


ORIGINAL ARTICLE

Partisan selective exposure in online news consumption: evidence from the 2016 presidential campaign

Erik Peterson^{1*} , Sharad Goel² and Shanto Iyengar³

¹Department of Political Science, Texas A&M University, College Station, Texas, 77845-3424, ²Department of Management Science & Engineering, Stanford University, Stanford, California and ³Department of Political Science, Stanford University, Stanford, California

*Corresponding author. E-mail: erik.peterson@tamu.edu

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Abstract

Where do partisans get their election news in the contemporary media environment? We track the online news consumption of a national sample during the 2016 presidential campaign. We find levels of partisan isolation in news exposure are two to three times greater than in prior studies, although the absolute level of isolation remains modest. The partisan divide for election-related news exceeds the divide for non-political news. This tendency of partisans to follow like-minded news providers occurs despite the relatively small differences in the partisan slant of the content offered by the majority of sources they visited. Finally, we find that partisans who gravitated to congenial news providers did not shift their evaluations of the presidential candidates during the campaign.

Keywords: American politics; mass media and political communication

Fifty years ago, partisanship did not intrude into encounters with the news in the United States. During this era of weak polarization, the evening newscasts of ABC, CBS, and NBC attracted a combined audience that exceeded 80 million daily viewers (see Iyengar, 2018). These networks provided a largely non-partisan, point-counterpoint perspective. Since these newscasts were nearly identical, exposure to the world of public affairs was a uniform—and unifying—experience for voters of all political stripes.

Forty years later, 24-hour cable news channels emerged as competitors to network news and provided partisans an opportunity to obtain news from like-minded sources (*Fox News* for Republicans, *MSNBC* for Democrats). The development of the Internet unleashed a wider range of media choices, which facilitated partisans' ability to obtain information and commentary consistent with their leanings and also enabled the apolitical strata to tune out politics (Prior, 2007). In a break with the paradigm of non-partisan journalism, a growing number of outlets offered reporting with varying degrees of partisan commentary. The political blogosphere developed as a partisan platform, with little cross-party exposure (Adamic and Glance, 2005; Lawrence *et al.*, 2010). The creation of vast online social networks permitted extensive recirculation of news reports, even to those not motivated to seek out news (Bakshy *et al.*, 2015).

The result of these changes is that, in contrast to the captive audience of the 1970s, Americans in 2016 enjoyed significant control over their news consumption. Here we show the existence of a partisan divide in news consumption in this enhanced media environment. Our evidence derives from a two-wave panel survey administered before and after the 2016 election and merged with survey respondents' web browsing behavior during the campaign. Our results indicate that partisans gravitated to news sources read disproportionately by their co-partisans. This tendency was

more pronounced for political than non-political content, and partisan isolation peaked when coverage conveyed a clear partisan slant. While absolute levels of partisan isolation remain modest, the partisan divide in news consumption observed here substantially exceeds measures from earlier studies of online news over the past decade.

Since our evidence suggests partisans engage in selective exposure, we also study its potential attitudinal consequences. Given a growing literature documenting the public's harsh evaluations of opposing party candidates and supporters (Mason, 2018; Iyengar *et al.*, 2019), although this animus appears concentrated among the most politically engaged (Klar *et al.*, 2018), we investigated the possibility that one-sided news consumption might exacerbate polarization. Instead, an individual's media diet was not linked to change in their evaluation of the presidential candidates between August and December. While we cannot isolate a single explanation for this null finding, we discuss several possibilities. One possibility is that partisans' ill will toward the opposition had already reached high levels at this study's outset. Another is that the availability of news with strong partisan slant remains limited—with most of the sites visited by participants offering conventional point-counterpoint coverage—potentially minimizing the attitudinal consequences of one-sided news exposure. Finally, partisans' selectivity in the news they encounter may serve primarily to reinforce, rather than change, their attitudes.

The findings we report here advance scholarly understanding of the scope and implications of partisan selective exposure in several ways. First, considering news choice during a contemporary campaign, our findings reveal a degree of partisan isolation in news consumption that is two to three times higher than past work. Second, we assess these divides across different content categories and show that partisan isolation is more pronounced when considering campaign coverage, particularly news that conveys a partisan slant. This means that partisan divides in media consumption expand when news reports convey clear political implications. Third, we link behavioral measures of news consumption to survey indicators of candidate preferences for the first time. Here we find no association between a greater reliance on congenial media outlets and polarization in candidate assessments over the course of the general election, a piece of evidence with important implications for understanding the partisan media's role in highly salient campaigns. Finally, in considering the broader implications of this study, we note that despite the momentous changes to the media market, the vast majority of news outlets continue to practice conventional, non-partisan journalism. We conclude, accordingly, that the increase in audience isolation has occurred not because of the greater supply of biased news, but rather because evaluations of news providers have become increasingly entangled with consumers' partisan loyalties.

1. Selective exposure to information: theory and evidence

The argument that people prefer confirmatory information precedes the onset of “new” media and can be traced to cognitive consistency theories of attitude change from the 1950s (Abelson *et al.*, 1967). Balance theory (Heider, 1958) and the theory of cognitive dissonance (Festinger, 1957) stipulated that humans are averse to having their beliefs challenged. Such theoretical work suggests news consumers seek information they expect to find agreeable.

Initial tests of the selective exposure hypothesis yielded mixed results; only a few showed the expected preference for supportive information, a pattern that replicated in political settings as partisans did not seem averse to encountering information at odds with their attitudes (Sears and Freedman, 1967). The strongest evidence for selective exposure emerged in observational studies where partisan voters reported greater exposure to messages from their preferred candidate (Lazarsfeld *et al.*, 1948).

In the current era of polarization, debate continues over the extent of partisan selective exposure. Large-scale web-browsing studies have uncovered only limited traces of one-sided news consumption. In their pioneering analysis of Americans' web browsing behavior in 2009, Gentzkow and Shapiro (2011) found that online audiences were only slightly more segregated than those for

network or cable news, and one-sided media exposure was infrequent in comparison with residential and inter-personal networks. More recent studies of web browsing obtain generally similar results. Flaxman *et al.* (2016) show the dominance of ideologically diverse news sources in web traffic from 2013, but note that when individuals arrived at sites via search engines or social media traffic was more segregated. Drawing on a similar data collection procedure to the one used here in 2016, Guess (2018) finds limited evidence of selective exposure in overall web browsing, although greater partisan divides occur when focusing only on traffic to political content.

In contrast to this mixed observational evidence, recent experimental studies of news selection find considerable partisan segregation. Iyengar and Hahn (2009), for instance, manipulated news organizations' logos across identical headlines and found that conservatives disproportionately selected *Fox News*, even when subject matter was non-political. Liberals, on the other hand, displayed a strong aversion to *Fox* (see also Stroud, 2010; Mummolo, 2016). Levendusky (2013) finds that the demand for biased news is concentrated among strong partisans. Further, despite their already strong sense of group identity, partisans exposed to congenial news providers were found to develop more extreme issue opinions (see also Garrett *et al.*, 2014).

2. Research design

We bring new evidence to the study of partisan selective exposure by tracking web browsing behavior in a two-wave panel survey administered during the 2016 general election. The browsing data were generated by an application installed by respondents after they completed the initial survey wave. We also carried out a crowd-sourced content analysis of 55,000 election-related news articles these respondents visited. This multi-pronged design enables an examination of partisan-selective exposure to online news, variation in partisan selectivity across different news genres, and the attitudinal consequences of partisan news consumption. We now describe each element in greater detail.

2.1. Web browsing

We measure web browsing behavior using the Wakoopa toolbar. After participating in the first wave of the survey, 1303 respondents (14 percent of those who completed the first survey) installed this toolbar on their primary web browser.¹ From August 1 through November 8, the application passively tracked their browsing behavior in terms of the number of visits they made to different web domains and the particular web pages (or URLs) they visited at these domains. All told, respondents made 30 million visits to over 170,000 different web domains. Eventually, 1076 (83 percent) of the individuals who installed the toolbar completed the second survey. Our analysis focuses on this set of respondents, for whom we have both waves of survey data as well as their web browsing behavior.

Directly observing the web browsing behavior of survey respondents is a key advantage of our study. It removes serious concerns about measurement error that would be present if we instead used survey self-reports (Prior, 2009; Guess, 2015). At the same time, this approach raises other concerns we briefly discuss here and address in more detail later in the paper. Given the low rate of toolbar uptake, one potential issue is that the panelists who installed the toolbar systematically differ from a nationally representative sample in ways that influence our findings. As we document in Appendix A, after employing survey weights the respondents who installed the toolbar differed only slightly from the original nationally representative sample of survey respondents; they tended to be slightly more interested in politics. Given the potentially concerning nature

¹ Respondents received YouGov points for keeping the toolbar active, but did have the option to turn it off if they wished. Appendix A shows that once they agreed to use the toolbar, non-compliance was not systematically related to their initial political views.

of selection bias on political interest, we show our findings hold up when applying an alternative set of raking weights based on the level of political interest in the 2016 Cooperative Congressional Election Study.² Additionally, aggregate web traffic to various domains among this sample is highly correlated with measures of traffic from other approaches (i.e., ComScore; see Appendix A). While the potential for bias introduced by focusing on individuals who consent to have their browsing behavior measured is a key concern—both for this study and other examinations of validated web browsing—the sensitivity checks we later present suggest our findings are largely robust to these issues.

2.2. Content analysis

After receiving the URLs for the web pages visited by panelists, we scraped the web pages they visited from a set of 355 politically focused news domains. This list contains the top 100 web domains for news based on overall traffic among our panelists and an additional 255 US-based websites included on the Alexa list of most popular news domains, including the websites of mainstream newspaper and television outlets, web aggregators that bring together content from other sources, and other online-only sources of news.³ Across this set of news domains, our respondents registered 1.1 million visits. This represents 4 percent of their overall visits made to any website. While low, this level of attention is consistent with other work using behavioral web data. For instance, Hindman (2008, 6) finds that roughly 3 percent of web traffic went to news sites.

When they reached these news domains, panelists read 212,000 unique news articles. Of these, 55,000 stories referenced the presidential election.⁴ Following a procedure developed by Budak *et al.* (2016), we recruited coders from Amazon's Mechanical Turk to classify the content of articles dealing with the presidential election. To ensure reliable classification, we developed a coding scheme through an iterative process on a small sample of articles. In our main analysis each of the 55,000 articles is labeled based on the assessment of one coder. However, in developing this coding scheme, we conducted a validation exercise on a subset of articles rated by multiple coders. This analysis is presented in Appendix B and demonstrates a high degree of inter-coder correspondence in assessments of article topics. We also required coders to complete a political knowledge quiz before evaluating articles and, to limit the influence of any single coder, capped the number of articles that could be rated by one individual at 200.

Coders first labeled the focus of each article. This lets us differentiate between articles about the issue positions of candidates, campaign events (e.g., one of the debates), the political horse race or campaign strategy, or news about a scandal implicating one of the candidates. They also assessed whether the article was more favorable toward either political party. While we require this to assess a hypothesis about the degree of selective exposure by partisan slant later in the paper, we note the difficulty in identifying this concept using crowd-sourcing. For a set of stories that received ratings from multiple coders in a pre-test, there were somewhat low measures of inter-coder reliability ($r = 0.23$ between the two article ratings, $\kappa = 0.07$). As coders agreed about the direction of an article's slant in 80 percent of cases where they both labeled it as non-neutral, the primary tension was disagreement about whether or not an article was neutral or had a partisan slant. We note this to make readers aware of likely non-trivial measurement error in our subsequent test of partisan selectivity by partisan slant at the article level, but also emphasize that, in aggregate, these crowd-sourced ratings appear to effectively capture relative differences in the news content a source provides (e.g., there is a strong correspondence between a site's average content rating and its partisan audience, Appendix Table C1).

²We use this survey, rather than the ANES, because its measure of political interest measure is the same one employed in the surveys used here.

³Appendix G contains the full website list.

⁴We defined election-related news as stories that mentioned "Clinton" or "Trump" in the first hundred words.

2.3. Panel survey

We measured survey respondents' political attitudes through a two-wave panel survey. During the 2016 election, 9760 individuals completed a pre-election online survey. The sample was drawn from a national online panel YouGov assembled through multiple means, including online advertising, telephone-to-web and mail-to-web recruitment. The sample was created using YouGov's standard approach of drawing a sample of panelists so as to match the voting-age population on key demographic characteristics (e.g., age, race, and education) — a methodology used in a variety of other public opinion studies (see Vavreck and Iyengar, 2011). Following the election, 7704 of these initial respondents completed a second survey. Administration of the first wave was carried out between July 7 and September 26, and YouGov fielded the post-election wave between November 18 and December 7. We can match survey responses to both waves with web browsing activity for 1076 individuals.

This synthesis of survey and web browsing data offers advantages for examining questions about the prevalence of partisan selective exposure and its potential contribution to attitudinal polarization. The individual-level survey data lets us measure the partisan affiliation of survey respondents at the start of the general election campaign. Using behavioral data alleviates concern about measurement error inherent to self-reported media consumption (e.g., Prior, 2009). The content analysis permits investigation of variation in browsing behavior across the particular news articles selected by respondents. Finally, the panel structure of the survey data permits an examination of the consequences of partisan news consumption for changes in individuals' political attitudes over the final months of the 2016 presidential campaign.

3. Hypotheses

In the context of these new data, we have several hypotheses about the extent of partisan-selective exposure. First, we have reasons to expect elevated levels of selective exposure relative to the extant literature. This study occurred during a highly polarized election campaign, in contrast with prior work that examines web browsing in non-campaign periods. Moreover, there is ample evidence that Americans have become more polarized in their feelings toward partisan opponents over the past decade (see Iyengar *et al.*, 2019). This combination leads to greater pressure for dissonance avoidance, potentially leading partisans to seek out “friendly” news providers.

Hypothesis 1: We anticipate higher levels of partisan isolation in news consumption relative to earlier studies of web browsing.

We further anticipate variation in the level of audience segregation across different topics. More specifically, we expect a gradient of increasing partisan-selective exposure as news content becomes more political, and more clearly favors one candidate over the other. A literature on identity threat shows that when the status of a favored group is questioned, its members respond with stronger in-group loyalty (Bourhis *et al.*, 1979; Branscome *et al.*, 1999) and heightened out-group animus (Crocker *et al.*, 1991; Branscome and Wann, 1994). Extrapolating from this evidence, the more threatening the content of the news to individuals' sense of party identity, the more likely they are to rely on supportive news sources. As an illustration, we expect partisans to experience less threat when encountering a news report describing debate preparations than a report focusing on controversy about their favored candidate's fitness for office. Accordingly, a second expectation is that partisan divides will be more pronounced for news focusing on politics, relative to non-political content. Moreover, a third expectation is that these divides will be most pronounced when political news features valenced content (i.e., slant). This leads to two hypotheses.

Hypothesis 2: We expect greater partisan selectivity for political content compared to non-political content.

Hypothesis 3: We expect greater partisan selectivity when the news focuses on political controversies with potential to harm the electoral prospects of a candidate.

4. Results: the extent of partisan-selective exposure

We begin by presenting the audience composition of popular online news sites, specifically the share of a domain's overall pageviews from Democrats, Republicans, and independents for the ten most frequently visited news domains (see [Table 1](#)). We include “leaners” with the party they are closest to, meaning the “independents” category includes only pure independents. Strikingly, eight of the ten sites—including venerable mainstream news organizations—have a clearly partisan audience. For example, *Fox News* has only a 5 percent Democratic share, and the *Washington Post* has only a 13 percent Republican share. Only *Yahoo News* and *FiveThirtyEight* have audiences with approximately equal numbers of Democrats and Republicans.

These figures stem, in part, from greater online news consumption by Democrats: 53 percent of all news visits are accounted for by Democrats, 35 percent come from Republicans, and 12 percent from independents that do not lean toward one of the parties. This pattern of heavier online news consumption by Democrats is consistent with past studies of web browsing (see, e.g., Flaxman *et al.*, 2016). While it is difficult to isolate a single attribute behind it, this difference seems linked in part to demographic differences between the two parties (e.g., age is a particularly strong predictor of online news consumption volume and younger individuals lean Democratic). However, as we consider in Appendix F, Democratic partisanship predicts higher levels of online news exposure even after conditioning on other demographics.

As an alternative measure of audience segregation, we compare the top 20 sites visited by Democrats and Republicans, respectively (see [Figure 1](#)). *Fox News* is the premier source for Republicans. Together, *Fox News*, *Drudge Report*, and *RealClearPolitics*—the top three sites frequented by Republicans—account for a third of all Republican news visits. For Democrats, the *Huffington Post* is the leading source of news, followed by the *Washington Post* and the *New York Times*. As with Republicans, these three sites account for a third of Democrats' news visits. Notably, the top sites for each party—*Fox News* for Republicans and the *Huffington Post* for Democrats—have cultivated a reputation for partisan commentary, in contrast to the point-counterpoint paradigm of traditional journalism. Moving down the list, however, we find that Democrats are more likely than Republicans to visit the sites of largely non-partisan news sources, including those of major daily newspapers, the three major television networks, and *CNN*.

One explanation for the greater reliance on traditional sources by Democrats is that the subset of liberal sources is relatively small and there is no established liberal market leader as in the case of *Fox News* for Republicans. Alternatively, as some psychologists have suggested (Jost *et al.*, 2003), Republicans' sense of partisanship may be more intense, leading to a stronger demand for biased news. Unfortunately, our data do not permit adjudication between these alternative explanations for this difference.

The set of news websites with the highest traffic and their ordering in terms of partisan audience composition both parallel prior research on web browsing behavior in non-campaign contexts. Six websites in [Table 1](#) overlap with the top ten most visited news sites in 2009, as reported by Gentzkow and Shapiro (2011). The partisan ordering of high-traffic websites in 2016 also correlates well with previous orderings of domain-level partisanship ($r = 0.59$ with the ordering in Flaxman *et al.*, 2016), with alternative approaches to assessing the partisanship of media

Table 1. Top ten news domains

Domain	Democratic share	Independent share	Republican share	Total pageviews
drudgereport.com	2%	13%	86%	35,079
foxnews.com	5%	23%	71%	60,663
Yahoo News	40%	12%	48%	55,793
fivethirtyeight.com	47%	5%	48%	62,187
cnn.com	56%	8%	36%	44,264
MSN News	36%	29%	34%	44,147
nytimes.com	69%	4%	27%	75,950
washingtonpost.com	81%	7%	13%	72,549
dailykos.com	84%	8%	8%	36,697
huffingtonpost.com	91%	4%	5%	110,449

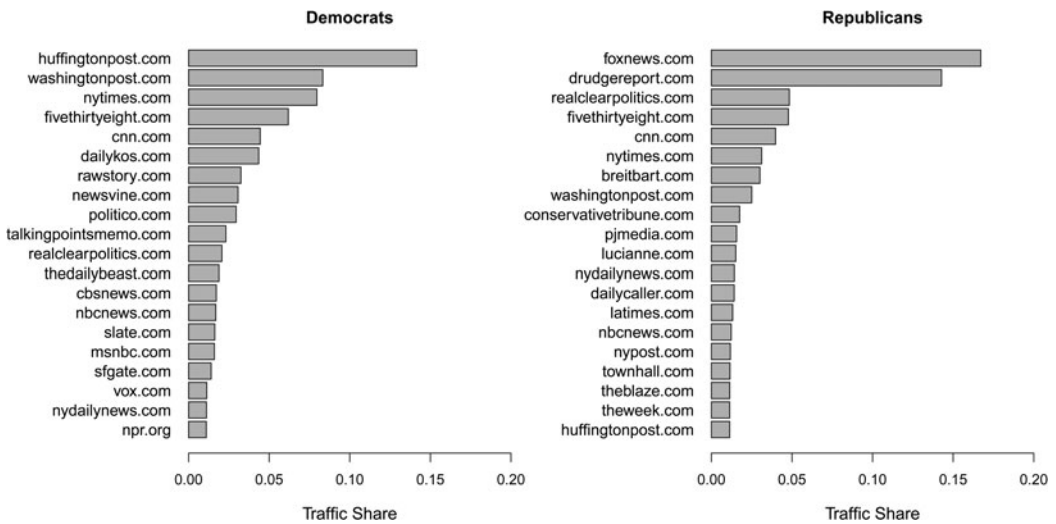


Figure 1. Share of traffic to individual sites by party.

audiences such as content sharing on Facebook ($r = 0.78$ with the ordering in Bakshy *et al.*, 2015) and with our own coder-based ratings of the partisan slant of election news delivered by particular websites ($r = 0.67$).⁵

4.1. Comparison to 2009 web traffic

To benchmark our results relative to Gentzkow and Shapiro (2011) we use the *isolation index*—the average Republican audience share of web visits made by Republicans minus the average Republican audience share of web visits made by Democrats—which captures the partisan divide in exposure to news sources.⁶ In the equation below rep_j and dem_j indicate the number of Republican and Democratic visits to web domain j . We refer to the sum of Republican and Democratic visits as $visits_j$. The terms rep_m and dem_m refer to the total number of visits made

⁵We explore this validation exercise further in Appendix B.

⁶When assessing partisan isolation we employ sample weights provided by YouGov to weight our sample back to a nationally representative sample frame.

by Republicans and Democrats.

$$\text{Isolation Index} = \sum_{j \in J} \left(\frac{\text{rep}_j}{\text{rep}_m} \times \frac{\text{rep}_j}{\text{visits}_j} \right) - \sum_{j \in J} \left(\frac{\text{dem}_j}{\text{dem}_m} \times \frac{\text{rep}_j}{\text{visits}_j} \right)$$

This isolation index is bounded between zero and one with intuitive interpretations of these end points. If both partisan groups received all their news from the same source, the index would be zero, indicating a lack of partisan isolation. Higher scores indicate greater divergence between the news preferences of the two sets of partisans. At the other extreme, an isolation index of one would indicate no common exposure whatsoever. We note that, like previous work, this measure characterizes media diets without attention to whether individuals reach an average audience share from visiting many sites with disparate audiences or habitually browsing a small number of similar sites. We consider variety of exposure a distinct topic for future research, but for now set it aside to make a comparison with earlier studies.

To ensure the clearest possible comparison with earlier research, we mirror the approach used in Gentzkow and Shapiro (2011). Our measures of browsing come from a passive tracking application, a similar approach to this earlier study. When computing the isolation index, we aggregate our visit level to the unique daily visit (i.e., an indicator variable for whether or not a panelist visited the news domain at least once on a given day) the same unit of analysis used in Gentzkow and Shapiro (2011). We utilize the same adjusted version of the isolation index for our primary analysis which corrects for bias that arises when the number of visitors to a web domain is small.⁷ We follow the same procedure to impute the partisanship of “pure” independents by assuming the Republican share among this group visiting an outlet is equal to the Republican share among visitors to the outlet that declare a partisan leaning.

Despite these efforts, we cannot rule out every potential difference. For instance, while our panel was constructed using a matched sampling process and compares well with the demographics of other political surveys, we are unaware of data on the demographics of the samples in previous work that would allow us to make a direct comparison. We note this as a potential limitation, but believe on net the overwhelmingly similar approach across these contexts allow us to assess whether a temporal change in partisan isolation has occurred relative to this earlier work.

During the 2016 election, respondents’ overall news browsing behavior yielded an isolation index of 0.21. Republicans, on average, visited news websites with an average audience share that was 55 percent Republican, while Democrats visited domains with an audience share of only 34 percent Republican. This level of isolation represents far from a complete partisan divide in online news consumption. As noted in prior research, the dominance of a few heavily trafficked websites with heterogeneous audiences (e.g., Yahoo News) facilitates considerable overlap in the browsing behavior of partisans.

While our measure of audience polarization is some distance away from the maximum, comparing the isolation index in 2016 with the same measure in 2009 reveals a sizable increase. At 0.21, our estimate of partisan segregation is three times higher than the comparable figure from 2009 (0.07 in Gentzkow and Shapiro, 2011, Table VIII). As Table 2 indicates, this substantially increased segregation in domain-level news consumption is stable across several methods of constructing the isolation index, including sub-setting the data to the ten most popular news domains in our panel, using the 2009 list of ten most popular news outlets (from Gentzkow and Shapiro, 2011), or basing the isolation index on respondent ideology rather than partisanship.

⁷The formula for this adjusted index is available in Appendix D. Appendix D also shows that our findings are similar when using the unadjusted isolation index.

Table 2. Partisan/ideological segregation by domain

Domains	Variable	2009 isolation index	2016 isolation index
All news domains	Party	0.07	0.21
Top 10 (2009 list)	Party	–	0.22
Top 10 (2016 list)	Party	–	0.21
All news domains	Ideology	0.08	0.24
Top 10 (2009 list)	Ideology	–	0.25
Top 10 (2016 list)	Ideology	–	0.25

4.2. Comparison to 2013 web traffic

The differences noted above between the 2009 and 2016 results may be driven by an uptick in the general level of mass polarization, by changes in context (the 2009 study occurred in a non-election period), or a combination of the two. However, in this section, we show that the level of partisan segregation in 2016 is more pronounced than in 2013, as reported by Flaxman *et al.* (2016). That study of 2013 browsing patterns differs from ours primarily in its reduced proximity to the electoral calendar.

Instead of the isolation index, Flaxman *et al.* (2016) report an alternative measure of segregation: the scaled standard deviation of partisan news exposure R_i among members of their sample.⁸ This measure classifies the partisanship of political domains based on the composition of their audience and then averages over this measure of domain partisanship for all the visits an individual makes to news domains.

Specifically, for each individual i we compute

$$R_i = \frac{1}{N_i} \sum_{j=1}^{N_i} r(d_{ij}),$$

where N_i is the number of URLs (on news domains) visited by individual i , d_{ij} is the domain of the j th URL visited by individual i , and $r(d)$ is the Republican share of domain d .⁹

Flaxman *et al.* (2016) report that audience segregation for news websites in 2013 was 0.11. Using the same measure, we find that the level of segregation reached 0.25 for traffic to all news domains in 2016. That partisan selectivity has more than doubled since 2013 points to the importance of the electoral context; a closely contested presidential campaign may make partisans significantly more motivated to rely on news providers thought to be congenial to their point of view. Comparisons with the 2013 study allow us to pursue a further explanation for the increased segregation of news audiences. This concerns the manner by which individuals arrive at news sites. Flaxman *et al.* (2016) examine partisan segregation across four pathways. First, individuals might be referred to a news site from an aggregator, such as Google News. Second, individuals might arrive at a site directly, without any intermediation. Third, they might visit a site after encountering it through social media. Finally, some might access news sites through search engines. The extent of segregation across these four pathways is shown in Table 3.

The finding of increased segregation in news audiences holds across all channels. The increase is most pronounced for visits emanating from social media (0.30 during the 2016 election and 0.12 during 2013). The distribution of visits that stem from each channel shows little change, with small decreases in the use of search engines and similar increases in direct visits and visits via social media. Greater segregation in 2016 does not appear attributable to changes in the general structure of web browsing.

⁸Specifically, the measure is $\sqrt{2\text{Var}(R)}$.

⁹For this analysis we follow Flaxman *et al.* (2016) and use individual visits to a web domain rather than the aggregated daily version used by Gentzkow and Shapiro (2011).

Table 3. Partisan segregation by consumption channel

Channel	Segregation (2016)	Visit share (2016)	Segregation (2013)	Visit share (2013)
Aggregator	0.17	0.01	0.07	0.01
Direct	0.24	0.83	0.11	0.76
Social	0.30	0.08	0.12	0.06
Search	0.21	0.08	0.12	0.13

5. Selective exposure across content

In considering selective exposure in terms of overall visits to particular web domains, our preceding analysis glosses over differences in news content. Most news organizations cover both political and non-political subjects. Even when they seek political information, people can screen content at the article level. Accordingly, opposing sets of partisans may gravitate to a different set of stories even when visiting the same news outlet.

Based on the expectation that the partisan divide in exposure to news is likely to widen as news content becomes more valenced—either favorably or unfavorably—toward a political party or candidate (H3), we leverage the content analysis component of the study to examine partisan segregation across different types of election news. The basic intuition, noted at the outset, is that partisans will be especially threatened by (and attempt to avoid) content that is damaging to their favored candidate’s prospects. Conversely, they will seek out news that appears unfavorable toward the opposition.

In the content analysis, coders classified individual news reports by topical category. *Scandal* coverage focused on allegations of moral, legal, or financial wrongdoing by either presidential campaign. Articles on the Trump *Access Hollywood* tape, the clash between Mr. Trump and the Khan family, Mrs. Clinton’s use of a private email server, and her role in the attack on the US consulate in Benghazi all fell into this category. *Policy* coverage focused on the candidates’ issue stances. *Strategy* coverage focused on discussion of political polling and campaign strategy. *Event* coverage examined specific campaign events, such as the debates or a particular rally by one of the candidates. Finally, coders placed news stories that did not fit any of these designations into an “other” category.

This content analysis reveals that coverage of scandals was the most prevalent category, accounting for 37 percent of the articles visited by respondents. This reflects a general election campaign in which the candidates became ensnared in multiple controversies. Reports falling into the event and strategy categories each made up approximately 18 percent of the coverage. Coverage of the candidates’ policy stances represented the smallest share of coverage at only 7 percent.¹⁰

Coders also evaluated the net partisan slant of news reports on a five-point scale that ranged from (1) clearly more favorable to Democrats, (3) even-handed or neutral with respect to the political parties, or (5) clearly more favorable to Republicans. The coders rated 41 percent of the election-related stories as neutral. This finding aligns with other studies using crowd-sourced human classification to assess media bias in individual news reports (Budak *et al.*, 2016). However, our respondents also selected a substantial number of articles that coders judged to favor, at least to some degree, one of the political parties or candidates. Twenty percent of the articles were perceived to favor Republicans to some degree (i.e., received a rating of 4 or 5 on the scale), while 39 percent were perceived to favor Democrats to some degree (i.e., received a rating of 1 or 2 on the scale).

5.1. Selective exposure by topic

In the top panel of Figure 2, we present partisan isolation for two baseline categories: all visits to any news domain that appeared in our study and all visits to election-relevant news reports. The

¹⁰The remaining 20 percent of articles were placed in the “other” category.

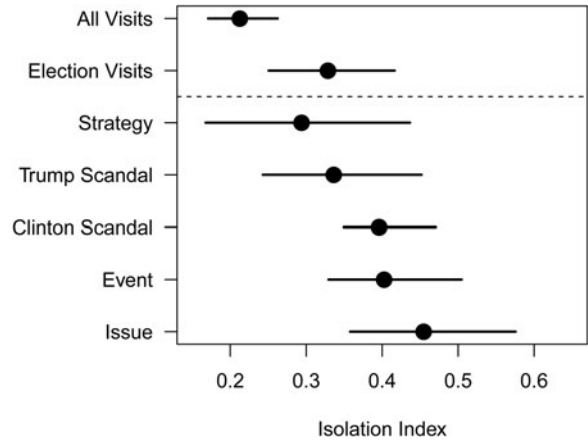


Figure 2. Partisan divide by article content.

latter consists of stories viewed by respondents that mentioned either of the candidates and were subsequently rated by coders as focusing primarily on the presidential election.

We disaggregated isolation for different election-related topics. We follow Gentzkow and Shapiro (2011) and compute confidence intervals for the isolation index based on the bootstrap.¹¹ As shown in Figure 2, the partisan divide expanded from 0.21 for all news visits to 0.33 for visits to election-focused stories identified in the content analysis. The 12-point difference in the isolation index between these categories (95 percent confidence interval [0.03, 0.22]) indicates that when information is relevant to the election, partisans' news choices become more divergent.

The results are ambiguous when turning to selectivity across different types of election-related news. We anticipated that scandal coverage would elicit stronger dissonance among supporters of the candidate implicated in the scandal, strengthening the partisan divide. In fact, we did not find a statistically significant difference between scandal news implicating either of the candidates and the baseline of all election-related news. Scandal, strategy, and event-oriented news elicited generally similar levels of partisan segregation; if anything, segregation tended to increase for coverage of political issues. But these estimates are imprecise, making it difficult to draw firm conclusions.¹² In one general sense, however, these results conform to expectations based on H2: in comparison with news coverage overall, partisan isolation is higher for election reports.

5.2. Selective exposure by article slant

Do news consumers behave as partisans when election-related news is slanted in favor of one party? Figure 3 displays differences in the isolation index for content seen as conveying a *moderate* degree of partisan slant (a rating of 2 or 4 on the scale, 32 percent of visits) and a *high* degree of partisan slant (a rating of 1 or 5 on the scale, 22 percent of visits) relative to the set of articles rated as *neutral* by the coders (a rating of 3 on the rating scale, 45 percent of visits).¹³

For neutral articles, the isolation index is 0.33. The degree of partisan isolation is 6 points greater for articles with a moderate degree of slant (an isolation index of 0.39) and 9 points greater for articles with a high degree of partisan slant (an isolation index of 0.42) relative to

¹¹This is a cluster bootstrap in which we re-sample respondents and use all their visits to re-estimate the isolation index.

¹²With the exception of "strategy" articles, the difference in the isolation index between election news categories and all visits to news domains is statistically significant.

¹³These visit share numbers differ slightly from Table 5 as we now focus on total views rather than unique articles.

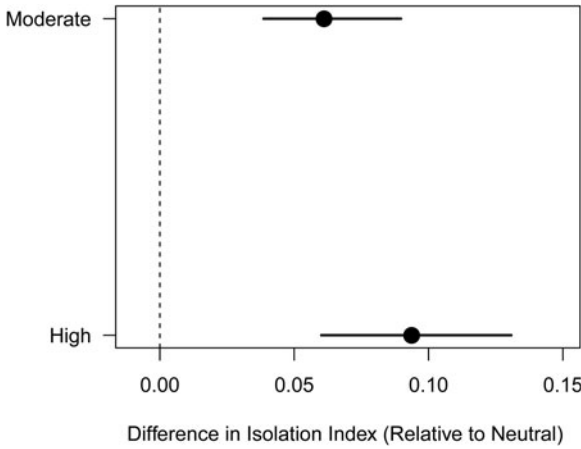


Figure 3. Change in partisan divide by partisan slant.

this baseline.¹⁴ As anticipated by theories of identity threat, isolation is highest when news coverage favors one party over the other.

6. Robustness tests

We now briefly address several concerns about the representativeness of these web traffic measures, the composition of our survey sample and the origins of the partisan divide in news consumption we observe.

6.1. Comparison to ComScore

Patterns of web traffic among panelists in our study during October 2016 converge with estimates from ComScore’s web panel, an alternative source of browsing data, for the same time period. Focusing on the web traffic measure used to construct the partisan isolation index—the average daily share of panelists who visited a domain at least once on a given day—the two sources correlate at 0.82 when considering the 500 most-visited sites of any type among our panelists and 0.84 when comparing only news domains (see Appendix A for further comparisons).

6.2. Robustness to selection bias

We analyze partisan isolation using weights that adjust for deviations of our realized sample from the initial, nationally representative target frame due to non-response to the initial survey and non-compliance with toolbar installation. Our weighted sample closely resembles other surveys conducted during the 2016 election—the American National Election Study (ANES) and the Cooperative Congressional Election Study (CCES)—in terms of respondent demographics and political attitudes (see Appendix A). Even after including these weights, however, self-reported political interest is higher in our sample relative to the 2016 CCES (3.55 compared to 3.25 on a 4-point political interest scale).

We address this by generating an alternative set of raking weights that weight our sample to match the marginal distributions of age, education, gender, partisan identification, race, region, and self-reported political interest in the 2016 CCES. If the higher levels of political interest in our sample contribute to the elevated levels of partisan isolation we observe, this re-weighting

¹⁴The difference in the isolation index between high and moderate slant articles falls short of statistical significance (3.3 points, 95 percent CI [−1, 8]).

should reduce estimates of isolation. Instead, these estimates remain stable. The partisan isolation index is 0.21 when using the YouGov weights and 0.22 when using the raking weights that down-weight the overall level of political interest among the panel. In both cases, we continue to observe substantially higher levels of partisan isolation than prior research.

6.3. Social sorting does not explain partisan isolation

The theory of dissonance avoidance applies to situations in which individuals actively choose between different messages that either coincide or diverge from their opinions. Later research pointed out, however, that exposure to information could be affected more by situational than motivational factors. This form of incidental exposure to supportive information was dubbed “de facto selectivity” (Sears and Freedman, 1967).

To account for this possibility, this section shows increased segregation does not appear to result from a more general pattern of demographic sorting (i.e., that the parties have become more distinct on numerous social cleavages). When we examine differences in browsing behavior based on gender, race, and education, we find minimal segregation, with the isolation index for each of these traits falling below 0.03.¹⁵ Partisan segregation in news browsing thus does not seem to be a byproduct of other social dimensions associated with partisanship.

Finally, we note that our results are also not driven by geographically based demand for local news. When we compare aggregate levels of partisan segregation, we find that local news websites are less segregated (0.06) relative to other news domains (0.24). De facto selective exposure due to reliance on local news sites does not explain our findings.

7. Attitudinal consequences of selective exposure

We conclude by investigating the consequences of partisan divides in news consumption for political attitudes. Did partisans who encountered a steady diet of partisan news reports change their views about the presidential candidates? Given the time period during which we assess political attitudes, one might expect that partisan news exposure contributes to a familiar pattern from the campaign effects literature in which partisans “return to the fold” and increasingly support their co-partisan presidential nominee in the last months of the campaign (e.g., Gelman and King, 1993).

We divide panelists into five evenly sized bins based on the distribution of individual-level partisan news exposure. From low to high, these exposure categories are ordered by either the average Republican audience share of the news visits they made (the left columns of Figure 4) or, using the content analysis, the average conservative slant of election-related articles they read (the right columns of Figure 4). These groupings capture divides in news exposure during the campaign.

Each row of Figure 4 displays the relationship between an individual’s degree of partisan news exposure and a different outcome. We orient the outcome measures so that higher values indicate favorable assessments of Donald Trump relative to Hillary Clinton. These outcomes move from the difference in feeling thermometer assessments of Trump and Clinton in the top row, to differences in the two candidate’s trait ratings in the middle row,¹⁶ to differences in an individual’s emotional reactions to the two candidate in the bottom row. Across these indicators we compute the relative ratings of the two candidates (e.g., the difference in feeling thermometer placement of Trump relative to Clinton). These outcomes allow us to observe the relationship between media exposure and overall candidate assessments as well as less crystallized elements of candidate evaluation that may be more amenable to media influence.

¹⁵We follow Gentzkow and Shapiro (2011) and use a binary coding of trait variables (e.g., college educated v. non-college educated).

¹⁶The trait battery consists of seven different traits applied to each candidate, the reaction scale includes six emotions. See Appendix E for more detail.

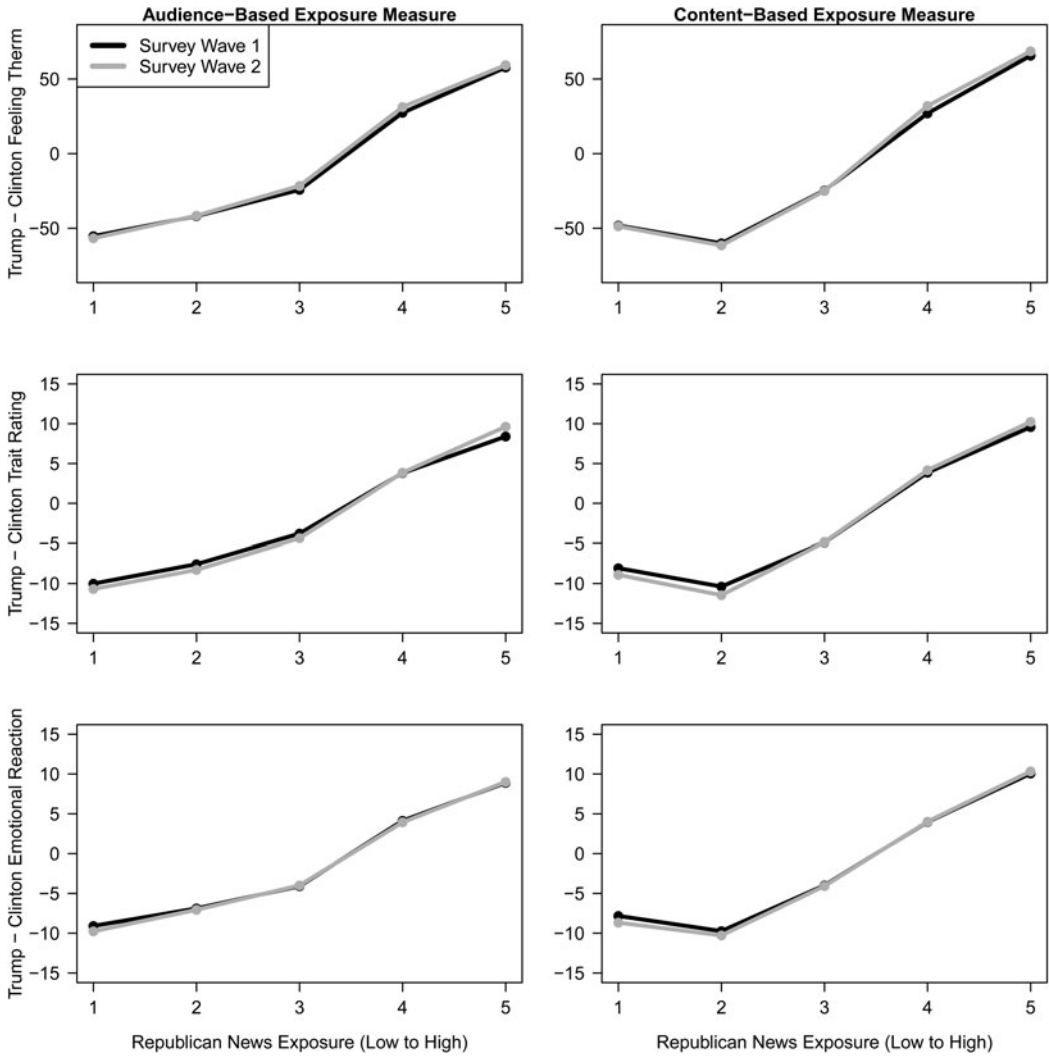


Figure 4. Candidate evaluations by partisan news exposure and survey wave.

We display the relationship between the two measures of Republican news exposure—audience-based and content-based—and the three survey outcomes separately for the first survey wave from late August (black lines) and second survey wave conducted after the election (gray lines). If partisan news exposure facilitates polarization in candidate assessments over this time period, we would expect the slope of the gray lines to be substantially steeper than the black lines.

The candidate evaluations within each quintile of partisan media exposure move as expected. Those who consume election news primarily from domains visited by Democrats (Bin 1) evaluate Clinton much more positively than Trump across all outcomes in both surveys. Individuals who consume election news primarily from domains visited by Republicans (Bin 5) evaluate Trump much more positively than Clinton.

However, given the overlapping nature of the lines for the first and second survey waves across these different indicators of candidate sentiment, there is little indication that heavier partisan news consumption contributed to polarization in candidate assessments during the campaign. The initial divides in candidate assessments between individuals with different news diets present

in August persist through the end of the election, but those with one-sided patterns of news consumption do not move further apart. As Appendix E demonstrates, this limited relationship between partisan news exposure and change in candidate preference also occurs in a variety of regression specifications.

These results raise the possibility that online partisan news exposure did not substantially alter individuals' candidate assessments during the campaign. We note that this possibility is consistent with recent field experiments that find minimal persuasion in general election campaigns (Kalla and Broockman, 2018). It bears emphasis, however, that our data do not allow us to rigorously quantify the causal effects of selective exposure. Nevertheless, we offer three potential explanations for this finding.

One possibility is that individuals made up their minds prior to our initial survey wave, leading us to miss earlier contributions made by partisan media exposure. This is consistent with evidence that public opinion was already divided at the outset of this study. Only 41 percent of the partisans in our sample had an initial thermometer rating of their party's candidate that was less than 75. More strikingly, only 10 percent of partisans rated the out-party candidate higher than 25. In this view, partisan news exposure may contribute to candidate assessments, but does so prior to the stage of the campaign examined here.

A second possibility is that the muted between-outlet differences in campaign news coverage may have been insufficient to change candidate assessments in this context. Although those who seek partisan vitriol can find it, our content analysis indicates that the overwhelming majority of online media outlets provided dispassionate, relatively balanced coverage of the campaign. *Fox News* may be the Republican outlet of choice but, with an average assessment of 3.2, this network's election coverage was not substantially different from those of *USA Today* (2.7), *CBS News* (2.6), or the *New York Times* (2.6).

A third possibility is that the degree of selective exposure is sufficient to only maintain, but not change, individuals' prior political attitudes. This would mean the divides in consumption in the previous sections reflect pre-existing differences in political views, and that news exposure fails to further polarize an individual's political views.

Future work is needed to distinguish these alternatives by examining the relationship between partisan news exposure and political attitudes in settings with more substantial divides in the content offered by different news sites and where political attitudes are less crystallized than the late-campaign candidate assessments studied here. Approaches that can isolate exogenous variation in real-world exposure to partisan news from consumption motivated by an individual's pre-existing agreement with perspectives in the news are also needed. However, even given these limitations, we believe our findings make an important initial contribution to understanding the role of partisan media in presidential campaigns.

8. Discussion

Over the course of the 2016 campaign, Democrats and Republicans differed in their exposure to online news. Republicans relied disproportionately on *Fox News* and a handful of other partisan providers. While Democrats also gravitated to partisan outlets (e.g., the *Huffington Post*), they received more of their news from organizations generally viewed as practicing non-partisan journalism.

Given the circumstances surrounding the 2016 campaign, an obvious explanation for Republicans' browsing behavior is their co-partisan candidate's criticism of the mainstream media. From "fake news" to "enemy of the people," Trump made hostility to the press a key ingredient of his appeal. Attractive as the opinion leadership explanation may be, it does not fit survey evidence on perceived media bias. The partisan divide in evaluations of the credibility of major news organizations predates Donald Trump's presidential campaign by many years. As early as 2000, the Pew Research Center reported sizable gaps between Democrats and Republicans

in the “believability” ratings of major news organizations (Pew Research Center, 2012), with Republicans typically perceiving the mainstream media as pro-liberal. Given this context, candidate Trump’s message in 2016 seems unlikely to have changed many Republican minds as he was already “preaching to the choir.”

The intensely polarized state of politics also makes it more difficult to observe changes in voters’ partisan sentiment during the campaign. Despite the divide between Democrats and Republicans in the news sites they visited—and more modest differences in the content they encountered—browsing behavior was not related to changes in candidate evaluations. The presence of two highly controversial candidates in 2016 likely contributed to this finding; further inquiry on partisan news consumption is needed under different circumstances before reaching any conclusions about its potential effects on misinformation, partisan animus, and vote choice.

In closing, we return to the possibility that selective exposure to partisan news has increased. Our results suggest that the segregation of online news audiences has increased, though the absolute level of polarization is still not extreme. As anticipated, partisan selectivity is strengthened in the area of election news, especially when individuals are directed to news stories via social media. Notwithstanding partisans’ increased exposure to friendly news sources over the past decade, we do not observe fully developed online echo chambers. Moreover, based on our evidence, we suspect that the increase in the level of audience segregation is attributable less to the supply of distinctively biased content and more to the politicization of source credibility. Despite significant change in the media environment, our analysis shows news consumption remains dominated by sources dedicated to conventional journalism. On balance, we suspect that the segregation of the online news audience is more the result of beliefs about outlets’ partisan leanings rather than changes in the content of campaign news (see e.g., Peterson and Kagalwala, 2019; Stroud *et al.*, 2014).

Supplementary material. To view supplementary material for this article, please visit <https://doi.org/10.1017/psrm.2019.55>

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