Demand for Online News, Inertia, and Misperceptions

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Abstract

There has been growing concern that individuals consume low-quality, extreme, news on social media. We test whether such news choices may stem from misperceptions and whether simple interventions can decrease the slant and increase the quality of people's news diets on social media. In a survey experiment, we first elicit perceptions regarding the slant and quality of news and then randomize participants into three groups: a group provided with information on media slant, a group provided with information on media quality, and a group not provided with any information. After the intervention, we offer all participants an option to readjust their news portfolio by following or unfollowing news outlets on Facebook. We find that individuals suffer from misperceptions, especially regarding the quality of outlets. Correcting these misperceptions increases the quality of the outlets individuals choose to follow. However, providing information on slant does not have a significant effect on news choices. Still, we find that simply providing individuals an option to readjust their news choices results in a more moderate news portfolio.

1   Introduction

Online news and social media have led to major changes in news consumption habits. Individuals are consuming more partisan, like-minded news on social media, potentially due to suggestions by platforms ("filter bubbles") or recommendations from like-minded friends ("echo chambers") (Pariser, 2011; Sunstein, 2001). Growing consumption of partisan news may contribute to polarization and hinder the smooth functioning of democracy (**?**Iyengar et al., 2019). In addition, the lack of editorial oversight on social media has led to the proliferation of low-quality news. Around the 2016 elections, popular fake news stories were shared more than popular mainstream news stories and many people reported believing fake news (Silverman, 2016; Silverman and Singer-Vine, 2016). If misinformation becomes rampant, the media will struggle to provide credible information to citizens and hold politicians accountable. Low-quality and hyperpartisan news may have especially severe impacts if individuals are not aware that the news they are consuming is biased or of low quality and thus, make incorrect inferences when consuming news.

While the amount of segregation online and the effects of fake news are still debated (Gentzkow and Shapiro, 2011; Allcott and Gentzkow, 2017; Peterson et al., 2021), the growing concerns over these phenomena highlight the need to develop cost-effective remedies to low-quality and hyper-partisan news consumption. In this paper, we first ask whether individuals suffer from misperceptions regarding the slant and quality of news outlets, and then study whether simple, scalable interventions can be effective in reducing the slant and increasing the quality of people's news consumption on social media.

We conducted an online survey among 415 participants recruited on Facebook. The survey is composed of three main modules. First, we elicit perceptions regarding the slant and quality of major outlets, along with the slant and quality of the outlets the participants currently follow on Facebook. Second, we randomly assign participants to three treatments: a 'slant-information' treatment, where individuals are provided with information on the slant of the outlets they follow, a 'quality-information' treatment, where participants are provided with information on the quality of the outlets they follow, and a 'nudge-only' treatment, where individuals are not provided with any information. In the third module, individuals in all three treatment groups are given an option to reoptimize their Facebook news portfolio, by following or unfollowing up to 24 news outlets.

Our first finding is that individuals suffer from misperceptions regarding both the slant and the quality of news outlets. In terms of slant, most individuals have limited understanding of which major outlets are more left-leaning or right-leaning (with the exception of Fox News), yet on average, individuals do have a sense of the mean slant of the outlets they follow on Facebook. The misperceptions of quality are more

severe and there is almost no correlation between the perceived quality of the outlets individuals follow and their actual quality (Spearman's $\rho=.09$).

We also find that individuals are willing to reoptimize their news portfolio when presented with an opportunity to do so. 66% of participants in the nudge-only treatment followed or unfollowed at least one new outlet in the intervention and 48% followed or unfollowed at least two outlets. Generally, individuals were much more likely to follow new outlets compared to unfollowing outlets.

Importantly, among participants in the nudge-only group who followed or unfollowed a page, 70% moderated the slant of their news portfolio. This suggests that simply nudging individuals to make active choices can encourage them to consume less partisan news.

Finally, we find mixed evidence on the potential effects of the information interventions. Providing participants with information regarding the slant of news outlets does not seem to change their behavior substantially. However, information on the quality of outlets causes individuals to follow outlets with higher quality. It is possible that the quality-information treatment had a bigger effect since individuals suffer from larger misperceptions regarding the quality of outlets. Overall, our results suggest that simple, scalable, interventions can encourage individuals to choose a more moderate, high-quality news portfolio.

Our paper contributes to a rich literature on news choices and selective exposure. Researchers have found ample evidence that individuals prefer consuming news from outlets matching their political beliefs (Iyengar and Hahn, 2009). The workhorse models in economics posit that people consume pro-attitudinal news for several reasons: because they find it more trustworthy than counter-attitudinal news; because they enjoy consuming pro-attitudinal news more; and/or because pro-attitudinal news outlets act as better delegates and provide more useful information than counter-attitudinal news outlets (Gentzkow and Shapiro, 2006; Mullainathan et al., 2008; Chan and Suen, 2008; Gentzkow et al., 2015). Implicit in the formulation of those models are two key assumptions: i) individuals are familiar with the distribution of slant in the media landscape, and ii) individuals deliberately choose their news consumption taking slant into account. We test these assumptions and show that individuals' beliefs are often inaccurate and that individuals' news choices may not be optimized.

Our second contribution is to a literature documenting misperceptions across various settings (Nyhan and Reifler, 2010; Bursztyn et al., 2020; Bursztyn and Yang, 2021). With regards to the media, researchers have shown that individuals often perceive the media to be biased against them (Vallone et al., 1985). Since the media cannot simultaneously be biased against both sides, at least some individuals must suffer from misperceptions regarding media slant. Recent research on quality perceptions by Pennycook and Rand

(2019) has painted a more optimistic picture. The authors find that individuals can distinguish between outlets of different quality and that they trust mainstream news more than fake and hyperpartisan news. We contribute to this literature by estimating whether individuals have misperceptions not only regarding specific major outlets but also regarding the outlets they follow. These personal perceptions may be the most relevant perceptions explaining news choices. We also test the effect of correcting these misperceptions.

Finally, our paper contributes to a literature on interventions encouraging individuals to improve their news decisions (Pennycook et al., 2021; Aslett et al., 2022). Our nudge-only treatment contributes to a literature in behavioral economics studying "active choice:" the idea that, in situations in which individuals might be prone to inertia and procrastination, changing the choice architecture by forcing them to make an active choice can significantly affect decisions (Thaler and Sunstein, 2008). Our information treatments relate to papers assessing whether perceptions can affect news choices. **?** show that one of the reasons individuals prefer like-minded outlets is because those outlets are perceived to have higher accuracy; Peterson and Kagalwala (2021) argue that people consume like-minded news due to negative and inaccurate stereotypes of out-party media; Dorison et al. (2019) find that like-minded news may be preferred because people incorrectly predict their disutility from consuming out-party news. We contribute to this literature by asking a fundamental question - may people be consuming like-minded or low-quality news simply due to inertia or because they do not realize the slant of the news they are consuming?

2 Design and Data

In this section, we describe our definitions of slant and quality and then discuss the survey instrument in detail.

2.1 Data on slant and quality

Slant We measure the slant of outlets using an existing measure of slant by Bakshy et al. (2015), which calculates slant according to the average ideology of Facebook users sharing news from a specific domain. Bakshy et al. (2015) show that their measure correlates well with other measures of slant (e.g., Gentzkow and Shapiro, 2010) and it has been used by various other papers studying news slant (Guess, 2021; Peterson et al., 2021). The main advantage of the Bakshy et al. (2015) measures is that it is comprehensive and covers 500 outlets.

Quality   We measure the quality of news outlets based on the accuracy ("Factual Reporting") rating of Media Bias / Fact Check (MBFC). MBFC is an independent website rating media sources. Each source is given an accuracy score between 1 and 10 and then placed in an accuracy bin. A higher score is given to sources that do not fail fact-checks, immediately publish corrections, are not misleading, are transparent regarding ownership or their mission statement, do not reject scientific consensus and are properly sourced. For each source (domain), a minimum of 10 headlines and 5 stories are reviewed. We use MBFC's classification of outlets into one of four accuracy bins: low, mixed, mostly factual, and high.[1]

We focus on the MBFC dataset because it is comprehensive and has a sensible definition of accuracy that is relatively straightforward to interpret. While there could be disagreement about specific MBFC ratings, Figure A1 shows that overall the ratings correlate well with other measures of quality. The figure is based on two comparisons: we compare the MBFC accuracy measure to fact-checkers trust in outlets based on Pennycook and Rand (2019), and we calculate the share of outlets in each accuracy rating that won at least one Pulitzer prize. For both measures, high-accuracy outlets are ranked first, mostly-accurate outlets are ranked second, and mixed-accuracy outlets are ranked third.

We merge the slant and quality datasets and manually match them with active Facebook pages. Our final dataset consists of 271 unique domains.[2] To determine the popularity of the outlets' Facebook pages, we manually collect the number of follows (or likes) that each page had around January 2022. We also manually check whether each outlet focuses on hard news (news focusing on recent events of general significance) and whether the outlet focuses on specific countries. As described in Subsection 2.2.2, we only offer participants an option to follow 194 focusing on hard news in the United States. Figure A2 provides descriptive statistics on this dataset and shows that our data covers a broad range of quality and slant ratings. Interestingly, the slant distribution is bimodal with many outlets that are very conservative or moderately liberal, and relatively few moderately conservative outlets. Outlets with high accuracy are more common among US hard news outlets, but even among this group close to half of the outlets do not have the maximum accuracy rating.

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[1] MBFC also has 'very low' and 'very high' categories but since these are rare in our data we combine them with the 'low' and 'high' categories.

[2] We combine outlets with similar domains, such as huffingtonpost.ca and huffingtonpost.com, into one domain.

2.2 Survey

2.2.1 Survey sample

We recruited participants for an online survey in the summer of 2022 using Facebook ads. We targeted all American Facebook users over the age of 18 and ensured with screening questions that participants lived in the US and were born before 2004. Participants logged in to the survey using their Facebook account and were asked to provide permission to observe the list of pages they like on Facebook. All participants received a $5 gift card for completing the survey.

We exclude from the sample participants who failed an attention check, duplicate responses, participants who completed the survey especially quickly, and participants for whom we could not collect data on the pages they followed at baseline.

Table 1 presents the sample size for each group of participants. Column (1) includes all participants and column (2) focuses on participants who followed at least one news outlet at baseline. While all participants in the quality and slant information treatments received information on the quality or slant of specific outlets, only participants who followed at least one outlet in baseline received personalized information on the outlets they follow. In addition, only this subsample of participants could unfollow outlets in the experiment. Our sample size is relatively small and we are planning an additional experiment with a larger sample.

Appendix Table A1 presents summary statistics and shows that our sample is balanced across treatments. The table also shows that our sample is similar to other online samples, such as MTurk, and is not nationally representative.

2.2.2 Survey outline

Our survey consists of five main blocks. First, we collect baseline demographic data along with data on news consumption. The second and third blocks elicit perceptions related to news quality and slant. In the fourth block, individuals are randomized into three main treatments: a nudge-only treatment, a slant-information treatment, and a quality-information treatment. Finally, the last block collects outcome variables, where our main outcome is based on offering participants an option to reoptimize the set of news outlets they follow on Facebook. The rest of this section provides more details on each survey block. Appendix B presents the full survey instrument.

Block 1: Introduction and demographics   We collect standard demographic variables including gender, age, education, race, party affiliation, and ideology. In this part of the survey, we also collect the list of news outlets individuals follow at baseline and ask several questions on news consumption habits.

Block 2 and 3: Slant and quality perceptions   In this block, we ask participants about the slant and quality of outlets. To ensure high-quality responses, these questions are incentivized. Before beginning this section, participants are told that they will receive more points for providing more accurate answers and that more points increase their probability of winning a $50 gift card.

We focus on concrete measures of slant and quality and make sure the respondents understand them. We first provide a detailed definition of each measure. We then conclude this definition with a simple bottom line so that even participants who had a hard time following all the details, will understand our measure of slant or quality.[3] Finally, we briefly remind participants of the slant definition using labels provided in the sliders used to answer the perception questions.[4]

We collect two sets of misperceptions. First, we collect perceptions regarding major outlets by asking participants what they think is the slant of CNN, Fox News, MSNBC, the New York Times, USA Today, and the Wall Street Journal. We chose these outlets since they are major news outlets with liberal, moderate, and conservative slants. Second, we ask participants a personalized question on the slant of outlets they follow on Facebook: we present to participants a list of all the news outlets they currently follow and then ask them what they think is the average slant of these outlets using the same slider provided for major outlets.

The quality block is similar to misperceptions, with the important difference that our measure of quality is discrete and not continuous. Therefore, for major outlets, we use multiple choice questions where participants are asked whether each outlet has low accuracy, mixed accuracy, is partially accurate, or has high accuracy. The question on mean accuracy asks participants to give one point to an outlet if it has low accuracy, two points for mixed accuracy, three points for partial accuracy, four points for high accuracy, and then calculate the average.

Block 4: Treatments   After perceptions are collected, participants are randomly assigned to the treatments. Participants in the slant-information treatment are shown the average slant of the portfolio of news outlets they follow on Facebook, along with the slant of each individual outlet. Participants in the quality-

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[3]The concluding bottom line was added while our survey was running so not all participants were exposed to it.

[4]Despite these explanations, it is still possible that some participants do not comprehensively understand these specific definitions of slant and quality. We are considering conducting an additional survey comparing participants' perceptions of the slant of outlets using several definitions of slant. We anticipate that we will find a high correlation between the perceived slant using the different definitions both because slant definitions are typically correlated and since most individuals probably do not have nuanced perceptions of news slant.

information treatment are shown the average quality of the portfolio of outlets they follow on Facebook, along with the quality of each individual outlet. The treatments also affect the information users receive when offered an option to follow outlets, as we discuss in the next section.

Block 5: Outcomes   Our main outcome is an opportunity to follow or unfollow outlets on Facebook (Facebook news pages). Focusing on Facebook provides several unique advantages for this study. First, "Facebook is far and away the social media site Americans use most commonly for news" (Shearer and Grieco, 2019) with more than half of Americans getting news on the website (ibid). Second, Facebook allows us to observe the news pages individuals follow and customize the survey accordingly. Third, using Facebook we can integrate within the survey an offer to follow or unfollow a news page.[5] Fourth, previous papers have shown that randomly following a news page on Facebook increases visits to the page's website (Levy, 2021).

We provide participants with an option to follow up to 12 news outlets and unfollow up to 12 news outlets. The participants could follow (or unfollow) each offered outlet with a click of a button and once the outlet's page was followed, posts from the outlet were more likely to appear in a participant's Facebook feed. To mitigate experimenter demand effects, we do not nudge participants to follow any specific pages and explicitly tell them they can choose not to follow any pages. This is the text we use at the beginning of the page offering participants an option to follow or unfollow outlets:

> The next part of the survey focuses on Facebook pages. Liking the Facebook page of a news outlet is a good way to make sure articles from that outlet appear in your news feed. Below, we provide various options of news pages you can select ("like" or "follow") with just one click. Pages you select are likely to start appearing in your news feed. You can also unlike any news page you liked in the past to remove it from your news feed. If you are not interested in any of the pages, feel free to not select any.

To determine the list of outlets we offer participants, we use the following procedure. We remove from our outlet dataset outlets that donot focus on US hard news (for example, we remove Wired, a news site focusing on technology, and Ynet, an Israeli news site). We remove these outlets because our measures of slant and quality are more relevant for American hard news and because we are interested in how our treatment affects choices related to hard news in the US. To offer a diverse set of outlets, we divide the

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[5]Until recently, individuals could express interest in viewing posts from a page in their by liking or following a page. In early 2021, Facebook announced that these options will be merged and it will no longer be possible to like a page. Indeed, today it is only possible to follow some pages, while for other pages both options still exist. The Facebook plugin we used automatically had the 'like' button appear when that option was available and the 'follow' button appear when the like option was unavailable. Since these provide similar functionality, for simplicity, we use the term follow throughout the paper.

remaining outlets into six categories: high-quality conservative, medium-quality conservative, high-quality moderate, medium-quality moderate, high-quality liberal, and medium-quality liberal. We define outlets as conservative if their slant in the Bakshy et al. (2015) measure is above 0.25 and as liberal if their slant is below -0.25. We define outlets as having medium quality if MBFC rates them as mixed-accuracy or mostly accuracy outlets and define outlets as having high quality if MBFC rates them as high-accuracy outlets. We intentionally do not offer low-accuracy outlets since we do not want to encourage the consumption of misinformation. Finally, we offer the two most popular outlets in each category that the participant does not already follow, where popularity is measured based on the number of Facebook users following the outlet in January 2022. Appendix Table A2 shows the two most popular outlets in each category. These are the outlets that were offered by default to participants who did not already follow them.

The procedure we use to determine which outlets participants could unfollow is much simpler. In the vast majority of cases (93%), participants follow fewer than 13 outlets in baseline, and therefore they are offered an option to unfollow any one of these outlets. If individuals follow more than 12 outlets, we choose 12 outlets randomly and offer participants an option to unfollow them.

While the outlets offered to participants do not depend on the treatment, we vary the information provided on each outlet based on the treatment assignment. For participants in the slant-information treatment, each offered outlet is labeled with its slant. For participants in the quality-information treatment, each offered outlet is labeled with its quality. We include this information so participants who want to adjust the slant or quality of their news portfolio based on the information they received will have the information allowing them to do so.

3 Results

We present two sets of results. We first analyze whether individuals suffer from misperceptions regarding slant and quality, and then analyze individual news choices.

3.1 Slant and Quality Perceptions

3.1.1 Slant

Figure 1 shows that individuals have a limited understanding of the slant of major news outlets. Panel I shows the perceived slant of each outlet (in black circles) along with the actual slant (in green triangles). This result presents a nuanced understanding of slant. On the one hand, on average, individuals realize that Fox News is the most conservative outlet and that the Wall Street Journal is the second most conservative

among the outlets we asked about. On the other hand, the average perceived slants of the other four outlets are quite similar, suggesting that individuals do not distinguish between the slant of CNN, MSNBC, the New York Times, and USA Today.

It is possible that individuals understand the slant of outlets generally, but they do not understand the scale of the Bakshy et al. (2015) measure of slant. Indeed, the ranking of the perceived average slant is correct, with the exception of the relative ranking of CNN and the New York Times. To test whether most individuals understand the ordinal ranking of outlets, we convert the actual and perceived slant to rank measures. The outlet that was perceived to be the most liberal takes the value 1, the second more liberal outlet takes the value 2, and so forth. Panel II of Figure 1 shows that even when using the ranked measure of slant, individuals have relatively large misperceptions. For example, the average perceived rank of MSNBC is close to 3 instead of 1. In fact, only 23% of participants consider MSNBC to be the most liberal outlet on the list. This is not dramatically higher than the 16.6% who would be expected to rank MSNBC as the most liberal if they randomly assigned a slant. Figure A3 shows a histogram of perceptions for each outlet and further confirms that with the exception of Fox News most participants have a limited understanding of slant.

Appendix Figure A4 examines heterogeneity in slant perceptions. Unsurprisingly, Subfigure A4a shows that individuals who are familiar with the outlets suffer from fewer misperceptions. We also find in Subfigure A4b that older individuals have a better understanding of slant. Interestingly, in Subfigure A4d we do not find evidence for the hostile media phenomenon (Vallone et al., 1985), where individuals perceive media to be biased against them, as the perceptions of Democrats and Republicans are quite similar.

The perceptions of major outlets allow us to compare all participants using the same benchmark. However, it is not clear that individuals should be familiar with the slant of the outlets we asked about if they typically do not consume news from these sources. Figure 2 presents the perceived average slant of the outlets individuals already follow on Facebook. This figure includes the 224 participants who followed at least one outlet in baseline. In aggregate, individuals seem to be relatively accurate in their slant perceptions as the figure shows a clear positive correlation between the perceived slant and the actual slant. In fact, the orange dashed line predicting the perceived slant based on the actual slant is close to the black 45-degree line. Still, many individuals have strong misperceptions. On average, the mean absolute value of the difference between perceived slant and actual slant is 0.32. This is equivalent to 0.81 standard deviations in the mean slant of outlets participants follow in baseline.

3.1.2 Quality

Figure 3 shows that individuals are only partially aware of the quality of major outlets. First, it is clear from the figure that there are large disagreements between participants. For five of the six outlets, participants are broadly divided into three large groups: those perceiving the outlet to have high accuracy, those perceiving the outlet to be mostly factual, and those perceiving the outlet to have mixed accuracy. The lack of consensus implies that a large share of individuals misperceives the quality of outlets.[6] The accuracy perceptions do seem at least somewhat correlated with the actual MBFC ratings. The *New York Times* receives the highest rating from participants and it is indeed considered a high-accuracy outlet, while Fox News and MSNBC receive the lower rating and they are considered mixed-accuracy outlets. Still, the most common perceived quality rating was different from the actual MBFC rating for each of these outlets.

Appendix Figure A5 does not find substantial heterogeneity in quality perceptions based on age or how often individuals follow the news. We do find large differences in perceptions based on party affiliation. As one would expect, Democrats are more likely to consider MSNBC and CNN to be high-accuracy or mostly factual outlets and are more likely to consider Fox News as a low-accuracy outlet, compared to Republicans.

Figure 4 shows that, in contrast to slant, individuals have large misperceptions regarding the quality of the news outlets they follow. The dashed red line shows a fitted line predicting perceived quality based on actual quality. The line is almost completely flat indicating that there is little correlation between the actual quality of outlets individuals follow and their perceived quality.[7]

3.2 News Choices

In this section, we analyze whether individuals reoptimize their news portfolio following our intervention.

Figure 5 plots the net change in the number of outlets followed for participants in all treatment groups and shows that most participants increased the number of outlets they followed due to the interventions. Appendix Figures A6a and A6b separately analyze the number of new outlets participants followed in the experiment and the number of outlets participants unfollowed and show that following a new outlet in the experiment was quite common. Overall, 53% of individuals followed at least one new outlet. In contrast, only 11% of participants who were presented with outlets they could unfollow, unfollowed at least one

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[6]One concern is that the MBFC ranking itself is not measuring accuracy properly. While we explained to participants the MBFC methodology, it is possible that the answer they provided was a proxy for how they perceive quality generally. In future surveys, we plan to incorporate more outlets and to use an additional systematic measure of quality created by NewsGuard.

[7]The severe misperceptions regarding quality, in contrast to slant, can explain why previous studies have found that randomly changing or highlighting the outlet where a story was published does not help users distinguish between accurate and inaccurate content (Dias et al., 2020), but does affect the perceived bias of a story (Baum et al., 2008).

outlet in the experiment.[8]

The results suggest that individuals' current news consumption is not necessarily optimized, as they change their news portfolio when given an opportunity. One option is that individuals passively make news choices, for example, due to algorithmic suggestions, and are willing to quickly change their news consumption when other news options are suggested. Alternatively, individuals may be consuming a news bundle that fits their preferences but are willing to explore other options. To disentangle these explanations, we plan on tracking participants' news consumption and testing in follow-up surveys whether they wish to continue following these outlets. If participants' original news portfolios were optimal, we would not expect their news consumption to change substantially and we would expect them to unfollow some of the outlets they followed in the original intervention, when provided with a nudge reminding them to do so.[9]

3.2.1 Slant

How do our interventions affect the slant of the reoptimized portfolio? Figure 6 shows that participants in the nudge-only treatment chose less extreme outlets when offered an option to reoptimize their news choices. The x-axis in the figure is the absolute value of the mean slant of outlets followed in baseline, and the y-axis presents this value after the survey. Most participants are around the 45-degree line, which means that for these participants the absolute value of slant did not change dramatically. However, there are many more participants who chose more moderate outlets (below the 45-degree line) compared to participants who chose more extreme outlets (above the 45-degree line). Appendix Figure A7 presents a similar figure with the average slant of outlet participants followed before and after the experiment, and shows that the slant of pages followed did not become substantially more liberal or conservative.

Table 2 shows that even though individuals chose less extreme outlets in the survey, this choice was not affected by either information treatment. The table presents regressions estimating the effect of the quality and slant information treatments on the slant and absolute value of the slant of outlets followed.[10] All the point estimates are small and none are statistically significant.

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[8]Appendix Figures 5, A6a, and A6b analyze different subsamples. Figure 5 includes all participants. For some participants, we were only able to collect the number of outlets followed and not the full list of outlets due to technical issues. These participants are not included in Appendix Figure A6a and A6b. Finally, Appendix Figure A6b only includes participants who followed at least one outlet in baseline.

[9]It is also possible that individuals followed new outlets due to experimenter demand effects. While we did not provide any incentive to follow an outlet and explicitly told participants that they are not expected to follow any outlet, they may have still been affected by the experimental setting. Tracking news consumption will allow us to test whether participants' behavior also changed after the experiment. Such changes are much less likely to occur due to experimenter demand.

[10]In contrast to Figure 6, in these regressions we also include participants who did not follow any outlet in baseline. In specifications controlling for the baseline values of the outcome variable, we replace the value with a constant when it is missing and control for whether the value is missing.

3.2.2 Quality

Figure 7 does not find a systematic change in the quality of outlets followed due to the 'nudge-only' intervention. While the average quality of outlets followed changed for many participants, it increased for some and decreased for others. For many participants, the changes in quality were non-negligible, suggesting that individuals are willing to change the quality of the outlets they follow but do not necessarily choose outlets with higher quality by default.

In Table 3, we analyze the effect of the treatment on quality and find that the quality-information treatment had a statistically significant effect on the quality of the outlets followed. Columns (2) shows that the quality-information treatment increase the quality of outlets followed in the intervention by 0.24 points. This is equivalent to approximately 0.32 standard deviations of the average quality of outlets followed in baseline. Interestingly, columns (3) and (4) show that the quality-information treatment decreased the number of participants who followed at least one new outlet in the experiment. This suggests a possible trade-off when designing behavioral nudges, as the quality-information treatment had a positive effect on type of outlets individuals selected but at the same time led fewer people to follow new outlets. The decrease in the number of participants updating their news portfolio could have occurred due to information overload, since the intervention decreased participants' trust in media, or because the quality-information treatment prevented individuals from following lower-quality outlets but did not persuade them to follow other outlets. Columns (5) and (6) analyze the effect of the quality-information treatment on the mean quality of the participants' entire news portfolio. These regressions include all participants who followed at least one outlet after the intervention, even if they did not follow any new outlets. The point estimates for the quality-information treatment are positive, but not statistically significant.

Combined, our results suggest that providing information on quality is more effective than providing information on slant. One potential explanation for this finding is that individuals suffer from more severe misperceptions regarding the quality of outlets.

4   Conclusion

83% of Americans see a fair amount or a great deal of bias in news coverage and a majority of Americans consider bias a major problem (Knight Foundation, 2020). The concerns over bias and inaccurate news raise two questions: Is the public aware of the accuracy and slant of the news it consumes? How can individuals be encouraged to consume non-partisan high-quality news?

This paper finds that in contrast to many economic models, people do not have perfect information. Individuals have a general sense of the slant of the news outlets they follow but often are not aware of the slant of major outlets. Misperceptions regarding quality are much greater and there is little correlation between the perceived quality of the news outlets individuals follow and their actual accuracy.

Importantly, misperceptions of slant and quality will lead not only to sub-optimal news consumption but also to misinterpretation. Namely, consumers who know the slant of a news source will be able to correctly interpret a piece of news; conversely, consumers who misperceive the slant of a news source will not.

We show that an offer to reoptimize one's news portfolio encourages individuals to follow more moderate news. Furthermore, providing information on the quality of outlets encourages individuals to choose more high-quality outlets.

One important limitation of our research design is that we cannot observe the long-term effect of news choices. We plan on conducting an additional experiment where we will also collect news consumption data to test whether the decisions made in the experiment affected the participants' consumption habits, and potentially even their attitudes.

Still, this experiment already shows that individuals' news choices are malleable. This result has clear policy implications. Decision-makers should take into account that individuals often do not actively choose their news sources but passively follow suggestions. If we believe that individuals should be exposed to news from high-quality outlets, such as public broadcasting organizations, those outlets should be actively promoted.

References

Allcott, H. and Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of economic perspectives*, 31(2):211–36.

Aslett, K., Guess, A. M., Bonneau, R., Nagler, J., and Tucker, J. A. (2022). News credibility labels have limited average effects on news diet quality and fail to reduce misperceptions. *Science advances*, 8(18).

Bakshy, E., Messing, S., and Adamic, L. A. (2015). Exposure to Ideologically Diverse News and Opinion on Facebook. *Science*, 348(6239):1130–1132.

Baum, M. A., Gussin, P., et al. (2008). In the eye of the beholder: How information shortcuts shape individual perceptions of bias in the media. *Quarterly Journal of political science*, 3(1):1–31.

Bursztyn, L., Gonz'alez, A. L., and Yanagizawa-Drott, D. (2020). Misperceived social norms: Women working outside the home in saudi arabia. *American economic review*, 110:2997–3029.

Bursztyn, L. and Yang, D. Y. (2021). Misperceptions about others. *Annual Review of Economics*, 14.

Chan, J. and Suen, W. (2008). A Spatial Theory of News Consumption and Electoral Competition. *The Review of Economic Studies*, 75(3):699–728.

Dias, N., Pennycook, G., and Rand, D. G. (2020). Emphasizing publishers does not effectively reduce susceptibility to misinformation on social media. *Harvard Kennedy School Misinformation Review*.

Dorison, C. A., Minson, J. A., and Rogers, T. (2019). Selective exposure partly relies on faulty affective forecasts. *Cognition*, 188:98–107.

Gentzkow, M. and Shapiro, J. M. (2006). Media Bias and Reputation. *Journal of Political Economy*, 114(2):280–316.

Gentzkow, M. and Shapiro, J. M. (2010). What Drives Media Slant? Evidence from U.S. Daily Newspapers. *Econometrica*, 78(1):35–71.

Gentzkow, M. and Shapiro, J. M. (2011). Ideological Segregation Online and Offline. *The Quarterly Journal of Economics*, 126(4):1799–1839.

Gentzkow, M., Shapiro, J. M., and Stone, D. F. (2015). Media Bias in the Marketplace: Theory. In *Handbook of Media Economics*, volume 1, pages 623–645. Elsevier.

Guess, A. M. (2021). (Almost) Everything in Moderation: New Evidence on Americans' Online Media Diets. *American Journal of Political Science*, 65(4):1007–1022.

Iyengar, S. and Hahn, K. S. (2009). Red media, blue media: Evidence of ideological selectivity in media use. *Journal of communication*, 59(1):19–39.

Iyengar, S., Lelkes, Y., Levendusky, M., Malhotra, N., and Westwood, S. J. (2019). The Origins and Consequences of Affective Polarization in the United States. *Annual Review of Political Science*, 22:129–146.

Knight Foundation (2020). American views 2020: Trust, media and democracy. *Gallup and Knight Foundation*.

Levy, R. (2021). Social Media, News Consumption, and Polarization: Evidence from a Field Experiment. *American Economic Review*, 111(3):831–70.

Mullainathan, S., Schwartzstein, J., and Shleifer, A. (2008). Coarse Thinking and Persuasion. *The Quarterly Journal of Economics*, 123(2):577–619.

Nyhan, B. and Reifler, J. (2010). When corrections fail: The persistence of political misperceptions. *Political Behavior*, 32(2):303–330.

Pariser, E. (2011). *The filter bubble: What the Internet is hiding from you*. Penguin UK.

Pennycook, G., Epstein, Z., Mosleh, M., Arechar, A. A., Eckles, D., and Rand, D. G. (2021). Shifting attention to accuracy can reduce misinformation online. *Nature*, 592(7855):590–595.

Pennycook, G. and Rand, D. G. (2019). Fighting misinformation on social media using crowdsourced judgments of news source quality. *Proceedings of the National Academy of Sciences*, 116(7):2521–2526.

Peterson, E., Goel, S., and Iyengar, S. (2021). Partisan Selective Exposure in Online News Consumption: Evidence from the 2016 Presidential Campaign. *Political Science Research and Methods*, 9(2):242–258.

Peterson, E. and Kagalwala, A. (2021). When unfamiliarity breeds contempt: How partisan selective exposure sustains oppositional media hostility. *American Political Science Review*, 115(2):585–598.

Shearer, E. and Grieco, E. (2019). Americans are wary of the role social media sites play in delivering the news. *Pew Research Center*.

Silverman, C. (2016). This analysis shows how fake election news stories outperformed real news on facebook. *Buzz Feed News*.

Silverman, C. and Singer-Vine, J. (2016). Most americans who see fake news believe it, new survey says. *Buzz Feed News*.

Sunstein, C. R. (2001). *Republic.com*. Princeton University Press.

Thaler, R. H. and Sunstein, C. R. (2008). Nudge: Improving decisions about health, wealth, and happiness.

Vallone, R. P., Ross, L., and Lepper, M. R. (1985). The hostile media phenomenon: biased perception and perceptions of media bias in coverage of the beirut massacre. *Journal of personality and social psychology*, 49(3):577.

Figure 1: Actual vs. Perceived Slant
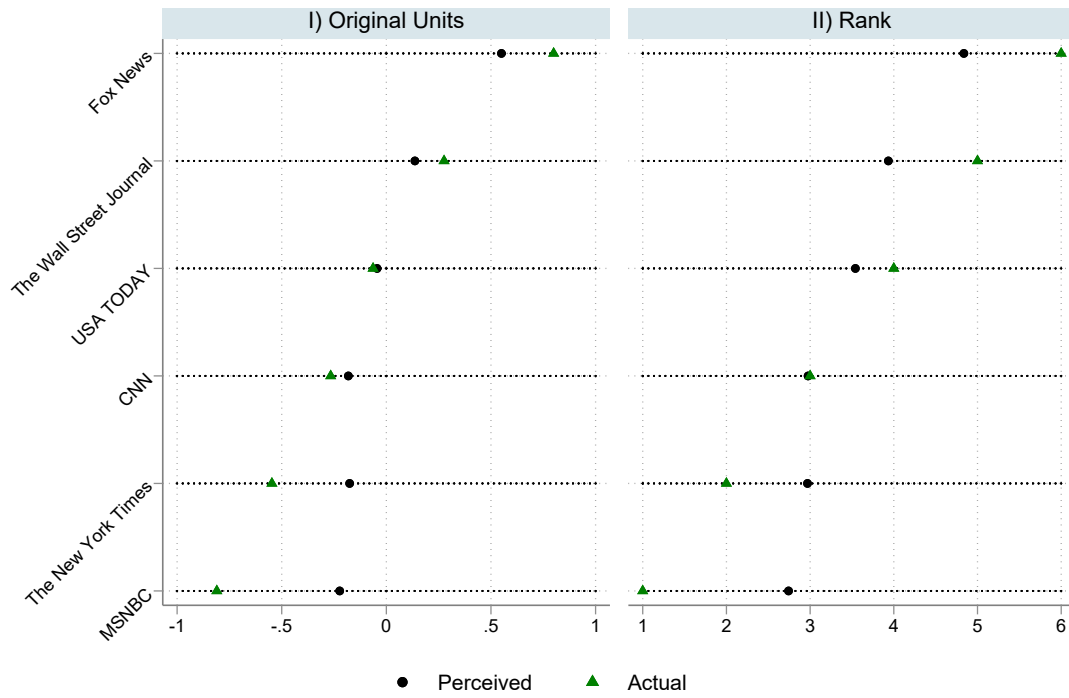
This figure shows the average perceived slant (black circles) and actual slant (green triangles) of six major outlets. Panel I presents the slant using the Bakshy et al. (2015) units. In Panel II, the relative slant of each outlet is ranked from most liberal (1) to most conservative (6). We rank the perceived slants of outlets for each participant and then calculate the mean perceived rank.

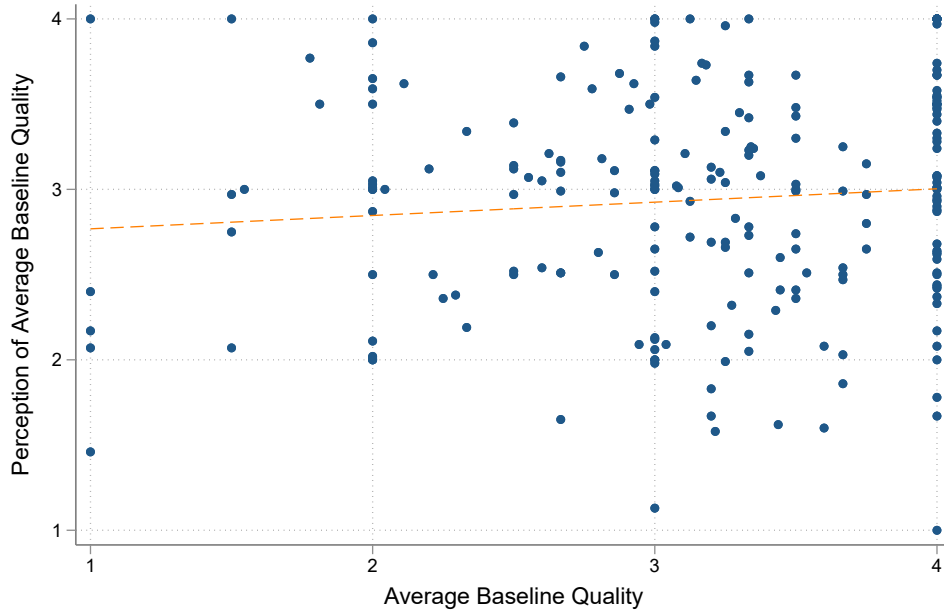Figure 2: Actual and Perceived Slant of Outlets Followed
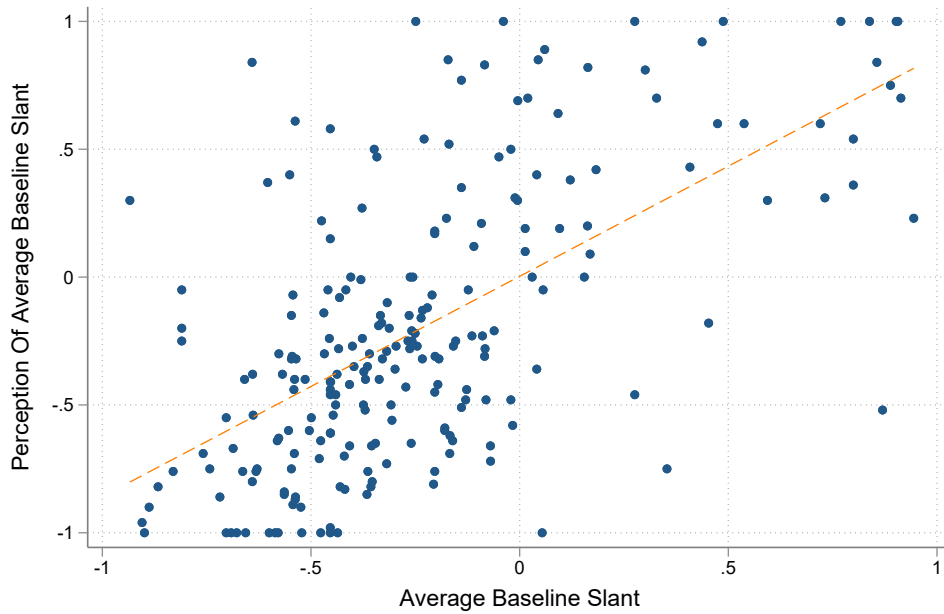
This figure presents a scatter plot with the average slant of the outlets participants follow on the x-axis, and individuals' perceptions of the average slant on the y-axis. The dashed red line shows a fitted line predicting perceptions based on the actual slant.


Figure 3: Perceptions of the Quality of Major Outlets
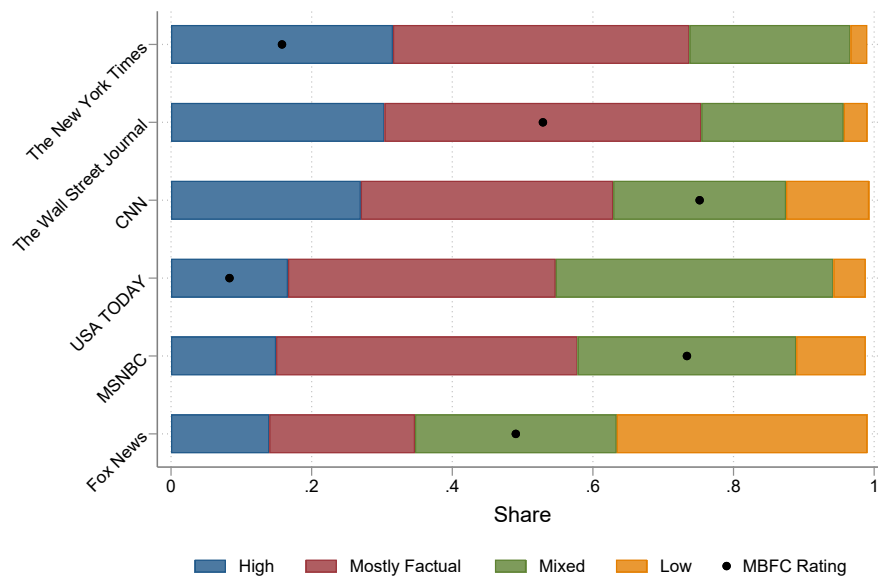
This figure shows the distribution of the perceived accuracy of major outlets. The black dots show the MBFC actual accuracy rating of each outlet.

Figure 4: Actual and Perceived Quality of Outlets Followed
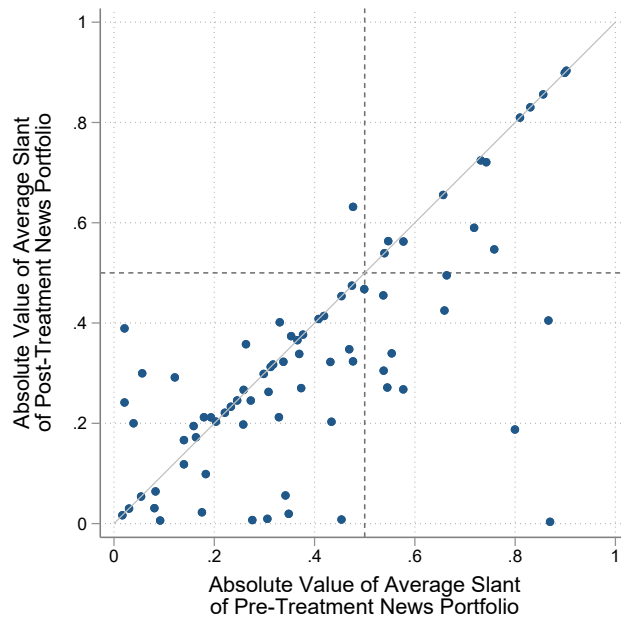

This figure presents a scatter plot with the average quality of outlets participants follow on the x-axis, and participants' perceptions of the average quality on the y-axis. To calculate the mean quality, an outlet is assigned 1 if it has low accuracy based on MBFC, 2 if it has mixed accuracy, 3 if it is mostly factual, and 4 if it has high accuracy. The dashed red line shows a fitted line predicting perceptions based on actual quality.

## Figure 5: Change in the Number of Outlets Followed
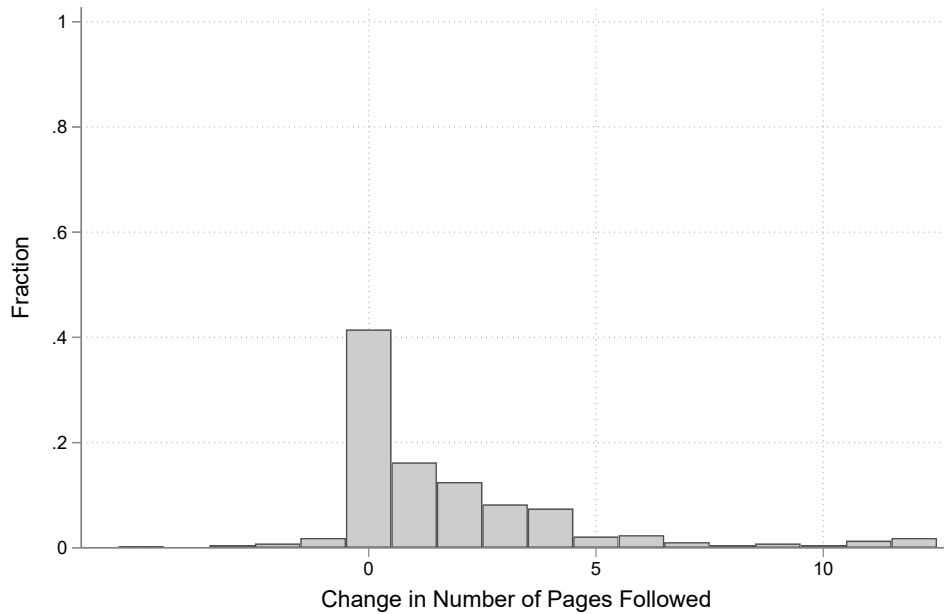
This figure shows the net change in the number of outlets participants followed in the experiment. The figure displays the data for participants in all treatment groups.

Figure 6: Absolute Value of Average Slant Before and After the Intervention, Nudge-Only Group

This figure present a scatter plot with the absolute value of the average slant of all outlets participants in the nudge-only group followed. The values for outlets followed before the intervention are presented on the x-axis and the values for outlets followed after the intervention are presented on the y-axis.

Figure 7: Average Quality Before and After the Intervention, Nudge-Only Group
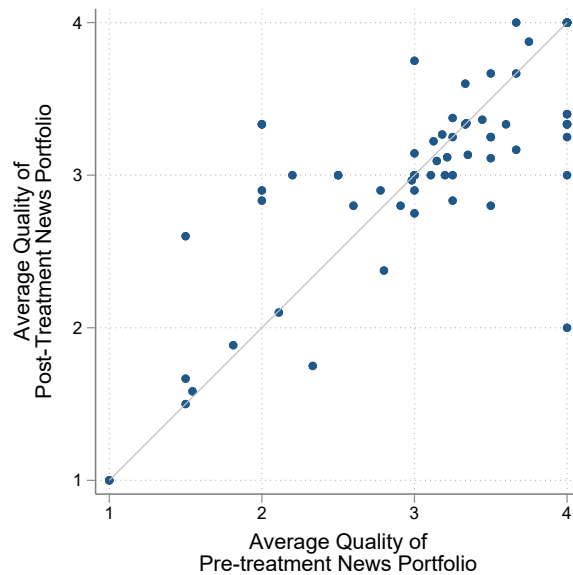
This figure present a scatter plot with the average quality of all outlets participants in the nudge-only group followed. The values for outlets followed before the intervention are presented on the x-axis and the values for outlets followed after the intervention are presented on the y-axis. To calculate the average quality, an outlet is assigned 1 if it has low accuracy based on MBFC, 2 if it has mixed accuracy, 3 if it is mostly factual, and 4 if it has high accuracy.

Table 1: Sample size

	All Observations (1)	Followed News in Baseline (2)
Valid respondents	415	224
Slant treatment	140	69
Quality treatment	138	74
Control	137	81
Complete respondents	373	207
Slant treatment	124	63
Quality treatment	126	66
Control	123	78

This table presents the number of participants in the experiment. Column (1) includes all valid respondents. We exclude from the sample participants who failed an attention check, duplicate responses, participants who completed the survey especially quickly, and participants for whom we could not collect data on the pages they followed in baseline. All other participants who reached the treatment block in the survey are considered valid respondents even if they did not complete the survey and were not offered an option to follow or unfollow outlets. Column (2) includes only participants who followed at least one news outlet in baseline.

Table 2: Effect of the Treatments on the Slant of Outlets Followed

	Pages Followed Slant		Post-Intervention Slant		Pages Followed Absolute Slant		Post-Intervent Absolute Slant	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quality Treatment	-0.00725	-0.0289	-0.0148	-0.0122	-0.0517	-0.0456	0.0136	0.0102
	(0.0614)	(0.0531)	(0.0523)	(0.0323)	(0.0369)	(0.0361)	(0.0323)	(0.0263)
Slant Treatment	-0.0141	-0.0506	0.0163	-0.000255	-0.0418	-0.0458	0.00900	0.0144
	(0.0600)	(0.0553)	(0.0522)	(0.0325)	(0.0361)	(0.0364)	(0.0322)	(0.0264)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Observations	219	219	309	309	219	219	309	309
R^2	0.000	0.234	0.001	0.629	0.011	0.078	0.001	0.357

This table presents regression results for the effects of the treatments on the slant of outlets followed. In columns (1) and (2), the dependent variable is the average slant of outlets followed in the intervention. By definition, this column only includes individuals who followed at least one outlet during the intervention. In columns (3) and (4), the dependent variable is the mean slant of all outlets followed after the intervention. These columns include all participants who followed at least one outlet in endline, including participants who did not follow any new outlets during the intervention. Columns (5)-(8) present similar regression focusing on the absolute value of the average slant instead of the average slant. The controls are age, gender, whether the participants knew who is the house speaker, 7-point party affiliation, and the average slant (or absolute value of slant) of outlets followed in baseline.

Table 3: Effect of the Treatments on the Quality of Outlets Followed

	Quality of Outlets Followed		Followed At Least One Outlet		Endline Mean Quality	
	(1)	(2)	(3)	(4)	(5)	(6)
Quality Treatment	0.219**	0.243**	-0.164***	-0.166***	0.0459	0.0602
	(0.107)	(0.104)	(0.0596)	(0.0601)	(0.0908)	(0.0675)
Slant Treatment	-0.0383	0.00934	-0.0842	-0.0846	-0.0741	-0.0557
	(0.104)	(0.108)	(0.0597)	(0.0604)	(0.0901)	(0.0636)
Controls	No	Yes	No	Yes	No	Yes
Observations	219	219	413	413	309	309
R^2	0.028	0.068	0.018	0.027	0.006	0.488

This table presents regressions estimating the effects of the treatments on the quality of outlets followed. To calculate the average quality, an outlet is assigned 1 if it has low accuracy based on MBFC, 2 if it has mixed accuracy, 3 if it is mostly factual, and 4 if it has high accuracy. In columns (1) and (2), the dependent variable is the average quality of outlets followed in the intervention. By definition, this column only includes individuals who followed at least one outlet during the intervention. In columns (3) and (4), the dependent variable is the number of outlets followed in the intervention. In columns (5) and (6), the dependent variable is the mean quality of all news outlets followed after the intervention. These columns include all participants who followed at least one outlet in endline, including participants who did not follow any new outlets during the intervention. The controls are age, gender, whether the participants knew who is the house speaker, 7-point party affiliation, and the average quality of outlets followed in baseline.

A   Additional Figures and Table

Figure A1: Comparing MBFC Accuracy to Other Measures of Quality
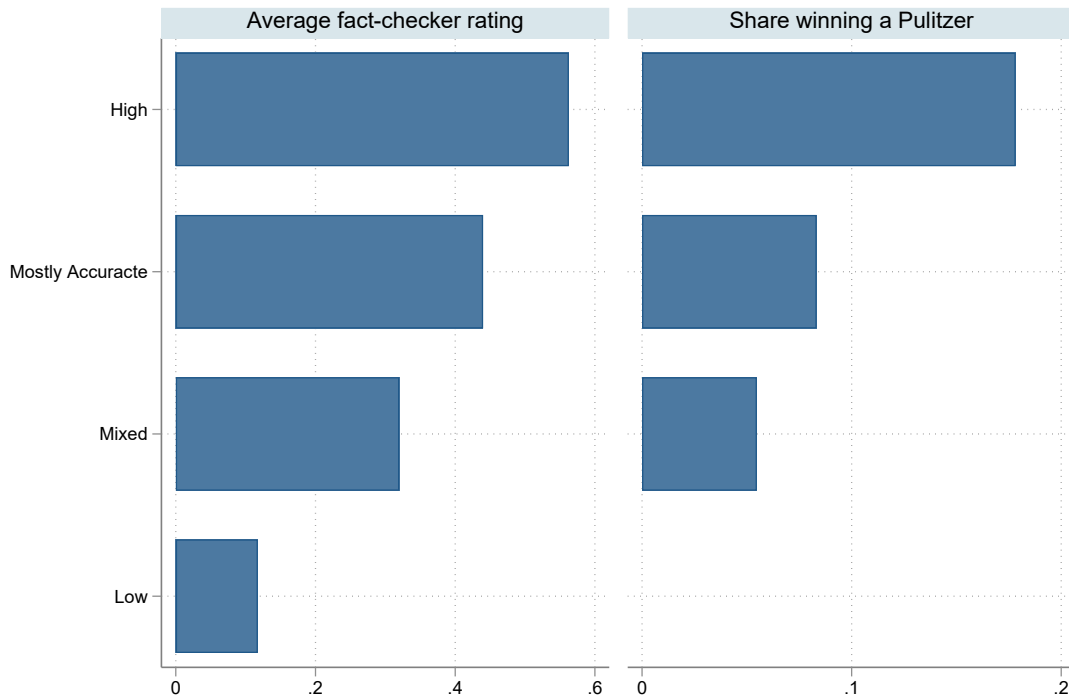
This figure compares the MBFC accuracy rating for outlets in our dataset with two external ratings. The left panel presents the average fact-checkers trust in outlets based on Pennycook et al (2019). The right panel presents the share of outlets in each group that won at least one Pulitzer prize since 1990.
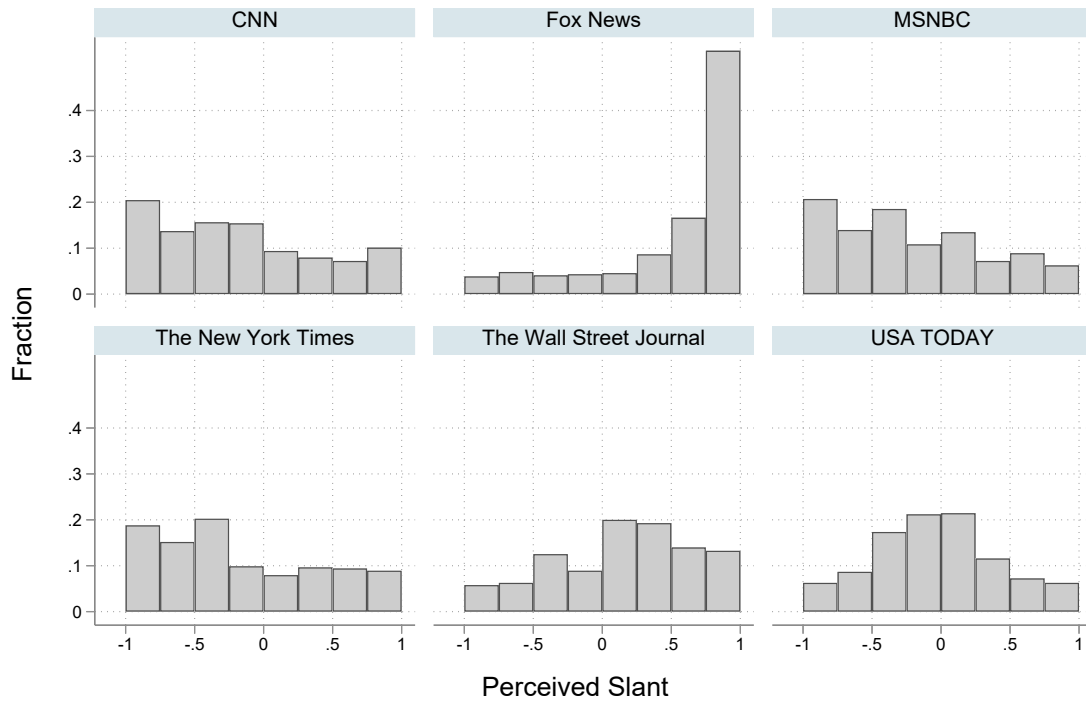
Figure A2: Outlet Dataset, Descriptive Statistics
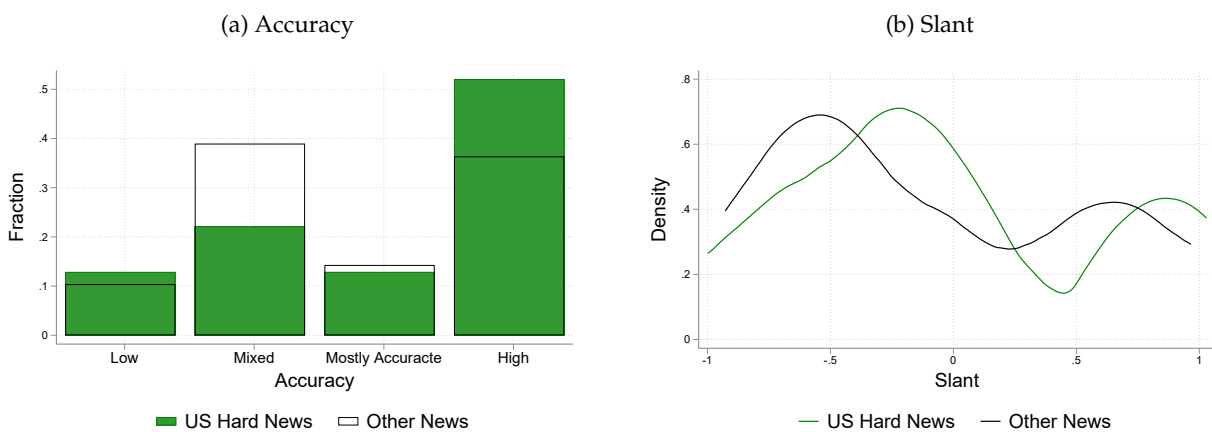
These figures present distributions of the MBFC accuracy rating and Bakshy et al (2015) slant measure for all 271 outlets in our database and for the 194 outlets focusing on US hard news.
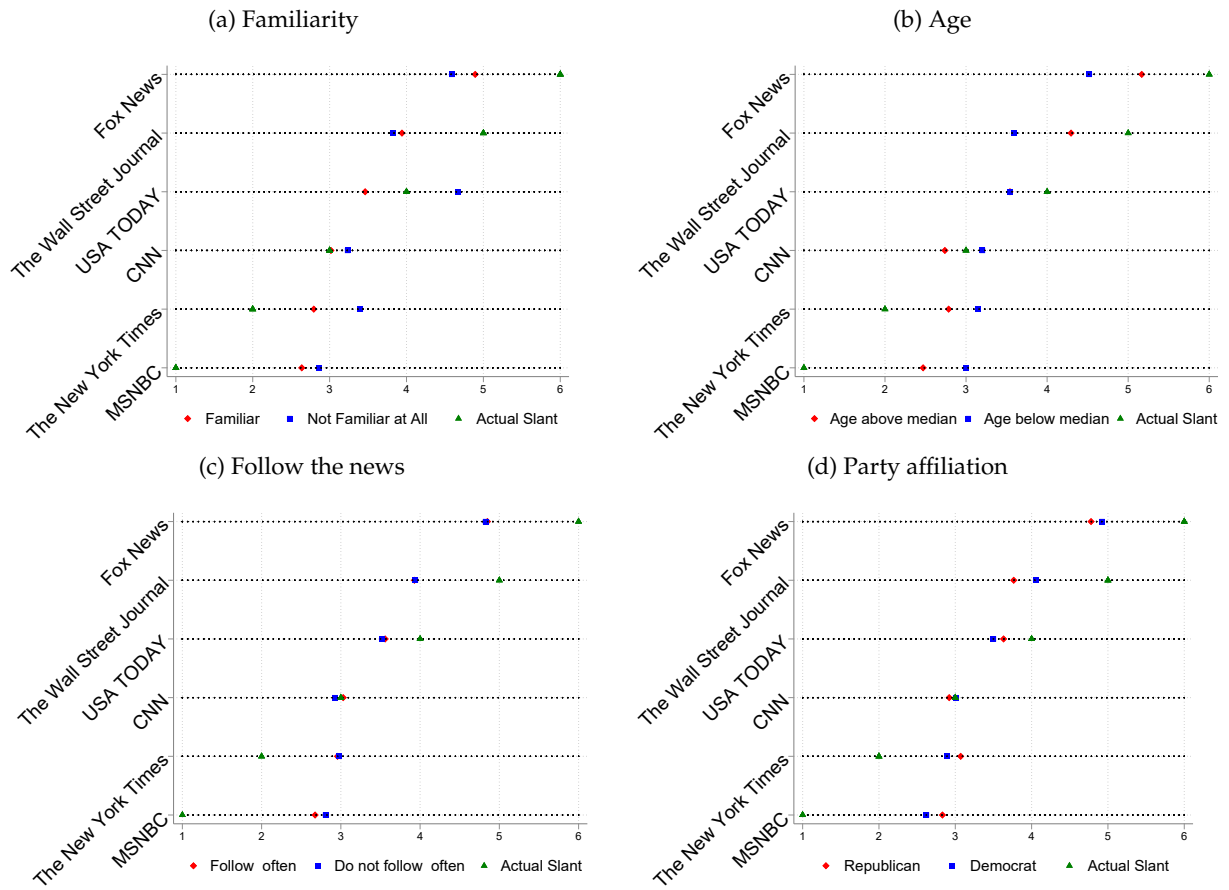
Figure A3: Perceived Slant by Outlet

This figure presents a histogram of the perceived slant of each outlet. The histograms present answers to questions asking all partici-
pants what is the slant of each outlet based on the Bakshy et al (2015) measure of slant.

Figure A4: Perception of Slant, Heterogeneity

(a) Familiarity

(b) Age

(c) Follow the news

(d) Party affiliation

This figure presents the perceived slant of major outlets for different demographics, along with the actual Bakhy et al. (2015) slant. 'Follow often' refers to participants who say they often read/watch news directly from a news website or app. 'Familiar' refers to participants who say they are familiar with the specific outlet and is measured at the outlet-participant level.

Figure A5: Perception of Quality, Heterogeneity

(a) Age
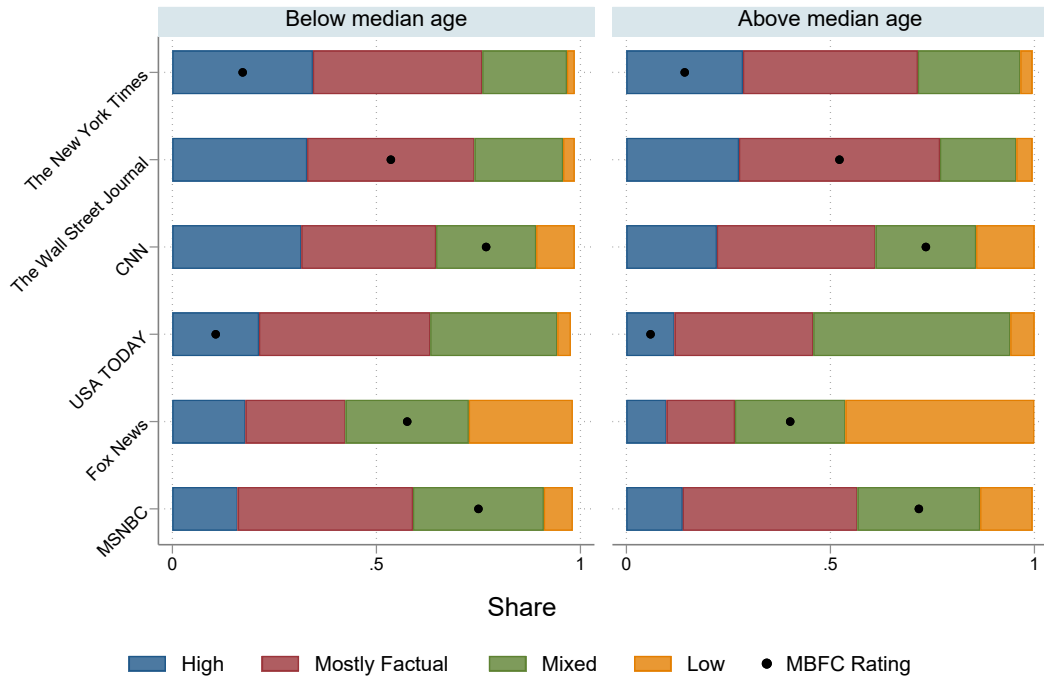
(b) Follow the news
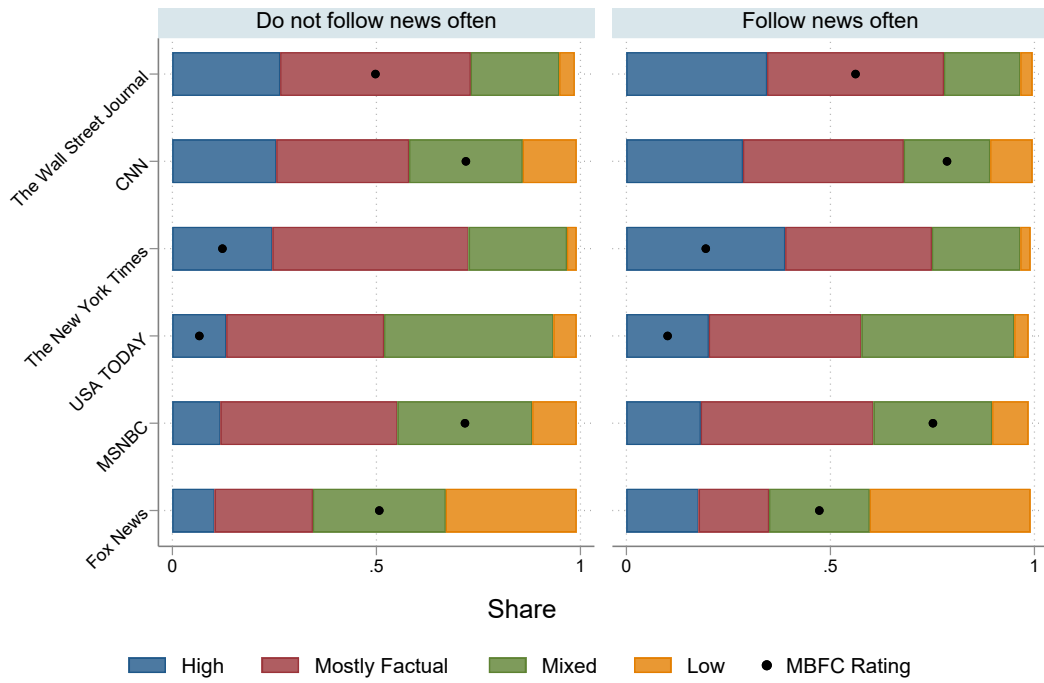
(c) Familiarity
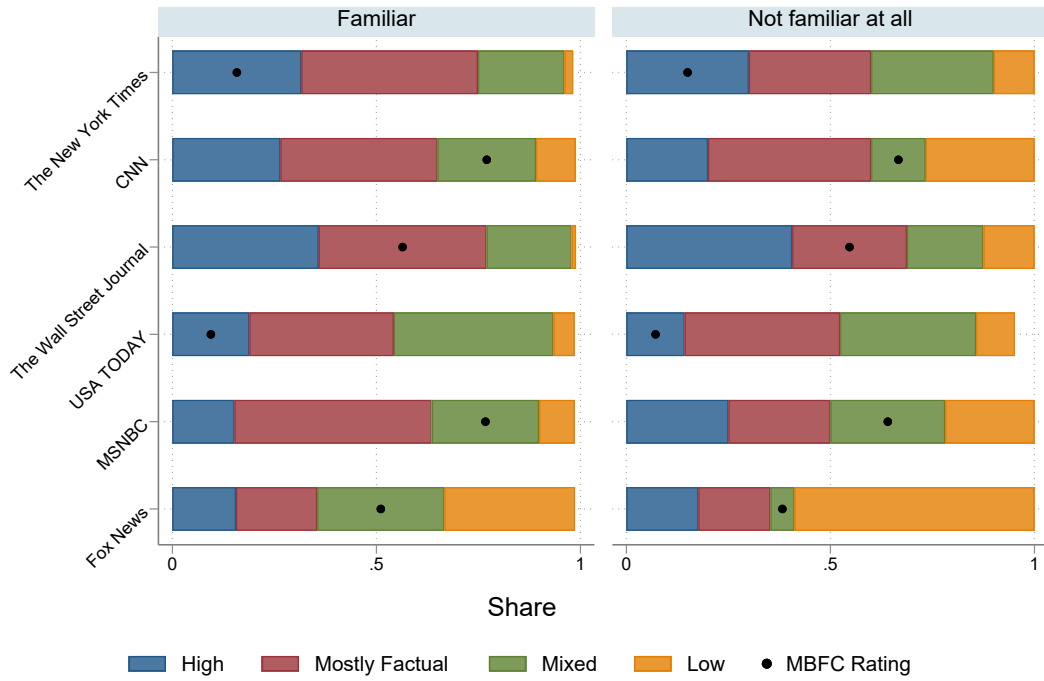
(d) Party affiliation

These figures present the perceived quality of major outlets for different demographics. 'Follow news often' refers to participants who say they often read/watch news directly from a news website or app. 'Familiar' refers to participants who say they are familiar with the specific outlet and is measured at the outlet-participant level. For more details see Figure 1.
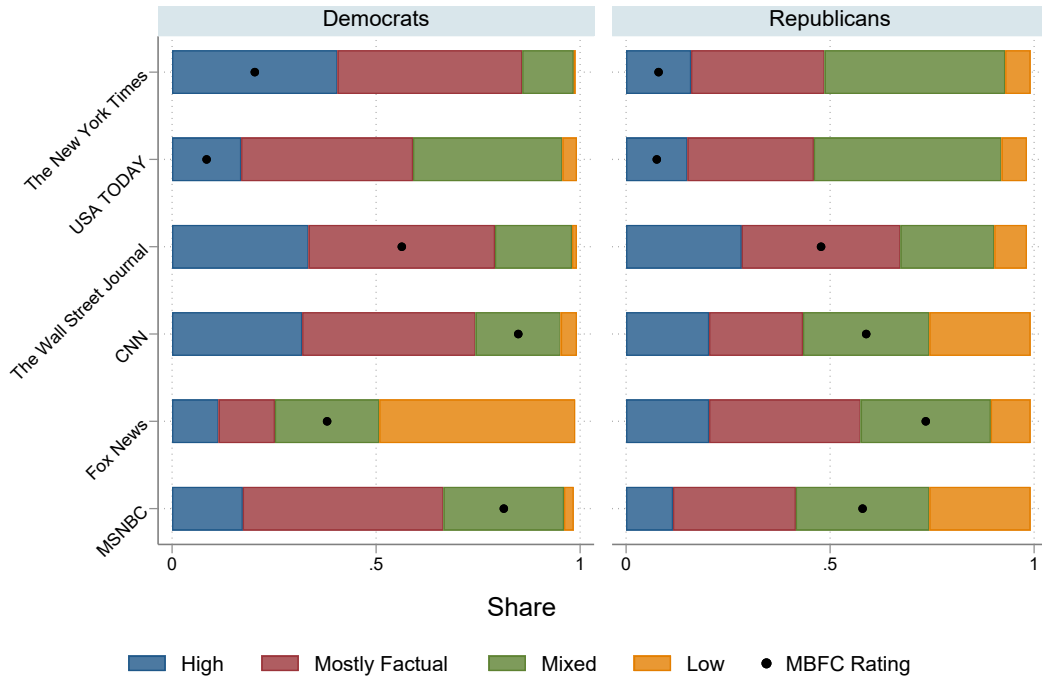
Figure A6: Number of Outlets Followed and Unfollowed in the Experiment

(a) Pages Followed
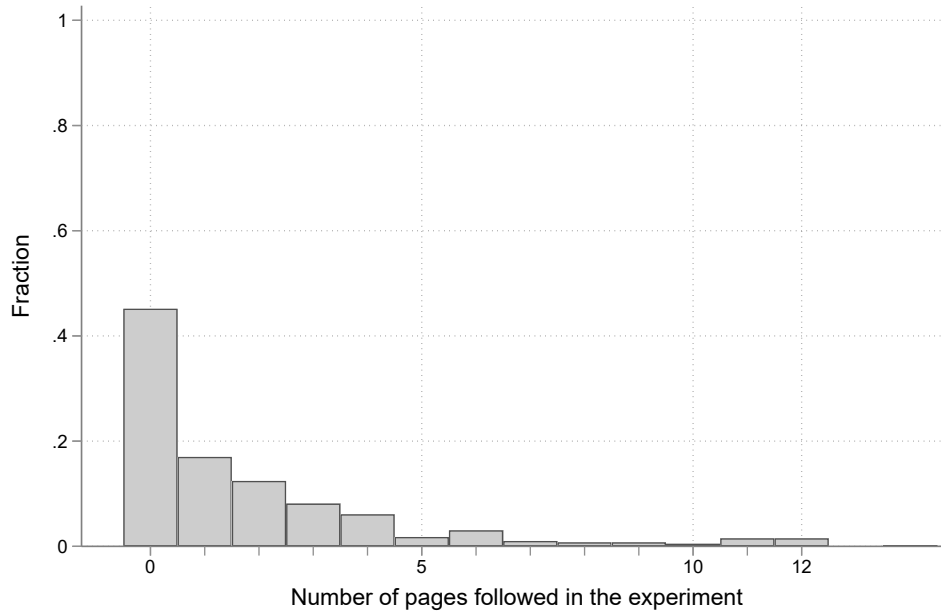
(b) Pages Unfollowed
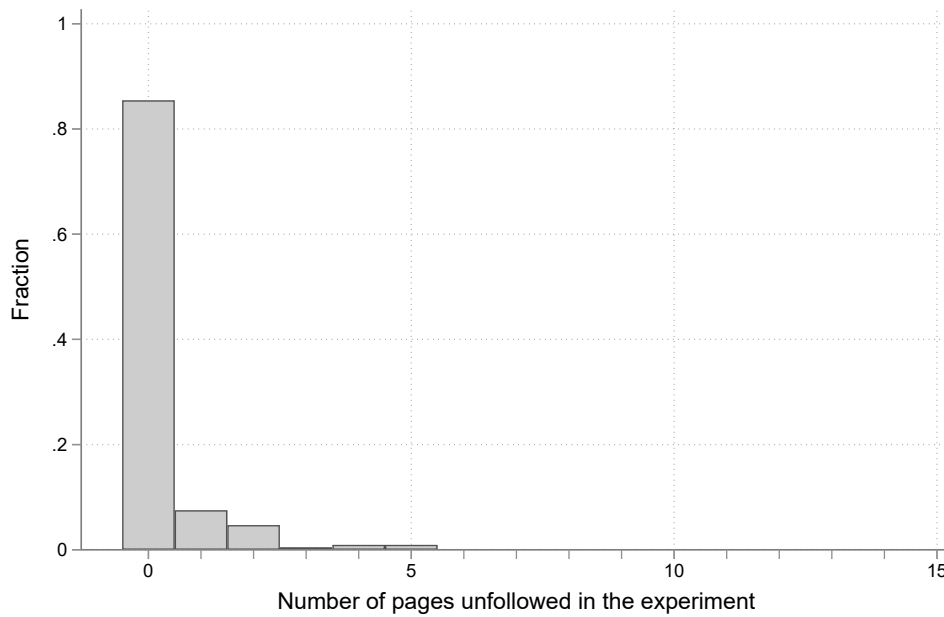
These figures present the number of outlets participants followed in the experiment and the number of outlets they unfollowed.

Figure A7: Average Slant Before and After the Intervention, Nudge-Only Group
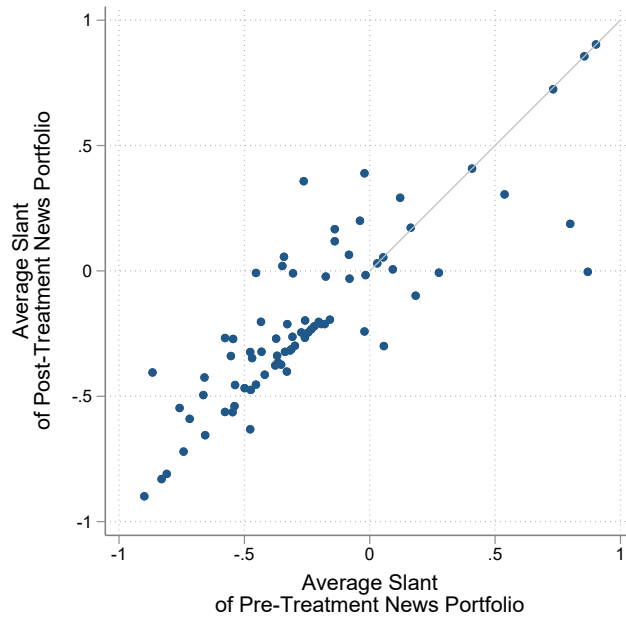
This figure present a scatter plot with the average slant of all outlets participants in the nudge-only group followed. The values for outlets followed before the intervention are presented on the x-axis and the values for outlets followed after the intervention are presented on the y-axis.

Table A1: Balance table

	(1) Nudge-Only	(2) Quality-Info	(3) Slant-Info	(4) (1) vs. (2)	(5) (1) vs. (3)	(6) (2) vs. (3)
Age	43.056	44.097	42.278	-1.041	0.777	1.818
Female	0.542	0.607	0.682	-0.065	-0.140	-0.075
Knew Speaker	0.951	0.924	0.894	0.027	0.057	0.030
Party (1-7)	3.132	3.103	3.338	0.028	-0.206	-0.234
White	0.757	0.807	0.709	-0.050	0.048	0.098
Follow News	0.479	0.510	0.483	-0.031	-0.004	0.027
College	0.556	0.566	0.510	-0.010	0.046	0.056
N	144	145	151	289	295	296

This table presents descriptive statistics by treatment for various demographics. 'Follow news' refers to participants who say they often read/watch news directly from a news website or app. Columns (4)-(6) compare the treatments.

Table A2: Default Offered Outlets

Slant	Quality	Name
Liberal	High	The New York Times
Liberal	High	TIME
Liberal	Medium	CNN
Liberal	Medium	HuffPost
Moderate	High	ABC News
Moderate	High	Business Insider
Moderate	Medium	New York Post
Moderate	Medium	International Business Times
Conservative	High	The Wall Street Journal
Conservative	High	Rare News
Conservative	Medium	Fox News
Conservative	Medium	The Daily Caller

This table shows the default outlets offered in the experiment. These outlets were offered to participants who did not already follow them.

B   Survey Instrument

Welcome to the Making Sense of Media study. Before we begin, we have a few quick questions.

Are you currently a resident of the United States?

○ Yes

○ No

In what year were you born?

▼ 1930 ... 2011

Have you participated in this study before?
(Each person is allowed to participate in the study, and get paid, only once.)

○ No

○ Yes

Thinking about your news habits... How often do you:

	Never	Hardly Ever	Sometimes	Often
Read any newspapers in print?	○	○	○	○
Listen to the news on the radio?	○	○	○	○
Watch the news on the television?	○	○	○	○
Read news on social media sites?	○	○	○	○
Read/watch news directly from a news website or app?	○	○	○	○

31

Who is the current Speaker of the House?

○ Kevin McCarthy

○ Nancy Pelosi

○ Don't Know

If (Participated in study before OR living outside the UR OR spent less than 6 seconds on the page OR born before 2004):

We are sorry! You do not qualify to complete this survey. We thank you for your interest in the survey.

Welcome to the Making Sense of Media Study! We are researchers affiliated with the HUJI, TAU, and LMU universities, and we are conducting a study about news consumption. Your participation will involve a 10-15-minute survey. We will ask you some background questions as well as some questions about different news outlets. In addition to the survey, the only data we will collect for the study, with your permission, is the pages you like on Facebook. We will stop accessing this data two months from the time you complete the survey.

Your personal information will never be shared. If data from this study is shared, it will be de-identified first and will never include your name or other identifying details.

There are no known or anticipated risks to you participating. For completing the survey, you will receive a payment of $5. The payment will be sent in the first week of September. Furthermore, depending on your answers and the answers of other participants in the experiment, you can earn a $50 bonus payment. This study might also benefit you personally if the information we provide is useful to you. Even if not, we hope that our results will contribute to what we know about media consumption.

Participation in this study is completely voluntary. You are free to decline to participate or to end participation at any time for any reason. Your decision whether or not to participate in this study will not affect your relationship with the universities we are affiliated with (HUJI, TAU, and LMU).

If you have any questions about this study, you may contact the investigator, Ro'ee Levy, roeelevy@tauex.tau.ac.il. If you would like to verify that Ro'ee is indeed affiliated with TAU, see his website.

Do you agree to participate in this research?

○ Yes

○ No

End of Block: Section 1: Introduction and Consent

Start of Block: Logon to Facebook

Taking this survey requires logging into your personal Facebook account. The only data we will collect for the study, with your permission, is the pages you like on Facebook. We will stop accessing this data two months from the time you complete the survey.

Log in and begin survey

Note: If you do not see the Facebook login button after several seconds, it is probably accidentally being blocked by an ad blocker extension. Try disabling the ad-blocker, or creating an exception for Facebook Connect, and reload the page.

Start of Block: Section 2a: Baseline Questionnaire

How would you describe your gender?

○ Male

○ Female

○ Other

What is your region of residence?

○ **Northeast** (CT, ME, MA, NH, RI, VT, NJ, NY, PA)

○ **Midwest** (IL, IN, MI, OH, WI, IA, KS, MN, MO, NE, ND, SD)

○ **South** (DE, DC, FL, GA, MD, NC, SC, VA, WV, AL, KY, MS, TN, AR, LA,OK, TX)

○ **West** (AZ, CO, ID, NM, MT, UT, NV, WY, AK, CA, HI, OR, WA)

○ **Outside the U.S.**

What is your highest level of education?

○ Did not complete high school

○ High school diploma/GED

○ Some college

○ Bachelor's Degree

○ Master's Degree

○ Professional Degree or PhD

How would you define your race category? You may choose one or more races. For this survey, Hispanic origin is not a race.

☐ White

☐ Black or African American

☐ American Indian or Alaska Native

☐ Asian

☐ Native Hawaiian or Other Pacific Islander

Are you of Hispanic, Latino, or Spanish origin?

○ Yes

○ No

What is your current employment status?

○ Full-time employee

○ Part-time employee

○ Self-employed or small business owner

○ Unemployed and looking for work

○ Student

○ Not in labor force (for example: retired or full-time parent)

How many people live in your household (including yourself)?

▼ 1 ... 9+

How many of the people who live in your household are age 16 or older (including yourself)?

▼ 1 ... 9+

What was your annual household income last year, before taxes? (Your annual household income is the sum of income generated by all the people over age 15 in your household, including non-family members.) Please give your best estimate.

○ Less than $10,000

○ $10,000 to $19,999

○ $20,000 to $29,999

○ $30,000 to $39,999

○ $40,000 to $49,999

○ $50,000 to $59,999

○ $60,000 to $69,999

○ $70,000 to $79,999

○ $80,000 to $89,999

○ $90,000 to $99,999

○ $100,000 to $149,999

○ $150,000 or more

○ Prefer not to say

Generally speaking, do you usually think of yourself as a:

○ Democrat

○ Republican

○ Independent

End of Block: Section 2a: Baseline Questionnaire

Would you call yourself a strong ${considerYourself/ChoiceGroup/SelectedChoices} or a not very strong ${considerYourself/ChoiceGroup/SelectedChoices}?

○ Strong ${considerYourself/ChoiceGroup/SelectedChoices}

○ Not very strong ${considerYourself/ChoiceGroup/SelectedChoices}

Do you think of yourself as closer to the Republican Party or to the Democratic Party?

○ Closer to the Republican Party

○ Closer to the Democratic Party

○ Neither

We hear a lot of talk these days about liberals and conservatives. Here is a seven-point scale on which the political views that people might hold are arranged from extremely liberal to extremely conservative. Where would you place yourself on this scale, or haven't you thought much about this?

	Very Liberal	Liberal	Somewhat Liberal	Neutral	Somewhat Conservative	Conservative	Very Conservative	Haven't Thought About It
Political Views	○	○	○	○	○	○	○	○

Who did you vote for in the 2020 presidential election?

○ Donald Trump

○ Joe Biden

○ Other

○ Did not Vote

What news source do you turn to most often? Please list the names of up to three specific news organization or sources. If you turn to fewer than three news sources, please enter N/A.

○ First news source _____

○ Second news source _____

○ Third news source _____

Which statement best describes how you get news online, whether on a computer, phone, or tablet, even if neither is exactly right?

○ I mostly come across news online because I'm looking for it

○ I mostly come across news online when I'm doing other things online

---

People also often talk about the ideological leaning, or the slant, of news outlets. Some outlets may have a liberal slant in that their content is more aligned with the views of the Democratic party while others may have a more conservative slant in that their content is more aligned with the views of the Republican party. What would you say is the ideological leaning of the outlets you consume?

	Extremely Liberal	Liberal	Slightly Liberal	Moderate; middle of the road	Slightly Conservative	Conservative	Extremely Conservative
Ideological leaning of outlets you consume	○	○	○	○	○	○	○

Are you currently satisfied with the news you're consuming or would you prefer to consume more liberal or conservative news?

○ I would like to consume news that's much more liberal than the news I consume today

○ I would like to consume news that's slightly more liberal than the news I consume today

○ I am satisfied with the ideological leaning of the news I consume

○ I would like to consume news that's slightly more conservative than the news I consume today

○ I would like to consume news that's much more conservative than the news I consume today

----

How familiar are you with the following outlets? Please ignore any blank names in the end of the list

	Not familiar at all	Somewhat familiar	Familiar
${e://Field/familiarName1}	○	○	○
${e://Field/familiarName2}	○	○	○
……			

In the next section of the survey, we will ask you to make various estimates. In addition to your **$5 baseline payment** for completing this questionnaire, you have a chance to win a **$50 bonus payment based on the accuracy of your estimates**.

Some questions are multiple choice. For these questions, you earn points if your estimate matches the correct answer. Other questions require a numerical answer. For these questions, you earn points for making an accurate estimate. Specifically, the closer your estimate is to the actual numerical answer, the more points you earn. Points will be earned based on the vast majority of questions in this section (only questions marked with * do not qualify for earning points).

At the end of the study, we will sum all the points you earned and we will assign you the $50 bonus with a probability that depends on the sum total of your points. Specifically, the more points you earned during the study, the higher the probability that you will win the $50 bonus. The details of the point system used to determine your chance of winning the $50 bonus are a bit complicated (click here for details).
You will receive the $5 baseline payment within 1 week of completing this survey, and the $50 bonus, if

applicable, at the end of the data collection process.

The Bottom Line:
To maximize your chances of receiving the additional $50 bonus, answer each question as accurately as you can.

In this section we want to find out what you think about the "slant" of different news outlets. The slant of an outlet is its political leaning. Some outlets may have a liberal slant in that their content is more aligned with the views of the Democratic party, while others may have a conservative slant in that their content is more aligned with the views of the Republican party. It is also possible that an outlet is not biased and does not lean toward either party.

We use a measure of slant based on the ideology of people who share an outlet's content on social media. Here's how the measure works. First, it takes all of the hard news that an outlet posted on Facebook. ("Hard news" is typically used to refer to topics like politics, international affairs and business news, as opposed to "soft news" which refers to topics like entertainment, celebrity, and lifestyle news.) Second, it calculates the ideology of individuals who shared hard news on a five-point scale: -2 for individuals who are very liberal, -1 for liberals, 0 for moderate, +1 for conservative, and +2 for individuals who are very conservative. Finally, slant is defined as the average ideology of all the individuals who shared links from the outlet.

In practice the slant almost always ranges between -1 and +1. If everyone who shared links from the outlet was liberal, the outlet gets a score of -1; if everyone who shared links was moderate or if an equal share of liberals and conservatives shared links, the article gets a score of 0; if everyone who shared links from the outlet was conservative, the outlet gets a score of +1.

The Bottom Line:
From now on, whenever we talk about the "slant" of an outlet, we are referring to the ideology of the people who share its content on social media.

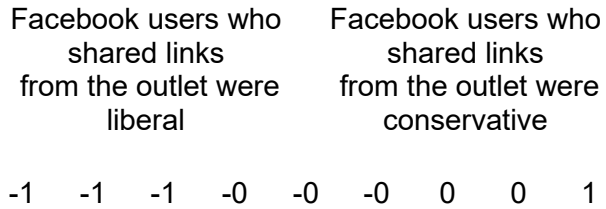Position the slider (-1 to 1) to indicate what you think is the slant of each outlet.
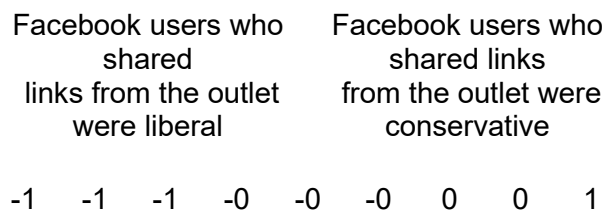
	Facebook users who shared links from the outlet were liberal	Facebook users who shared links from the outlet were conservative

-1	-1	-1	-0	-0	-0	0	0	1

New York Times	
Fox News	
USA Today	
MSNBC	
Wall Street Journal	
CNN	

Here is a list of news pages you currently like on Facebook.
${e://Field/initialAllNewsPagesText}
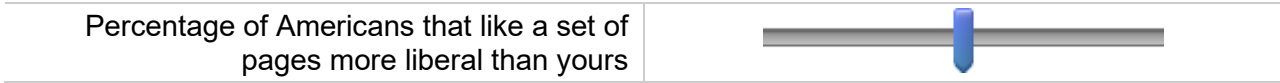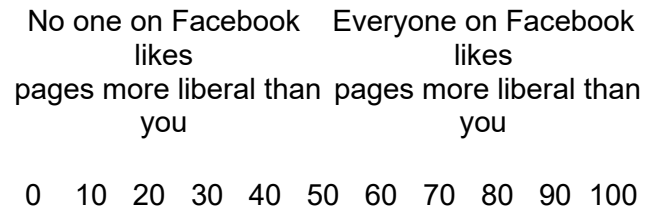
If you were to average over all of these pages (where each outlet is weighted equally), what do you think would be the average slant?

	Facebook users who shared links from the outlet were liberal	Facebook users who shared links from the outlet were conservative
	-1 -1 -1 -0 -0 -0 0 0 1	
Average slant of your outlets		

---

*Sometimes, when participants take a survey they are not paying attention. If you are reading this question, please select both "Not at all" and "Very much".

☐ Very much

☐ Somewhat

☐ Not too much

☐ Not at all

---

* What share of American Facebook users do you think like pages with an average slant that's more liberal than you? For example, if you say 30%, it means that you think that 30% of Americans like a set of pages that are on average more liberal than yours and 70% like pages that are more conservative.

	No one on Facebook likes pages more liberal than you	Everyone on Facebook likes pages more liberal than you
	0 10 20 30 40 50 60 70 80 90 100	
Percentage of Americans that like a set of pages more liberal than yours	[slider positioned near 50]	

In this section we want to find out what you think about the accuracy of different news outlets.

We use a measure of accuracy based on whether an outlet reports factually and backs up claims with well-sourced evidence. For each outlet, at least 5 news stories and 10 headlines are reviewed and assigned scores according to the following classification:

HIGH = the source is almost always factual. It has failed no more than 1 news reporting fact check and no more than 2 op-ed fact checks. It uses reasonable language that retains context and makes immediate corrections to incorrect information.

MOSTLY FACTUAL = the source is usually factual but may have failed a fact check or two that was not properly corrected promptly. Further, they may fail up to 3 op-ed fact checks (less if a low volume site).

MIXED = the source failed one or many fact checks and does not correct false or misleading information. Further, any source that (1) does not disclose either a mission statement or ownership information, (2) utilizes extremely loaded language that alters the context of facts, or (3) does not support scientific consensus, is rated MIXED at best.

LOW = the source failed many fact checks, rarely uses credible sources, and is not trustworthy for reliable information.

The Bottom Line:
From now on, whenever we talk about the "accuracy" of an outlet, we are referring to how well it stands up to fact checks.

Indicate what you think is the accuracy of each outlet.

	LOW	MIXED	MOSTLY FACTUAL	HIGH
New York Times	○	○	○	○
Fox News	○	○	○	○
USA Today	○	○	○	○
MSNBC	○	○	○	○
Wall Street Journal	○	○	○	○
CNN	○	○	○	○

Here is a list of news pages you currently like on Facebook:
${e://Field/initialAllNewsPagesText}

Suppose we gave 1 point to LOW outlets, 2 points to MIXED outlets, 3 points to MOSTLY FACTUAL outlets, and 4 points to HIGH outlets. What do you think would be the average accuracy score of the above outlets (where each outlet is weighted equally)?

	1	2	3	4
Average Accuracy Score of Outlets You Like on Facebook				

* What share of Facebook users do you think like pages with an average accuracy that's higher than you? For example, if you say 30%, it means that you think that 30% of Americans like a set of pages that are on average more accurate than yours and 70% like pages that are less accurate.

No one on Facebook likes more accurate pages than you   Everyone on Facebook likes more accurate pages than you

0   10   20   30   40   50   60   70   80   90   100
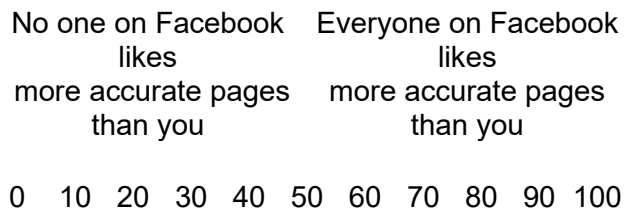
Percentage of Americans that like a set of pages more accurate than yours	

Randomization: Participants see either "Correcting Misperceptions on Slant" or "Correcting Misperceptions on Quality" or none of these blocks

Thank you for telling us what you think about different news outlets. Questions from now on will not be considered for the calculation of the bonus payment.

We will now show you how various outlets compare on slant, and give you some information about your own news consumption.

 In case you forgot how our measure of slant works, you can click here to read the description again. The intuition behind the measure is simple: an outlet receives a score of -1 if its articles are only shared by self-identified Democrats on Facebook, a score of 1 if its articles are only shared by self-identified Republicans on Facebook, and a score of 0 if its articles are shared by an equal fraction of self-identified Democrats and Republicans on Facebook.

Display This Question: If newsLikesCount != 0

Here's the **average slant** of news pages you currently like on Facebook:

${e://Field/initialMeanSlant}

Here is the slant of each of the news pages:

Slant of each news pages is automatically displayed

Thank you for telling us what you think about different news outlets. Questions from now on will not be considered for the calculation of the bonus payment.

We will now show you how various outlets compare on accuracy, and give you some information about your own news consumption.

 In case you forgot how our measure of accuracy works, you can click here to read the description again. The intuition behind the measure is simple: an outlet is rated as **HIGH** if it almost always passed fact checks, **MOSTLY FACTUAL** if it mostly passed fact checks, **MIXED** if it failed more than a few fact checks, and **LOW** if it failed many fact checks.

Display This Question: If newsLikesCount != 0

Here's the **average accuracy** score of news pages you currently like on Facebook. To calculate the score we gave 1 point to LOW outlets, 2 points to MIXED outlets, 3 points to MOSTLY FACTUAL outlets, and 4 points to HIGH outlets:

${e://Field/initialMeanQuality}

Here is the accuracy rating of each of these news pages:

Accuracy of each news pages is automatically displayed

Before moving on, we want to ask you a few questions related to our measures of slant and accuracy.

According to our measure of slant, a news outlet would be considered "left" if:

○ The language it uses is similar to that of Democratic politicians

○ The researchers conducting this study decided it was liberal

○ Most people who share its articles on Facebook identify as liberal

---

According to our measure of accuracy, a news outlet would be considered LOW if:

○ It did not win any Pulitzer Prizes

○ It failed many fact checks

○ Most of its readers have the same ideology

In general, do you trust fact checkers?

○ I trust fact checkers

○ I mostly trust fact checkers

○ I neither trust nor distrust fact checkers

○ I mostly distrust fact checkers

○ I distrust fact checkers

You're almost done! This (second to last) part of the survey focuses on Facebook pages. Liking the Facebook page of a news outlet is a good way to make sure articles from that outlet appear in your newsfeed. Below, we provide various options of news pages you can select ("like" or "follow") with just one click. Pages you select are likely to start appearing in your news feed. You can also unlike any news page you liked in the past to remove it from your newsfeed. If you are not interested in any of the pages, feel free to not select any.

Please click the 'Like Page' or 'Follow Page' button on any of the pages you wish to **select**. You can select any number of them.

This table might take a few seconds to load, please be patient.

Tables of pages to like is displayed

Please click the 'Liked' button on any of the pages you wish to **unlike**. You can select any number of them.

This table might take a few seconds to load, please be patient.

Tables of pages to unlike is displayed

How many new pages did you like or follow?

▼ 0 ... 15

How many pages did you unlike?

▼ 0 ... 15

How did you decide which pages to like (or not)? How did you decide which pages to unlike (or not)? Please explain in 1-2 sentences.

_____

_____

In the next page, we will present you with the updated list of outlets you like on Facebook.

End of Block: Before update offer

Start of Block: Update list

Here is an updated list of news pages you currently like on Facebook:
${e://Field/interAllNewsPagesText}

Here is an updated list of news pages you currently like on Facebook, along with their slant:

Here's the updated average post-sharing slant measure of these pages:
${e://Field/interMeanSlant}

Here is the updated list of news pages you currently like on Facebook, along with their accuracy rating:

Here's the updated average accuracy measure of these pages (supposing we gave 1 point to LOW outlets, 2 points to MIXED outlets, 3 points to MOSTLY FACTUAL outlets, and 4 points to HIGH outlets):
${e://Field/interMeanQuality}

Are you interested in liking or unliking any additional pages?

○ Yes

○ No

Start of Block: Section 5: Outcomes

To wrap up the survey, we'll ask you just a few more questions.

Would you say the news you saw on Facebook in the last month is:

○ Much more liberal than the average American Facebook user

○ Slightly more liberal than the average American Facebook user

○ Similar to the average American Facebook user

○ Slightly more conservative than the average American Facebook user

○ Much more conservative than the average American Facebook user

---

If you had to guess, what would you say is the share of news you consume from outlets that share your views?

	0 10 20 30 40 50 60 70 80 90 100
Percentage of news consumed from outlets that share your views	━━━━━━━━▮━━━━━━━

What would you say is the slant of the following outlets?

Remember that our measure of slant almost always ranges between -1 and +1. If everyone who shared links from the outlet was liberal, the outlet gets a score of -1; if everyone who shared links was moderate or if an equal share of liberals and conservatives shared links, the article gets a score of 0; if everyone who shared links from the outlet was conservative, the outlet gets a score of +1.

	Facebook users who shared links from the outlet were liberal	Facebook users who shared links from the outlet were conservative
	-1 -1 -1 -0 -0 -0 0 0 1	

The Washington Post	
The Atlantic	
The National Review	
MSNBC	
Fox News	

Would you say the news you saw on Facebook in the last month is:

○ Much more accurate than the average American Facebook user

○ Slightly more accurate than the average American Facebook user

○ Similar to the average American Facebook user

○ Slightly less accurate than the average American Facebook user

○ Much less accurate than the average American Facebook user

What would you say is the accuracy of the following outlets?

Remember, a source is considered **HIGH** if it has failed no more than 1 news reporting fact check and no more than 2 op-ed fact checks. A source is considered **MOSTLY FACTUAL** if it failed a fact check or two that was not properly corrected promptly, or up to 3 op-ed fact checks. A source is considered **MIXED** if it failed many fact checks, or if it either (1) does not disclose a mission statement or ownership information, (2) utilizes loaded language, or (3) does not support scientific consensus. Finally, a source is considered **LOW** if it rarely uses credible sources.

	LOW	MIXED	MOSTLY FACTUAL	HIGH
The Washington Post	○	○	○	○
The Atlantic	○	○	○	○
The National Review	○	○	○	○
MSNBC	○	○	○	○
Fox News	○	○	○	○

Start of Block: Section 6: Conclusion

Before we conclude, we'd like to ask you where you found this study.

○ A Facebook ad

○ It was shared on a Facebook group that I'm in

○ It was shared with me by a Facebook friend

○ Other (please describe) _____

Thank you for completing the survey!

We are still working on this survey and trying to improve it. Did you find any of the questions unclear or confusing?

_____

_____

Do you feel that this survey was biased?

○ Yes, left-wing bias

○ Yes, right-wing bias

○ No, it did not feel biased

Did you feel this survey was trustworthy?

○ Very trustworthy

○ Trustworthy

○ Somewhat trustworthy

○ Not trustworthy

○ Not trustworthy at all

In this survey we provided you with personalized information on the slant of the pages you like. Did this information change your views?

○ The pages I like are much more liberal than I thought

○ The pages I like are slightly more liberal than I thought

○ The pages I like have the slant I expected

○ The pages I like are slightly more conservative than I thought

○ The pages I like are much more conservative than I thought

In this survey we provided you with personalized information on the accuracy of the pages you like. Did this information change your views?

○ The pages I like are much more accurate than I thought

○ The pages I like are slightly more accurate than I thought

○ The pages I like are as accurate as I expected

○ The pages I like are slightly less accurate than I thought

○ The pages I like are much less accurate than I thought

Did you learn anything new from this information? Please provide any details that you can.

_____

_____

In order to provide the gift card, we need your email address. (You should receive it within one week.) Please provide your email below:

_____