Weaving It In: How Partisan Media React to Events

Clara Vandeweerdt

University of Copenhagen
Massachusetts Institute of Technology

July 19, 2022

Abstract

How do ideologically slanted media outlets react to politically relevant events? Previous research suggests that partisan media trumpet ideologically congenial events, such as opposing-party scandals, while ignoring bad news for their own side. Looking at reactions to newsworthy events on talk radio—a medium that reaches more Americans than Twitter—I find a different pattern. Based on recordings of hundreds of shows totaling two million broadcast hours, I demonstrate that regardless of their ideological leanings, talk shows respond to politically relevant events by giving far more attention to related policy issues. At the same time, liberal and conservative shows continue to frame those issues in very different ways. Instead of ignoring inconvenient events, partisan media "weave them in," interpreting them in ways consistent with their ideological leanings. These media dynamics imply that nationally significant events can cause opinion polarization rather than convergence—becoming a divisive rather than a shared experience.

keywords: partisan media, agenda-setting, ideology, issues, talk radio

1 Introduction

A significant share of Americans get their political information and opinions from non-mainstream media, such as opinion blogs, podcasts and talk radio shows (Schaffner et al., 2019; Pew Research Center, 2019). Producers of these types of media often appear to be less bound by journalistic norms of objectivity and balance. Instead, many have an ideological slant that informs the content they create (Baum and Groeling, 2008; Sobieraj and Berry, 2011). Moreover, the "big three" cable news channels—Fox News, CNN and MSNBC—have also developed a consistent political leaning (Ad Fontes Media, 2019; Martin and Yurukoglu, 2017). Together, these outlets make up the landscape of so-called partisan media in the United States. And while we know more and more about the potentially polarizing effects of such media, we have less systematic knowledge about the content they create. Specifically, do they manage to report on current affairs in a way that is consistent with their ideology?

In this paper, I investigate two strategies that partisan media might use in response to newsworthy events. One strategy ("partisan issue selection") involves manipulating the attention given to political topics in the aftermath of relevant events. For example, while liberal outlets may respond to a mass shooting by playing up its relationship to gun policy, conservative outlets may simply ignore this connection. Another strategy ("partisan issue framing") is to report on the event and its political implications, but re-frames what happened in a way that is consistent with its ideological slant. For example, after a hurricane hits the US, conservative hosts may frame the event as irrelevant to the existence of climate change. While the first strategy would affect *whether* a related political issue is discussed, the second affects *how* it is talked about.

I evaluate the prevalence of these strategies in a massive data set on US talk radio, covering almost 2 million hours of content. I focus on partisan discussion of three issues (climate change, gun policy and immigration) in response to relevant events. I find that newsworthy events cause a 40%–400% increase

in discussion of related political issues, regardless of the show's leaning. In other words, downplaying the connection between an event and a political issue (e.g. shootings and gun policy) is a surprisingly rare strategy. I also uncover large gaps in how much attention liberal and conservative shows pay to climate change, gun policy and immigration *before* a newsworthy event happens. The post-event increases in attention happen on both sides, and do not close these agenda gaps.

Further, I find that political talk shows are strongly ideologically sorted in the way they discuss these issues, and events do very little to change this. The balance of frames for climate change and immigration does not shift after an event. In the case of gun policy, only conservative shows move somewhat: an extra 8% of mentions of the topic use an anti-gun frame. Taken together, the findings suggest that partisan media producers do not selectively ignore the connection between newsworthy events and political issues. Instead, they typically reframe the event to fit into their existing ideological narrative about an issue.

This paper contributes to the literature by examining how partisan outlets respond to dilemmas created by newsworthy events. It adds nuance to earlier evidence on selection bias in reporting, which shows that partisan outlets do strategically avoid certain events and topics with partisan implications— e.g., scandals affecting "their" side or campaign issues owned by the "other" side (Baum and Groeling, 2008; Groeling, 2008; Puglisi, 2011). Perhaps the events studied in this paper are too significant (and too clearly connected to certain political debates) to be downplayed; or perhaps they leave more room for re-interpretation, as they do not speak directly to politicians' qualities or performance. By focusing on major events, the paper also complements work measuring media slant in day-to-day reporting (Gentzkow and Shapiro, 2010; Stroud, 2011; Martin and Yurukoglu, 2017; Budak et al., 2016), as well as other partisan media strategies such as outrage (Berry and Sobieraj, 2013), slanted coverage of presidential candidates (Pew Research Center, 2008; Smith and Sear-

les, 2014), or vilifying political out-groups (Barker, 2002).

2 Political talk radio in the US

Although not all political talk radio is partisan, ideologically slanted shows dominate the American talk radio landscape (Barker, 2002; Jamieson and Cappella, 2008), making it a rich source of partisan media content. In empirical work, talk radio is often grouped together with cable news, political blogs, podcasts and other online media, as producers of these media seem to have roughly similar motivations and career paths, and to create similar content (Berry and Sobieraj, 2013; Calmes, 2015; Jamieson and Cappella, 2008; Nadler et al., 2020).

Talk radio is also a tremendously impactful medium in its own right. The number of Americans who tune in to terrestrial (offline) radio in a given week has remained stable around 90% for over a decade (dropping off slightly in 2020 due to a decline in time spent driving; Pew Research Center 2021b). Terrestrial News/Talk stations reach about 18% of the adult American public, or 45.3 million people, each week (Radio Advertising Bureau, 2021). This is a slightly larger weekly audience than Twitter (Pew Research Center, 2021a). Many radio shows further expand their listenership by making content available online (Calmes, 2015); the weekly reach of online audio is 62% of American adults (Pew Research Center, 2021b).

Though there are no publicly available numbers on the overall listenership of *political* talk radio, it is telling that out of the ten most-listened-to talk radio hosts in the US (Talkers magazine, 2019), eight are political.[1] Radio listeners are also very politically engaged—in part because are older than the average American. In 2018, for instance, 75% of radio listeners said they definitely intended to vote in the midterm election, compared to 63% of non-listeners (US Census Bureau, 2019; Schaffner et al., 2019).

US talk radio leans conservative. A study by the (left-of-center) Center

---

[1]According to the classifier developed in this paper. The other two, Dave Ramsey and George Noory, host a financial and a paranormal talk show.

for American Progress and Free Press (2007) sampled 250 commercial radio stations and found that 91% of their political talk programming was dedicated to conservative shows. Moreover, of the ten most-listened-to syndicated talk radio hosts in 2019, only one—Thom Hartmann—could be labeled liberal (Talkers magazine 2019; Hartmann still captured a sizeable weekly estimated audience of 7 million). Importantly, however, neither of these statistics includes National Public Radio (NPR) affiliated stations and shows. NPR's two most popular programs reach estimated audiences similar to those of the top three syndicated radio hosts (National Public Radio 2018, reporting Nielsen data).[2] NPR brands itself as unbiased (National Public Radio, 2018) but its audience is more left-leaning than that of MSNBC (Pew Research Center, 2014; Faris et al., 2017). Democrats (66%) are in fact more likely than Republicans (60%) to listen to radio daily (Schaffner et al., 2019). Explicitly left-leaning talk radio content also exists—in this paper's dataset, I identify 160 liberal shows—but it garners smaller audiences.

In spite of its large audiences, large-n studies of political talk radio are rare, because audio is challenging to store and process at scale. For example, in an overview of empirical studies on partisan media bias, Groeling (2013) cites just one study (namely, Groseclose and Milyo 2005) that incorporates a single radio show in an analysis mostly focused on newspapers and TV. Even studies that analyze many hours of content still cover only one or a handful of shows (Barker, 2002; Berry and Sobieraj, 2013). In other words, US political talk radio is heavily understudied compared to its importance.

3 Partisan media responses to events

In this paper, I analyze talk radio content to investigate how partisan content-makers respond to newsworthy events. How do they make sure their reporting is

---

[2]Of the sources cited here, the Radio Advertising Bureau relies on survey-based media consumption measures, which raise concerns about overreporting (Guess, 2015; Prior, 2009). Talkers magazine ratings come from industry experts combining a variety of data sources. Nielsen uses a combination of portable audio recording devices and weekly diaries.

in line with their ideological stances? Theory suggests three strategies: partisan story selection, partisan issue selection, and partisan issue framing.[3]

The first of these strategies corresponds to what Groeling (2013) calls "selection bias"—outlets' decisions about whether to cover events that have partisan implications. This approach is less relevant for extremely newsworthy events, and is therefore not investigated in this paper. The second strategy deals with selection on another level—choosing not from a population of events to report on, but from a population of *issues* related to the event. The third strategy is akin to presentation bias (Groeling, 2013) and covers the way in which topics are discussed.

3.1 Partisan story selection

With partisan story selection, media outlets spend less time on events whose implications are (at least at first glance) difficult to match with the outlet's ideological or partisan narrative. Studies of this strategy—also known as selection bias—typically examine coverage of events that reflect negatively on Democrats or Republicans (Groeling, 2013). For example, compared to the presumably neutral baselines of Associated Press and Reuters, both Fox News and the left-leaning blog DailyKos clearly give more attention to stories that fit their partisan affiliation (Baum and Groeling, 2008). In reporting on new approval polls, CBS, NBC and (to a lesser extent) ABC all appeared to have a preference for covering gains for Bill Clinton and losses for G.W. Bush. Fox News had the opposite tendency (Groeling, 2008). Slanted newspapers tend to give more coverage to scandals involving the "other" side, and less to those involving their own (Puglisi and Snyder, 2011).

As a strategy, partisan story selection is less feasible for extremely newsworthy events. Ultimately, media must produce content that the public wants to consume, and political outlets must at least give the impression of keeping

---

[3]I use the word "partisan" broadly to mean "favoring one side"—this could mean supporting an ideology, a party, or some other political cause. The empirical analyses in this paper focus on ideological side-taking.

their audience informed. The events studied in this paper were all selected to have high news value (Harcup and O'Neill, 2017): they are negative, unusual, dramatic, geographically relevant, large in scale (in the case of hurricanes and family separation) and filled with conflict (in the case of mass shootings). They were reported on extensively in mainstream media. Journalistic incentives thus militate strongly against simply ignoring the event. The more theoretically relevant strategies for these events are partisan issue selection and partisan issue framing. These are the strategies that I investigate in this paper.

3.2 Partisan issue selection

When a story is hard to ignore, partisan outlets may instead be selective about what political debates they will connect the story to (if any). This is an extension of the concept of selection bias, where the selection is now between topics to bring up, rather than events to report on. The aggregation of media outlets' choices to selectively give or deny attention to political issues results in *agenda setting*: the ability of media to shape what issues the general public finds salient (McCombs and Shaw, 1972).

Media makers may use partisan issue selection to avoid issues that their ideological side does not own (Petrocik, 1996), as with liberals and immigration (Seeberg, 2017). They may also downplay issues that their ideology frames as less important, or that listeners on their ideological side typically care less about. For example, this is likely to be true for conservatives and climate change (Pew Research Center, 2020). Finally, this approach may be helpful when an event, once connected to a political topic, would be difficult to spin. For instance, in the period studied in this paper, there was not yet strong evidence that global warming was worsening hurricanes (Geophysical Fluid Dynamics Laboratory, 2019). In other words, connecting hurricanes to climate debates in a scientifically accurate way would have meant admitting that hurricanes should not (yet) be seen as evidence for climate change. This would have been difficult to integrate with typical liberal messaging, which emphasizes the strength of the evidence

and the legitimacy of concern about climate change. If a hurricane was too newsworthy to ignore, liberal outlets may therefore have opted to discuss it without reference to climate change.

Mainstream media research shows that the set of issues discussed by an outlet is, of course, heavily influenced by newsworthy events. Events push related topics onto the agenda—an effect that goes beyond reporting on the event itself, as journalists purposely look for other related stories (Boydstun, 2013). For instance, Ford and King (2015) show how hurricane Sandy caused a surge in newspaper articles on climate change adaptation that lasted several months. Lawrence (2000) finds a huge increase in LA Times mentions of police brutality following the beating of Rodney King in 1991. In 1992, the level was still three times higher than the baseline. And Birkland (2004) shows that the 9/11 attacks caused an unprecedented spike in discussion of terrorism in the New York Times, staying far above pre-9/11 rates for at least a year after.

Still, research on partisan media highlights content makers' discretion in selecting topics of discussion. For instance, newspapers give more coverage to some economic topics when current trends support "their" side (Larcinese et al., 2011). Similarly, during presidential campaigns with Republican incumbents, the New York Times pays particular attention to campaign topics owned by the Democratic party (Puglisi, 2011). Fox News and Republican-endorsing newspapers spent somewhat less time covering the Iraq war, and more time covering terrorism, than CNN and Democrat-endorsing newspapers (Stroud, 2011). These findings confirm that outlets sometimes ignore inconvenient topics—either because that topic is not owned by their favored party, or because current affairs are less compatible with their ideological narrative about that topic.

3.3 Partisan issue framing

The third approach that partisan media could use is to choose ideologically motivated frames when discussing events and related issues. Frames promote "par-

ticular definitions and interpretations of political issues" (Shah et al., 2002).[4] I define partisan issue framing as a choice to discuss an issue using facts, arguments, values, visuals and language that support a certain ideological viewpoint. This is adjacent to what Groeling (2013) calls presentation bias, where partisan news presents a "significantly distorted view of reality" which "disproportionately favors one party over the other." A key difference is that partisan issue framing applies to commentary as well as news, meaning that opinions can be stated outright rather than channeled through factual reporting. Similarly, for media content to involve partisan framing, it does not have deviate from an objective truth—it simply has to discuss a topic in a way that fits one ideological narrative. Further, the focus in this paper is on frames that support an ideology, rather than a party or other political group.

A few studies have documented gaps in the way issues are framed in partisan media. For example, Stroud (2011, p. 156) finds that when covering the Iraq war, Fox News and Republican-leaning newspapers used noticeably more positive frames than CNN and Democrat-leaning papers do. Aday et al. (2005) also investigate Iraq war coverage, and conclude that 38% of stories on Fox News were supportive in tone—in contrast to five other networks, whose stories they overwhelmingly categorize as neutral.[5] Feldman et al. (2012) find that among cable TV shows mentioning climate change, 60% of shows on Fox News had a dismissive tone, compared to 7% on CNN and none on MSNBC.

An open question, however, is whether partisan media are able to maintain their ideological narratives in the face of exceptional events. Perhaps newsworthy events with strong connections to political topics have the power to (temporarily) change the way outlets frame those topics. Indeed, each of the event

---

[4]Alternative definitions emphasize framing as feature of reporting on *events*. Frames are said to provide "meaning to an unfolding strip of events" (Gamson and Modigliani, 1987) and suggest "what the issue is" (Tankard et al., 1991). Defined in this way, framing is more akin to the previously discussed strategy of partisan issue selection. Yet another, more narrow definition limits frames to presentations of an issue that add no new information, but emphasize one aspect over another (Nelson et al., 1997). Others have described the highlighting of some issue attributes as "second-level agenda setting" (Weaver, 2007).

[5]These authors use a broad definition of supportive tone, which includes the first-person plural forms often used by Fox reporters at the time (e.g. "our troops").

types that I study here—hurricanes, mass shootings and family separation—has moved perceptions of a political issue in one way or another. For example, disasters such as hurricanes and floods influence Americans' climate beliefs (Visconti and Young, 2019). People who live nearby the site of a mass shooting become more likely to support stricter gun control, regardless of their partisanship (Newman and Hartman, 2019). Finally, ordinary Republicans were split in their opinions on president Trump's policy of separating families (Quinnipac University, 2018). The fact that this event was the result of party politics did not necessarily cause partisans to fall in line. These instances suggest that major events can challenge attempts at partisan framing.

3.4 Audience effects

Research on the effects of media agendas and frames shows why partisan content makers may be motivated to selectively discuss and frame issues: both can affect public opinion. Studies of mainstream media have typically found strong correlations between media agendas and the importance citizens attach to topics (Cohen, 1963; King et al., 2017; McCombs and Shaw, 1972). In experimental studies, researchers have exposed respondents to media content that consistently features certain issues, and have argued that those issues then receive more weight in participants' political judgments—an effect known as priming (Iyengar et al., 1982; Krosnick and Kinder, 1990).

Observational studies on framing have shown that respondents' political opinions are connected to the evolutions of frames in national news media (e.g. Baumgartner and Jones 2010; Abrajano et al. 2017). Experimental studies have taken a more controlled approach by presenting respondents with one or more frames for the same issue. These frames can vary on a number of dimensions, such as the strength of the arguments presented, or whether they describe the issue in terms of personal stories or a societal-level analysis (Chong and Druckman, 2007; Iyengar, 1994; Nelson et al., 1997). Most relevant, partisan or ideological frames have been shown to affect opinions in both the lab and

the real world (Druckman et al., 2013; Wagner and Gruszczynski, 2016). Taken together, mainstream media research and experiments suggest that both issue selection and issue framing in media can influence political attitudes.

Scholars have also directly investigated the effects of partisan media on audience attitudes. Exposure to partisan media predicts polarization of consumers' future opinions about presidential candidates (Stroud, 2010). Broockman and Kalla (2022) incentivize Fox News viewers to watch CNN for a month, and find that their beliefs, attitudes, issue importance ratings, and evaluations of president Trump are significantly altered. Conversely, de Benedictis-Kessner et al. (2019) and Martin and Yurukoglu (2017) find significant effects of watching Fox on voting and attitudes. On talk radio, Barker and Knight (2000) show that if Rush Limbaugh gives a lot of negative attention to certain topics or people, listeners develop more negative attitudes about them. In an experimental setting, Levendusky (2013) finds lasting, polarizing effects of like-minded news programs, whereas programs from the "other side" have no effect.

Not all evidence on partisan media effects points to persuasion. Other studies find no effect (Arceneaux and Johnson, 2010), including from talk radio (Yanovitzky and Cappella, 2001), and especially if participants are allowed to opt out of partisan content and into entertainment channels (Arceneaux and Johnson, 2013). Nonetheless, the literature as a whole suggests that partisan media can influence the issue opinions of their audiences—meaning that their partisan content production strategies are effective.

4 Methods

4.1 Data and design

In this paper, I investigate partisan issue selection and partisan issue framing by looking at 1.5 years' worth of US political talk radio. I define political talk radio as any program where one or more hosts (and possibly guests or callers) talk about current affairs. In the main analyses, I exclude news broadcasts and shows

produced by public radio networks. In SI section 10, I demonstrate that news and public radio programs do not seem to behave differently from other political shows—and that the paper's results hold whether or not I include them. Shows do not need to have a clear slant to be included in the data set. Non-ideological political programs are relatively rare, however, and I show that excluding them does not change results.

The raw data consist of continuous recordings and transcriptions of the live Internet streams of 175 radio stations. They were collected by Cortico and the MIT Media Lab's Laboratory for Social Machines. Supplemental Information (SI) section 1 provides more details about this data set, including station locations, how station characteristics compare to the population of US talk radio stations, and transcription quality. Together, these stations broadcast over 1,000 unique radio shows. To compare, previous large-n studies of talk radio content have included 10 hours each from 10 radio programs (Berry and Sobieraj, 2013), or have been based on written summaries of a single show's episodes over two years (Barker and Knight, 2000).

I analyze discussions of three political topics (climate change, gun policy and immigration) on each show, in the weeks before and after a relevant event happened. Shows are produced relatively independently from one another, making them a sensible observational unit of radio content.[6] And because almost all shows are broadcast according to a weekly schedule, it is sensible to bundle content into weeks rather than, say, days.

The unit of analysis, then, is the radio show-week. In total, there are 1412 show-weeks for climate, 1896 for gun policy, and 524 for immigration.[7] This is because each topic has a different number of related events: two for climate change, three for gun policy, and one for immigration. The number of radio stations in the data set also increased gradually, so more political shows were captured in connection to events that happened later in the period.

---

[6]Shows licensed to the same network may be subject to a common set of pressures, such as Broadcast Standards and Practices.

[7]To estimate potential audience effects, it would be helpful to weight shows by their audience sizes. Unfortunately, this data was not available.

Issue selection is measured by the number of times a political topic was mentioned on a show. Issue framing is measured by the viewpoints that those mentions support. I expect these to vary depending on whether a show-week happened just before or just after a major event; and whether the political talk show leans liberal or conservative (measured using an automated text classifier). Figure 1 illustrates the workflow towards measurement and modeling of these variables.

4.2   Selecting issues and events

The issues I examine in this study are climate, gun policy and immigration. Each one is clearly connected to one or more newsworthy events: hurricanes for climate change, mass shootings for gun policy; and the outburst of attention to families being separated at the US–Mexican border for immigration. As noted above, each of the studied event types is known to have influenced partisan opinions on the relevant topic in one way or another. For the topic of climate change, I chose hurricanes over (say) major wildfires and floods because hurricanes get national attention, their onset is sudden, and more than one such event is covered by the radio transcripts.

The specific events I study here were the most newsworthy of their kind in the observed period (as measured by mainstream media attention). For the topic of climate change, I use the two hurricanes that made landfall in the continental United States: Florence and Michael. For gun policy, I incorporate three mass shootings that received broad attention: Santa Fe High School, Jacksonville Landing, and the Pittsburgh Synagogue shooting.[8] For immigration, I use the outbreak of public attention to President Trump's policy of separating immigrant children from their parents at the US–Mexican border in June 2018. Based on numbers of Google searches for "immigration", this was by far the most noteworthy immigration event in the period covered by the data.

---

[8]Another mass shooting happened in Thousand Oaks, California, just eleven days after Pittsburgh event. I did not include the Thousand Oaks shooting, as its pre-event week would overlap with the Pittsburgh post-week.

Figure 1: The project workflow, from data to dependent variable (topic mentions and frames) and independent variables (pre- or post-event week and show ideology), and on to regression models.

4.3 Topic mention counts

A topic mention is simply an occasion where the transcription algorithm recognized a topic-relevant term in the speech produced by a radio show. The terms for each topic are: (1) climate change and global warming; (2) gun control, gun right(s), second amendment, gun owner(ship), anti-gun, pro-gun, and gun violence; (3) immigration, immigrant, migration, and migrant. These lists were composed by searching for fragments containing "seed" terms (e.g. "immigration") and mining them for other possible keywords, until any further keywords yielded an unsatisfactory rate of false positives.

It is possible that these keyword lists are systematically biased against detecting topic mentions on one ideological side, as certain ideology-specific topic terms might be missing. This is likely to affect overall topic mention counts, but less likely to bias our estimates of *changes* in mention counts around an event. The latter type of bias would require that we miss some of the language that one ideological side uses to refer to the topic, but only in the wake of an event.

Shows that are broadcast on several of the recorded stations only have their mentions counted once. I make use of the transcripts from all broadcasts of the show, however, in order to help deal with any errors in the transcript of any given broadcast (see SI section 2).

4.4 Topic mention frames

Workers on Amazon's Mechanical Turk coded the frame of each mention by listening to a 30-second audio fragment surrounding the topic keyword. Pre-testing showed that longer fragments rarely provided key additional information. Workers coded up to 25 mentions per show-week (if there were more mentions, they coded a random sample). This amounted to about 4500 out of 4900 mentions for climate change, 5050 out of 5650 mentions for gun policy, and 7350 out of 15500 mentions for immigration.

For each topic, I asked coders to label the mentions with one of two issue

frames: "skeptical" or "convinced" about climate change, "pro-gun" or "anti-gun", and "supporting immigration" or "tough on immigration". Coders could also label mentions as using neither frame. Pre-testing showed that more nuanced labels were highly subjective in meaning, and therefore difficult for coders to agree upon.

Two raters coded each mention; if they disagreed, I added a third. The Spearman rank correlation of the codes given by any two raters was .74 for climate, .61 for gun policy, and .53 for immigration. The lower accuracy for immigration mentions is largely due to their being slanted only in subtle or debatable ways. As a result, coders often disagreed on whether mentions featured a particular frame, or should be labeled as "neither" instead. SI section 3 contains details about the coding task, including raw agreement rates and full code books.

An advantage of using non-expert human coders, and audio rather than text transcripts, is that coders' interpretations of fragments will in some ways be quite close to radio listeners' interpretations. For instance, both are about equally able to catch sarcasm. However, coders differ from real-world listeners in two notable ways.

Hearing the audio fragment, coders may or may not be able to detect the general ideological leaning of the show (for a few popular shows, they may even guess who the host is). Listeners have more access this information, and might use it to infer speakers' implicit stances. Further, listeners are more likely than coders to know whether the speaker is a guest or caller, or the host of the show. Listeners may care less about guests' framings. This could be important if a shift in guest perspectives is the main source of change in the balance of viewpoints on a show.

Both of these biases are in the direction of coders detecting *more* change in frames over time than listeners. It is therefore reassuring that I largely find over-time stability in the frames that shows use, despite a bias towards variability.

4.5 Pre-event and post-event weeks

In this study, I analyze radio show-weeks that happened just before or just after an event. Mass shootings are unpredictable and short, meaning their media impact starts on the day of the event. With hurricanes and immigrant family separation, the start of the impact is less clear-cut. For example, the strength and path of hurricanes can be predicted with more and more certainty as they approach land, until they eventually make landfall.

I expect events to have media impact once they cross some threshold of social significance—for example, once a hurricane is predicted to hit a populated area. I use search indices to detect when this social threshold is reached. SI section 4 goes into further detail on how I employ Google Trends data to define pre-event and post-event weeks.

4.6 Classifying shows: politics and ideology

In order for a show to be included in the analyses, it needs to be classified as political in content. We also need to know whether it has a liberal or a conservative slant. For both decisions, I created bag-of-words classifiers based on all transcribed episodes of the show—typically 1.5 years' worth of data.

As a training set, I used the transcripts of 50 shows with known labels. For the training set of the political/non-political classifier, I hand-labeled 33 shows as non-political based on their titles, verified by their transcript and the show's website. This training set includes shows on nine topics—for instance, gardening or sports. For the ideology classifier, I used 15 shows for which at least two sources confirmed that they had either a conservative or a liberal slant. These shows also served as the "political" shows for the political/non-political classifier. The classifiers were trained on episodes of these hand-labeled shows. SI section 5 contains information on the training shows as well as further details on how the classifiers were trained, tuned and tested.

When the trained models were tested on previously unseen episodes, the

political/non-political model correctly classified all 50 known shows. The conservative/liberal model successfully classified 14 out of 15 political shows. Finally, I applied the trained classifiers to all recorded shows. 429 were labeled as political, with 269 labeled conservative and 160 liberal. Of the shows labeled as political, the ideology classifier was able to label the vast majority (94%) as either liberal or conservative with reasonable certainty ($> 70\%$).

5 Results

5.1 Partisan issue selection: connecting events and topics

To investigate partisan issue selection, I analyze the number of topic mentions in the show-weeks before and after a relevant event using a negative binomial model (see SI section 6 for more details). I include an interaction between time (pre-event or post-event) and ideology (liberal or conservative), and control for a show's amount of weekly airtime. Below, I report predicted numbers of topic mentions before and after events, along with p-values on the corresponding model coefficients. SI section 7 includes the full regression tables. Significance tests are two-tailed.

Figure 2 shows the predicted number of mentions on conservative and liberal shows, for each topic, in the weeks before and after an event. I find that on a conservative show with four hours of airtime, the estimated number of climate mentions increases from 0.8 to 2.1 ($p < .001$). On a liberal show, it increases from 2.2 to 4.1 ($p = 0.002$). In the case of gun policy, on a conservative show, the predicted number of mentions changes from 1.9 to 3.3 ($p < .001$); on a liberal show, it changes from 0.7 to 1.0 ($p = .053$). The predicted number of immigration mentions on a conservative show goes from 4.3 to 25.3 ($p < .001$); on a liberal show it goes from 7.3 to 14.5 ($p = .080$). The difference between the proportional change on the liberal and conservative sides is not significant in the case of climate change ($p = .171$) and gun policy ($p = .317$), but is significant for immigration ($p = .007$).

17

SI section 8 investigates the possibility that increased immigration mentions simply capture reporting on family separation events. SI section 9 discusses the longevity of attention to all topics after it has peaked.

5.2 Partisan issue framing: colored topic discussions

Next, I analyze the mix of partisan issue frames featured in each show-week. I use a fractional logit model, where outcomes can take any value between 0 and 1 (see SI section 6). The dependent variable is the proportion of mentions in the show-week that appear convinced about climate change, anti-gun, or tough on immigration (among all mentions with frames; leaving out the "neither" mentions). The model includes an interaction between time (pre/post) and ideology.

Figure 3 shows the predicted proportions of topic mentions using each frame. In the week before an event, discussions of all three political topics are deeply sorted. The proportions of convinced climate mentions are vastly different between conservative and liberal shows (cons.: 38%, lib.: 92%, $p < .001$). The same is true for anti-gun mentions (conservative: 21%, liberal: 71%, $p < .001$) and for "tough" immigration mentions (conservative: 70%, liberal: 31%, $p < .001$).

Post-event changes in framing are mostly minor and non-significant. The proportion of convinced climate mentions increases from 38% to 42% among conservative shows ($p = .330$), and from 92% to 95% on liberal shows ($p = .149$). The proportion of anti-gun mentions increases from 21% to 29% among conservative shows (a statistically significant difference, $p = .011$), and from 71% to 77% on liberal shows ($p = .373$). Finally, the proportion of tough-on-immigration mentions decreases slightly from 70% to 67% among conservative shows ($p = .420$), and from 31% to 27% on liberal shows ($p = .407$).

None of the findings above depend on the decision to exclude news and public radio shows, or on the thresholds that are used to count shows as political or conservative/liberal (see SI section 10 for robustness checks).
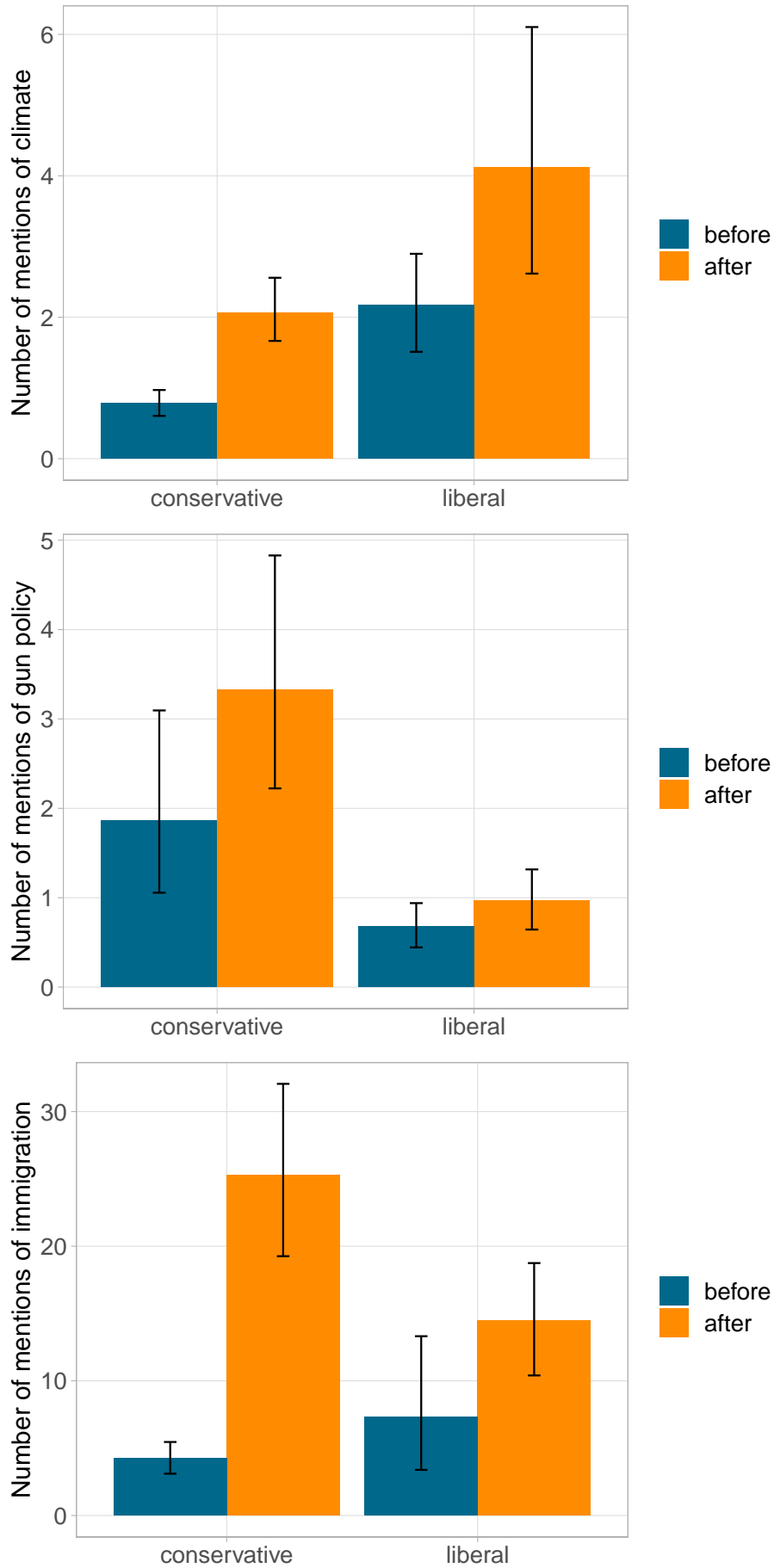
Figure 2: Predicted number of mentions of climate, gun policy and immigration on a conservative or liberal radio show with four hours of airtime, in the weeks before and after an event. Bars are 95% bootstrap percentile CIs, blocked at the show level.
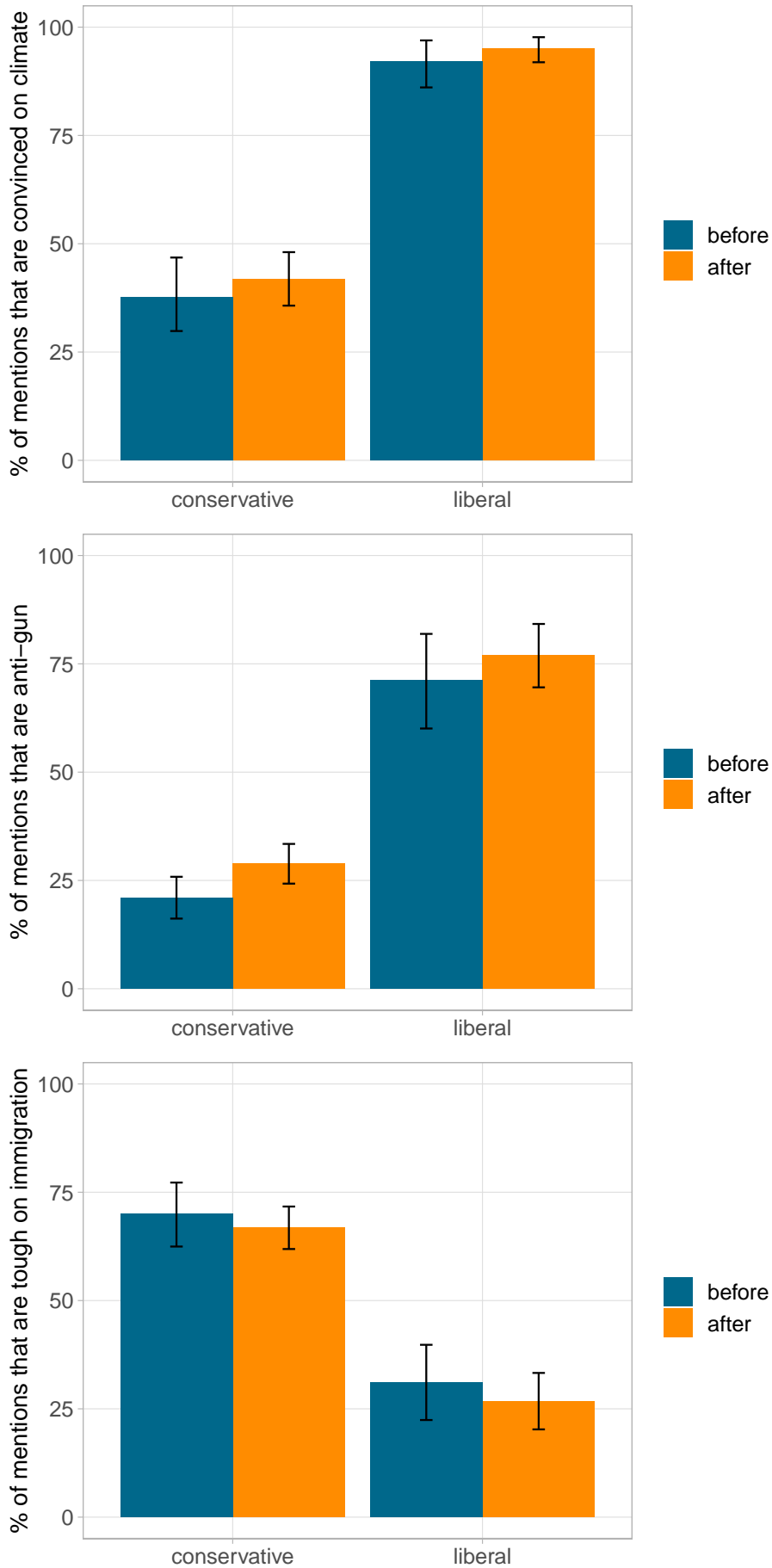
Figure 3: Predicted proportion of mentions that are convinced about climate change, anti-gun, or tough on immigration—among mentions that feature an ideological frame—for a conservative and liberal radio show, in the weeks before and after an event. Bars are 95% bootstrap percentile CIs, blocked at the show level.

6 Discussion

In this paper, I investigate the effects of newsworthy events on the discussion of climate, gun policy and immigration on US talk radio. In all cases, events result in an increase in the total volume of discussion on relevant political topics, on both ideological sides. For instance, after a hurricane, both conservative and liberal shows double their coverage of climate change. Events rarely cause significant shifts, however, in the frames that speakers use. The exception is shootings, which caused a very modest increase in the proportion of anti-gun mentions on the conservative side. In other words, radio hosts typically manage to weave these events into their existing ideological narratives.

The results contrast with earlier findings on selection bias, where partisan media selectively underreport events with negative implications for the parties and politicians on their end of the ideological spectrum (for instance, scandals or dips in approval, Groeling 2008; Puglisi and Snyder 2011). In the face of such events, partisan audiences on the "losing" side even tune out of political news altogether (Kim and Kim, 2021; Tyler et al., 2022). This paper highlights another category of events: ones that have clear connections to politics, but that do not directly reflect on the quality of parties or politicians. These types of events appear more likely to be re-interpreted to fit into a conservative or liberal story.

At the same time, events do not act as equalizers of right-wing and left-wing media agendas. Findings from pre-event weeks suggest that shows' baseline attention to topics has a clear and sometimes unexpected slant—for example, liberal shows mention the climate more, and conservative shows mention gun policy more. There is no significant different in attention to immigration (though in the wake of family separation, conservative shows increased their talk about immigration much more). Further analyses, involving a broader range of topics, could investigate why liberal and conservative shows tend to pay attention to different baskets of issues in the long run.

6.1 Implications

The events in this study amplified messaging about related political topics, without changing much about how they are framed. In other words, after an event related to a political issue, talk radio listeners are more likely to hear ideologically colored discussion of that issue. A possible consequence is that after major events, partisan segments of the public become even more sorted or polarized in their opinions. If partisan media can persuade their audiences, as the literature so far seems to indicate, then attention to a given topic should increase the potential of persuasion on that topic.

In the case of talk radio, this is especially relevant to conservative audiences. As noted above, radio listeners on the left lean towards public radio programming (Pew Research Center, 2014; Faris et al., 2017). In SI section 10.1, I show that public radio programs are no more likely to have their topic mentions classified as neutral or balanced by coders, and that the results above hold when those programs are included. Nonetheless, it is an open question whether these shows have similar impacts on their audience as more explicitly partisan programs.

Partisan media may even affect politics without changing audience attitudes. Republican politicians feel pressured by conservative outlets due to their alleged effect on Republican voters (Calmes, 2015; Hemmer, 2016, p. 272-274). Talk radio is considered especially influential because it reaches people in rural states, including early primary states (Calmes, 2015). For instance, when House majority leader Eric Cantor decided to soften his position on immigration late in his 2014 campaign, Laura Ingraham and other talk show hosts took aim at him, likely playing a role in his primary defeat that year (Caldwell and Diamond, 2014). If politicians notice an increase in ideological messaging about a topic on partisan media, they may feel compelled to follow. Moreover, conservative journalists sometimes try to target activists or policy-makers directly with their messaging (Nadler et al., 2020).

Finally, the results in this study point to a dilemma for partisan content

makers who want to decrease the salience of an issue—i.e., lower its priority for citizens. In mainstream media, attention to political issues causes those issues to become more salient (e.g. Cohen 1963; King et al. 2017; McCombs and Shaw 1972). The current findings suggest that when faced with a significant event, partisan journalists cannot avoid talking about relevant political issues. A brief qualitative investigation suggests that instead, they may downplay the importance of the issue. For example, when liberal talk show hosts discuss immigration, a common frame is that the US should use fewer resources to tackle this non-problem. The same is true for conservatives and climate change. Public opinion research confirms that issue priorities are strikingly different between Democrats and Republicans (Gallup, 2020), despite the agenda-setting power of events. Future research could investigate whether "importance-denying" content can indeed override the salience effect of mentioning an issue.

7 Conclusion

This paper extends an emerging literature of large-n studies on the content of partisan media, by looking at extremely newsworthy events. I find that partisan media do not tend to avoid connecting events to ideologically inconvenient political debates. Instead, they re-interpret them to fit an ideological narrative. This result complements past findings where, in the case of political scandals and misfortunes, partisan content producers rather try to ignore the inconvenient event. The findings mean that on partisan media, newsworthy events do not result in a shared narrative—instead, they give rise to two separate stories, with the potential of pushing partisans' understanding of political topics further apart.

Acknowledgments

References

M. A. Abrajano, Z. Hajnal, and H. J. Hassell. Media framing and partisan identity: the case of immigration coverage and white macropartisanship. *Journal of Race, Ethnicity, and Politics*, 2(1):5–34, 2017.

Ad Fontes Media. Interactive media bias chart 5.0, 2019. URL `https://www.adfontesmedia.com/interactive-media-bias-chart/`. Accessed April 2022.

S. Aday, S. Livingston, and M. Hebert. Embedding the truth: A cross-cultural analysis of objectivity and television coverage of the iraq war. *Harvard International Journal of Press/Politics*, 10(1):3–21, 2005.

K. Arceneaux and M. Johnson. Does media fragmentation produce mass polarization? Selective exposure and a new era of minimal effects. APSA 2010 Annual Meeting Paper, 2010.

K. Arceneaux and M. Johnson. *Changing minds or changing channels? Partisan news in an age of choice.* University of Chicago Press, 2013.

D. Barker. *Rushed to judgment: Talk radio, persuasion, and American political behavior.* Columbia University Press, 2002.

D. Barker and K. Knight. Political talk radio and public opinion. *Public Opinion Quarterly*, 64(2):149–170, 2000.

M. A. Baum and T. Groeling. New media and the polarization of American political discourse. *Political Communication*, 25(4):345–365, 2008.

F. R. Baumgartner and B. D. Jones. *Agendas and instability in American politics*. University of Chicago Press, 2010.

J. M. Berry and S. Sobieraj. *The outrage industry: Political opinion media and the new incivility*. Oxford University Press, 2013.

T. A. Birkland. "The world changed today": Agenda-setting and policy change in the wake of the September 11 terrorist attacks. *Review of Policy Research*, 21(2):179–200, 2004.

A. E. Boydstun. *Making the news: Politics, the media, and agenda setting*. University of Chicago Press, 2013.

D. Broockman and J. Kalla. The manifold effects of partisan media on viewers' beliefs and attitudes: A field experiment with fox news viewers. *OSF Preprints*, 1, 2022.

C. Budak, S. Goel, and J. M. Rao. Fair and balanced? quantifying media bias through crowdsourced content analysis. *Public Opinion Quarterly*, 80(S1): 250–271, 2016.

L. A. Caldwell and J. Diamond. 7 reasons Eric Cantor lost, 2014. URL `https://www.cnn.com/2014/06/11/politics/why-eric-cantor-lost/`. Accessed April 2022.

J. Calmes. 'They don't give a damn about governing': Conservative media's influence on the republican party. Technical report, Shorenstein Center on Media, Politics and Public Policy, Harvard University, 2015.

Center for American Progress and Free Press. The structural imbalance of political talk radio, 2007. URL `https://cdn.americanprogress.org/wp-`

`content/uploads/issues/2007/06/pdf/talk_radio.pdf`. Accessed April 2022.

D. Chong and J. N. Druckman. Framing public opinion in competitive democracies. *American political science review*, 101(4):637–655, 2007.

B. C. Cohen. *Press and foreign policy*. Princeton University Press, 1963.

J. de Benedictis-Kessner, M. A. Baum, A. Berinsky, T. Yamamoto, et al. Persuading the enemy: Estimating the persuasive effects of partisan media with the preference-incorporating choice and assignment design. *American Political Science Review*, 113(4):902–916, 2019.

J. N. Druckman, E. Peterson, and R. Slothuus. How elite partisan polarization affects public opinion formation. *American Political Science Review*, 107(1): 57–79, 2013.

R. Faris, H. Roberts, B. Etling, N. Bourassa, E. Zuckerman, and Y. Benkler. Partisanship, propaganda, and disinformation: Online media and the 2016 US presidential election. Technical report, Berkman Klein Center, 2017.

L. Feldman, E. W. Maibach, C. Roser-Renouf, and A. Leiserowitz. Climate on cable: The nature and impact of global warming coverage on Fox News, CNN, and MSNBC. *The International Journal of Press/Politics*, 17(1):3–31, 2012.

J. D. Ford and D. King. Coverage and framing of climate change adaptation in the media: A review of influential North American newspapers during 1993–2013. *Environmental Science & Policy*, 48:137–146, 2015.

Gallup. Several issues tie as most important in 2020 election, 2020. URL `https://news.gallup.com/poll/276932/several-issues-tie-important-2020-election.aspx`. Accessed April 2022.

W. Gamson and A. Modigliani. The changing culture of affirmative action. In *Research in political sociology*, pages 137–177. Greenwich: Jai Press, 1987.

M. Gentzkow and J. M. Shapiro. What drives media slant? Evidence from US daily newspapers. *Econometrica*, 78(1):35–71, 2010.

Geophysical Fluid Dynamics Laboratory. Global warming and hurricanes: An overview of current research results, 2019. URL `https://www.gfdl.noaa.gov/global-warming-and-hurricanes/`. Accessed August 2019.

T. Groeling. Who's the fairest of them all? An empirical test for partisan bias on ABC, CBS, NBC, and Fox News. *Presidential Studies Quarterly*, 38(4): 631–657, 2008.

T. Groeling. Media bias by the numbers: Challenges and opportunities in the empirical study of partisan news. *Annual Review of Political Science*, 16, 2013.

T. Groseclose and J. Milyo. A measure of media bias. *The Quarterly Journal of Economics*, 120(4):1191–1237, 2005.

A. M. Guess. Measure for measure: An experimental test of online political media exposure. *Political Analysis*, 23(1):59–75, 2015.

T. Harcup and D. O'Neill. What is news? news values revisited (again). *Journalism studies*, 18(12):1470–1488, 2017.

N. Hemmer. *Messengers of the Right: Conservative Media and the Transformation of American Politics*. University of Pennsylvania Press, 2016.

S. Iyengar. *Is anyone responsible?: How television frames political issues*. University of Chicago Press, 1994.

S. Iyengar, M. D. Peters, and D. R. Kinder. Experimental demonstrations of the "not-so-minimal" consequences of television news programs. *American political science review*, 76(4):848–858, 1982.

K. H. Jamieson and J. N. Cappella. *Echo chamber: Rush Limbaugh and the conservative media establishment*. Oxford University Press, 2008.

J. W. Kim and E. Kim. Temporal selective exposure: How partisans choose when to follow politics. *Political Behavior*, 43(4):1663–1683, 2021.

G. King, B. Schneer, and A. White. How the news media activate public expression and influence national agendas. *Science*, 358(6364):776–780, 2017.

J. A. Krosnick and D. R. Kinder. Altering the foundations of support for the president through priming. *American Political Science Review*, 84(2):497–512, 1990.

V. Larcinese, R. Puglisi, and J. M. Snyder Jr. Partisan bias in economic news: Evidence on the agenda-setting behavior of us newspapers. *Journal of Public Economics*, 95(9-10):1178–1189, 2011.

R. G. Lawrence. *The politics of force: Media and the construction of police brutality.* University of California Press, 2000.

M. S. Levendusky. Why do partisan media polarize viewers? *American Journal of Political Science*, 57(3):611–623, 2013.

G. J. Martin and A. Yurukoglu. Bias in cable news: Persuasion and polarization. *American Economic Review*, 107(9):2565–99, 2017.

M. E. McCombs and D. L. Shaw. The agenda-setting function of mass media. *Public Opinion Quarterly*, 36(2):176–187, 1972.

A. Nadler, A. Bauer, and M. Konieczna. Conservative newswork: A report on the values and practices of online journalists on the right. Technical report, Columbia Journalism Review, 2020.

National Public Radio. NPR maintains highest ratings ever, 2018. URL `https://www.npr.org/about-npr/597590072/npr-maintains-highest-ratings-ever`. Accessed April 2022.

T. E. Nelson, Z. M. Oxley, and R. A. Clawson. Toward a psychology of framing effects. *Political behavior*, 19(3):221–246, 1997.

B. J. Newman and T. K. Hartman. Mass shootings and public support for gun control. *British Journal of Political Science*, 49(4):1527–1553, 2019.

Nielsen. Tops of 2018: Radio, 2018. URL `https://www.nielsen.com/us/en/insights/news/2018/tops-of-2018-radio.html`. Accessed April 2022.

J. R. Petrocik. Issue ownership in presidential elections, with a 1980 case study. *American Journal of Political Science*, pages 825–850, 1996.

Pew Research Center. The color of news: How different media have covered the general election, 2008. URL `https://www.pewresearch.org/journalism/2008/10/29/the-color-of-news/`.

Pew Research Center. Where news audiences fit on the political spectrum, 2014. URL `https://www.journalism.org/interactives/media-polarization/`. Accessed April 2022.

Pew Research Center. Audio and podcasting fact sheet, 2019. URL `https://www.journalism.org/fact-sheet/audio-and-podcasting/`. Accessed April 2022.

Pew Research Center. Important issues in the 2020 election, 2020. URL `https://www.pewresearch.org/politics/2020/08/13/important-issues-in-the-2020-election/`. Accessed August 2021.

Pew Research Center. Social media use in 2021, 2021a. URL `https://www.pewresearch.org/internet/wp-content/uploads/sites/9/2021/04/PI_2021.04.07_Social-Media-Use_FINAL.pdf`. Accessed April 2022.

Pew Research Center. Audio and podcasting fact sheet, 2021b. URL `https://www.journalism.org/fact-sheet/audio-and-podcasting/`. Accessed August 2021.

M. Prior. The immensely inflated news audience: Assessing bias in self-reported news exposure. *Public Opinion Quarterly*, 73(1):130–143, 2009.

R. Puglisi. Being the New York Times: The political behaviour of a newspaper. *The BE Journal of Economic Analysis & Policy*, 11(1), 2011.

R. Puglisi and J. M. Snyder. Newspaper coverage of political scandals. *The Journal of Politics*, 73(3):931–950, 2011.

Quinnipac University. Stop taking the kids, 66 percent of U.S. voters say, 2018. URL https://poll.qu.edu/images/polling/us/us06182018_uwsf18.pdf/.

Radio Advertising Bureau. Radio listening by format, 2021. URL http://www.rab.com/whyradio.cfm. Accessed August 2021.

B. Schaffner, S. Ansolabehere, and S. Luks. CCES Common Content, 2018, 2019. URL https://doi.org/10.7910/DVN/ZSBZ7K. Accessed April 2022.

H. B. Seeberg. How stable is political parties' issue ownership? A cross-time, cross-national analysis. *Political Studies*, 65(2):475–492, 2017.

D. V. Shah, M. D. Watts, D. Domke, and D. P. Fan. News framing and cueing of issue regimes: Explaining Clinton's public approval in spite of scandal. *Public opinion quarterly*, 66(3):339–370, 2002.

G. Smith and K. Searles. Who let the (attack) dogs out? New evidence for partisan media effects. *Public Opinion Quarterly*, 78(1):71–99, 2014.

S. Sobieraj and J. M. Berry. From incivility to outrage: Political discourse in blogs, talk radio, and cable news. *Political Communication*, 28(1):19–41, 2011.

N. J. Stroud. Polarization and partisan selective exposure. *Journal of Communication*, 60(3):556–576, 2010.

N. J. Stroud. *Niche news: The politics of news choice*. Oxford University Press on Demand, 2011.

Talkers magazine. Top talk audiences, 2019. URL http://www.talkers.com/top-talk-audiences/. Accessed April 2019.

J. W. Tankard, L. Hendrickson, J. Silberman, K. Bliss, and S. Ghanem. Media frames: Approaches to conceptualization and measurement. Paper presented at the annual convention of the Association for Education in Journalism and Mass Communication, Boston, MA, 1991.

M. Tyler, J. Grimmer, and S. Iyengar. Partisan enclaves and information bazaars: Mapping selective exposure to online news. *The Journal of Politics*, 84(2):000–000, 2022.

US Census Bureau. Voting and registration in the election of November 2018, 2019. URL `https://www.census.gov/data/tables/time-series/demo/voting-and-registration/p20-583.html`. Accessed April 2022.

G. Visconti and K. Young. Do natural disasters change risk perceptions and policy preferences about climate change? Working paper, 2019.

M. W. Wagner and M. Gruszczynski. When framing matters: How partisan and journalistic frames affect individual opinions and party identification. *Journalism & Communication Monographs*, 18(1):5–48, 2016.

D. H. Weaver. Thoughts on agenda setting, framing, and priming. *Journal of communication*, 57(1):142–147, 2007.

I. Yanovitzky and J. N. Cappella. Effect of call-in political talk radio shows on their audiences: Evidence from a multi-wave panel analysis. *International Journal of Public Opinion Research*, 13(4):377–397, 2001.