

Consuming Cross-Cutting Media Causes Learning and Moderates Attitudes: A Field Experiment with Fox News Viewers

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Many Americans consume aligned partisan media, which scholars worry contributes to polarization. Many propose encouraging these Americans to consume cross-cutting media to moderate their attitudes. However, motivated reasoning theory posits that exposure to cross-cutting media could backfire, exacerbating polarization. Building on theories that sustained exposure to novel information can overcome motivated reasoning and that partisan sources on opposite sides cover distinct information, we argue that sustained consumption of cross-cutting media leads voters to learn uncongenial information and moderate their attitudes in covered domains. To test this argument, we used data on actual TV viewership to recruit a sample of regular Fox News viewers and incentivized a randomized treatment group to watch CNN instead for a month. Contrary to predictions from motivated reasoning, watching CNN caused substantial learning and moderated participants' attitudes in covered domains. We close by discussing challenges partisan media may pose for democracy.

Many Americans prefer consuming television media that shares their preexisting political views instead of a more balanced diet containing some cross-cutting sources (Prior 2013; Stroud 2011). Many scholars express concern that congenial partisan media causes political beliefs and attitudes to be more extreme (e.g., Martin and Yurukoglu 2017).

In response, many propose encouraging Americans with one-sided media diets to consume cross-cutting content, hoping this would moderate their attitudes (e.g., Goldman and Mutz 2011; Manjoo 2008; Sunstein 2007). For instance, Barack Obama encouraged Americans to “seek out information that challenges our assumptions.”¹ This sentiment dates back centuries: John Stuart Mill (1848) wrote that “It

is hardly possible to overstate the value . . . of placing human beings in contact . . . with modes of thought . . . unlike those with which they are familiar.”

However, theories of motivated reasoning argue that exposure to cross-cutting content can backfire and actually make beliefs and attitudes more extreme. Cross-cutting content is expected to backfire because individuals generate counter-arguments against its uncongenial content, which, in turn, make their beliefs and attitudes more extreme (for review, see Levendusky 2013, 614). Therefore, as Coppock (2022, 2) reviews, “A key prediction of motivated reasoning theory is backlash: exposure to counter-attitudinal evidence will cause people to hold more strongly to their preexisting positions.” Motivated reasoning theory leads many scholars such

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1. See <https://bit.ly/3ZOBsM>.

as Arceneaux and Johnson (2013, 74) to warn against cross-cutting exposure, concluding that “exposure to counterattitudinal news can be just as polarizing as exposure to proattitudinal news.” Levendusky (2013, 614) similarly notes that “cross-cutting media” is often theorized to “increase attitude extremity and polarization.”

We argue that sustained consumption of cross-cutting media can lead voters to learn uncongenial information and moderate their attitudes. Motivated reasoning theories argue that motivated reasoning happens in two phases (e.g., Lodge and Taber 2013, 152): at the stage of information search, when people seek out confirmatory information (selective exposure, i.e., Stroud 2011), and, second, when people process information to which they are exposed.² These are analogous to the “receive” (selective exposure) and “accept” (information processing) steps of Zaller’s (1992) RAS model (Nyhan 2014). In this framework, advocates of cross-cutting exposure argue that overcoming selective exposure, the first step in motivated reasoning theories, would moderate beliefs and attitudes. Their critics argue that overcoming selective exposure would actually create backlash—or at best have no effects—due to biases in information processing (the accept step). We argue against this latter idea in the context of partisan media consumption. We offer two key reasons why congenial partisan media consumers who engage in sustained exposure to cross-cutting media can overcome motivated reasoning in information processing.

First, partisan sources on opposite sides cover different topics and information, conveying more information favorable to their side and less information unfavorable to their side (e.g., Grossman, Margalit, and Mitts 2022; Hayakawa 1940; Mullainathan and Shleifer 2005). For instance, during September 2020 when we conducted the study we present below, CNN provided extensive coverage of COVID-19, which included information about the severity of COVID-19 and poor aspects of then-President Trump’s handling of it. Fox News covered COVID-19 much less, and the coverage it did offer provided little of the information CNN did, instead giving viewers information about why the virus was not a serious threat. Research shows that factual information is often able to overcome motivated reasoning because its valence is less immediately apparent (Guess and Coppock 2020; Porter and

2. Formal literature offers a related definition of motivated reasoning that predicts that individuals update their beliefs less in the direction of new information than they should under Bayes’ rule (e.g., Little 2022). Lodge and Taber (2013) call this the prior attitude effect and Little (2022) calls this “once-motivated reasoning.” However, this definition does not allow for backlash (Little 2022, footnote 22). We discuss this in greater detail in the discussion. For a concise overview of motivated reasoning theory and its relationship to Bayesian updating, see Druckman and McGrath (2019).

Wood 2022; Wood and Porter 2019). If individuals balance their media diets to include cross-cutting sources, we therefore expect they would learn some of the cross-cutting information present in these sources (i.e., update their beliefs) and incorporate this information into their attitudes. Second, research suggests sustained exposure to cross-cutting content can lead motivated reasoners to eventually reach a “tipping point” that leads them to revisit their views (Gerber and Green 1998; Redlawsk, Civettini, and Emmerson 2010).

In support of this argument, we present results from a field experiment that incentivized individuals who selectively consume congenial partisan television³ media to instead consume cross-cutting media, leading them to consume a more balanced media diet. This experiment employed a unique design and was conducted among a unique sample: We incentivized a randomized treatment group of regular Fox News viewers to watch CNN instead for four weeks during September 2020 and then measured the effects of this consumption on beliefs and attitudes.

Two differences between our research design and previous research on cross-cutting partisan television consumption are particularly theoretically significant. First, we incentivized participants to engage in sustained consumption of cross-cutting partisan media, allowing the topics and information their favored media source (Fox News) and a cross-cutting source (CNN) covered to vary as it does in the real world. By contrast, previous research on televised partisan media has generally exposed participants to brief clips of cross-cutting media while holding constant the topics and even information covered in congenial and cross-cutting sources (for review, see app. sec. 1). Previous research is therefore unable to capture any potential effects of the differences in information present in congenial and cross-cutting sources, such as learning or its downstream consequences.

A second difference between our study and previous work is that we conducted it among the population of interest to advocates of balancing media diets and among whom motivated reasoning theories most strongly predict we should expect to find backfire effects: regular congenial partisan media viewers. Motivated reasoning theories argue that partisan media consumers are best equipped and most motivated to counterargue against information from cross-cutting sources, leading backlash to be particularly likely among this population (e.g., Arceneaux and Johnson 2013). Indeed, we find this population harbors extreme attitudes and distrusts cross-cutting

3. We focus on televised partisan media given that selective exposure is more prevalent in television than online news consumption (Muise et al. 2022). Appendix section 1 discusses studies on online media.

sources. However, previous research has only been conducted among members of the general public who state or reveal a preference for various media sources in surveys, not the individuals who actually choose to consume partisan media in the real world (see app. sec. 1 for review). This makes our study a hard test of our argument because we conducted it among the population motivated reasoning theories predict should be most likely to exhibit backlash.

To recruit participants, we partnered with a media analytics company (Bully Pulpit Interactive) to identify individuals who regularly watch Fox News and do not watch CNN or MSNBC, using data on their households' actual television viewership. To induce cross-cutting exposure and balance participants' media diets, we offered a randomized treatment group \$15 per hour to watch up to seven hours of CNN per week during September 2020 at the hours at which they typically watched Fox News. To increase the probability that individuals received this cross-cutting content and thereby to balance their media diets as much as possible, we enforced compliance with viewership quizzes about nonpolitical features of the coverage (e.g., about which guest had just appeared). Although these quizzes may induce artificially close attention, we interpret any such effects as further increasing reception of cross-cutting content, such that potential biases at the information processing (accept) step are all that remain. Indeed, under motivated reasoning theories, we would expect these circumstances to be particularly conducive to counterarguing and backfire, as exposure to uncongenial information—the key requisite condition for backfire—is essentially guaranteed. Although it is possible the incentives may have interfered with the information processing step, Khanna's and Sood's (2018) results suggest that, if anything, financial incentives to accurately report information tend to increase bias by motivating participants to reinforce their beliefs.

Consistent with our argument, we found that incentivizing partisan media viewers to balance their media diets toward cross-cutting content led to learning and moderated their attitudes. First, consistent with our argument that partisan media viewers would learn from cross-cutting media if they received it despite the predictions of motivated reasoning theories, we found evidence of substantial learning. In particular, we found that watching CNN instead of Fox News affected participants' factual perceptions of current events (i.e., beliefs) and knowledge about the 2020 presidential candidates' positions. It also decreased their knowledge of information covered on Fox News.

Accompanying these shifts, we also found evidence of moderation (i.e., among these conservative participants, leftward shifts) along a number of dimensions, including attitudes about current events, policy preferences, and evaluations of key political figures and parties. For example, we found left-

ward shifts in attitudes and preferences about COVID-19 and decreases in evaluations of Donald Trump and Republican candidates and elected officials. An endline survey two months later found these impacts largely receded as treated participants primarily returned to their prior viewing habits, consistent with participants having a preference for like-minded media (the receive information search step of motivated reasoning theories).

We close by elaborating three broader implications of our findings. First, consistent with the benefits of cross-cutting exposure, we find that selective exposure to congenial partisan sources—the information search step of motivated reasoning theories—exacerbates polarization: If individuals were more motivated to consume cross-cutting content, we argue voters would have more moderate, less polarized attitudes. Second, echoing findings on the limits of motivated reasoning in information processing (e.g., Guess and Coppock 2020; Redlawsk et al. 2010; Wood and Porter 2019), our results on both learning and attitudes contrast with expectations that Americans—and especially highly engaged partisans—simply reject messages contrary to their partisan loyalties. Third, our findings suggest that partisan media may affect voters' attitudes in part because it selectively reports information. As we elaborate in the discussion, this suggests that partisan media may present a challenge for democratic accountability.

HOW SUSTAINED CROSS-CUTTING EXPOSURE MAY OVERCOME MOTIVATED REASONING

As described above, many scholars oppose proposals to encourage cross-cutting media consumption, expecting that it would only make partisan media consumers' attitudes more extreme. For example, Arceneaux's and Johnson's (2013) influential research argues that "exposure to counterattitudinal news can be just as polarizing as exposure to proattitudinal news" (74) and that "In spite of the hopeful notion that exposure to alternative views will ameliorate political division," consuming cross-cutting media merely "reinforces preexisting attitudes" (104). Their fears are rooted in theories of motivated reasoning, which argue that when processing uncongenial content, people generate counterarguments in support of their own views, which then causes their beliefs to change in the opposite direction of the content's signal (Nyhan and Reifler 2010) and their attitudes to grow more extreme in the opposite direction, too (Lodge and Taber 2013). As we review in table OA1, evidence from survey experiments incentivizing brief exposure to cross-cutting partisan media often supports these expectations, particularly among people who prefer consuming congenial partisan media or have strong attitudes.

However, there is an important difference between the media used as experimental stimuli in prior survey experiments and

real-world partisan media. In an effort to hold other factors constant, prior research's experimental stimuli essentially always hold constant the issues covered in cross-cutting and congenial media (see table OA1). However, other research shows that real-world partisan media channels on opposite sides cover dramatically different topics and information (e.g., Baum and Groeling 2008; Grossman et al. 2022). Researchers have used different terms to refer to this phenomenon, and we use the term partisan coverage filtering.⁴ We define partisan coverage filtering as when a media outlet conveys more information favorable to its partisan or ideological side and less information unfavorable to its side.

Research on the limits of motivated reasoning suggests that the uncongenial information may be able to overcome biases in information processing (Guess and Coppock 2020; Porter and Wood 2022; Wood and Porter 2019). This could lead cross-cutting media to produce moderation instead of backlash. As Wood and Porter (2019) argue, the valence of information is often less obvious than the valence of arguments. In turn, motivated reasoners might be less likely to counterargue against—and thus more likely to accept—information. Later, this information may be present in mind and inform attitudes. For instance, a video CNN played showing that Trump rallies did not require masks during the COVID-19 pandemic may lead to less counterarguing than explicit arguments that Trump performed poorly handling COVID-19. However, if individuals learn that Trump did not require masks at his rallies, when forming attitudes about his performance handling the pandemic, those who support mask-wearing (which the majority of our sample did) might evaluate Trump's performance less favorably. However, existing studies holding topics and issues constant between sources may not capture any such effect.

Our research design, described below, allows for the topics and information covered in cross-cutting and congenial partisan media networks to naturally vary. It also evaluates the impact of sustained exposure, which evidence also suggests might lead motivated reasoners to reach a “tipping point” that causes them to revisit their views (Gerber and Green 1998; Redlawsk et al. 2010). It therefore complements prior survey-based research in conditions that may better resemble the effects of sustained exposure to real-world cross-cutting news sources.

4. Hayakawa (1940) and Mullainathan and Shleifer (2005) use “slant,” Besley and Prat (2006) use “bias,” Baum and Groeling (2008) discuss “bias” in story “selection,” Gentzkow, Shapiro, and Stone (2016) use “filtering bias,” and Grossman et al. (2022) use “facts bias.” We avoid using “bias” since it is defined with respect to a true parameter (but objective coverage is impractical to define) and avoid using “slant” because it is used to describe news source ideology.

We theorize that these conditions may be better able to overcome motivated reasoning.

Our argument that sustained exposure to information in cross-cutting sources can overcome motivated reasoning to change attitudes is distinct from agenda setting, priming, and framing, three common mechanisms for media effects studied in the literature. None of these chiefly consider the role of information in media or its possible effects on learning (for review, see table OA2).

First, the media is thought to influence public opinion through agenda setting (McCombs and Shaw 1972). “The idea of agenda setting is that the public’s . . . beliefs about what is a significant issue or event are determined by the amount of news coverage accorded” to those events (Anscombe, Behr, and Iyengar 1993, 142). Relatedly, agenda setting is also thought to make viewers bring highly covered topics to mind when evaluating elected officials through priming existing attitudes (Krosnick and Kinder 1990). However, even if priming often occurs generally, priming is unlikely to be a primary mechanism by which cross-cutting exposure influences attitudes. For priming to influence attitudes, an individual must have a preexisting mix of liberal and conservative attitudes on different dimensions (e.g., already thinking Trump is poorly handling the COVID-19 pandemic), thereby causing shifts when liberal instead of conservative (or conservative instead of liberal) pre-existing attitudes are primed (e.g., evaluating Trump more poorly overall after existing negative evaluations of his handling of COVID-19 are primed). However, individuals that currently consume one side’s partisan media likely have consistently liberal or conservative attitudes across most dimensions (Stroud 2011), meaning which dimension is primed would rarely impact their evaluations.

Another potential mechanism by which cross-cutting media may influence viewers is framing. Although definitions vary, we follow definitions of framing as entailing “emphasizing which aspect” of a given issue is “relevant for evaluating it *without the frame itself [providing] any new substantive information about the issue*” (Leeper and Slothuus 2020, 154, emphasis in original). This article does not test whether cross-cutting content moderates attitudes through framing, as doing so requires holding information and topics constant; however, as reviewed above, previous research that has done so has largely found that frames in cross-cutting content backfire.

In summary, we argue that balancing partisan media viewers’ diets by exposing them to cross-cutting media will cause learning and moderate their attitudes—inconsistent with motivated reasoning and beyond predictions of agenda setting, priming, and framing. Our argument therefore suggests that the first step in motivated reasoning theories—a preference for selective exposure to congenial information (reception)—presents a

bigger challenge to efforts to depolarize attitudes than the potential for backlash when individuals process cross-cutting information (acceptance).

Below we present a field experiment in which we test two major predictions of our argument: that balancing partisan media consumers' media diets toward cross-cutting sources will (1) lead them to learn uncongenial facts and (2) moderate their attitudes. As we describe in the discussion section, our study's advantage is its relatively greater degree of naturalism. It complements previous laboratory- and survey-based studies that focus on the effects of brief exposure on attitudes among the general population and natural experiments that have focused on aggregate behavior such as vote choice (e.g., Martin and Yurukoglu 2017) by studying the effects of sustained exposure to real-world cross-cutting content on beliefs and attitudes. However, a weakness of this approach is that we are unable to tightly control the content of this coverage, meaning we are unable to fully test all the empirical implications of our argument. Nevertheless, we reach starkly different findings than prior survey-based studies, consistent with the differences in the stimuli used in our study and prior studies being theoretically significant.

EXPERIMENTAL DESIGN

Treatment: Incentivizing frequent Fox News viewers to watch CNN

In the fall of 2020, we conducted a preregistered, randomized experiment that incentivized regular Fox News viewers to consume CNN.⁵

Procedures

We summarize the experimental design briefly in figure 1 and in more detail in figure OA1. We drew inspiration for the design from Chen and Yang (2019).

Sample. To understand the impact of consuming cross-cutting media among like-minded media consumers, one must recruit a sample that already consumes like-minded media. Such a sample is difficult to identify because partisans dramatically over-report their consumption of partisan media (Prior 2009). We overcame these challenges with a unique data source. In particular, we began by first identifying current viewers of Fox News using TV viewership data from a media analytics company, Bully Pulpit Interactive. Many modern "smart TVs" are internet-connected devices that, for users who opt in, use automatic content recognition to measure what a particular TV is watching and then report this information back to the

TV manufacturer. This information can then be matched to voter files.

Using this data from one particular smart TV brand, we identified 223,572 registered voters who Bully Pulpit Interactive expected regularly watched Fox News and minimal amounts of CNN or MSNBC. In particular, we selected voters aged 18 to 89 in households that, in the months of January, March, May, and June 2020, averaged watching between 500 and 14,400 minutes of Fox News and less than 30 minutes of both CNN and MSNBC per month.

First baseline survey. We then mailed all 223,572 voters in these households a letter inviting them to participate in an online survey. In this initial survey, we obtained informed consent, requested an email address, asked an attention check question, and gathered demographic data. We also asked respondents to self-report their weekly TV viewership, including at which hours of the day they typically watched Fox News, and if they would be willing to participate in a study in which they were paid to watch TV. A total of 15,048 participants responded to this baseline survey.

We then narrowed the sample further to those individuals who self-reported a willingness to participate in a study in which they were paid to watch TV, either self-reported at least an hour per week of Fox News or reported regularly watching one of the individual programs that aired at the same time we would later incentivize, and did not report watching more than 15 minutes per week of CNN. This left us with 5,536 participants who we invited to a second survey.

Offer survey. This second survey, or "offer survey," asked additional background demographic questions before inviting participants to participate in an experiment. We asked participants the following: "We are interested in what people think when they watch TV channels different than the channels that they usually watch. Some people may be selected to earn more than \$10 per survey in September if they agree to watch a new channel for a few hours and answer questions about what they saw." We then told participants they had been selected to watch CNN and gave them an option to select certain hours to watch CNN during the week. For reasons of practicality, we only gave participants the option of watching CNN during the Monday through Friday prime time hours, when viewership is highest.⁶ We first showed participants only the hours during Monday through Friday prime time at which they had told us they watched Fox News during the previous week. If they selected under seven hours on this screen, we showed them

5. Budget constraints prevented us from studying multiple networks. We do not assume that CNN is more "objective" than Fox News, nor whether it is a liberal or centrist network, only that its ideological slant is more left-wing than Fox News' (as found by Kim, Lelkes, and McCrain, 2022).

6. The CNN lineup during these hours (the shows we drove participants to) was Erin Burnett OutFront, Anderson Cooper 360, Cuomo Prime Time, and the first hour of CNN Tonight with Don Lemon. The Fox News lineup during these hours was The Story with Martha MacCallum, Tucker Carlson Tonight, Hannity, and The Ingraham Angle.

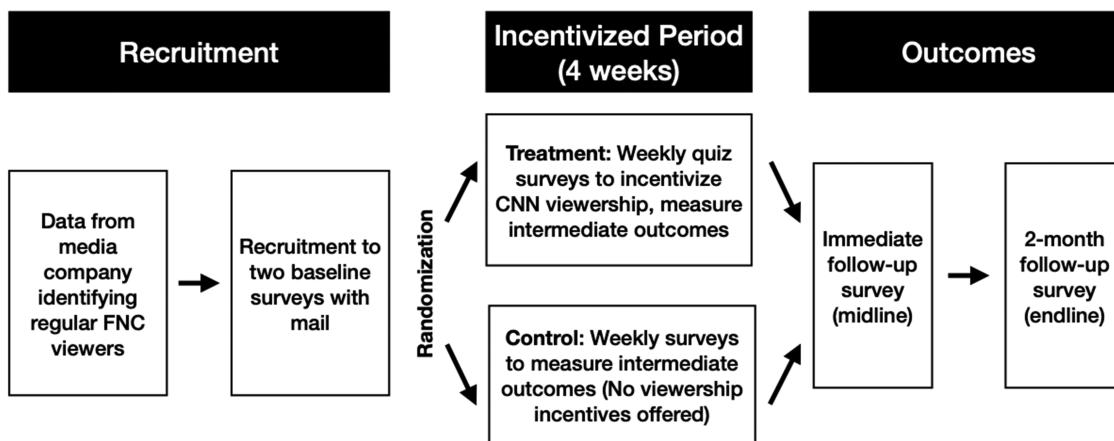


Figure 1. Overview of the experimental design.

another screen that allowed them to select additional hours, up to seven per week in total. Participants could select no hours. After participants selected hours, we then confirmed that they would fully participate with the study. We then limited our sample for the experiment to only those participants who agreed to watch at least one hour per week of CNN rather than Fox News if assigned. This left 763 individuals living in 695 households in the final sample for the experiment.

Sample demographics and representativeness. One potential concern with our design is that it may have selected a group of Fox News viewers whose opinions were unusually open toward CNN, out-partisans, etc. Examining the sample of individuals who participated in the experiment helps assuage these concerns. Appendix section 4 provides more details on the demographics of the sample at each stage, illustrating both the kinds of voters ultimately included in the experiment and how the process of selecting the sample described above influenced its composition. Overall, our selection process led to a sample that appeared largely representative of the starting sample but was even more conservative and watched even more Fox News. Relative to the average American, the individuals we selected for the study were, on average, older (average age of 54), whiter (95%), more Republican (92% self-identified as Republican), more supportive of Donald Trump (median Trump feeling thermometer rating of 90), more active voters (90% voted in the 2016 general election), and more frequent Fox News viewers (self-reported watching an average of 840 minutes per week). Moreover, participants showed no signs of being unusually open to influence from CNN: The median feeling thermometer rating of CNN among participants in the experiment was only 1 on a 0 to 100 scale (with a mean of 11.7). Participants were also less likely to say they would enjoy watching CNN (median of 1 on a 1 to 6 scale) than our starting sample of Fox News viewers. These statistics underscore that our experiment

represents a hard test of our argument, as motivated reasoning theories would expect this sample to be especially likely to argue against cross-cutting content (e.g., Arceneaux and Johnson 2013; see also table OA1).

Randomization. We then block-randomized at the household level 304 individuals to a treatment group paid \$15 per hour to watch CNN and 459 individuals to a control group that received no payment to watch CNN. The treatment group participants agreed to (and we then incentivized to) watch an average of 5.8 hours of CNN per week (median of 7 hours). The incentivized period to watch CNN began on August 31, 2020, and ended on September 25, 2020.

Treatment notification and implementation. Because our experiment sought to test whether participants would accept and not backfire against messages from cross-cutting sources conditional on reception (the information processing step of motivated reasoning theories), we took steps to increase reception of cross-cutting media as much as possible. In particular, we incentivized CNN viewing with quizzes. We told both treatment and control group participants that they would receive a series of short surveys over the course of September 2020 that we would pay them \$10 each for completing. We refer to these as “quiz surveys.” At the start of each week, we wrote questions probing both beliefs and attitudes about events happening in the news for the prior week. Both treatment and control group participants received these quiz surveys at the same time, holding constant the number and timing of surveys that treatment and control participants were invited to take. Individuals received five quiz surveys at randomly assigned times during the incentivized period. Respondents in both conditions received \$10 for completing each survey.

To maximize reception of CNN, we also told individuals in the treatment group that these quiz surveys would contain a “pop quiz” about what had happened on CNN when they were

supposed to be watching. The pop quiz asked about nonpolitical features of the coverage.⁷ This pop quiz came near the beginning of the survey that both treatment and control participants were asked to complete and only appeared for treated participants. Every night, a research assistant watched CNN live during all four incentivized hours, drafted three pop quiz questions per incentivized hour, and sent out these quizzes within 30 minutes of the show ending. Treatment group individuals only received their bonus payment for watching CNN (\$15 per hour since the last quiz survey) if they answered at least two out of three quiz questions on that quiz correctly. All perception and attitude items on the quiz surveys that we used as outcomes in the experiment appeared after treated respondents finished the incentivized items and were told whether they had earned a bonus. Treatment group participants also received daily email and text message reminders to watch CNN.

Compliance. Our treatment was expected to both decrease Fox News viewership and increase CNN viewership. We find substantial evidence this occurred. First, compliance with watching CNN was very high in the treatment group. On average, treatment group respondents answered 12.4 out of 15 pop quiz questions correctly (median of 14). Similarly, using the television viewership data, we found that during the incentivized period, CNN viewership was significantly higher in the treatment group than in the control group ($p < .001$), although measurement error in the TV viewership data makes it difficult to precisely quantify how much CNN and Fox News consumption changed (see app. sec. 8.4).

We did not explicitly instruct treatment group participants to refrain from watching Fox during the incentivized period. However, appendix section 8.4 presents evidence that during the incentivized period, Fox viewership also decreased in the treatment group, as measured by both the viewership data and self-reported survey data. Furthermore, as we discuss in the results section, our pattern of results suggests that participants consumed less of the prime-time Fox shows as, for example, they are less aware of information reported on these shows.

Midline and endline surveys. The incentivized period ended on Friday, September 25, 2020. Beginning on Monday, September 28, we invited respondents to participate in a midline survey to measure treatment effects. The midline survey contained a variety of items, described in more detail later, many of which directly corresponded with the topics and information covered on both CNN and Fox News during the incentivized period. Unfortunately, space constraints prohibit

us from elaborating on the related literature and motivations for all of the items we asked.

We invited all 763 individuals randomized to treatment or control to respond to this midline survey, with 744 participating (97.5%). We closed this survey on October 14. Finally, beginning on November 20, we invited individuals to participate in an endline survey. A total of 727 (95.3%) responded. We closed this survey on December 9.

Context: Fox News and CNN coverage during September 2020

To aid in the interpretation of our experimental results, we next contextualize the coverage on Fox News and CNN during the treatment period (August 31 to September 25, 2020) and the hours when treatment group participants were incentivized to watch CNN instead of Fox News. To do so, a research assistant read all the transcripts from both networks during this period and totaled the number of words associated with each topic and subtopic (see app. sec. 9 for details).

CNN and Fox News covered dramatically different topic areas during this period. For example, Fox News had 2.3 times more coverage of racial protests than CNN, while CNN had 2.6 times more coverage of COVID-19 than Fox News (see figure OA31 for additional topic areas). Furthermore, within topic areas, CNN and Fox News covered different subtopics, corresponding with different information (partisan coverage filtering). The top panel of figure 2 presents the 10 most common subtopics CNN discussed and how often these were discussed on Fox News. The bottom panel does the same with the most common Fox News subtopics.

Consistent with partisan coverage filtering, Fox News was far more likely to report facts favorable to Republicans, whereas CNN was far more likely to do the same for Democrats. For example, CNN extensively reported “Trump’s failures to protect US and his supporters from COVID-19,” while Fox News spent little time doing so. Likewise, CNN spent 10,251 words discussing the severity of COVID-19, while Fox News devoted only 709 words to this. Instead, Fox News reported information downplaying the severity of COVID-19 and the efforts Trump had undertaken to protect Americans from the virus. On the other hand, Fox News’ main focus during this time was on racial issues and related racial protests in American cities during the summer of 2020; Fox News indicated that Joe Biden and Democrats generally supported the protesters’ tactics and demands. Both networks covered voting by mail but provided different information about it.

Analytical strategy

Following our preanalysis plan (see app. sec. 2), we estimate the effects of incentivizing CNN viewership by comparing

7. For example, we asked “On Monday’s program, Anderson Cooper covered the wildfires taking place across the West Coast. Who did Cooper interview about these fires? Kate Brown, Governor of Oregon; Eric Garcetti, Mayor of Los Angeles; Nancy Pelosi, Speaker of the House.”

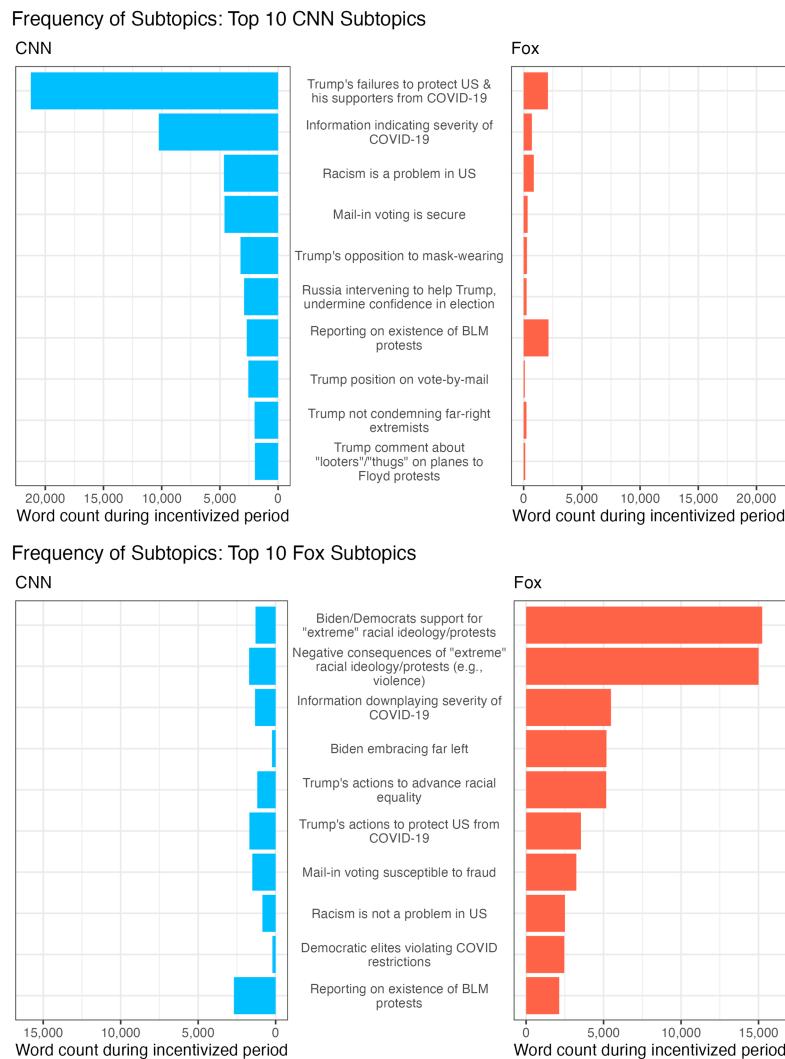


Figure 2. Transcript analysis during treatment period. Table OA15 presents numerical values for the entire set of topics coded. Figure OA31 sums up these results by topic area and shows that CNN and Fox News covered different topics as well.

survey responses among those assigned to the treatment group to those assigned to the control group (intent to treat). We use ordinary least squares (OLS) with pretreatment covariates and standard errors clustered by household. See appendix section 7 for details.

As we preregistered, we report three types of p -values in order to adjust for multiple comparisons. First, we report conventional, unadjusted p -values from covariate-adjusted OLS regression. Second, we report false discovery rate sharpened q -values (Anderson 2008), similar to other recent experiments on media (e.g., Chen and Yang 2019). The q -values are adjusted for false discovery rates across all the items in the entire survey. We separately adjust the results on the indices only. These q -values control the probability of making individual false discoveries; for example, we should expect only 5% of results with a q -value under 0.05 to be false positives (type I errors). Finally, in the appendix, we report family-wise error rate ad-

justed p -values for the individual items. These are much more conservative and control the probability of making any type I errors at all within each family of outcomes specified in our preanalysis plans.

We prespecified that we would form outcome indices by combining multiple survey measures into a single index. We preregistered which survey items belonged in which index. We formed these indices by first standardizing all individual items to have mean 0 and standard deviation 1 before forming an additive index of these rescaled items, reverse coding items as appropriate. All reverse coding decisions were prespecified. Full results on all indices and items are available in the appendix.

Given the number of hypotheses we tested, in the main text, we primarily focus on results on individual items that are statistically significant after applying a preregistered multiple testing correction, although alongside these results, we also note corresponding results on our prespecified indices and discuss several

null results. Appendix section 7 presents additional details on our analytical strategy. In addition, appendices 5 and 6 present tests of design assumptions, particularly tests for covariate balance at each stage and tests for differential attrition.

EXPERIMENTAL RESULTS

Our argument is that sustained exposure to cross-cutting media should cause individuals to learn more information about the events covered on the cross-cutting media and less information about the events covered on like-minded media (since they consume less of it) and that this learning helps moderate attitudes. This stands in contrast to expectations from motivated reasoning theories, which argue that cross-cutting media exposure should lead to counterarguing and backlash, further polarizing attitudes. In the next sections, we present results consistent with our argument. There is not a single case across all the items in the entire article in which we find statistically significant evidence of backlash.

CNN learning effects

Motivated reasoning theories argue that individuals' beliefs backlash from exposure to uncongenial information, especially from uncongenial sources. However, we see evidence that the treatment group learned information from consuming cross-cutting media (CNN). Figure 3 provides examples of the learning we observed in the quizzes and the midline survey on items that CNN covered substantially but that received minimal coverage on Fox News. The q -values shown on the right side

of figure 3 show the false discovery rate-adjusted q -values for each statistical test. Note that in all figures, reverse coded items are coded positively if the treatment group was less likely to agree with them; for example, the third coefficient in figure 3 shows that participants incentivized to watch CNN were less likely to believe that Donald Trump's campaign was taking safety precautions at his rallies.

The evidence in figure 3 shows multiple examples of learning. For example, as shown in figure 2, CNN provided 14 times more coverage on the severity of COVID-19 than Fox News. Consistent with the treatment group learning from CNN exposure, we found that they were 0.18 standard deviations more likely to agree that "The coronavirus causes many people to experience serious long-term health problems that stay with them for months or longer" ($p_{\text{unadjusted}} = .003$; $q < .05$). Participants also learned from CNN about COVID-19, Trump's claims of election fraud, and Trump's role in racial protests. These results on individual items are consistent with the significant effects we found on the Liberal Perceptions of Events CNN Covered (Non-COVID) Index (fig. OA7) and Increased Knowledge of CNN-Covered Trump Positions Index (fig. OA13). This evidence suggests that sustained cross-cutting media leads individuals to update their beliefs consistent with the cross-cutting source's message, contrary to motivated reasoning theories.

Reduced Fox learning effects

Our treatment both increased CNN viewership and decreased Fox News viewership. As a result, we also found decreases in

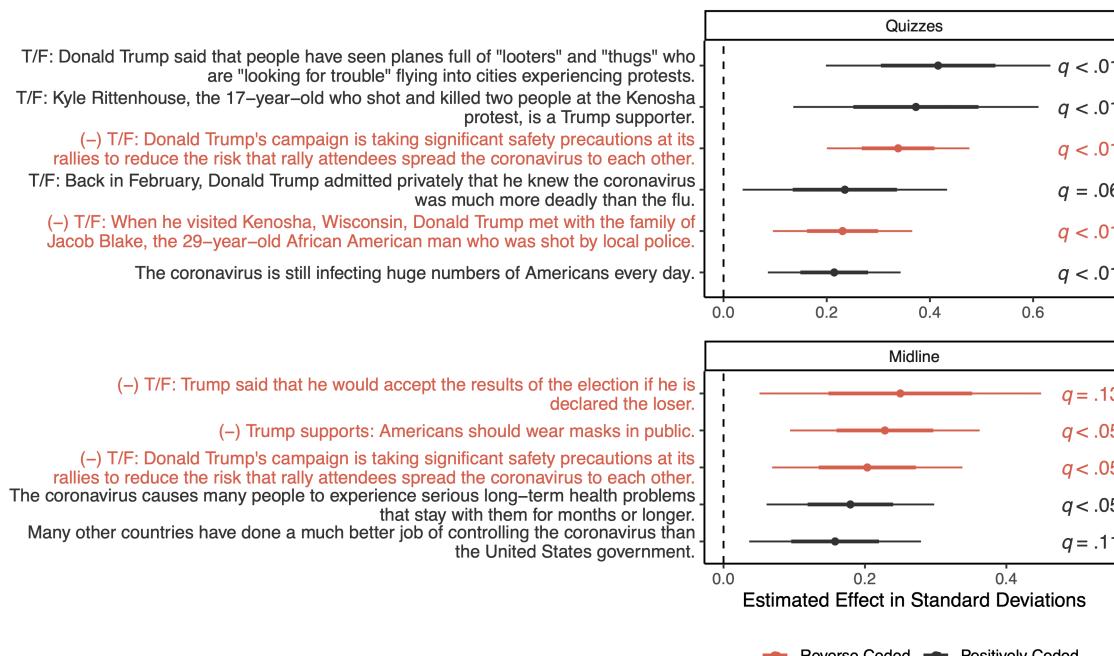


Figure 3. Effect of learning on selected outcomes likely caused by increasing CNN viewership. Standard errors (thick lines) and 95% CIs (thin) surround point estimates. Full results on all preregistered outcomes and indices are in the appendix.

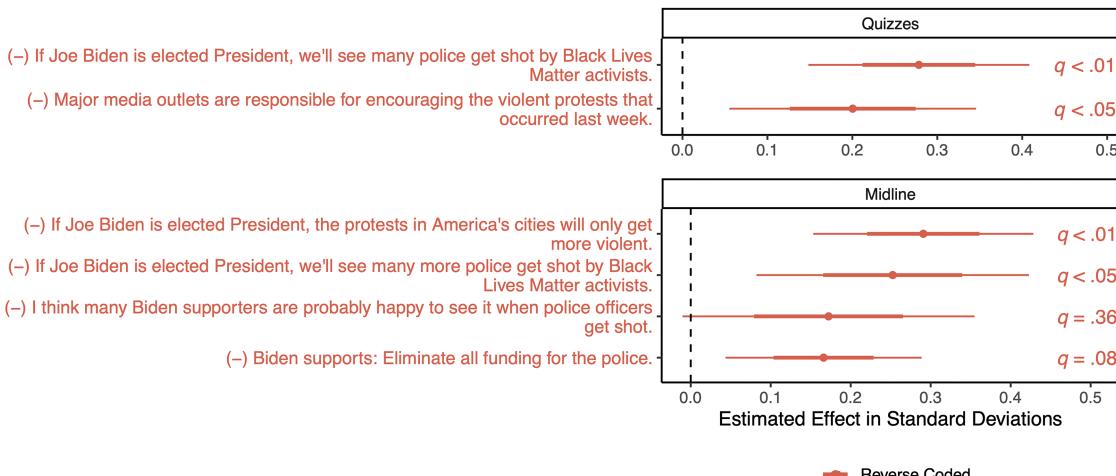


Figure 4. Effect of learning on selected outcomes likely caused by decreasing Fox viewership. Standard errors (thick lines) and 95% CIs (thin) surround point estimates. Full results on all preregistered outcomes and indices are in the appendix.

knowledge of information Fox News covered. Results are summarized in figure 4.

For example, Fox News was 12 times more likely to cover ties between Biden and racial protests and 9 times more likely to cover the negative consequences (e.g., violence and property damage) of racial protests than CNN. When we reduced the amount of Fox News that the treatment group consumed, we found that the treatment group becomes less likely to believe that negative aspects of racial protests are linked to Biden. The treatment group was 0.29 standard deviations less likely to agree that "If Joe Biden is elected President, the protests in America's cities will only get more violent" ($p_{\text{unadjusted}} < .001$; $q = .007$). Similarly, the treatment group was 0.25 standard deviations more likely to agree that "If Joe Biden is elected President, we'll see many more police get shot by Black Lives Matter activists" ($p_{\text{unadjusted}} < .01$; $q < .05$). These results are consistent with our findings on the Liberal Perceptions of Events Fox Covered (Non-COVID) Index (fig. OA8).

Attitude change

In the previous sections, we showed that the treatment group learned more about issues and events that CNN covered and learned less about issues and events that Fox News covered. In this section, we examine the consequences of increasing CNN viewership and decreasing Fox News viewership on broader political attitudes. We again fail to find any statistically significant evidence of backlash across any of the items we measured. Figure 5 provides examples of changes in political attitudes likely caused by learning information from CNN or not learning information from Fox News (or both).

For example, COVID-19 received extensive coverage on CNN. As shown in figure 3, individuals in the treatment group were more likely to learn that COVID-19 was infecting huge

numbers of Americans every day and led to serious long-term health problems. They also learned that Trump opposes mask wearing, Trump's campaign was not taking safety precautions, and that many other countries have done a better job at controlling COVID-19 than the United States. We argued that learning these negative facts about Donald Trump should contribute to increased negative evaluations of Trump. Theories of motivated reasoning, on the other hand, would predict that exposure to these facts would lead to counterarguing and a backfire effect. Under theories of motivated reasoning, we should expect that exposure to negatively valenced information about Trump on CNN should lead to more positive evaluations of Trump among our sample of Fox News viewers who, at baseline, viewed Trump favorably.

Contrary to theories of motivated reasoning, figure 5 shows increased negative evaluations of Trump. For example, we find that the treatment group reduced its evaluation of Trump in a feeling thermometer by 0.14 standard deviations ($p_{\text{unadjusted}} < .001$; $q < .05$) and became 0.19 standard deviations more likely to view Trump as selfish ($p_{\text{unadjusted}} = .001$; $q < .05$). Specifically on COVID-19, the treatment group became 0.22 standard deviations less likely to positively evaluate Trump's ability to keep Americans safe from COVID-19 ($p_{\text{unadjusted}} < .001$; $q < .05$). These results are consistent with our findings on the Reduced Trump Evaluation Index (fig. OA24).

Notably, these include effects on a number of items exclusively or nearly exclusively covered on CNN, such as those related to Donald Trump's alleged failure to encourage Americans to stay safe from the coronavirus and refusal to say he would accept the results of the election. This indicates that the effects we found are not exclusively due to reducing Fox consumption but also include effects of consuming cross-cutting media (CNN).

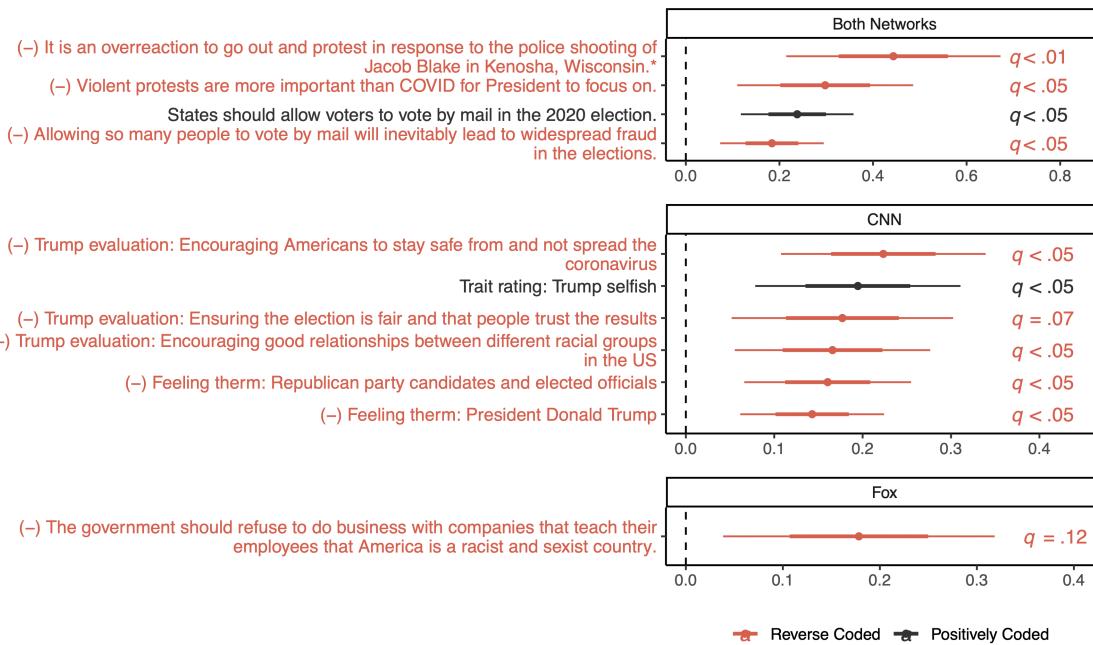


Figure 5. Selected attitude changes likely caused by learning. Standard errors (thick lines) and 95% CIs (thin) surround point estimates. The item ending with * was asked during Quiz 1. All other items come from the midline survey. Full results on all preregistered outcomes and indices are in the appendix.

Figure 5 also shows that consuming CNN moderated habitual Fox viewers' attitudes on issues, particularly on voting by mail and racial protests. For instance, treated participants were more likely to agree that states should allow voters to vote by mail in the 2020 election (0.24 standard deviations; $p_{\text{unadjusted}} < .001$; $q < .05$) and less likely to agree that violent protests rather than COVID were important for the President to focus on (0.30 standard deviations; $p_{\text{unadjusted}} < .002$; $q < .05$).

For readers interested in more interpretable estimates, table OA16 provides estimates on dichotomized versions of several items.

Null effects

We did not find effects on all political attitudes—especially on those attitudes that received little coverage during the incentivized period. Consistent with this, figure OA32 shows the relationship between coverage volume about specific topics and treatment effect estimates on items related to those topics in cases in which we could make such a match, finding a positive relationship.

More generally, our results also reveal likely scope conditions on the effects of consuming cross-cutting content. Figure 6 shows additional null findings on several preregistered indices that were related to the networks' coverage but not the coverage's direct focus. We generally see null effects in these cases. For instance, although racial protests were widely covered, neither network made explicit arguments about the superiority or inferiority of different racial groups. Perhaps as a result, we see

no effects on an index of items measuring racial prejudice. We see similar null effects on other items related to issues that did not receive direct coverage, such as the virtues of various democratic norms, and on several issues—immigration, free trade, and climate change—that received little to no coverage on CNN and Fox News during the incentivized period.

With that said, despite finding many null effects, there is not a single case across all the items in the entire article in which we find statistically significant evidence of backlash.

Robustness and mechanisms

First, motivated reasoning theorists might argue that backlash would only be found in the subset of our sample with the strongest attitudes. Our sample already had fairly homogeneously strong attitudes. However, appendix section 8.5.1 presents several tests for heterogeneous treatment effects across two preregistered moderators: an index of baseline items capturing respondents' strength of Republican identification/support and an index of baseline Fox viewership frequency. Reassuringly, we found little evidence of backlash in any subgroup and that the effects generally manifested broadly across the sample.

Second, our argument holds that this cross-cutting exposure was able to overcome motivated reasoning, unlike what has been observed in prior laboratory- and survey-based studies, because of sustained exposure to uncongenial information. Our argument relies on causal mechanisms already proven out in prior work (e.g., Redlawsk et al. 2010; Wood and Porter 2019)

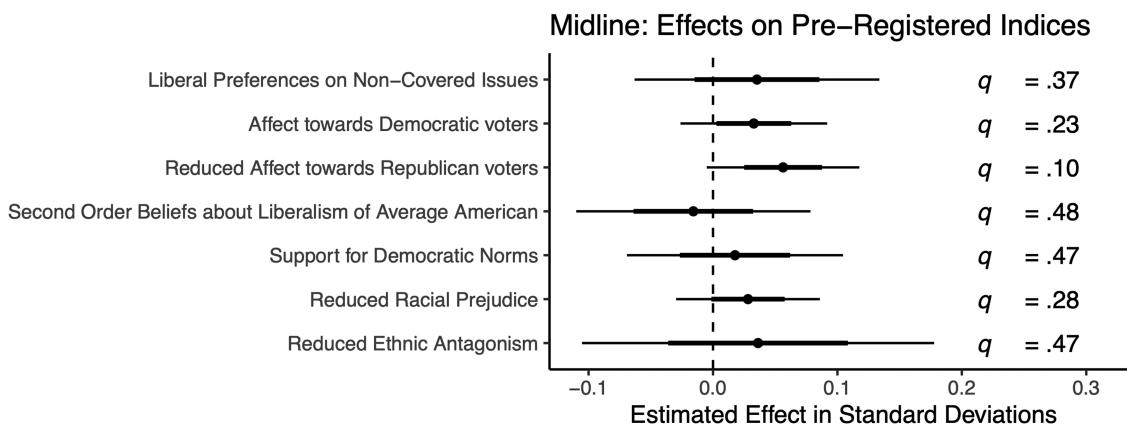


Figure 6. Null effects on the midline survey. Standard errors (thick lines) and 95% CIs (thin) surround point estimates. Full results on all preregistered outcomes and indices are in the appendix. When affective polarization is defined as the difference between the Republican and Democratic voters feeling thermometer ratings, the treatment effect becomes marginally significant ($p_{\text{unadjusted}} = .04$), although this would not remain significant after multiple comparison adjustment.

and, as with any field-based study, cannot definitively determine the role of those mechanisms in generating the effects we find.

However, we did conduct several tests that rule out potential alternative mechanisms. First, the mechanism for the effects of cross-cutting exposure we found on beliefs seems very likely to be information (e.g., information that long-COVID exists on CNN is likely what led treated participants to be aware that it exists). Second, appendix section 8.5.2 presents tests that rule out priming as a mechanism for our findings: The effects are not concentrated among those with baseline liberal attitudes that were primed; as selective exposure predicts, few participants had liberal attitudes available to prime in the first place. Third, agenda setting theory's predictions are limited to effects on issues' perceived importance, but we found results on items beyond this. Fourth, framing the same issues differently cannot be wholly responsible for our findings, as we found effects on issues that were not presented at all on one of the two networks. To be clear, these results do not cast doubt on agenda setting, framing, or priming theories nor rule out that they may have contributed to some of our results; rather, they indicate that these theories are insufficient to explain all of our findings.

Endline results

Finally, two months after the end of the incentivized period, we launched the endline survey. The endline survey asked most of the same items as on the midline survey and no new items.

First, we found little evidence that the treatment affected long-run viewership habits (fig. 7). In neither the endline survey nor the viewership data did we find any long-run effects on Fox viewership. However, in the endline survey, the treatment group reported watching 4.5 additional minutes of CNN yesterday ($p_{\text{unadjusted}} < .01$; $q < .05$) and 16 additional minutes over the course of the past week ($p_{\text{unadjusted}} = .06$; $q = .37$).

The television viewership data, though, finds no effects on long-run CNN viewership. This discrepancy could be caused by undercounting in the television viewership data (see app. sec. 8.4) or over-reporting in the survey data; these conflicting results are ambiguous. Regardless, we can rule out large effects on long-run CNN viewership despite ambiguity in whether there were small effects.

Consistent with this at-most-minimal long-run impact on media consumption, figure OA30 presents largely null results on the attitudes and beliefs measured in the endline survey. However, given that many of the confidence intervals are large and overlap with the effect estimates in the midline survey, these results leave somewhat ambiguous whether the effects partially persisted or entirely decayed. We discuss our interpretation of these results in the discussion.

DISCUSSION

Scholars, civil society leaders, and classic thinkers alike extol the benefits of information and media sources inconsistent with one's beliefs. Consistent with this longstanding view, as fear has grown about the effects of many Americans' near-exclusive consumption of like-minded media sources (e.g., Stroud 2011), there have been increasing calls for Americans to consume cross-cutting media that might moderate their beliefs. However, an influential perspective in contemporary scholarship has warned against such cross-cutting exposure. For instance, Arceneaux and Johnson (2013, 74) warn that "exposure to counterattitudinal news can be just as polarizing as exposure to proattitudinal news." Or, at best, this perspective argues cross-cutting exposure should have no effects at all. Such warnings are rooted in motivated reasoning theory, which predicts that individuals exposed to cross-cutting sources and information often argue against it, producing backlash in both

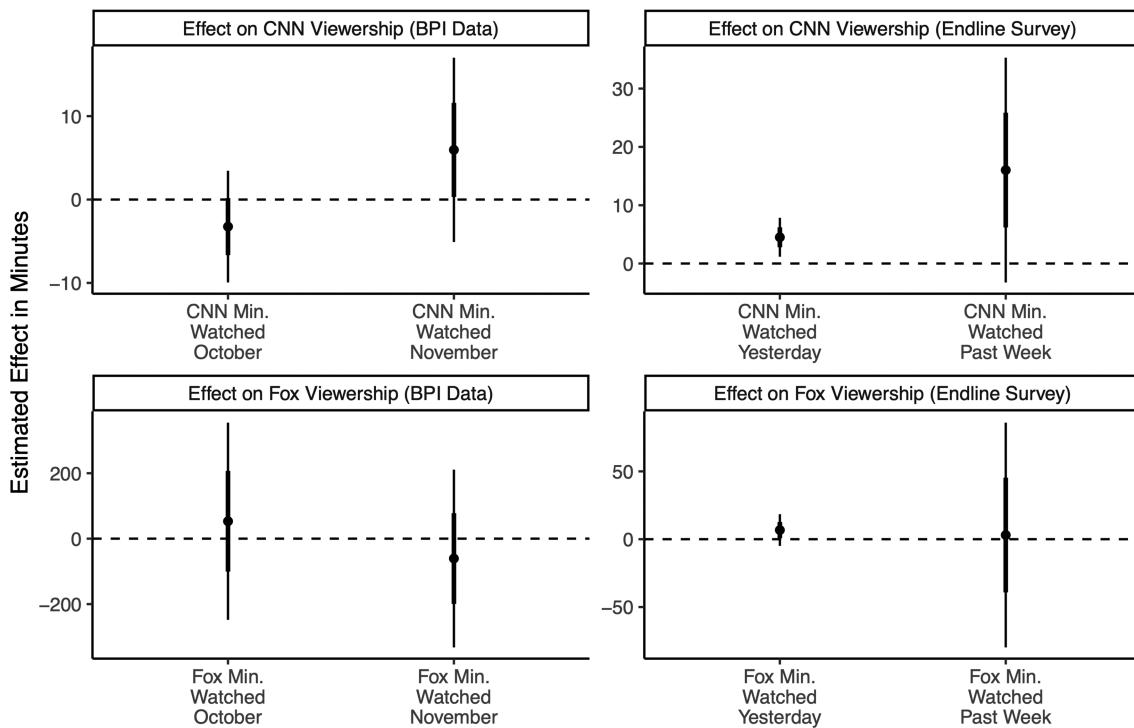


Figure 7. Long-term treatment effect on television viewership. Standard errors (thick lines) and 95% CIs (thin) surround point estimates.

beliefs and attitudes (e.g., Lodge and Taber 2013; Nyhan and Reifler 2010). Survey- and laboratory-based experiments on partisan media bear out this warning, finding that exposure to brief clips of out-partisan media can polarize attitudes (see table OA1 for review).

We argued that sustained exposure to real-world cross-cutting media sources should moderate attitudes, not produce backlash. Our argument is rooted in two key differences between prior laboratory-based studies and real-world consumption of cross-cutting media: Real-world cross-cutting media generally covers different topics and information than congenial media (Baum and Groeling 2008), and real-world exposure can be more sustained than the brief exposure tested in prior studies. We theorized that both of these features of real-world cross-cutting consumption could lead cross-cutting consumption to overcome motivated reasoning and moderate attitudes.

Our experiment supported this argument: Fox News viewers incentivized to watch CNN instead for a month learned information CNN presented, and their attitudes on political issues CNN covered and toward Donald Trump moderated. Despite conducting our study among the population that motivated reasoning theories would most expect to display evidence of backlash or to resist persuasion—highly conservative, regular Fox News viewers—we did not find a single case across all of our measures of statistically significant evidence of backlash and found many cases of learning and moderation.

These results were by no means obvious. Classic theories posit that, for a media source to influence Americans' attitudes, they must both receive (i.e., consume) and accept its contents (Zaller 1992). Even if partisan media consumers were to receive messages from cross-cutting sources, many scholars are skeptical that they would accept uncongenial messages from these sources due to motivated reasoning—indeed, as noted, many expect such messages would backfire, “lead[ing] people to become more extreme” (e.g., Arceneaux and Johnson 2013, 116). Our findings thus stand in contrast to the expectations of theories of motivated reasoning that exposure to cross-cutting media would have no effects or, more worryingly, produce backlash and further exacerbate polarization.

With this said, our evidence does not conflict with other predictions of motivated reasoning theories and in fact even supports some of them. Lodge and Taber (2013) identify three mechanisms through which motivated reasoning may operate: first, confirmation bias in the selection of sources (preferring to consume congenial sources, sometimes called selective exposure); second, conditional on reception of content, prior attitude effect (viewing uncongenial content as less credible); and third, again conditional on reception of content, disconfirmation bias (counterarguing that can lead to backlash). Only disconfirmation bias predicts backlash conditional on reception of a source and thus is the basis of scholars’ warnings against encouraging cross-cutting conception (Druckman and McGrath 2019). And it is only disconfirmation bias with which

our results are therefore inconsistent: We found that cross-cutting exposure moderates attitudes and no evidence whatsoever of backlash.

However, we hasten to note that our results offer some (albeit quite limited) evidence consistent with the other two predictions of motivated reasoning theory. First, our evidence is consistent with the existence of selective exposure: The regular Fox News viewers who we recruited to our study were nearly all very conservative to begin with. We note, however, that there are interpretations of this pattern other than motivated reasoning (e.g., Fowler and Kim 2022). For example, Fox News viewers may prefer consuming Fox News because they think it is more credible, not because they enjoy having their prior beliefs confirmed. We plan to further characterize the extent and nature of selective exposure in future work.

Second, the implications of our evidence for the prior attitude effect are ambiguous. Consistent with it, the sample noted at baseline that they viewed CNN as untrustworthy and, despite potentially small increases in trust during the incentivized period (see fig. OA4), largely still did after the study's conclusion (see fig. OA19). At the same time, they still updated their beliefs (i.e., learned) from CNN despite stating that they did not trust it, suggesting this stated distrust was not fully sincere. This evidence does not allow us to reject the prior attitude effect, though. Recent work in formal theory has studied the prior attitude effect and its implications (often using the shorthand of "motivated reasoning") (Little 2022). This research conceptualizes the prior attitude effect as leading individuals to update their beliefs less than they should were they fully Bayesian because of directional motivations. However, Little (2022) shows that it is infeasible to determine in empirical data whether individuals act to some extent as the prior attitude effect predicts or update their beliefs based on new information fully as much as they should under Bayes' rule, in part because of the difficulties of measuring prior attitudes and likelihood functions (see also Hill 2017). With respect to motivated reasoning's predictions in this area, then, our results—like potentially all empirical results (Little 2022)—are ambiguous.⁸

Demand effects are unlikely to explain our findings: We found a number of effects decayed, indicating that participants did not simply always give us liberal answers, and we found null effects on many items, especially those that did not receive substantial coverage on Fox or CNN. It also seems unlikely

that demand would have led participants to feign ignorance of information reported on Fox and is unclear how it would have led them to feign knowledge of the information reported on CNN other than by watching CNN and learning this information.

Several limitations of our findings do merit emphasis, however. First, because we sought to maximize reception to cross-cutting media and see whether these messages would be accepted, our experiment may have led individuals to pay unusually close attention to CNN, as they knew we would quiz them on its content (i.e., we manipulated the reception step extremely strongly). This means our results may not speak to how different populations of consumers might consume partisan media under different circumstances; for example, the impacts of partisan media on low-information voters seeking news just before an election may be different, although other research finds they are substantial (DellaVigna and Kaplan 2007; Hopkins and Ladd 2014; Martin and Yurukoglu 2017). Second, we measure only the direct effects of the shift in media diets on the individuals in our study and did not measure the potential indirect effects of our study participants' conversations with others not in the study on those nonparticipants' attitudes. At the same time, counterarguing others could have attenuated our estimates of the direct effect of the treatment on study participants. Third, although we found that the sample in the experiment appeared to be fairly representative of the starting sample, was highly conservative, and had extremely negative views of CNN (see table OA3), the effects we observe may not be generalizable beyond the sample of participants willing to be paid to watch a different news network. Fourth, our experiment was not well-positioned to measure broader impacts of partisan media, such as what other media sources cover, donation behavior, or elite behavior, which are themes investigated in other research (e.g., Clinton and Enamorado 2014). Finally, due to budget constraints, we only considered the effect of shifting Fox News viewers to CNN. While our argument would expect similar effects among viewers of other partisan media networks, future work should attempt to replicate this, including with attention to local TV news (Martin and McCrain 2019).

Our findings also point to areas for future research. First, many studies of motivated reasoning and media consumption take survey respondents at face value when they say they do not trust various sources. However, despite that most of our sample expressed extremely negative attitudes toward and complete distrust of CNN, we found that they still learned from it. This disjunction suggests that citizens might portray themselves in surveys as more motivated reasoners than they really are and merits further inquiry.

Second, our results suggest future research may wish to consider how to encourage consumption of cross-cutting content.

8. Some may argue that finding persuasion from partisan media is inconsistent with Bayesian learning because individuals aware of a source's slant should discount it. As we note below, the treatment changed individuals' perceptions of Fox News's coverage of Trump, suggesting individuals may not be fully aware of their preferred source's slant without exposure to alternative sources.

Our results on attitudes and long-run consumption suggest that voters have strong preferences for consuming like-minded media, and, relative to consuming a more balanced media diet, consuming like-minded media appears to bolster their partisan loyalties and polarize their attitudes. If individuals were more motivated to consume cross-cutting content, our results suggest that voters would have more moderate, less polarized attitudes—thus raising the question of how to encourage such consumption.

Finally, our findings raise concern about the potential implications of partisan media for democratic accountability. Media outlets play a central role in helping voters hold elected officials accountable (e.g., Hopkins and Pettingill 2018). By the same token, not covering information—what we call partisan coverage filtering—can undermine voters’ ability to hold their elected officials accountable (Besley and Prat 2006). Our evidence in figures 3 and 4 indicates that partisan media may do exactly this. Participants agreed: We found a 0.20 standard deviation effect on disagreement with the statement “If Donald Trump did something bad, Fox News would discuss it” ($p_{\text{unadjusted}} < .01$; $q = .02$). This may have broader implications for democracy. For instance, even though switching to CNN unsurprisingly did not induce the highly conservative participants in our experiment to prefer Joe Biden in the 2020 presidential election, it did meaningfully reduce evaluations of Trump’s performance in key areas and overall. Fox News’ coverage therefore likely had important political implications at a nationwide scale: Our evidence indicates that Fox News shielded its viewers from information about Trump’s mishandling of COVID-19, which would have led them to view Trump’s handling of COVID-19 more negatively had they been aware of it. At the same time, our results suggest these effects may also last only as long as individuals are willing to consume cross-cutting content, and our finding that individuals returned to watching Fox News suggests this may prove challenging. Viewed from this vantage point, partisan media is not simply a challenge for the opposing party—it may present a challenge for democracy.

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