healthcare x More Local				-0.0275	-0.0846		-0.0778*	0.0793
				(0.1741)	(0.1412)		(0.0450)	(0.0612)
Fixed-effects								
issue	Yes	Yes						
candidate-issue			Yes	Yes	Yes	Yes	Yes	Yes
Party	D	R	D	D	D	R	R	R
Group	-	-	-	Toss-up	Top decile of ad spend	-	Toss-up	Top decile of ad spend
Fit statistics								
Observations	9,422	8,666	4,571	4,571	4,571	3,220	3,220	3,220
R^2	0.15183	0.13860	0.30698	0.30789	0.30772	0.32026	0.32100	0.32177
Within R^2	0.00644	0.00893	0.00495	0.00626	0.00602	0.00949	0.01056	0.01169

Clustered (candidate) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Note: This table presents results for which issues Democratic candidates and Republican candidates mention more locally. Columns (1) and (2) show the results with issue fixed effects only; Columns (3) and (6) present results with candidate-issue fixed effects; Columns (4) and (7) show estimates separately for candidates in toss-up races. Columns (5) and (8) show estimates separately for candidates in the top decile of their party's ad spend.

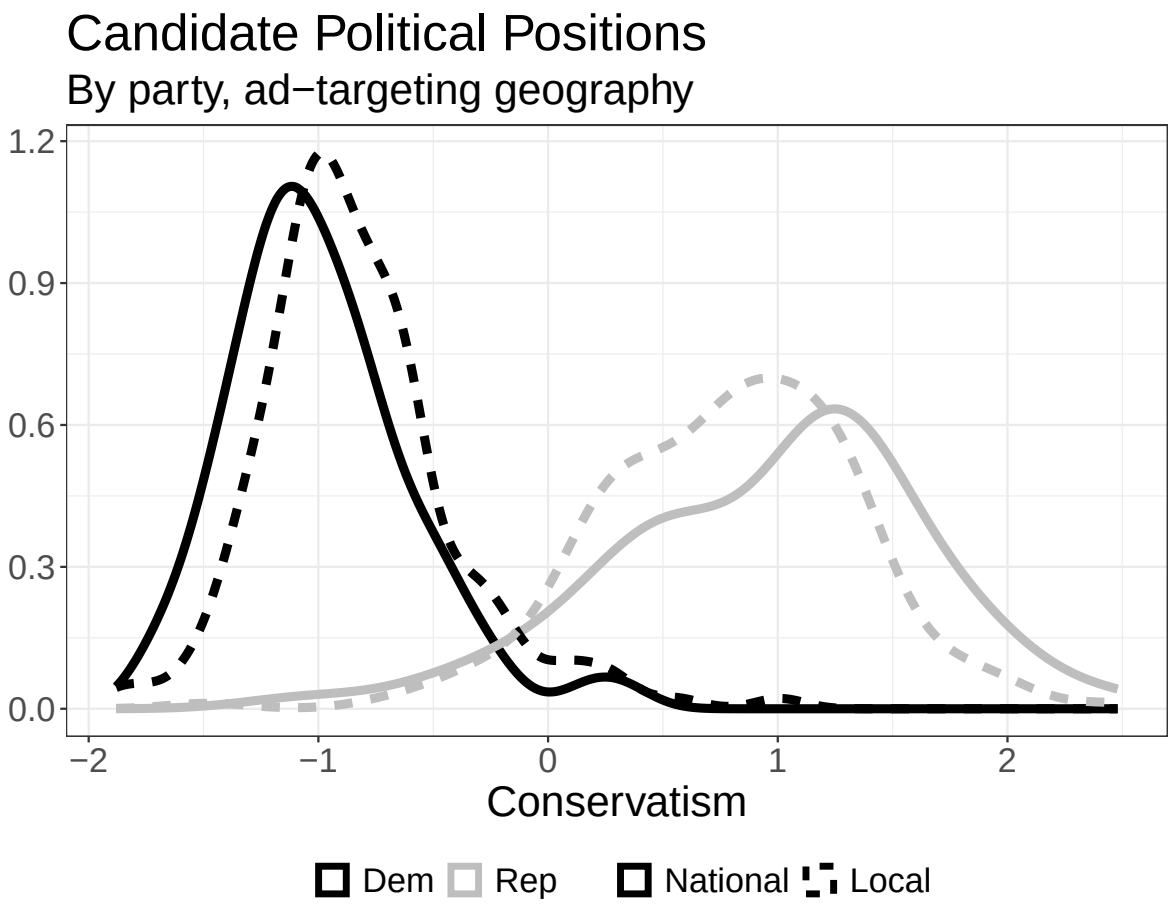


Figure 2: Distribution of candidate's local and national platform conservatism by party

Note: This figure plots the distribution of candidates' ideological positions implied by their locally-targeted, and separately, nationally-targeted ads.

Table 3: Candidate partisanship as a function of audience

Dependent Variables:	Platform Conservatism		Platform Extremeism			Overlap		
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
Dem x Local	-0.8337***	0.1008*						
	(0.0395)	(0.0573)						
Dem x National	-0.9956***							
	(0.0589)							
Rep x Local	0.7830***	-0.1780*						
	(0.0368)	(0.0959)						
Rep x National	0.9534***							
	(0.0628)							
Local			-0.1488***	-0.1407**	-0.1182**	0.0875*	0.1414**	0.1487*
			(0.0481)	(0.0553)	(0.0559)	(0.0444)	(0.0507)	(0.0693)
Local × Group				-0.0452	-0.1179			-0.0184
				(0.1062)	(0.1086)			(0.1096)
Constant						0.1050***		
						(0.0395)		
Fixed-effects								
Candidate		Yes	Yes	Yes	Yes			
CD							Yes	Yes
Group	-	-	-	Toss-up	Top decile of ad spend	-	-	Toss-up
Fit statistics								
Observations	507	200	200	200	200	107	20	20
R^2	0.73715	0.93243	0.69760	0.69800	0.70115	0.02796	0.73873	0.73964
Within R^2		0.06540	0.08864	0.08985	0.09934		0.46363	0.46550

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Note: This table presents the relationship between candidate ideology as inferred by ad text separately for locally- versus nationally-targeted ads. Column (1) presents the average ideology separately by party and targeted geography. Column (2) includes candidate fixed effects; within-candidate, Democratic candidates are more conservative in their locally-targeted ads than their nationally-targeted ads, while Republican candidates are more liberal in their locally-targeted ads compared to their nationally-targeted ads. Column (3) presents the pooled coefficient for ideological extremeness as the dependent variable, and Columns (4) and (5) show the effect separately for candidates in toss-up races and candidates in the top decile of their party's ad spend. Columns (6) and (7) present results for candidate issue overlap; Column (7) includes district fixed effects, limiting identifying variation to how the same rival candidates' local overlap compares to their national overlap. Column (8) shows the estimate from Column (7) separately for candidates in toss-up races.

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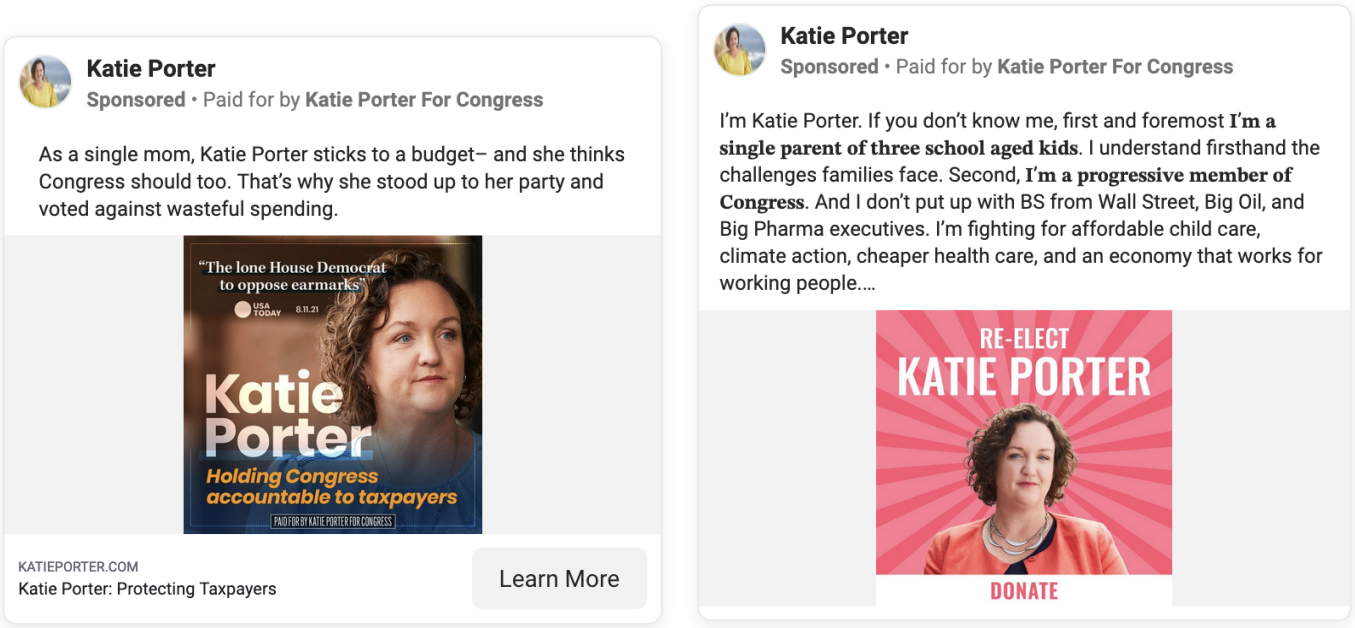
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A Additional tables and figures



(a) Katie Porter locally-targeted ad

(b) Katie Porter nationally-targeted ad

Figure A1: Katie Porter Facebook Ads

Note: The left figure shows a locally-targeted ad of Katie Porter's; the right figure a nationally-targeted ad.

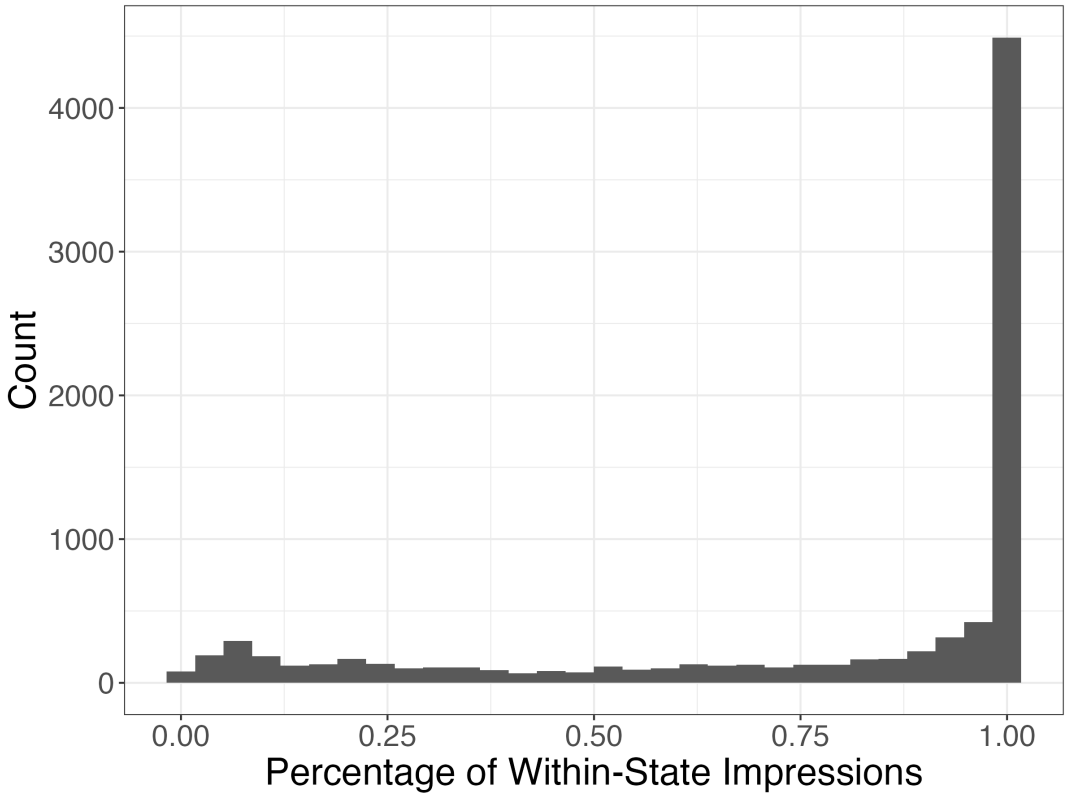
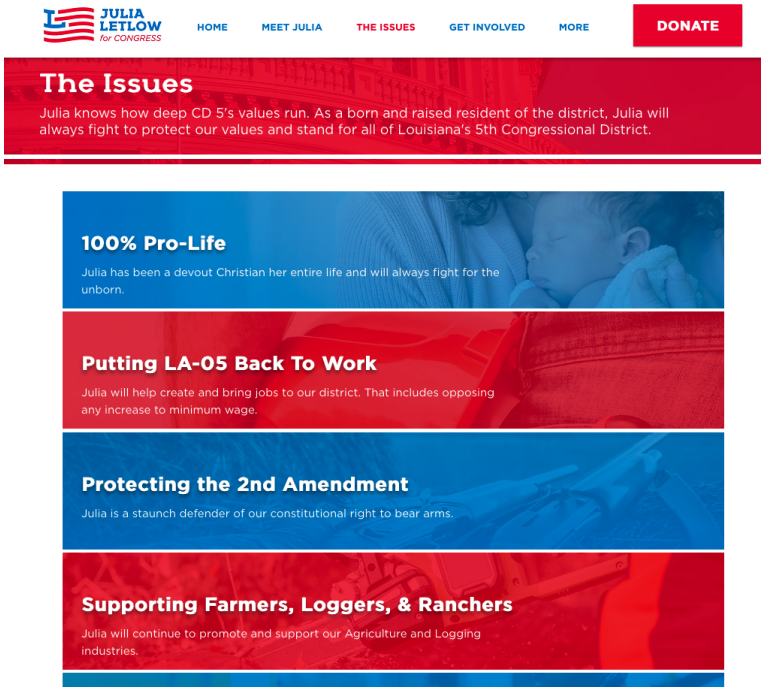
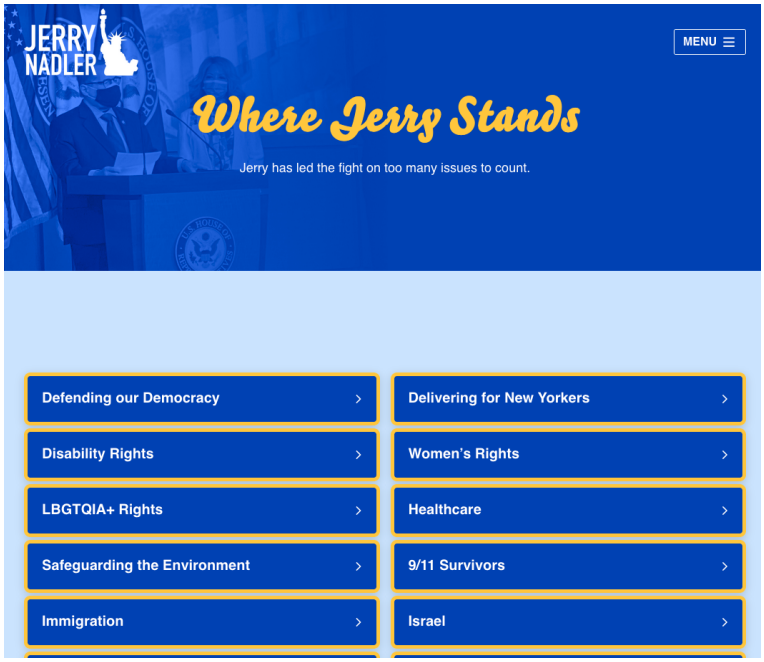


Figure A2: Ad-level distribution of within-state impressions

Note: This figure plots the distribution of unique ads' within-state impressions.



(a) Julia Letlow Issue Page



(b) Jerry Nadler Issue Page

Figure A3: Example of Candidate Website Issue Pages

Note: Candidates' campaign websites often have tabs that list their stances, priorities, or issues. These are two such examples.

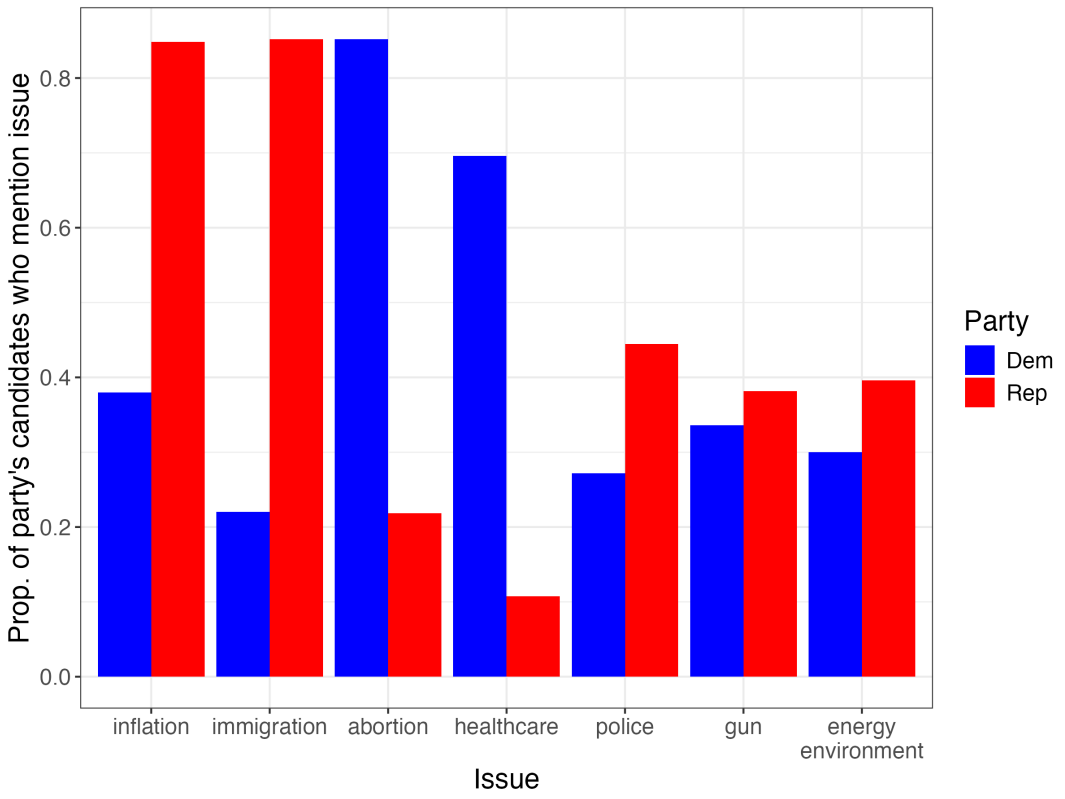
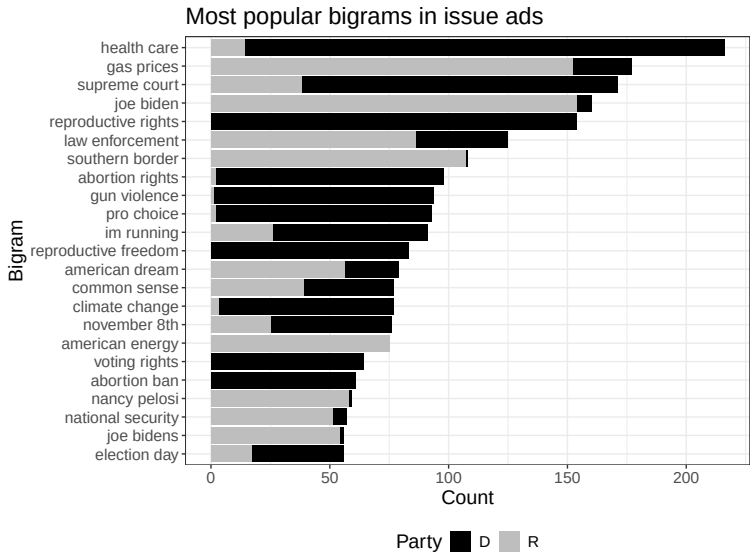
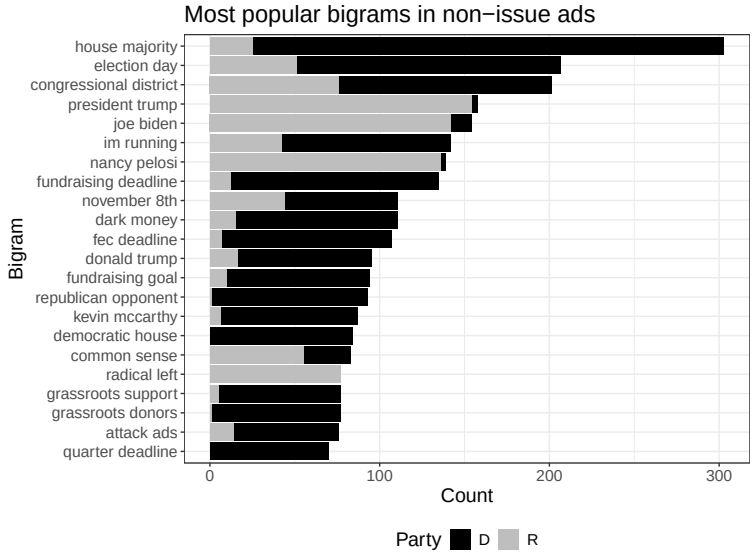


Figure A4: Candidates' Facebook ad issue mentions by party

Note: This figure shows the proportion of each party's candidates who mention each of the seven salient issues from Wesleyan Media Project in their Facebook ads.



(a) Ads mentioning an issue



(b) Ads not mentioning an issue

Figure A5: Note: Most frequently-used bigrams in ads that mention an issue versus ads that do not mention an issue

Note: The top figure shows the most commonly-used bigrams in ads that mention an issue, while the bottom figure shows the most commonly-used bigrams in ads that do not mention an issue.

Table A1: Selection into the sample

	Advertise locally and nationally...	and mention issues.	All others	Diff (1) and (2)	Diff (1) and (3)
Number of candidates	110	100	310	0	0
Number of ads	19.780	33.980	9.860	0	0
Ad spend	38,614	104,975	24,518	0.008	0.001
Total impressions	1,730,728	3,723,211	1,159,969	0.006	0
Toss-up	0.150	0.180	0.060	0.501	0.003
Democrat	0.510	0.530	0.450	0.763	0.194

Note: This table shows how candidates in the within-candidate variation analysis sample — those who advertise at least one issue locally and nationally (second column) — differ from candidates who either a) do not advertise nationally and locally (third column) or b) advertise nationally and locally, but do not mention an issue both nationally and locally (first column). P values from t tests of mean differences are shown in the last two columns.

Table A2: Issue mention robustness using various cut-offs

Dependent Variable:	Mention							
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables								
Abortion x More Local	-0.0752	-0.1742***	-0.1437***		-0.0374	-0.0091	-0.0248	
	(0.0609)	(0.0547)	(0.0515)		(0.0351)	(0.0290)	(0.0237)	
Gun x More Local	0.0266	-0.0093	5.05×10^{-5}		-0.0199	0.0072	0.0051	
	(0.0386)	(0.0261)	(0.0257)		(0.0275)	(0.0197)	(0.0194)	
Energy/enviro. x More Local	-0.0548	0.0187	0.0209		-0.0061	0.0378	0.0192	
	(0.0385)	(0.0314)	(0.0290)		(0.0405)	(0.0319)	(0.0286)	
Immigration x More Local	0.0096	-0.0020	0.0023		-0.1211*	-0.1948***	-0.1214**	
	(0.0154)	(0.0132)	(0.0118)		(0.0661)	(0.0521)	(0.0477)	
Public safety x More Local	0.0006	0.0524**	0.0619**		0.0222	0.0028	0.0310	
	(0.0170)	(0.0253)	(0.0290)		(0.0442)	(0.0391)	(0.0355)	
Inflation x More Local	0.0921**	0.0732*	0.0446		0.0581	0.0750	-0.0147	
	(0.0358)	(0.0389)	(0.0343)		(0.0505)	(0.0520)	(0.0478)	
Healthcare x More Local	0.0526	0.0645	0.0148		0.0328	0.0302	0.0280	
	(0.0722)	(0.0551)	(0.0505)		(0.0297)	(0.0214)	(0.0218)	
Abortion x Localness				-0.1452				-0.0529
				(0.0977)				(0.0438)
Gun x Localness				-0.0007				-0.0276
				(0.0571)				(0.0340)
Energy/enviro. x Localness				-0.0544				0.0367
				(0.0602)				(0.0481)
Immigration x Localness				0.0090				-0.2142**
				(0.0226)				(0.0823)
Public safety x Localness				0.0384				0.0255
				(0.0281)				(0.0573)
Inflation x Localness				0.1270**				0.1098*
				(0.0566)				(0.0650)
Healthcare x Localness				0.0799				0.0432
				(0.1089)				(0.0354)
Fixed-effects								
candidate-issue	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cutoff	0.50	0.85	0.95	linear	0.50	0.85	0.95	linear
Party	D	D	D	D	R	R	R	R
Fit statistics								
Observations	3,430	5,187	5,901	8,974	2,870	3,626	4,571	8,092
R^2	0.29216	0.31297	0.32802	0.35409	0.32545	0.33028	0.32533	0.33748
Within R^2	0.00412	0.00934	0.00596	0.00228	0.00527	0.01225	0.00474	0.00421

Clustered (candidate) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Note: This table presents robustness for Table 2 using different cut-offs for what constitutes a local ad (0.5, 0.85, 0.95) as well as a specification that linearly interacts an ad's home state percentage with each issue.

Table A3: Issue mention robustness using only local ads or national ads that include a donation solicitation

Dependent Variable:	Mention					
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Abortion x More Local	-0.0991	-0.1690**	-0.1656**	-0.0155	-0.0067	-0.0236
	(0.0652)	(0.0723)	(0.0732)	(0.0314)	(0.0295)	(0.0235)
Gun x More Local	-0.0051	-0.0114	-0.0193	-0.0389	-0.0100	-0.0111
	(0.0430)	(0.0359)	(0.0376)	(0.0283)	(0.0231)	(0.0273)
Energy/enviro. x More Local	-0.0004	0.0014	-0.0048	0.0756	0.0760	0.0167
	(0.0367)	(0.0327)	(0.0371)	(0.0549)	(0.0493)	(0.0544)
Immigration x More Local	0.0055	0.0039	0.0019	-0.3246**	-0.3348***	-0.2873***
	(0.0154)	(0.0133)	(0.0130)	(0.1245)	(0.1123)	(0.1043)
Public safety x More Local	0.0291	0.0612*	0.0752**	-0.0270	-0.0067	0.0351
	(0.0254)	(0.0349)	(0.0367)	(0.0543)	(0.0534)	(0.0595)
Inflation x More Local	0.0670	0.0828*	0.0760*	0.2920***	0.2440**	0.1916*
	(0.0478)	(0.0460)	(0.0432)	(0.0984)	(0.1039)	(0.1127)
Healthcare x More Local	0.0535	0.0761	0.0426	0.0601	0.0582	0.0544
	(0.0776)	(0.0690)	(0.0717)	(0.0484)	(0.0432)	(0.0447)
Fixed-effects						
candidate-issue	Yes	Yes	Yes	Yes	Yes	Yes
Party	D	D	D	R	R	R
Cutoff	0.75	0.85	0.95	0.75	0.85	0.95
Fit statistics						
Observations	3,766	4,417	4,655	2,149	2,387	2,884
R^2	0.31302	0.31891	0.33776	0.37213	0.37422	0.38895
Within R^2	0.00304	0.00801	0.00723	0.02313	0.02133	0.01350

Clustered (candidate) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Note: This table presents robustness for Table 2. The data used for these specifications include local ads and national ads that have a donation solicitation. Ads have a donation solicitation if the ad text includes any of the following words: donate, contribute, pitch (as in pitch in), and chip (as in chip in). I do not test the 50% cut-off specification because the median ad with a donation solicitation has 55% of its impressions from within state. Thus, over half of the donation solicitation ads would not be characterized as donor-targeted using this cut-off.

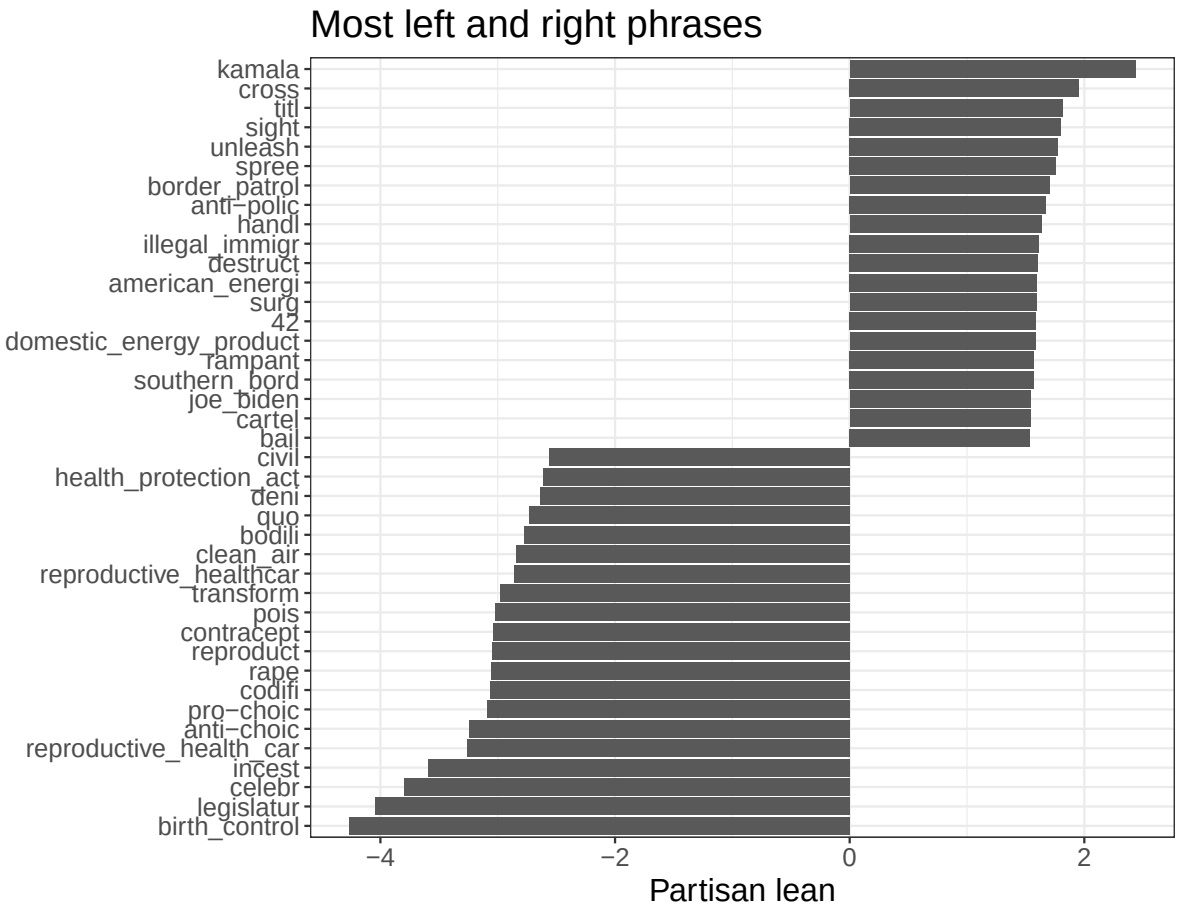


Figure A6: Partisan lean of ten most conservative and liberal phrases from *wordfish*

Note: This figure shows the top ten phrases most important in identifying a conservative and liberal dimension as identified by the wordfish procedure.

Table A4: Candidate partisanship and overlap robustness

Dependent Variables:	Platform Extremeism			Overlap		
Model:	(1)	(2)	(3)	(4)	(5)	(6)
Variables						
Local	-0.1160**	-0.1765***	-0.1685***	0.0912	0.0835	0.0972*
	(0.0572)	(0.0481)	(0.0421)	(0.1121)	(0.0499)	(0.0461)
Fixed-effects						
Candidate	Yes	Yes	Yes			
CD				Yes	Yes	Yes
Cutoff	0.50	0.85	0.95	0.50	0.85	0.95
Fit statistics						
Observations	156	230	288	14	24	32
R^2	0.71253	0.67708	0.68604	0.39779	0.75533	0.73887
Within R^2	0.05093	0.10603	0.10086	0.09934	0.20262	0.22896

*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Note: This table presents robustness for Table 3 using different cut-offs for what constitutes a local ad (0.5, 0.85, and 0.95). Columns (1) through (3) present robustness for Column (3) in Table 3; Columns (4) through (6) present robustness for Column (7) of Table 3.

Supplemental online appendix

B Characterizing candidate website issues

Candidates refer to the same issue in different ways. Here, I list a sample of the issue headers I classify into each of the seven issues.

1. **Abortion**: "Protect the Right to Life", "Pro-Life", "Defending Life", "Right to Life", "Protecting the Right to Choose", "Fighting for the Sanctity of Life", "Protecting Family", "Women's Health and Freedom", "Safeguarding Reproductive Rights", "Defending the Unborn", "Choice & Women's Health", "STAND UP FOR OUR PRO-LIFE VALUES", etc.

2. **Energy/Environment**: "Energy & Environment", "Global Warming and Climate Change", "Protect Our Climate", "Combating the Climate Crisis", "A Green New Deal", "Unleashing American Energy", "Moving Toward Energy Independence", "Protecting the Environment", "Restore America's Energy Independence", "Energy Policy and the Climate Crisis", "Domestic Energy Policy", "Fire Protection", "Water", etc.

3. **Guns**: "Conservative Alabama Values", "Gun Violence", "THE SECOND AMENDMENT", "Second Amendment Rights", "PREVENTING GUN VIOLENCE", "CONSTITUTIONAL RIGHTS", "COMMON SENSE GUN REFORM", "Protecting The 2nd Amendment", "Keeping Kids Safe", "Hunting and Fishing", etc.

4. **Healthcare**: "LOWERING PRESCRIPTION DRUG PRICES", "Affordable and Accessible Healthcare", "Repealing Obamacare", "Healthcare", "Providing Healthcare for All", "MEDICARE FOR ALL", "Quality Healthcare For All", "Fixing Our Broken Healthcare System", "Lower Health Care Costs", "Good Healthcare", "Pro-Affordable Healthcare", etc.

5. **Inflation**: If one of the issues mentions inflation, I consider that issue relating to inflation. "Fighting for the Middle Class", "Combating Rising Inflation Crushing Working Families", "Economy" "Inflation and Cost of Living", "JOBS AND ECONOMIC SECURITY", "Economic Growth", "Accountability in Government Spending", "Inflation & Gas Prices", "ECONOMIC RELIEF", "Tackling Rising Costs", "Taxes, Jobs & The Economy", "Fixing Inflation", "NATIONAL DEBT", etc.

6. **Immigration**: "BORDER SECURITY", "Stopping Illegal Immigration", "Build the Wall!", "Immigration Fixing The Broken System", "Immigration Reform", "Building a Compassionate Immigration System", "Ending Sanctuary State & Cities", "Securing our Southern Border", "BACK THE BLUE & DEFEND THE BORDER", "Building the Wall and Enforcing Our Laws", "Comprehensive Immigration Reform", "BORDER", etc.

7. **Public Safety**: "MILITARY, VETERANS & FIRST RESPONDERS", "Crime", "PUBLIC SAFETY", "Making Communities Safer", "Reimagining Justice", "Law Enforcement", "SOCIAL JUSTICE", "Criminal Justice", "RACIAL JUSTICE", "Law Enforcement", "Policing Reform", "Law & Order", "Criminal Justice Reform", "Public Safety and Criminal Justice Reform", "Crime and Safety", etc.

Porter et al. (2025) collect candidate platforms by issue from candidate campaign websites. The issues they collect that are in common with Wesleyan Media Project's seven salient issues are healthcare, immigration, and energy/environment. There is significant overlap between the issue-specific commonly-used bigrams I collect and the ones using the CampaignView data, providing additional validation for this study's data collection procedure.

Table B1: CampaignView: Ten most commonly-used phrases by Democratic, Republican candidates

healthcare	immigration	energy/environment
health care	immigration system	climate change
health insurance	immigration reform	clean energy
mental health	undocumented immigrants	renewable energy
affordable care	comprehensive immigration	climate crisis
care act	american dream	fossil fuel
prescription drugs	asylum seekers	fossil fuels
healthcare system	promise act	clean air
prescription drug	border security	clean water
covid 19	detention centers	carbon emissions
drug prices	southern border	future generations

healthcare	immigration	energy/environment
health care	illegal immigration	energy independence
health insurance	southern border	natural gas
healthcare system	illegal immigrants	climate change
pre existing	border patrol	energy production
care system	legal immigration	american energy
existing conditions	immigration system	energy independent
mental health	border security	natural resources
care act	border wall	national security
free market	immigration laws	energy sources
insurance companies	national security	fossil fuels

Note: This table shows the ten most frequently-used bigrams by party for three issues in the data constructed in Porter et al. (2025). The three issues are the ones in common between Wesleyan Media Project (the issues used in the current study) and Porter et al. (2025).

C Additional wordfish details

Wordfish assumes that document word frequencies are drawn from a Poisson distribution with an expectation that depends on word-specific ability to sort documents (β_j) and document-specific latent position (ω_{cg}). In addition, the Poisson rate includes controls for the overall tendency for candidates to use a particular word (ψ_j) as well as controls for each document's wordiness (α_{cg}).

$$\lambda_{jcg} \sim \text{Poisson}(\lambda_{jcg}) \text{ where} \tag{6}$$

$$\lambda_{jcg} = \exp(\alpha_{cg} + \psi_{cg} + \beta_j \omega_{cg}) \tag{7}$$

Estimation follows via expectation maximization (EM) because the likelihood contains an unobservable variable — latent document positions. The two-step EM algorithm iterates between fixing word-specific (ψ and β) parameters and maximizing a likelihood to estimate candidate-by-document-specific parameters (α and ω), and fixing α and ω to estimate ψ and β, until a convergence criterion is met.[19]

[19] Updated estimates for α and ω come from maximizing $\sum_{j=1}^{m}(-\lambda_{jcg} + \ln(\lambda_{jcg}) \times y_{jcg})$ where $\lambda_{jcg} = exp(\alpha_{cg} + \psi_j^{\text{start}} + \beta_j^{\text{start}} \times \omega_{cg})$. Updated estimates for ψ and β come from maximizing $\sum_{cg=1}^{n}(-\lambda_{jcg} + \ln(\lambda_{jcg}) \times y_{jcg})$ where $\lambda_{jcg} = exp(\alpha_{cg}^{\text{previous step}} + \psi_j + \beta_j \times \omega_{cg}^{\text{previous step}})$. The algorithm converges when changes in the log likelihood, $\sum_j^m \sum_{cg=1}^{n}(\lambda_{jcg} + \ln(\lambda_{jcg}) \times y_{jcg})$, fall below some threshold.

To highlight the intuition, consider the following example. Suppose candidates use only three words in their ads: "illegal", "reproductive", and "communities." Suppose further that only Republican candidates use "illegal", only Democratic candidates "reproductive", while members of both parties use "communities." With all word weights initialized to zero, there is no way for the algorithm to match the fact that different documents use these phrases at different rates. Now, suppose the weight on "illegal" begins at a positive value. Then, for the likelihood to reflect that some documents mention "illegal" more than others, those documents need to receive a positive latent position, ω. With β and ω both positive, the Poisson rate, λ, that those documents use "illegal" is higher than for other documents. Documents without "illegal" receive non-positive ωs to account for the word's absence. "Reproductive" receives a negative weight: The likelihood reflects negative ω documents' higher usage tendencies. Holding document positions fixed, "communities" receives a weight of zero: It does not help discriminate between documents across the ω spectrum.

D Text processing details

First, I stem words so they are represented by their root (e.g. "immigrant", "immigrants", and "immigration" become "immigrant"). Second, I replace commonly-used bigrams — as flagged by Table 1 — with their concatenated version (e.g. "reproductive rights" becomes "reproductive_rights") so that *wordfish* considers the word *pair* — rather than the individual words — as informative about partisan lean. Finally, I keep words/phrases that are used by at least ten candidates, eliminating proper nouns like "Virginia" and "Josh."

To avoid identifying a geographic targeting dimension of the ads, I systematically remove non-ideological words that members of both parties tend to use to a particular geography — words like "contribute", "donate", "ballot", etc. I construct a list of these words in the following way.

First, I run a wordfish procedure on all the Democratic candidates' ads. I characterize the ads into those that are targeted locally and those that are targeted nationally. There are two documents: local and national. The rate at which geography g uses word j, y_{jg} comes from a Poisson distribution. Consequently, the word weight outputs (β_j) from the procedure indicate the tendency for the word to be used locally versus nationally. Higher (lower) weights indicate a higher tendency to use the word locally (nationally). Second, I run the parallel procedure on all Republican ads. Third, I calculate the words that both parties *tend* to use locally. I consider words with an average "local" weight above 1 (21 words) to be local words. These words include "congressman", "event", "plan", "8th", "town", etc. Finally, I calculate the words that both parties tend to use nationally (words with below -0.5 weights, 33 words). These words include "grassroot", "chip", "millions", "deadline", "donate", "flip", etc. I remove non-ideological words that are used predominantly locally by both parties and non-ideological words that are used predominantly nationally by both parties.