Do People Value More Informative News?[*]

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Abstract

We examine whether people value more informative news. Drawing on large representative samples of the U.S. population with approximately 15,000 respondents, we measure and experimentally vary people's beliefs about the informativeness of news. Inconsistent with the "more-information-is-better principle," people who learn that a newspaper is less likely to strategically suppress information have a *lower* demand for news from this newspaper. Moreover, learning that a news outlet makes false claims in its reporting does not decrease people's demand for news from this outlet. We discuss the implications of our findings for the regulation of media markets. (*JEL* D83, D91, L82)

Keywords: News Consumption, Information, Media Bias, Belief Polarization, Informativeness.

1 Introduction

What motivates people to read news? A core principle in standard economics is that people value having more and better information. While people's demand for news articles should therefore be strictly increasing in the informativeness of news, a large literature has documented that newspapers report news in a biased way by slanting their news stories towards the beliefs of their readers (Gentzkow and Shapiro, 2010). Moreover, in recent years we have observed an explosive growth of fake news (Allcott and Gentzkow, 2017; Vosoughi et al., 2018).

There are several reasons why people may tend to read slanted or fake news. First, people's news consumption could reflect a desire for better information as readers perceive news that are closer to their prior beliefs as more informative (Gentzkow and Shapiro, 2006). Second, people's news consumption could reflect that people have other motives for reading news that conflict with expanding their knowledge (Golman et al., 2016b). For instance, people might have a preference for belief confirmation (Loewenstein and Molnar, 2018). The patterns in the observational data are consistent with both of these competing explanations for why people read news because perceptions of informativeness are unobserved. We propose a novel experimental approach which tests basic predictions of the "more-information-is-better principle."

In a series of experiments with around 15,000 Americans, we use three complementary designs to achieve exogenous variation in the perceived informativeness of news articles in a setting where cognitive constraints are not binding. We measure demand using real news articles, which allows us to test whether people value more informative news in a setting with high external validity and of high relevance. Our criterion for comparing the informativeness of news outlets is Blackwell's (1951) ranking of information structures, which provides a strong theoretical foundation for the "more-information-is-better principle" that we formalize in a simple model.

In the first experimental design, we exogenously increase the perceived informativeness of articles in the *New York Times* by decreasing the perceived likelihood that the *New York*

Times strategically suppresses information. For that purpose, we tell our respondents that the Congressional Budget Office (CBO), Congress's official nonpartisan provider of cost and benefit estimates for legislation, published a report about the "Trump Healthcare Plan" (the American Health Care Act of 2017). We then tell them that the CBO estimated that the plan would have positive fiscal but negative social consequences, and that Democrats and Republicans disagreed about each one of them. Subsequently, we ask our respondents to estimate the percent chance that the *New York Times* reported only the fiscal consequences, only the social consequences, or both consequences. This allows us to quantify people's beliefs about the informativeness of news articles in the *New York Times*: Providing both statistics is strictly more informative and balanced compared to reporting only estimates favoring one party. To introduce exogenous variation in people's perceptions of informativeness, we inform a random subsample of our respondents that the article contained both estimates from the CBO. Finally, we measure our respondents' demand for a news article from the *New York Times* by asking them whether they would like to receive free access to an article about the Trump Tax Plan based on estimates from the CBO.

Our main findings from this experiment are as follows: Treated respondents expect to receive less biased and more informative news: They think it is 6.9 percentage points more likely that the *New York Times* does not strategically suppress any information from the CBO report on the Trump Tax Plan and 4.2 percentage points more likely to state that the *New York Times* is not politically biased. The main finding of this paper is that respondents who learn that the *New York Times* does not strategically suppress information significantly reduce their demand for reading an article in this newspaper by 3.5 percentage points. This corresponds to a reduction in the demand for news of 12 percent. Moreover, we find patterns of heterogeneity by prior beliefs about bias that are broadly consistent with people having preferences for belief confirmation.

We rule out a series of alternative explanations that could account for the patterns in the main experiment. We replicate our main findings with a design which addresses potential concerns about differential curiosity across treatment arms shaping the demand for news. Moreover, we provide evidence against the relevance of cognitive constraints

with a "placebo experiment" in which we manipulate beliefs about the number of statistics mentioned in the *New York Times* article covering the CBO report without changing beliefs about any strategic suppression of information.

The second experimental design exogenously decreases the perceived informativeness by increasing the perceived likelihood that a media outlet makes false claims in its reporting. This provides a sharp test of the "more-information-is-better principle". We provide a random subset of respondents with truthful information that *CNN* made a false claim in its reporting about President Trump. While we find that the information provision strongly increases the perceived likelihood of false claims made by *CNN*, and lowers perceptions of the quality of news reporting by *CNN*, it does not affect demand for news for a *CNN* article about the Trump impeachment, in contrast to the predictions from the "more-information-is-better principle."

Finally, in our third experimental design, we aim to decrease perceived informativeness by varying perceptions of deceptive spin, newspapers' tendency to systematically emphasize facts that favor a particular interpretation of an event which could potentially be misleading. We vary respondents' beliefs about the facts emphasized in the headline of an article in the *New York Times*. We show that respondents who learn that the *New York Times* slanted a news report to the left in a potentially misleading way, think that quality of news reporting in the *New York Times* is lower. However, we find only a moderate and insignificant average decrease in demand for news, which is driven by Republicans who did not expect the *New York Times* to slant to the left. For Democrats we also observe a strong decrease in perceived quality of the *New York Times*, but a precisely estimated null effect on demand for news, another violation of the "more-information-is-better principle".

Our results contribute to the literature on media bias (DellaVigna and La Ferrara, 2015; DellaVigna and Kaplan, 2007; DellaVigna and Hermle, 2017; Enikolopov et al., 2011; La Ferrara et al., 2012; Gentzkow and Shapiro, 2006, 2010; Gentzkow et al., 2015, 2018; Gerber et al., 2009; Jo, 2019; Mullainathan and Shleifer, 2005; Perego and Yuksel, 2018; Pogorelskiy and Shum, 2019; Qin et al., 2018), fake news (Allcott and Gentzkow, 2017; Lazer et al., 2018; Vosoughi et al., 2018), and the demand for slanted news (Durante

and Knight, 2012; Garz et al., 2018). We contribute to this literature by providing the first causal evidence on the question of whether people value more informative news in a setting where cognitive constraints are not binding. Specifically, our experimental finding that people's demand for news decreases once they learn that the news outlet provides more information, and that it does not decrease when they learn that the news outlet provides less informative news, cannot be rationalized with Bayesian mechanisms (Gentzkow and Shapiro, 2006). This suggests that behavioral motives other than the desire to be better informed play an important role in shaping news consumption.

Furthermore, we also contribute to a small but growing literature studying people's demand for information both in the laboratory (Charness et al., 2018; Falk and Zimmermann, 2017; Fuster et al., 2018; Loewenstein and Molnar, 2018; Nielsen, 2017; Zimmermann, 2014) and in the field (Chen and Yang, 2019; Freddi, 2018; Oster et al., 2013). Our evidence also complements a literature on motivated belief formation and motivated information avoidance (Dana et al., 2007; Engelmann et al., 2019; Exley, 2015; Exley and Kessler, 2018; Ganguly and Tasoff, 2016; Golman et al., 2016a,b; Mullainathan and Washington, 2009; Schwardmann and van der Weele, 2019; Di Tella et al., 2015; Thaler, 2019). Our key contribution to this literature is to provide clean evidence on information avoidance in a relevant natural setting.

The remainder of the paper proceeds as follows. Section 2 provides a simple theoretical framework that formalizes the "more-information-is-better principle" and relates it to our experimental designs. Section 3 describes the experimental design, sample and the main results for the filtering experiment. Section 4 provides a second test of the "more-information-is-better principle" by varying perceptions of false statements made by a news outlet. In section 5, we study the effects of deceptive spin on people's demand for news. Section 6 discusses the implications of our findings for models of news consumption and the regulation of media markets. Section 7 concludes. The Online Appendix provides additional theoretical and empirical results and the full set of experimental instructions.

2 Theoretical framework

We now present a simple framework that formalizes the notion of informativeness of news articles and motivates our empirical design. After setting up the basic model, we discuss how beliefs about (i) strategic information suppression and (ii) false claims affect the perceived informativeness of news articles.

There is a finite state space Θ with a typical state denoted by θ. There is an agent with prior belief $q \in \Delta(\Theta)$ about the unobserved state. The agent can decide to acquire information from a newspaper or not. The newspaper provides information about θ through an article N who's content is unobserved to the agent prior to reading it. The newspaper receives a signal $S \in \mathscr{S}$ from an information structure $(\mathscr{S}, \pi)$ with state-dependent likelihood $\pi : \Theta \to \Delta(\mathscr{S})$. The signal could be verifiable and come from a public source such as the Congressional Budget Office, or it could reflect private information collected by the newspaper's journalists. The newspaper then publishes an article $N \in \mathscr{N}$ using the (mixed) reporting strategy $\rho : \mathscr{S} \to \Delta(\mathscr{N})$. While a newspaper could simply report the signal, there might be incentives to distort the signal or reduce its dimensionality by omitting bits and pieces. We are agnostic about the specific strategic incentives and think of ρ as the agent's belief about how the newspaper reports the news.

From the agent's perspective, the ex-ante informativeness of an article N is a characteristic of the state-dependent likelihood $\sigma : \Theta \to \Delta(\mathscr{N})$ induced by the agent's belief about the quality of the newspaper's private signal, π, and the belief about reporting strategy, ρ.

Consider two articles N and N' with distributions $\sigma, \sigma' : \Theta \to \Delta(\mathscr{N})$. We use Blackwell's (1951) notion and say that N is *more informative* than N' if (N, σ) is *sufficient* for (N', σ'), that is there is a stochastic transformation $\tau : \mathscr{N} \to \mathscr{N}$ such that N' and $\tau(N)$ have the same distribution. Intuitively, this means that we can obtain N' by adding noise to N. This is our preferred notion of informativeness because any agent—regardless of her prior q and the state-dependent payoffs associated with her subsequent decision problem—cannot be worse off reading N instead of N' in terms of expected utility (Blackwell, 1953). This provides the sharp prediction that the demand for news should be *strictly* increasing

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in the perceived informativeness of the news.

While it is in general not possible to rank any two distributions σ and σ' according to their informativeness, we consider two situations where such a comparison is possible, which in turn explains the choice of our empirical designs. First, we focus on the newspaper's strategy, ρ, holding fixed beliefs about the quality of information available to the newspaper, π. Specifically, we consider beliefs about strategic suppression of information, or *filtering*. Second, we study how people's beliefs about false claims translate into informativeness. Both approaches are complementary because variations in informativeness arise for very different reasons.

2.1 Filtering

This section formalizes the idea of information suppression and abstracts from uncertainty about the state by assuming that the newspaper's private information is fully informative, i.e. $S = \theta$. Empirically, we provide respondents with the information set available to the newspaper prior to publishing its article and the content of the published article, and therefore only vary their beliefs about reporting.

Assume that each state is characterized by two dimensions, i.e. $\theta = (\theta_1, \theta_2) \in \Theta$. In our experiment, θ_1 corresponds to the fiscal consequences of implementing a certain policy, while θ_2 corresponds to the social consequences (e.g. health coverage, unemployment, or poverty). The main assumption is that after observing θ, the newspaper can only decide to strategically omit information. However, it cannot fabricate false information. This characterizes the set of possible articles as $\mathcal{N}(\theta) = \{\emptyset, (\theta_1, \emptyset), (\emptyset, \theta_2), \theta\}$ where $\emptyset$ represents "no information". This assumption is reasonable in our empirical setting because information can be verified from a public CBO report. This strongly limits the newspaper's scope for misreporting due to reputation incentives, but leaves it with sufficient wiggle room to justify selectively reporting only θ_1 or θ_2.

We can identify the newspaper's article distribution σ with the corresponding vector of probabilities $\sigma = (p_{n,\theta} \mid n \in \mathcal{N}(\theta), \theta \in \Theta)$. Then, any reporting strategy (N', σ')

obtained from (N, σ) by moving probability mass from some $p_{n,\theta}$ to $p_{\theta,\theta}$ for some $n \neq \theta$, and thus increasing the probability of truthfully reporting θ, strictly increases the informativeness.[1]

This provides us with an empirical test of the "more-information-is-better principle." Specifically, we leverage an information treatment that weakly decreases respondents' expectation that the *New York Times* strategically filters information and increases their expectation that the *New York Times* reveals all information about θ. Therefore, treated respondents should perceive articles from the *New York Times* as more informative and increase their demand, especially for articles covering reports from the CBO.

2.2 False claims

We now formalize how false claims by news outlets affect the informativeness of news. While the previous section focused on the strategic decision of how to report the news, here we do not distinguish between the (private) information available to the newspaper, S, and the newspaper's reporting strategy, ρ. We thus adopt a reduced-form perspective and focus our analysis on the agent's belief about the state-dependent distribution $\sigma : \Theta \to \Delta(\mathcal{N})$ over news articles. Empirically, this is motivated by the difficulty to disentangle genuine mistakes from intentional distortion.

Assume that there are only two possible states $\Theta = \{L, R\}$, and that the newspaper is constrained to binary messages $N \in \Theta$ with conditional probability $\sigma_\theta = \mathbb{P}(R \mid \theta)$ of reporting $N = R$ in state θ for each $\theta \in \Theta$. We can think of σ_R as the likelihood of a correct report in state R, while σ_L represents the likelihood of a false claim in state L. Intuitively, an agent should thus prefer larger σ_R and smaller σ_L if his objective is to learn about θ. Without loss of generality, assume that $\sigma_L < \sigma_R$, i.e. the newspaper is more likely to report $N = R$ if the state is R instead of $\theta = L$. This captures the intuition that it is easier to gather evidence supporting R if the state is R.[2]

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[1] See Proposition 1 in the Online Appendix for a proof.

[2] The article is completely uninformative if $\sigma_L = \sigma_R$. Moreover, if $\sigma_R > \sigma_L$ then we can simply relabel the article.

One can show show that for any triple $\sigma_L < \sigma'_L < \sigma_R$, an article N from the distribution $\sigma = (\sigma_L, \sigma_R)$ is more informative than an article N' from the distribution $\sigma' = (\sigma'_L, \sigma_R)$.[3] Conceptually, we obtain σ by adding noise to σ' in state L, thereby reducing its informativeness. This suggests a second sharp empirical test of whether people value more informative news that is independent of people's prior beliefs: Induce exogenous variation in the level of noise, σ_L, by providing respondents with information about how the newspaper reported in state L. In our experimental design, we will exogenously increase treated respondents' perceived likelihood that *CNN* makes false claims about President Trump. If people value more informative news, the demand for news should strictly decrease once people negatively update about the informativeness.

3 Filtering Experiment

3.1 Sample

We collected the data for the main filtering experiment in three waves in collaboration with *Research Now SSI*, a leading market research company commonly used in social science research (de Quidt et al., 2018; Enke, 2019).[4] We have a sample of 4,631 respondents that is broadly representative of the U.S. population in terms of education, age, income, region, and gender (Table C.1). The treatment and control group are balanced in terms of observable characteristics (Table C.2).

3.2 Experimental design

This section outlines our experimental design. Figure 1 provides a summary of the structure and Section D of the Online Appendix provides the full experimental instructions.

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[3]See Proposition 2 in the Online Appendix for a proof.

[4]We pre-specified the second and third wave (see Table 1) on *AEA RCT Registry* with ID AEARCTR-0003855. For an overview of all experiments used in the paper, see Table 1.

Pre-treatment characteristics and beliefs   We first measure basic demographics, namely income, age, gender, and region of residence. Furthermore, we ask for people's political preferences and beliefs, how often they read the *New York Times*, and the three newspapers they are most likely to read. Thereafter, we measure people's beliefs about how the *New York Times* reports about the Trump Healthcare Plan. Specifically, we present our respondents with the following text:

> The Congressional Budget Office (CBO) is Congress's nonpartisan provider of cost and benefit estimates for legislation. In 2017, the CBO analyzed the consequences of the Trump Healthcare Plan. When debating the Trump Healthcare Plan, Republicans claimed that the plan would decrease the federal deficit, but would not increase the number of people without health coverage. The Democrats, by contrast, claimed that the plan would fail to decrease the deficit and massively increase the number of people without health coverage. In its published report, the CBO estimated that the Trump Healthcare Plan would **decrease the deficit by $119** billion and **leave 23 million more people uninsured**.

Subsequently, we measure respondents' belief about how the *New York Times* covered the CBO report. Specifically, our respondents receive the following instructions:

> After the CBO published its report, **The New York Times** wrote an article about its findings. What would you say is the percent chance that **The New York Times** reported
>
>   (i) that the deficit would decrease by $119 billion **but not** that the number of uninsured people would increase by 23 million;
>
> (ii) that the number of uninsured people would increase by 23 million **but not** that the deficit would decrease by $119 billion;
>
> (iii) that the deficit would decrease by $119 billion **and** that the number of uninsured people would increase by 23 million.

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We chose to focus on the *New York Times* for two main reasons. First, the *New York Times* is a well-known newspaper with a national coverage. Second, it tends to lean towards the Democratic Party (for instance, it has consistently supported Democratic candidates for president since 1960). Choosing a newspaper with a clear partisan stance is important to have scope to vary people's beliefs about its reporting with an informational treatment. Furthermore, we focused on the *New York Times*'s reporting strategy about news from the CBO for the following reasons: First, the CBO is Congress's official provider of cost and benefit estimates for legislation and is known to be truly nonpartisan (to stay politically neutral, it only assesses the consequences of proposed policies and does not make its own policy recommendations). Second, all major newspapers in the U.S. generally feature CBO reports in their news reporting.

Information treatment   We provide a random subset of respondents with information about the *New York Times* (treatment group).[5] Specifically, we provide treated respondents with the following information treatment, which is framed in a neutral way to minimize experimenter demand effects:

> In its article about the CBO estimates, The New York Times reported **both** that the federal budget deficit would decrease by $119 billion **and** that the number of people without health insurance would increase by 23 million.

Respondents in the control group proceed without receiving any information.

Post-treatment outcomes   To mitigate concerns about consistency bias in survey response (Falk and Zimmermann, 2012), 3,005 respondents from wave 2 of Experiment 1.1 are cross-randomized to receive either (i) the demand for news (2,250 respondents) or (ii) post-treatment beliefs block (755 respondents). In all other experiments, all respondents proceed to the question on demand for news.

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[5]We stratify the assignment into treatment and control group by whether respondents identify as Republicans, Democrats, or Independents.

Measuring the demand for news   We collect a behavioral outcome measure on people's demand for news by providing them with an opportunity to read an article from the *New York Times*. We tell respondents that the Congressional Budget Office analyzed the consequences of the Trump Tax Plan over the next decade and ask them whether they want to read an article about its findings in The New York Times. We also tell respondents that if they decide not to receive access to the article they will proceed with the survey without receiving access to the article, thereby clarifying that reading the news article would strictly increase the overall duration of taking the survey.

There are several reasons why we choose this as our main outcome. First, our setting allows us to hold some beliefs about article characteristics across the treatment and control group constant. For instance, we directly fix the respondents' beliefs about the article length by telling respondents that the article is about 1,100 words. Second, by embedding the article in our online survey, we can measure not only the extensive margin, that is, whether people want to read the news article, but also the intensive margin, that is, how much time they spend reading the news article. Third, the decision on whether or not to read a real news article in the *New York Times* has very high external validity as most online news consumption decisions are low-stakes in nature.

Post-treatment belief I: Filtering   To study whether out treatment intervention affected people's beliefs about informativeness, we collect a post-treatment measure of information suppression. To do so, we provide respondents with information about cost and benefit estimates from a CBO report regarding the Trump Tax Plan. We tell respondents about the opposing predictions made by Republicans and Democrats about the plan's impact on the federal debt and job creation. To avoid consistency bias in survey responses, we inform respondents that the *New York Times* reported that the Trump Tax Plan would increase the federal debt as predicted by Democrats. We then ask our respondents to estimate the percent chance that the *New York Times* also reported that the Trump Tax Plan would create 1.1 million jobs.

Post-treatment belief II: Omission   Furthermore, we measure beliefs about the extent to which the *New York Times* strategically decides not to cover CBO reports. Complementary to beliefs about filtering of information, this allows us to test if our informational treatment also affects beliefs about the extensive margin of news coverage. Specifically, we ask respondents to estimate the percent chance that the *New York Times* wrote any article at all about a CBO report estimating that a signature policy proposed by Democrats would add $27 billion to the federal debt. This signature policy would grant citizenship status to 1.8 million young undocumented immigrants (known as the Dreamers), and we inform respondents that Democrats claimed that it would not increase the federal debt.

Post-treatment beliefs III: Article characteristics   We also measure additional beliefs about (i) the quality of news articles in the *New York Times*, (ii) whether the *New York Times* article about the Trump Tax Plan will be dry and technical, and (iii) whether the article about the Trump Tax Plan will be complex.

Additional beliefs and demographics   We also separately measure people's perception of whether the *New York Times* and the CBO are politically biased, their trust in the *New York Times* and the CBO, and general trust in the media. Furthermore, we measure belief about the accuracy of CBO forecasts. Finally, we ask some additional demographic questions.

3.3   Main results

In this section, we study the causal effect of learning that the newspaper is less likely to suppress information on people's beliefs, and their demand for news.

3.3.1 Empirical specification

Our main empirical specification for different outcomes, y_i, is given as follows:

$$y_i = \alpha_0 + \alpha_1 T_i + \alpha_2 \mathbf{x}_i + \varepsilon_i \qquad (1)$$

where T_i is an indicator for whether subject i received the information treatment; $\mathbf{x}_i$ is a vector of controls[6]; and ε_i is an individual-specific error term. We use robust error terms for inference. Our main dependent variable, y_i, is people's demand for news, which takes value one if our respondents decide to read the news story and zero otherwise.

3.3.2 Post-treatment beliefs about reporting

We provide evidence that treated respondents expect more informative news reports from the *New York Times*. First, treated respondents positively update about the informativeness of the newspaper as they think it is 6.8 percentage points more likely that the *New York Times* does not suppress any information about the CBO report on the Trump Tax Plan (column 1 of Table 2). Second, column 2 shows that there is a treatment spillover on beliefs about the extensive margin of news coverage: Treated respondents are 3.3 percentage points more likely to think that the *New York Times* covers CBO reports that show that signature policies proposed by Democrats will have negative fiscal consequences, however this effect is imprecisely measured. Third, treated respondents are 4.1 percentage points more likely to think that the *New York Times* is not politically biased ($p < 0.01$, column 6). Finally, perceived quality of *New York Times* articles is 10.3 percent of a standard deviation higher among treated respondents ($p < 0.10$, column 3). Taken together, treated respondents think that the *New York Times* provides more information, is less politically

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[6]We use the following pre-specified controls: gender (male indicator), age (continuous), log income (continuous), region (three indicators), race (white indicator), education (college indicator), employment status (indicator for full-time work), frequency of reading the *New York Times* (continuous, elicited pre-treatment), beliefs about the consequences of the Trump Tax Plan and the Trump Healthcare Plan (both continuous and elicited pre-treatment), pre-treatment beliefs about the probability that the *New York Times* would report unbiasedly, and experiment fixed effects (two indicators). We also have a few respondents in the sample who did not complete all demographic questions; we include indicators for missing values for these respondents.

biased and writes higher quality articles. Any of these more favorable beliefs should be linked with increasing demand for news in rational models of information demand.

[Insert Table 2 here]

3.3.3 Treatment effects on demand for news

The main finding of this paper is that respondents who learn that the newspaper is more informative than they thought reduce their demand for news. Column 1 of Table 3 highlights that treated respondents on average significantly reduce their demand for news by 3.5 percentage points. This corresponds to a reduction in the demand for news of approximately 12 percent, i.e. one third of the control group difference in demand for reading the article between Republicans and Democrats. While the effect size may appear moderate or small, it is relatively large compared to the 6.8 percentage point increase in the perceived likelihood that the *New York Times* will not suppress information. Moreover, the treatment effect should be interpreted as a lower bound in light of people also updating positively about the quality and political bias of the *New York Times*.

The median time spent reading the article about the Trump Tax Plan is 66 seconds, suggesting that a substantial fraction of our respondents read at least some parts of the article.[7] The time spent reading the article does not vary significantly across treatment arms, indicating that the treatment did not affect how carefully people read the article.

[Insert Table 3 here]

3.3.4 Preference for belief confirmation and news demand

Partisan beliefs might play an important role in political news consumption where new information is either good or bad news for different political groups. One candidate explanation for our negative treatment effect on people's demand for news articles is thus a preference for belief confirmation or belief consonance (Golman et al., 2016b;

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[7]Reading the full article takes between four and five minutes.

Loewenstein and Molnar, 2018). Specifically, the desire to avoid cognitive dissonance creates a motive to avoid exposure to articles that potentially contain information that conflict with people's prior beliefs.

This mechanism has been recognized in theoretical work on media markets. For example, Bernhardt et al. (2008) assumes that political news is a consumption good and consumers receive utility from negative news about the other party's candidates, while consumers in Schulz and Weimann's (1989) model avoid news from ideologically dissimilar newspapers to reduce cognitive dissonance. Similarly, Mullainathan and Shleifer (2005) assume that some consumers receive utility from news articles about the state of the world that are close to their partisan beliefs—a preference for cognitive consistency that is also present in theories of mass communication (Severin and Tankard, 1992).

However, the difficulty in testing the predictions of a preference for belief confirmation is to identify a subset of respondents for which this mechanism makes unambiguous predictions. For example, is learning that the *New York Times* is more likely to publish a balanced article about the Trump Tax Plan good or bad news for a Democrat who supports this policy proposal? Absent clear theoretical guidance, we focus on respondents that hold views consistent with their party's position. Specifically, we focus on respondents who identify as leaning towards the Democrats (Republicans) and pre-treatment think that the Trump Tax Plan will have no effect, somewhat negative (positive) or very negative (positive) consequences.

In addition to our main empirical specification (1), we separately analyze heterogeneity by prior beliefs for Democrats and Republicans with party consistent views using data from the main filtering experiment (Experiment 1.1). We estimate the following specification separately for Republicans and Democrats:

$$y_i = \gamma_0 + \gamma_1 T_i + \gamma_2 T_i \times \text{Prior Left}_i + \gamma_3 T_i \times \text{Prior Right}_i +$$
$$\gamma_4 \text{Prior Left}_i + \gamma_5 \text{Prior Right}_i + \gamma_6 \mathbf{x}_i + \varepsilon_i \tag{2}$$

Prior Left$_i$ is the percent chance that our respondents attach to the possibility that the *New*

York Times is left-wing biased, while Prior Right$_i$ is our respondents' perceived likelihood that the *New York Times* is right-wing biased.

For Democrats with party consistent views, we would expect a negative treatment effect because treated respondents who learn that the *New York Times* is less likely to strategically suppress information have a motive to avoid a potentially more balanced report about the consequences of the Trump Tax Plan. Indeed, column 1 of Table C.3 shows that within this group, the demand decreases by 3.2 percentage points. For Republicans with party consistent views, we would expect the opposite pattern. However, these Republicans also decrease their demand for news (column 5). Columns 7 and 8 show that this decline is driven by Republicans who expected the *New York Times* to slant to the right when covering the findings from CBO reports. Panel D of Figure B.1 complements the regression results with nonparametric treatment effect estimates by Republican's belief that the *New York Times* slants to the right (Hainmueller et al., 2019). The nonlinear treatment effect is in line with people having a preference for belief confirmation: Republicans learn that the *New York Times* is more likely to also cover findings that conflict with their beliefs about the consequences of the Trump Tax Plan and reduce their demand. This interpretation of the negative main effect for Republicans highlights the difficulties that arise when testing the predictions of models based on preferences for belief confirmation, and illustrates the need to collect people's beliefs about political reporting to reconcile seemingly inconsistent patterns.

Turning to party consistent Democrats, columns 2 and 4 of Table C.3 and the Panel A of Figure B.1 suggest that the treatment effect is larger for Democrats who think the *New York Times* slants to the left—a result consistent with a preference for belief confirmation. However, column 3 and 4 suggest that the treatment effect is also moderated by the belief that the *New York Times* is right-wing biased. Part of this is driven by a mechanical negative correlation between these beliefs. But Panel B of Figure B.1 also shows that the support of Democrats' belief about right-wing slant in the *New York Times* is concentrated around zero. In fact, 50.8% of these Democrats believe that the *New York Times* would never report a ring-wing biased article about a CBO report, thus increasing concerns about

low statistical power, and measurement error in survey responses for this the subset of Democrats thinking that the *New York Times* slants to the right.

Overall, the patterns of heterogeneity from both Republicans and Democrats are consistent with a mechanism based on a preference for belief confirmation. However, we want to caution the reader when it comes to interpreting the patterns of heterogeneous treatment effects. The strong intuition that the informational treatment should lead to stronger behavioral responses among respondents with more biased beliefs about how the *New York Times* reports confounds larger changes consumption utility changes with a higher likelihood of being marginal to the treatment. Specifically, most models with confirmatory preferences would plausibly predict that people with very biased beliefs about how the *New York Times* reports the news receive the largest changes in utility. However, it is theoretically ambiguous whether this translates into a higher probability of changing respondents' decision due to the binary nature of our behavioral outcome. In fact, a very simple and stylized model even predicts that people with extremely biased beliefs are less likely to be marginal, implying non-monotonic and U-shaped patterns of heterogeneity as shown in Figure B.1. Section A.2 of the Online Appendix provides a more detailed theoretical discussion.

[Insert Figure B.1 here]

3.4 Discussion of alternative explanations

There are several potential alternative explanations for why people's demand for news decreases when they expect it to be more informative. We first discuss behavioral explanations based on curiosity, cognitive constraints, and experimenter demand effects. We then discuss rational explanations based on beliefs about quality, diversification of news sources and delegation incentives for filtering. Finally, we argue that our results are robust to changes in the experimental design.

3.4.1 Behavioral explanations

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Curiosity In the main experiment, we elicit prior beliefs about strategic suppression of the *New York Times*, but only tell respondents in the treatment group about its actual reporting, thereby creating two potential curiosity motives. After receiving feedback, treated respondents might be curious whether the information we provided was accurate, and perceive the article about the Trump Tax Plan as a chance to validate the information, thereby increasing demand relative to the control group. For the control group, curiosity creates an incentive to read the *New York Times* article as well: they can learn whether The New York Times tends to report balanced articles about the CBO or not by reading both the article as well as the underlying CBO report. The net directional effect is difficult to predict, but could explain our main effect if the curiosity motive is stronger in the control group.

To address this concern we leverage three pieces of evidence: First, we study whether our treatment information affects people's curiosity of wanting to learn whether the *New York Times* reports news in a biased way. Column 8 of Table 2 shows that treated respondents are not more curious to learn about the bias in reporting of the *New York Times*. These effects are close to zero and precisely estimated.

Second, the curiosity motive is also present in the "placebo experiment" (Experiment 1.3; Table 1) in which we measure people's beliefs about how many of the two key statistics from the CBO were cited in the *New York Times* article. However, in the placebo experiment we find, if anything, that the treatment increases people's demand for news—inconsistent with an important role for the curiosity motive.

Third, we conducted an additional experiment to further mitigate concerns about curiosity. We conduct this experiment with Lucid [8], and examine the robustness of our results to two changes in the design ($n = 3,189$; Experiment 1.2, see Table 1). First, to alleviate additional concerns about curiosity, we tell all respondents pre-treatment that we will inform them how the *New York Times* covered the findings from the CBO report "at

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[8]Lucid provides nationally representative samples that have been used in social sciences research (Wood and Porter, 2019). Coppock and McClellan (2019) find that samples from Lucid score similarly to the American National Election Study's (ANES) on the Big-5 personality inventory, show similar levels of political knowledge, and recover framing effects similar to the ones observed in the General Social Survey.

some later point in the survey". If respondents were curious to find out whether The New York Times reports objectively about CBO reports, control group respondents would no longer need to read the article to find out.[9]

Second, we shed light on the robustness to the specific articles used in our main experiments by using different CBO articles to exogenously vary beliefs, and measure the demand for news. We measure beliefs about how the *New York Times* covered two estimates from a CBO report that a bill to raise the minimum wage to $15 per hour would lift 1.3 million people out of poverty but would decrease the number of jobs by 1.3 million. As before, a random subset of respondents learns that the *New York Times* reported both both estimates in its article. Thereafter, we measured people's demand for reading a *New York Times* article covering a CBO report that analyzed the consequences of establishing a single-payer health care system. As Column 2 of Table 3 illustrates, the results from the filtering experiment are robust to both design changes—suggesting a limited role for curiosity.

Cognitive constraints Cognitive constraints, such as cognitive costs of processing statistical information, may lead to a failure of the "more-information-is-better principle." In our context, respondents might have difficulties processing information and would thus prefer a newspaper that reports only one of the two statistics. Our results could then be driven by treated respondents who understand their cognitive constraints and reduce their demand in anticipation of more information.

Explanations based on cognitive constraints are inconsistent with several patterns in our data. First, if we use educational attainment as a proxy for cognitive costs, we do not find any statistically significant differences in treatment effects for people with low or high cognitive costs (column 5 of Table C.5). Second, we find that respondents in the treatment and control group rate *New York Times* articles as equally complex, dry and technical (columns 4 and 5 of Table 2). Third, we conduct an additional placebo experiment to

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[9]Expected learning about biases in reporting is thus constant across the treatment and control group, and learning about bias in the second article would require respondents to read both the article and the underlying CBO report.

further address concerns about cognitive constraints. We worked with *Research Now SSI* who provided us with a broadly representative sample of the US population (Experiment 1.3; $n = 930$; see Table 1). As in the filtering design, we inform our respondents that the CBO analyzed the impact of the GOP Tax Bill. We then inform respondents that the CBO highlighted "two key statistics" in its report and that the *New York Times* subsequently wrote an article about the report. However, we do not tell respondents what the statistics are about. We then ask our respondents to state the percent chance they assign to the *New York Times* citing zero, one, or two of these "two key statistics". To exogenously vary respondent's beliefs about how many statistics the *New York Times* tends to report, we inform a random subset of respondents that the newspaper reported both statistics. We then measure demand for news exactly as in our main filtering experiment. If anything, the treatment increases people's demand for news by 0.6 percentage points—the opposite of the prediction of the cognitive constraints account (Column 1 of Table C.7).

Experimenter demand effects It is possible that treated respondents form different beliefs about the experimenter's expectations compared to control group respondents. We believe that experimenter demand is not a major concern in our setting: First, it seems more likely that learning that a newspaper provides more informative news should create the expectation that demand for news should be increased—the opposite of what we find. Second, we do not observe a decline in the demand for news in the placebo experiment where we also inform people that the *New York Times* provides more information. Third, recent evidence suggests that experimental subjects respond only moderately to explicit signals about the experimenter's expectations, indicating a limited quantitative importance of experimenter demand effects (de Quidt et al., 2018; Mummolo and Peterson, 2018).

3.4.2 Rational explanations

Trust and quality A theoretically important explanation in the context of news consumption is based on Bayesian updating about the quality of the *New York Times* and its information sources. Gentzkow and Shapiro (2006) show that if there is uncertainty

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about both the state of the world and the quality of a newspaper, a Bayesian consumer will update negatively about the quality after reading an article that conflicts with his prior belief about the state of the world.

Empirically, people upwardly update their beliefs about the quality of the news reporting in the *New York Times* (column 3 of Table 2). If anything, treated respondents think that the *New York Times*'s source, the CBO, is more accurate (column 11). Furthermore, respondents in the treatment and the control group show identical levels of trust in the *New York Times* and the CBO (columns 7 and 10). There is also no treatment effect on respondents' perceptions of the political bias of the CBO (column 9).

Diversification Another potential explanation is based on the idea that people might consume a diverse set of news articles to extract a more informative signal (Mullainathan and Shleifer, 2005). Accordingly, a newspaper is particularly valuable if it provides information that is complementary to the information contained in the consumer's news portfolio. Our treatment might then reduce the value of the *New York Times* in balancing out right-leaning news sources because it is perceived as more even-handed.

We asked people to list up to three newspapers they are likely to read from a list of 20 popular newspapers across the political spectrum. For 46 percent of our respondents, the diversification motive is not present as they selected only left-leaning or right-leaning newspapers. Moreover, treatment effects are similar for respondents that only consume newspapers on one side of the political spectrum compared to those who read both at least one left-wing newspaper and one right-wing newspaper (Column 1 of Table C.5).

Delegation Consumers delegate costly information acquisition to newspapers. If demand-side or supply-side constraints limit newspapers' ability to communicate all the information available to them, Suen (2004) and Chan and Suen (2008) show that it can be rational for consumers to have a demand for articles that primarily contain information that confirm their prior beliefs. Delegation incentives are psychologically different from a behavioral preference for belief confirmation, but make similar predictions.

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We think that delegation incentives should not drive our treatment effects. First, supply-side constraints are unlikely given that all major newspapers reported both findings. Moreover, all respondents were informed that the *New York Times*'s article contains more than 1,000 words. Second, our placebo experiment provides evidence against demand-side constraints based on cognitive constraints. Third, one implication of delegation is that people from different political groups may have differential demand for different pieces of information. In an additional experiment, we test empirically whether Democrats and Republicans exhibit such patterns of differential demand with data from a representative online panel in which we measure people's demand for learning about the CBO estimates about the Trump Healthcare Plan and the Trump Tax Plan (Experiment 1.4, see Table 1). We find no differential demand for different pieces of information within each political group (see Figure B.4).

3.4.3 Robustness

We also conducted additional experiments using samples from Lucid (Experiment 1.2) and Amazon Mechanical Turk (Experiment 1.5, 1.6 and 1.7) to assess the robustness of our results (see Table 1).

Article choice We find similar results using a set of three different articles for the belief elicitation and our measure of demand for news. In the first experiment on Amazon Mechanical Turk (Experiment 1.6, $N = 723$), conducted with Democrats and Democrat-leaning Independents, we reverse the order of articles used in our main filtering experiment and find a similar treatment effect (column 1 of Table C.6). We also replicate our main result in an experiment with Lucid where we elicit beliefs about how a CBO report about the consequences of Democrats' bill to raise the minimum wage to $15 per hour was covered, and then measure demand for an article about the effect of establishing a single-payer health care system (Experiment 1.2; see column 2 of Table 3).

Incentives   In experiment 1.6 we elicit incentivized prior beliefs about how the *New York Times* reports the news. The patterns of beliefs and treatment effects are very similar to those in our main filtering experiment, suggesting that incentives do not substantially affect our results.

Platform   We find similar results using samples from three different platforms. Table 3 shows the main treatment effect on the demand for news pooled by platform. If anything, the treatment effects are larger in our experiments on Amazon Mechanical Turk (column 3) and in our experiment using a representative sample from Lucid (column 2).

External validity   We conducted an additional experiment on Amazon Mechanical Turk (Experiment 1.5, $n = 199$) in which we assess the external validity of our behavioral measure of article demand. Specifically, we measure in randomized order both people's demand for news, as well as people's incentivized willingness to pay for a 3-month subscription to the *New York Times* using a multiple price list.[10] We find that our measure of article demand is strongly correlated with people's willingness to pay ($\rho = 0.298; p < 0.001$), suggesting that our main outcome measure has a high external validity.

4   Fake news experiment

Another sharp test of the "more-information-is-better principle" can be achieved by experimentally manipulating beliefs about whether a newspaper strategically makes false claims in its reporting.[11] Conceptually, this amounts to manipulating people's belief about the noise in the signal they receive with the prediction that the demand for news should be strongly decreasing in the level of noise.

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[10]Respondents decide between varying amounts of US dollars and a subscription to the *New York Times* and informed respondents that one out of ten randomly chosen participants will get one of their choices implemented. We used the following monetary amounts: 50 cents, $1, $2, $3, $4, $5, $10. Screenshots of the willingness to pay elicitation are provided in Section D.5.

[11]We thank Jesse Shapiro and Adam Szeidl for encouraging this line of inquiry.

Design   Using a representative sample of the U.S. population ($n = 2{,}081$) which we collected in two waves, we conduct an experiment in which we exogenously vary perceptions of false statements made by *CNN* in its political news reporting. Specifically, we tell our respondents that "two years ago, the US extracted a high-level CIA spy from inside Russia. The spy had provided the US with valuable intelligence on the inner workings of Putin's regime and how Moscow could threaten America." To clarify which reporting is considered as correct and incorrect we provide our respondents with the following instructions, which are based on an official statement from the CIA:[12]

> Some media outlets **correctly reported** that the CIA made the decision to extract the spy in late 2016 following widespread media speculation about CIA's sources.

> Other media outlets **falsely reported** that the CIA made the decision to extract the spy because it feared that President Trump would mishandle classified information and potentially reveal the identity of the spy.

Subsequently, we measure beliefs about the percent chance that *CNN* reported that the spy was extracted because (i) the CIA feared that President Trump would mishandle classified information, or because (ii) of widespread media speculation about the CIA's sources in randomized order. To introduce exogenous variation in perceptions of false claims in *CNN* news reports, we provide a random subset of respondents with the following truthful information treatment:

> In its article, CNN reported that the spy was extracted because the CIA feared that President Trump would mishandle classified information.

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[12]For more background, see the following article in Associated Press News: `https://www.apnews.com/b432a20d85ca48a5bca6c3394920c7fe` (accessed October 2, 2019). In the article, CIA's Director of Public Affairs, Brittany Bramell, is quoted saying: "CNN's narrative that the Central Intelligence Agency makes life-or-death decisions based on anything other than objective analysis and sound collection is simply false" and that "Misguided speculation that the president's handling of our nation's most sensitive intelligence, which he has access to each and every day, drove an alleged exfiltration operation is inaccurate." The *New York Times* also wrote an article challenging *CNN*'s reporting, writing that "former intelligence officials said there was no public evidence that Mr. Trump directly endangered the source, and other current American officials insisted that media scrutiny of the agency's sources alone was the impetus for the extraction" (https://www.nytimes.com/2019/09/09/us/politics/cia-informant-russia.html, accessed October 2, 2019).

The treatment was purposefully framed in a neutral way in order to minimize experimenter demand effects. Thereafter, we measure people's demand for reading a different news article on a related but different topic from *CNN*.[13]

Finally, we measure a series of post-treatment beliefs about the *CNN* and its reporting. Specifically, we measure trust, perceptions of quality and political bias in reporting, beliefs about false claims made by *CNN* in its political reporting, and the percent chance that a *CNN* article about Trump would contain any false claims. Finally, we measure beliefs about strategic risk taking by separately asking respondents how likely they think it is that *CNN* would publish articles about (i) President Trump and (ii) Joe Biden based on unverified sources that are potentially misleading.

Results   Table 4 shows that treated respondents update their beliefs about how *CNN* reports the news. First, treated respondents think it is 2.8 percentage points more likely that a *CNN* article about Trump would contain any false claims (column 1), and they also update their beliefs about the frequency of false claims in its political reporting as measured on a 5-point Likert scale (column 2). Second, we find that our treatment shifts people's beliefs about how *CNN* reports about President Trump but not how it covers other politicians: treated respondents think it is 9.5 percent of a standard deviation more likely that *CNN* would publish articles about President Trump based on unverified and potentially misleading sources, while we find no effect for Joe Biden (columns 3 and 4). If anything, we find a small and insignificant treatment effect of 3.3 percent of a standard deviation on people's belief that *CNN* intentionally tries to hurt President Trump by publishing false claims (column 5). This suggests that it is difficult to infer whether the false claim was a mistake or the consequence of a strategic decision. As discussed in

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[13]Wave 1 (n = 1,427) and wave 2 (n = 645) use identical instructions except for the introductory sentence to the *CNN* article we use to measure the demand for news. We started data collection for wave 1 on Sep 24, 2019, the day Speaker of the House Nancy Pelosi announced the formal impeachment inquiry. Subsequent rapid developments made us concerned that our article would be perceived as "old news", which is why we made an adjustment. Specifically, in wave 1, we tell respondents that "A recent whistleblower complaint following a phone conversation between President Trump and a foreign leader led Democrats in Congress to start an impeachment inquiry against the president." We then tell them that *CNN* wrote an article about the impeachment inquiry and measure their demand. In wave 2, we tell respondents that "CNN today published a new story about the Trump impeachment inquiry" and measure their demand for this new article. We include wave fixed effects in all specifications.

section 2, informativeness is negatively affected irrespective of the reason for the false claim. Finally, treated respondents also think that the *CNN* has 8.7 percent of a standard deviation lower qualtity (column 6), are less likely to think that it is not politically biased (column 7), and, if anything, have lower trust in *CNN* (column 8).

Taken together, these results suggest that treated respondents perceive *CNN* articles as less informative and more noisy—in particular when it comes to reporting about President Trump. If people value more informative news, they should thus strictly decrease their demand for news from *CNN*.

Contrary to this theoretically grounded prediction, we find no decrease in demand for news in response to treatment (Columns 9 of Table 4). The point estimate of a 0.8 percentage points increase is positive, very close to zero, and precisely estimated. This suggests that people's demand for news is inelastic to perceptions of whether these news may contain false information. However, we can rule out that people's demand for news is in general inelastic because we find a treatment effect in our filtering experiment that is an order of magnitude larger using a very similar information treatment and experimental design which results in comparable magnitudes of changes in perceptions about newspaper quality.

Are the patterns of heterogeneity we observe in the data consistent with respondents having a preference for belief confirmation? To study the role of preference for belief confirmation, we proxy people's attitudes towards President Trump by their prior belief that President Trump betrayed his oath of office and should thus be impeached ("guilty"). We expect that treated respondents who think that Trump is guilty should increase their demand for news because they expect the article to contain more false and negative information about President Trump, while treated respondents who believe that Trump is not guilty should decrease their demand for news from *CNN*. Consistent with these predictions, treated respondents who think that Trump is not guilty decrease their demand for news from *CNN*, while for respondents who think that Trump is guilty, we observe a positive point estimate (column 4 of Table C.8). While we lack statistical power to estimate these effects precisely, they are qualitatively consistent with people having a

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preference for belief confirmation.

5 Experiment on deceptive spin

The filtering and fake news experiments leveraged variation in the quantity of information and the truthfulness of statements. We now consider a more subtle but prevalent form of media bias, which weakly decreases the informativeness of news, "deceptive spin."[14] By deceptive spin we mean newspapers' tendency to emphasize facts that favor a particular interpretation of an event which may be misleading.[15] Specifically, we exogenously vary people's perceptions about the extent to which the *New York Times* spins news reports in politically biased way by using potentially misleading statistics. We argue that the "more information-is-better" principle would predict that people should reduce their demand for news when realizing that a newspaper provided a misleading statistic.

Experimental design and sample   We recruited approximately 1,500 respondents from Amazon Mechanical Turk in April 2019 (Experiment 3 in Table 1). We first elicit people's beliefs about the economic consequences of the five-week government shutdown that started after disagreement about funding for the proposed U.S.–Mexico wall in January 2019. We then inform our respondents that the CBO analyzed the economic consequences of the shutdown and concluded that it had cost the U.S. economy $11 billion, of which $3 billion would be permanently lost. Since President Donald Trump was largely seen as responsible for the shutdown,[16] newspapers could spin the story in a left-wing way by emphasizing the "high" short-term cost estimate ($11 billion) or in a right-wing way by emphasizing the "low" long-term cost estimate ($3 billion).[17]

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[14]While the theoretical link to informativeness is not as strong as in the previous two cases, the prevalence of deceptive spin provides a strong empirical justification for studying how the demand for news responds to perceptions of spin.

[15]We thank Andrei Shleifer for encouraging this line of inquiry.

[16]See, for instance, the following article: `https://www.bloomberg.com/news/articles/2019-01-14/trump-took-responsibility-for-shutdown-and-voters-give-it-to-him` (accessed April 08, 2019).

[17]Newspapers writing about the findings emphasized different statistics in their headlines. For instance, the *Wall Street Journal*, which leans center-right, reported only the $3 billion statistic in its headline ("CBO: Shutdown Will Cost Government $3 Billion of Projected 2019 GDP," `https://www.wsj.com/articles/`

We thereafter inform our respondents that the *New York Times* wrote an article about the CBO findings using one of the following two headlines: (i) Government Shutdown Cost U.S. Economy $11 Billion, C.B.O. Says; (ii) Government Shutdown Cost U.S. Economy $3 Billion, C.B.O. Says. We then ask respondents to state the percent chance they assign to the *New York Times* using each headline for its story about the CBO estimates (which needed to add up to 100 percent). To introduce exogenous variation in people's belief about left-wing spin in the *New York Times*, we then inform a random subset of respondents that the *New York Times* used the headline featuring the $11 billion statistic.

We use the same behavioral outcome measure as in the filtering experiment, namely people's demand for a *New York Times* article about the consequences of the GOP Tax Bill. We also ask a series of post-treatment questions such as perceptions of quality and bias, or trust in the *New York Times*.

Results Table 5 shows that the information provision about the headline changed people's perceptions of bias and quality of news reporting. Treated respondents think that the *New York Times* is more politically biased (column 3) and perceive the quality of reporting as lower (column 1). This holds true across political parties (columns 5–6 and 9–10). If anything, both Democrats and Republicans perceive the *New York Times* as less trustworthy (columns 6 and 10). This suggests that both Democrats and Republicans alike perceive the long-term permanent cost of the shutdown as the more relevant and more informative measure of economic costs.

On average, we observe an insignificant 2 percentage point decrease in demand for news (column 4), which is driven by Republican respondents (column 12). For Democrats, however, we see no average decrease in demand for news, even though they think that the quality of reporting in the *New York Times* is lower (column 8). The lack of a decrease among Democrats is inconsistent with the predictions of "more-information-is-better

principle."

Heterogeneity by belief confirmation   Our treatment should (weakly) increase respondents' belief that the *New York Times* slants to the left. This in turn means that treated Democratic respondents with a more biased pre-treatment belief about the slant of the *New York Times* will learn that the newspaper is more likely to confirm their existing beliefs; on the other hand, treated Republican respondents with more biased pre-treatment beliefs about the slant of the *New York Times* will learn that the *New York Times* is less likely to confirm their existing beliefs. We non-parametrically examine treatment effects by prior beliefs separately for Republicans and Democrats in Figure B.3. We find patterns consistent with respondents having a preference for belief confirmation. The treatment polarizes news consumption between Democrats and Republicans. Democrats who initially placed a higher percent chance that the *New York Times* slants to the right do not decrease their demand for news, while Republicans who initially placed a higher percent chance that the *New York Times* slants to the right strongly decrease their demand once they learn that the *New York Times* is more likely to use use a left-wing biased headline.

6   Discussion

Across three complementary experimental designs, we find that people's demand for news does not respond to exogenous variation in informativeness in ways predicted by the "more-information-is-better principle". We show that this is not due to cognitive constraints, suggesting an important role for psychological utility in news consumption.

Implications for models of news consumption   Our findings imply that people's preferences over news articles reflect more than a pure taste for more information. While models of news consumption differ in their assumptions, preferences over news articles probably result from trade-offs between three key dimensions: (i) psychological utility, (ii) the entertainment value of news, and (iii) the value of information. We discuss how

our results relate to each dimension in turn.

Psychological utility arising from people's intrinsic desire to confirm their prior beliefs seems particularly relevant for models of political news consumption. Political polarization and identification with one's own political party create an incentive to avoid cognitive dissonance by seeking like-minded news. Across experiments, we find evidence broadly consistent with a preference for belief confirmation in driving political news consumption. However, both the filtering and fake news experiment are primarily designed to cleanly test for the importance of informativeness, but cannot provide conclusive evidence in favor of alternative theories based on confirmatory preferences for two reasons. From a model perspective, predictions of theories based on confirmatory preferences depend on multiple priors. Without a standard model to discipline the empirical analysis, many patterns of treatment effect heterogeneity by people's prior beliefs about reporting are consistent with this mechanism: In fact, a very simple and stylized model even predicts that people with extremely biased beliefs are less likely to change their behavior in response to the treatment (see Figure B.1). From an empirical perspective, measurement error both in partisan views, policy attitudes, and beliefs about strategic reporting decisions makes it difficult to cleanly test for preferences for belief confirmation in natural field settings, such a the consumption of real political news articles.

People might be motivated to read news for the entertainment value from witty commentary or surprising revelations about public figures (Ely et al., 2015). We believe that our findings suggest that the entertainment value of news cannot be fully accounted for by utility derived from belief confirmation. Our findings from the filtering experiment suggest that the entertainment value of balanced news may be perceived as lower. Moreover, the results from the fake news experiment hint at the possibility that people may value extreme news stories even though they may be based on unverifiable sources.

Conceptually, information can have both instrumental valuable because it informs decision-making, and non-instrumental value from intrinsic information preferences. One important caveat for the interpretation of our results is that the value of information might be domain specific. For example, different economic stakes in the political and financial

domains could affect people's news preferences. We believe that future research should explore whether people also violate the "more-information-is-better principle" in news domains with potentially stronger instrumental motives to acquire informative news, such as financial news. However, whether people value more informative political news is of particular interest nonetheless because it is a key input for the functioning of democracy.

Implications for policy Understanding both demand and supply side factors shaping media content is of high relevance due to the media's influence on the public discourse (King et al., 2017) and political outcomes (DellaVigna and Kaplan, 2007). Our findings suggest that supply-side explanations alone are insufficient to account for the bias in media content that we observe in equilibrium, suggesting an important role for demand-driven media bias arising from preferences for belief confirmation.

From a policy perspective, this distinction matters: Competition generally reinforces the incentives to deliver the product consumers want. If people would prefer more informative news, market regulations designed to intensity competition should reduce bias in reporting and improve information aggregation (Anderson and McLaren, 2012; Chan and Suen, 2009). However, our finding that people do not respond to variation in informativeness as predicted by the "more-information-is-better principle" suggests that the effects of regulation are more nuanced: Models of demand-driven media bias predict that competition will lead to a more polarized press, but welfare implications are ambiguous. In fact, a more polarized press can actually increase consumer welfare if bias leads to a sufficiently large increase of the extensive margin of news consumption.

Our findings also have implications for demand-side policy intervention that aim to correct consumers' misperceptions informativeness of news, such as, transparency initiatives to inform consumers about the extent of media bias in markets, or efforts of fact-checking organizations combating false claims. Under supply-driven media bias, increasing consumer knowledge about media bias leads to welfare improvements by steering consumers towards more informative news. Under demand-driven media bias, by contrasts, such interventions might backfire and actually increase political belief

polarization by shifting people towards more biased sources. Our findings, which suggests that consumers demand biased political news, thus demonstrate the complexity of optimal regulation.

7 Concluding remarks

Our paper provides novel causal evidence on whether people value more informative news in a context with high external validity. The main finding is that respondents who learn that a news outlet does not strategically suppress information and thus expect to receive more information *reduce* their demand for articles from this outlet. Moreover, learning that a news outlet strategically makes false claims in its reporting does not decrease people's demand for news from this outlet. These findings are inconsistent with the normative benchmark prediction of the "more-information-is-better principle" and call for more research on the behavioral foundations of news consumption.

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Figures and tables

Figure 1: Design features of the filtering experiment 1.1

Enter the experiment ($n = 4,629$)

Pre-treatment questions
(i) Socioeconomic questions
(ii) Newspapers most likely to read
(iii) Prior beliefs about NYT media bias

Randomization
Stratified assignment
based on political affiliation

Control group
$n = 2,312$

Treatment group
$n = 2,317$

Information treatment
NYT reported both statistics.

**Cross-randomized
post-treatment outcomes**

Demand for news ($n = 3,874$)
Willingness to read NYT article

Beliefs about reporting ($n = 755$)
Belief about filtering and omission

Post-treatment beliefs and characteristics
(i) Beliefs about the NYT and the CBO
(ii) Beliefs about article characteristics
(iii) Additional demographic questions

Exit the experiment

Notes: This figure shows the main features of our filtering experiment conducted with *Research Now SSI* (Experiment 1.1). Our other filtering experiments have a similar structure but do not cross-randomize post-treatment outcomes (Experiments 1.2, 1.3, 1.4, 1.6, and 1.7; see Table 1).

Table 1: Overview of experiments

Experiment	Sample	Treatments Arms	Main Outcomes
Filtering			
Experiment 1.1 Main filtering design (Wave 1: Jan 2019, Wave 2: Jan/Feb 2019, Wave 3: Feb 2019)	Research Now SSI: representative sample (region, income, gender, and age); $n = 4,631$	**Treatment**: Information about how the NYT covered the CBO report on the Health Bill **Control**: No information	Demand for reading a NYT article about the Tax bill; Post-treatment beliefs about reporting
Experiment 1.2 Robustness curiosity (September 2019)	Lucid: representative sample (region, income, gender, education, and age); $n = 3,387$	**Treatment**: Information about how the NYT covered the CBO report on the Minimum Wage Bill **Control**: No information	Demand for reading a NYT article about a single-payer health care system
Experiment 1.3 Cognitive constraints placebo (April 2019)	Research Now SSI: representative sample (region, income, gender, and age); $n = 930$	**Treatment**: Information about how many statistics from the CBO report on the Health Bill the NYT reported **Control**: No information	Demand for reading a NYT article about the Tax Bill
Experiment 1.4 Information demand (May 2019)	Lucid: representative sample (region, income, gender, education, and age); $n = 703$	None	Demand for information about CBO estimates for the Tax Bill and the Health Bill
Experiment 1.5 Outcome validation (April 2019)	MTurk: $n = 199$	None	Demand for reading a NYT article about the Tax Bill; Incentivized WTP for a digital NYT subscription
Experiment 1.6 Incentives and reversed article order (Sep 2018)	MTurk: Democrats and Democrat-leaning respondents; $n = 723$	**Treatment**: Information about how the NYT covered the CBO report on the Tax Bill **Control**: No information	Demand for reading a NYT article about the Health Bill
Experiment 1.7 Platform robustness (Jan 2019)	MTurk: $n = 1,332$	**Treatment**: Information about how the NYT covered the CBO report on the Health Bill **Control**: No information	Demand for reading a NYT article about the Tax Bill
Fake news			
Experiment 2 Fake news (Wave 1: Sept, 2019 Wave 2: Oct 2019)	Lucid: representative sample (region, income, gender, education, and age); $n = 2,081$	**Treatment**: Information about a false statement in an *CNN* article **Control**: No information	Demand for reading a *CNN* news article about the Trump Impeachment
Deceptive spin			
Experiment 3 Deceptive spin (April 2019)	MTurk: $n = 1,503$	**Treatment**: Information about how the NYT covered the CBO report on the cost of the shutdown **Control**: No information	Demand for reading a NYT article about the Tax Bill

Notes: This table provides an overview of all experiments.

Table 2: Post-treatment beliefs: Filtering experiment

	Beliefs: Less suppression		Article characteristics			The New York Times			Congressional Budget Office		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
	Filtering	Omission	Quality	Dryness	Complex	No bias	Trust	Curious	No bias	Trust	Accuracy
Treatment	0.068***	0.033	0.103*	-0.004	0.048	0.041***	-0.018	-0.008	-0.013	0.017	0.063**
	(0.020)	(0.020)	(0.060)	(0.074)	(0.074)	(0.014)	(0.027)	(0.028)	(0.015)	(0.029)	(0.029)
N	749	742	737	737	737	4563	4547	4547	4523	4523	4523
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Z-scored	No	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Control group mean	0.479	0.528	0	0	0	0.376	0	0	0.533	0	0

Note: This table displays main treatment effects on a series of post-treatment beliefs using data from Experiment 1.1 (see Table 1). Columns 1 to 5 use respondents who were cross-randomized into not receiving the option to read an article in the *New York Times*, while column 6 to 11 use all respondents. "Filtering" refers to the percent chance that the New York Times reported that the Trump Tax Plan would create 1.1 million jobs. "Omission" refers to the percent chance that the New York Times wrote an article about the CBO's analysis of granting citizenship to the dreamers. "Quality" refers to people's perception of the quality of articles in the *New York Times*. "Dryness" captures people's perception of whether reporting of the *New York Times* is dry and technical. "Complex" measures people's perception of whether reporting of the *New York Times* is complex. "No bias" is a dummy variable taking value one if our respondents think that the *New York Times* is not politically biased. "Trust" measures people's trust in the *New York Times*. "Curious" measures people's interest in learning whether the *New York Times* is biased. "Accuracy" measures people's perception of the accuracy of the forecasts of the CBO. "Bias" measures people's perception of whether the CBO is biased. "Trust: CBO" measures people's trust in the CBO. The outcomes in columns 3, 4, 5, 7, 8, 9, 10, and 11 are measured on five-point Likert scales and then z-scored. All regressions include the set of controls from Table 3.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table 3: Treatment effects on demand for news: Filtering experiments

	(1) Main experiment	(2) Curiosity experiment	(3) Robustness experiments	(4) Pooled across all experiments
Treatment	-0.035**	-0.047***	-0.053***	-0.043***
	(0.014)	(0.015)	(0.019)	(0.009)
N	3858	3189	2169	9216
Controls	Yes	Yes	Yes	Yes
Control group mean	0.274	0.280	0.325	0.286

Note: This table shows OLS regressions where the dependent variable is an indicator that takes the value one for respondents who wanted to read an article in the *New York Times* about a CBO report. Column 1 includes respondents from our main experiment (conducted with *Research Now SSI*; Experiment 1.1; see Table 1). Column 2 includes respondents from a robustness experiment to alleviate concerns about curiosity as a mechanism (conducted with Lucid). Column 3 includes respondents from additional robustness experiments conducted on Amazon Mechanical Turk. Column 4 pools all respondents from Columns 1 to 3. "Treatment" is an indicator that takes the value one for respondents who received information that the *New York Times* did not suppress any key facts from the CBO report. Regressions include the following controls: gender, age, income, region, race, education, employment status, frequency of reading the *New York Times*, pre-treatment beliefs about the probability that the *New York Times* would report unbiasedly, and beliefs bout the consequences of the policy bills, and experiment fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table 4: Treatment effects on beliefs and article demand: Fake news experiment

	Beliefs: Less informative reporting in CNN					Perceptions of CNN			CNN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	False claims: Trump	False claims: News	Unverified: Trump	Unverified: Biden	Intention: Hurt Trump	Quality	No bias	Trust	Article demand
Treatment	0.028***	0.066***	0.095***	0.057	0.033	-0.087***	-0.056***	-0.047*	0.008
	(0.009)	(0.025)	(0.029)	(0.042)	(0.027)	(0.027)	(0.019)	(0.026)	(0.018)
N	2069	2069	2069	2069	2069	2076	2069	2076	2081
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Z-scored	No	Yes	Yes	Yes	Yes	Yes	No	Yes	No
Control group mean	0.489	0	0	0	0	0	0.382	0	0.237

Note: This table shows main treatment effects on a series of post-treatment beliefs (OLS regressions). "Quality: news" refers to people's perception of the quality of articles in *CNN*. "Treatment" is an indicator that takes the value one for respondents who received information that the *CNN* falsely reported that CIA decided to extract a spy from Russia because it feared that President Trump would mishandle classified information. "Trust: CNN" measures people's trust in *CNN*. "No bias: CNN" is a dummy variable taking value one if our respondents think that the *New York Times* is not politically biased. "False claims: news" measures how often people think *CNN* makes false claims in its political reporting. "Intention: Hurt Trump" is beliefs about whether *CNN* intentionally makes false claims to hurt Trump. "False claim: Trump" is the subjective percent chance that an article in *CNN* about Trump would contain any false claims. "Unverified: Trump" is beliefs about how likely *CNN* is to publish stories based on unverified and potentially misleading sources about Trump . "Unverified: Biden" is the analogous question about Joe Biden. "Article demand" is an indicator variable that takes the value one for respondents who wanted to read an article in the *CNN* about the impeachment process against Donald Trump. The outcomes in all columns except for columns 3, 6 and 9 are measured on five-point Likert scales and then z-scored. Regressions include the following controls: gender, age, income, region, race, education, employment status, political views, frequency of reading/watching *CNN*, pre-treatment beliefs about the probability that the *CNN* would cite Trump as the reason for the extraction, views on whether Trump deserves impeachment, pre-treatment beliefs about how often *CNN* makes false claims in its political reporting, beliefs about the acceptability of publishing fake news stories, and wave fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table 5: Treatment effects on demand for news: Spin experiment

	Full sample				Democrats/lean Democrat				Republicans/lean Republican			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Quality	Trust	No bias	Demand	Quality	Trust	No bias	Demand	Quality	Trust	No bias	Demand
Treatment	-0.098**	-0.065	-0.040*	-0.020	-0.103**	-0.070	-0.058*	-0.003	-0.093	-0.080	-0.009	-0.048
	(0.044)	(0.042)	(0.023)	(0.023)	(0.050)	(0.049)	(0.032)	(0.030)	(0.078)	(0.073)	(0.030)	(0.034)
N	1498	1500	1500	1503	929	930	930	931	569	570	570	572
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Z-scored	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	No
Control group mean	0	0	0.340	0.290	0.330	0.350	0.450	0.320	-0.580	-0.620	0.170	0.250

Note: This table displays main treatment effects on article demand and a series of post-treatment beliefs for the spin experiment (Experiment 2; see Table 1). Columns 1 and 2 use the full sample. Columns 3 and 4 use respondents who identify with the Democratic Party and respondents who identify as Independents but lean towards the Democratic Party. Column 5 and 6 use respondents who identify with the Republican Party and respondents who identify as Independents but lean towards the Republican Party. "Treatment" is an indicator that takes the value one for respondents who received information that the *New York Times* reported the $3 billion long-term cost (rather than the $11 billion short-term cost) of the government shutdown. "Quality" refers to people's perception of the quality of articles in the *New York Times*. "Trust" measures people's trust in the *New York Times*. The quality and trust outcomes are measured on five-point Likert scales and then z-scored using the mean and standard deviation for control group respondents. "No bias" is a dummy variable taking value one if our respondents think that the *New York Times* is not politically biased. "Demand" is an indicator variable that takes the value one for respondents who wanted to read an article in the *New York Times* about the G.O.P. Tax Bill. Regressions include the following controls: gender, age, income, region, race, education, employment status, frequency of reading the *New York Times*, pre-treatment beliefs about the probability that the *New York Times* would report the $3 billion number, and pre-treatment beliefs about the shutdown.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

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Do People Value More Informative News?

Felix Chopra, Ingar Haaland, and Christopher Roth

Summary of the Online Appendix

Section A contains proofs related to claims made in section 2 and a discussion of the role of prior beliefs about reporting and patterns of treatment effect heterogeneity.

Section B contains additional figures. Figure B.1 shows heterogeneity in treatment effects by prior beliefs separately for Democrats and Republicans for Experiment 1.1. Figure B.2 shows heterogeneity in treatment effects by priors separately for Democrats and Republicans for Experiment 2. Figure B.3 shows heterogeneity in treatment effects by priors separately for Democrats and Republicans for Experiment 3. Figure B.4 shows the demand for information from the CBO about the Trump Tax Plan and the Trump Healthcare Plan from Experiment 1.4.

Section C contains additional tables. Table C.1 provides the summary statistics, and Table C.2 examines the integrity of randomization for the main filtering experiment (1.1). Table C.3 shows heterogeneous effects by prior beliefs in experiment 1.1. Table C.4 shows heterogeneous effects by prior beliefs in the deceptive spin experiment 3. Table C.5 provides further heterogeneity analysis to rule out potential confounds in Experiment 1.1. Table C.6 shows the treatment effects separately for the filtering robustness experiment (Experiments 1.6 and 1.7). Table C.7 shows the main treatment effects in the placebo experiment (Experiment 1.3). Table C.8 provides evidence on heterogeneous effects by political affiliation in the fake news experiment (Experiment 2).

Section D contains screenshots of the instructiosn for all experiments. Section D.1 shows the full set of experimental instructions for Experiments 1.1 and 1.7. In Section D.2 we provide the instructions for Experiment 1.2. In Section D.3, we show the instructions for experiment 1.3. Section D.4 provides instructions for experiment 1.4. In Section D.5,

we show the instructions for experiment 1.5. In Section D.6, we show the instructions for Experiment 1.6. Section D.7 shows the instructions for experiment 2. In Section D.8, we show the instructions for experiment 3.

A   Model appendix

A.1   Proofs

The following proposition corresponds to the claim made in Section 2.1 on how to compare the informativeness of different reporting strategies in the context of strategic information suppression.

Proposition 1 (Filtering). *Consider an article (N, σ) where $\sigma : \Theta \to \Delta(\mathcal{N})$ such that $\text{supp}(\sigma(\theta)) \subseteq \mathcal{N}(\theta)$ for all $\theta = (\theta_1, \theta_2) \in \Theta$ where $\mathcal{N}(\theta) = \{\emptyset, (\theta_1, \emptyset), (\emptyset, \theta_2), \theta\}$. Moreover, let $p_{n,\theta} = \mathbb{P}_{\sigma(\theta)}(N = n)$ denote the probability that $N = n$ in state θ for any n, θ. For any pair $n \neq \theta$ with $n \in \mathcal{N}(\theta)$, moving probability mass from $p_{n,\theta}$ to $p_{\theta,\theta}$ strictly increases the informativeness of (N, σ).*

Proof. Consider two article distributions $\sigma, \sigma' : \Theta \to \Delta(\mathcal{N})$ with associated probabilities $p_{n,\theta}$ and $p'_{n,\theta}$ of reporting $N = n$ in state θ. Assume that there is $\bar{\theta} \in \Theta$ and $\bar{n} \in \mathcal{N}(\bar{\theta})$ with $\bar{n} \neq \bar{\theta}$ such that $p'_{\bar{n},\bar{\theta}} = p_{\bar{n},\bar{\theta}} - \Delta$ and $p'_{\bar{\theta},\bar{\theta}} = p_{\bar{\theta},\bar{\theta}} + \Delta$ for some $\Delta > 0$, and that $p'_{n,\theta} = p_{n,\theta}$ for all $\theta \neq \bar{\theta}$.

Now, because the newspaper can only choose whether to withhold information, reporting information about both dimensions θ_1 and θ_2 fully reveals the state of the world. It is thus trivial to define a stochastic transformation τ such that $\tau(N')$ has distribution σ: Let $\tau(n) = n$ for all $n \neq \bar{\theta}$. However, if $n = \bar{\theta}$, τ takes value $\bar{\theta}$ with probability $\alpha = \frac{p_{\bar{\theta},\bar{\theta}}}{p_{\bar{\theta},\bar{\theta}} + \Delta}$, and value $\bar{n}$ with probability $1 - \alpha$. We can then algebraically verify that the distribution of $\tau(N')$ is σ, establishing that σ' is more informative than σ according to Blackwell order. $\square$

The following proposition corresponds to the claim made in Section 2.2 that increasing the likelihood of false claims in one state of the world reduces the informativeness of the newspaper's article.

Proposition 2 (False claims). *Suppose that $\Theta = \{L, R\}$ and the newspaper publishes an article $N \in \Theta$. Suppose further that the conditional probability of reporting $N = R$ in*

state θ is $\sigma_\theta = \mathbb{P}_\sigma(R \mid \theta)$ for each $\theta \in \Theta$. For any triple $\sigma_L < \sigma'_L < \sigma_R$, an article N with distribution $\sigma = (\sigma_L, \sigma_R)$ is strictly more informative than an article N' with distribution $\sigma' = (\sigma'_L, \sigma_R)$.

Proof. Consider any triple $\sigma_L < \sigma'_L < \sigma_R$. We have to show that there is a stochastic transformation τ of N such that $\tau(N)$ has the same distribution as N'. The goal is thus to find two probabilities $\alpha, \beta \in [0, 1]$ such that if we set $\alpha = P(N' = R \mid N = R)$ and $\beta = P(N' = R \mid N = L)$, we obtain the desired distributional equivalence. Note that this requires to find the solution to the following set of equations:

$$\sigma'_L = \alpha\sigma_L + \beta(1 - \sigma_L) \tag{3}$$

$$\sigma_R = \alpha\sigma_R + \beta(1 - \beta_R) \tag{4}$$

We can algebraically verify that such a solution is given by

$$\alpha = 1 - \left(\frac{\sigma'_L - \sigma_L}{\sigma_R - \sigma_L}\right)(1 - \sigma_R) \tag{5}$$

$$\beta = \left(\frac{\sigma'_L - \sigma_L}{\sigma_R - \sigma_L}\right)\sigma_R. \tag{6}$$

Moreover, $\sigma_L < \sigma'_L < \sigma_R$ implies that $0 \leq \beta \leq \alpha \leq 1$. This completes the proof. $\qquad\square$

A.2 Heterogeneity by beliefs about reporting

This section discusses the difficulties of making predictions about the patterns of heterogeneity with respect to prior beliefs about reporting in our experimental design.

For simplicity, assume a binary state space $\Theta = \{L, R\}$ and focus on a consumer who identifies as Democrat. This consumer holds a belief $q > 0.5$ that $\theta = L$, and expects a left-leaning outlet to provide a confirmatory signal with probability $p \in [0, 1]$. In the absence of a standard model of confirmatory preferences, we make the reduced form assumption that utility from news consumption $U(p, q)$ is function of the consumer's prior belief about the state θ and the belief that the newspaper reports L. The consumer prefers

Figure A.1: Utility from news and beliefs about reporting
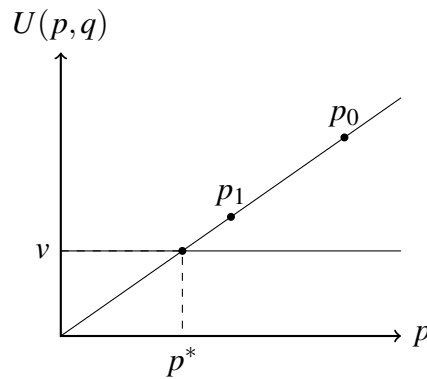
to read the article N if $U(p,q) > v$ where v is the value of his outside option.

Models of confirmatory preferences would plausibly predict that $\frac{\partial U}{\partial p} \geq 0$ for consumers with prior belief $q > 0.5$. Thus, an information treatment that leads to negative updating about p should reduce the expected utility from news consumption, but will affect the demand for news only for marginal consumers close enough to v. However, without additional assumptions on (i) the marginal utility from p, (ii) the value of the outside option, and (iii) the extent of Bayesian updating about p, the theoretical prediction for the interaction effect between the information treatment and the prior belief p are ambiguous.

To illustrate this point, Figure A.1 provides a stylized example of the utility from news consumption as a function of the prior belief p. Suppose the consumer starts out with a prior p_0 and strongly revises his belief to p_1 after receiving the treatment. While her utility U strongly declines, she also started from a higher level, and thus still prefers reading the article. However, the treatment could move someone with a prior belief p_1 below the cutoff p^*. This example thus predicts a U-shaped and nonlinear effect of prior beliefs about reporting on the demand for news in our experiment: People with very low or very high beliefs that a newspaper reports $N = L$ will not adjust their demand (no treatment effect), whereas people with moderate priors above the cutoff p^* will reduce their demand (negative treatment effect). However, if the outside option is positively correlated with p, we expect a different pattern of heterogeneity.
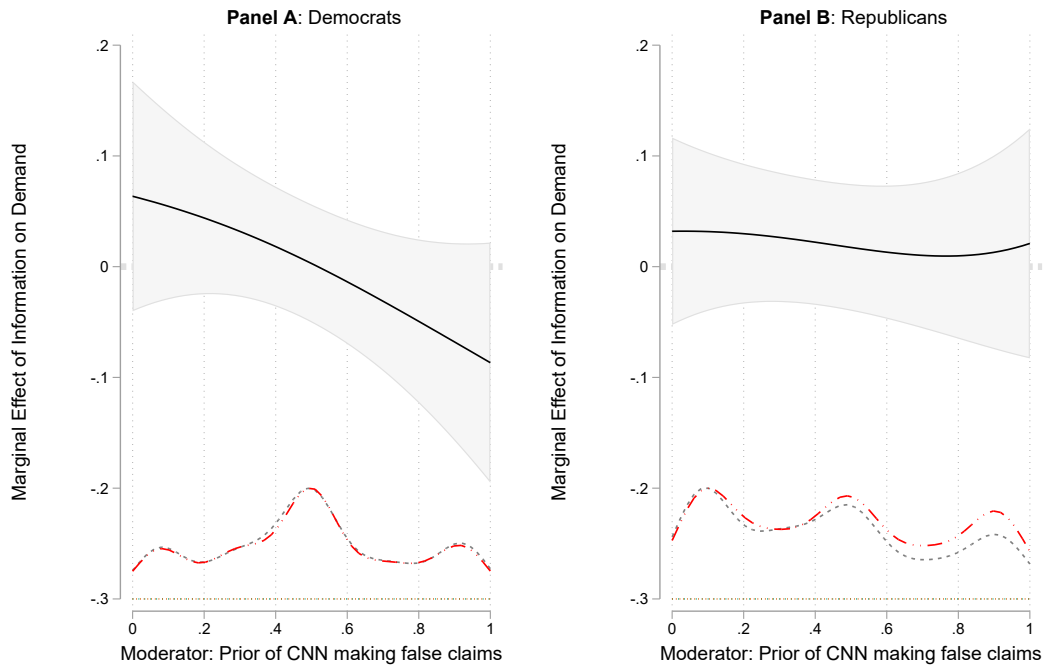
B Additional figures

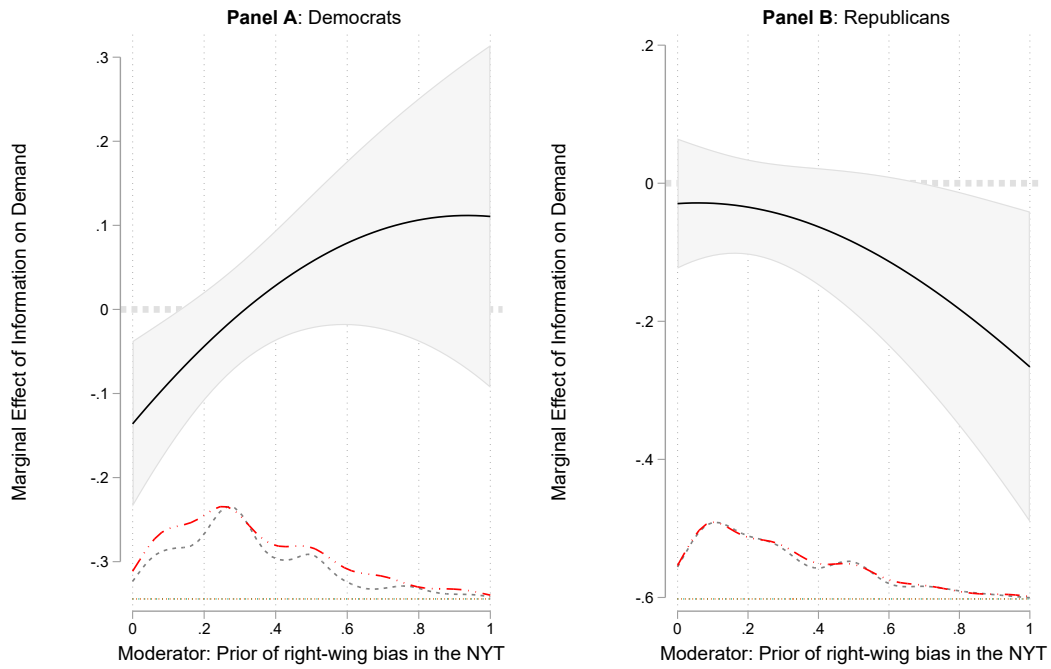Figure B.1: Treatment effects by pre-treatment beliefs: Filtering
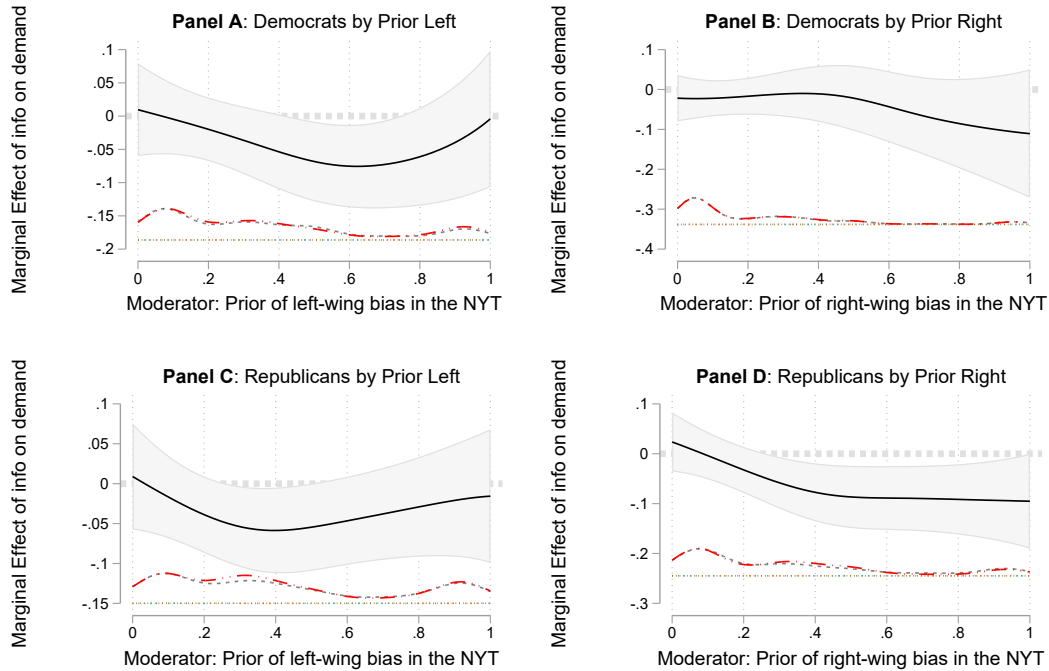
Notes: This figure displays heterogeneous treatment effects by respondents' prior beliefs about how
the *New York Times* covered a CBO report about the consequences of the Trump Healthcare Plan.
"Prior left" is the percent chance (from 0 to 1) that the *New York Times* wrote an article about the
CBO estimates on the Trump Healthcare Plan that mentioned only the number of people who would
lose health coverage. "Prior right" is the percent chance (from 0 to 1) that the *New York Times* wrote
an article about the CBO estimates on the Trump Healthcare Plan that mentioned only the impact
on the federal debt. "Democrats/Lean Dem with Pessimistic Beliefs" are respondents who either
identify with the Democratic Party or identify as Independents leaning towards the Democratic Party,
and excludes respondents who think that the Trump Tax Plan will have somewhat positive or very
positive consequences. "Republican/Lean Rep with Optimistic Beliefs" are respondents who either
identify with the Republican Party or identify as Independents leaning towards the Republican Party, and
excludes respondents who think that the Trump Tax Plan will have somewhat negative or very negative
consequences.

Figure B.2: Treatment effects by pre-treatment beliefs: Fake news

**Panel A**: Democrats   **Panel B**: Republicans

Notes: This figure displays heterogeneous treatment effects for Experiment 2 (the fake news experiment) by respondents' prior beliefs that *CNN* falsely reported that the CIA made the decision to extract the spy because it feared that President Trump would mishandle classified information and their political affilation.

Figure B.3: Treatment effects by pre-treatment beliefs: Spin

Notes: This figure displays heterogeneous treatment effects for experiment 2 (Deceptive spin experiment) by respondents' prior beliefs about how the *New York Times* covered a CBO report about the consequences of the government shutdown in early January, 2019. "Prior of right-wing bias in the NYT" is the percent chance (from 0 to 1) that the *New York Times* wrote an article about the CBO's evaluation of the government shutdown with a headline mentioning the long-run cost of 3 billion rather than the short-run costs of 11 billion. "Democrats/Lean Dem" respondents who identify with the Democratic Party and respondents who identify as Independents but lean towards the Democratic Party. "Republican/Lean Rep" are respondents who identify with the Republican Party and respondents who identify as Independents but lean towards the Republican Party.

Figure B.4: Demand for information about CBO statistics

Panel A: Demand for info about the tax plan

Panel B: Demand for info about the healthcare plan
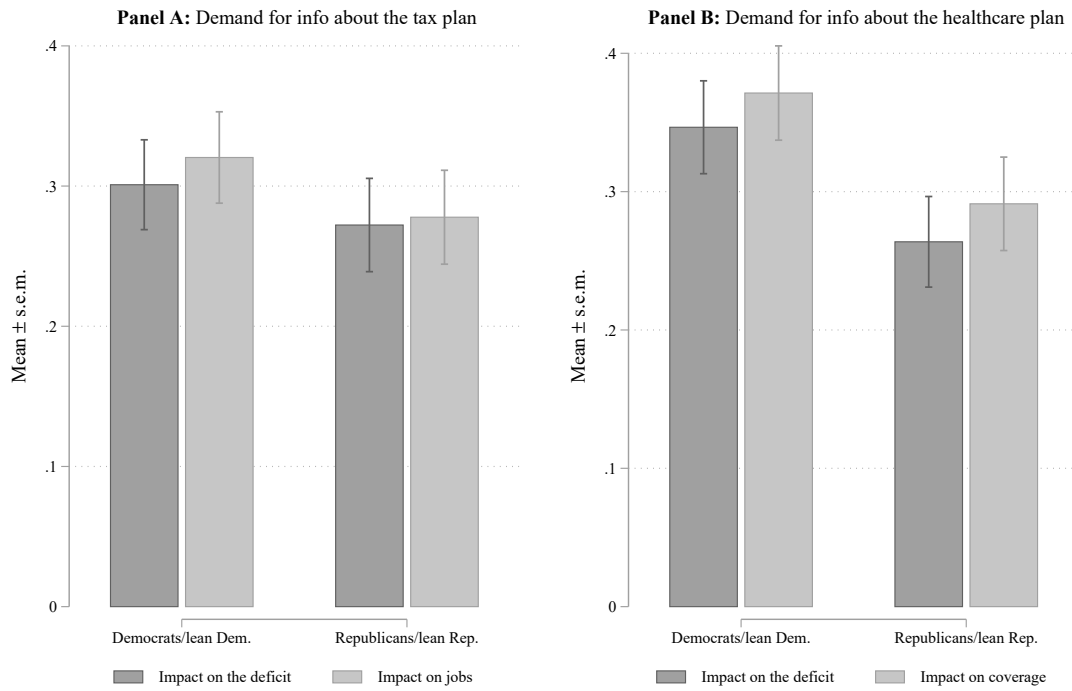
Notes: This figure uses data from an experiment with Lucid (Experiment 1.4, see Table 1). The figure shows, separately for Democrats/Democrat-leaners and Republicans/Republican-leaners, the fraction of respondents who wanted information about different statistics from the CBO reports. Specifically, respondents were either asked about their demand for information about the Trump Tax Plan (see Panel A) or about their demand for information about the Trump Healthcare Plan (see Panel B). Respondents were then asked separately and in randomized order for each of two headline statistics from the respective CBO report, whether they want to receive the CBO's point estimate or not. If they selected "Yes", we provided them with the information at the end of the survey.

C   Additional tables

Table C.1: Summary statistics

	(1) Main exp.	(2) Curiosity	(3) Robustness	(4) Spin	(5) Fake News	(6) Cognitive
Male	0.442	0.459	0.508	0.446	0.421	0.463
Age (midpoint)	48.546	42.712	36.063	39.249	46.170	44.774
White	0.871	0.779	0.797	0.783	0.772	0.846
Log income	3.355	3.099	3.349	3.333	3.353	3.499
College education	0.450	0.301	0.675	0.662	0.554	0.556
Full-time work	0.392	0.477	0.782	0.685	0.483	0.490
Northeast	0.195	0.161	0.217	0.178	0.216	0.218
Midwest	0.245	0.232	0.225	0.209	0.255	0.218
West	0.192	0.169	0.147	0.254	0.179	0.208
South	0.369	0.438	0.411	0.359	0.350	0.356
Republican	0.325	0.300	0.163	0.250	0.308	0.320
Democrat	0.340	0.355	0.553	0.437	0.399	0.343
Observations	4625	3189	2169	1503	2081	930

Note: This table displays the mean value of basic covariates for each experiment (see Table 1 for an overview). "Male" is a binary variable with value one for male respondents. "Age" is coded as the continuous midpoint of the age bracket (18 to 24, 25 to 34, 35 to 44, 45 to 54, 55 to 64, 65 or older). "Log income" is coded continuously as the logarithm of the income bracket's midpoint (Less than $15,000, $15,000 to $24,999, $25,000 to $49,999, $50,000 to $74,999, $75,000 to $99,999, $100,000 to $149,999, $150,000 to $200,000, $200,000 or more). "College education" is a binary dummy variable taking value one if the respondent selected "Some college, no degree", "Associates degree", "Bachelor's degree", or "Post-graduate degree". "Full-time work" is a binary dummy variable taking value one if the respondent is working full-time. "Northeast", "Midwest", "West" and "South" are binary dummy variables with value one if the respondent lives in the respective region. "Republican" and "Democrat" are binary dummy variables with value one if the respondent identifies as Republican or Democrat.

Table C.2: Test of balance

	Treatment (T)	Control (C)	P-value(T - C)	Observations
Gender	0.45	0.44	0.703	4631
Age	48.30	48.78	0.314	4631
Log income	10.91	10.88	0.248	4025
South	0.36	0.37	0.473	4631
West	0.20	0.18	0.196	4631
Northeast	0.19	0.20	0.216	4631
Republicans	0.33	0.32	0.907	4631
Democrats	0.34	0.34	0.916	4631
White	0.87	0.87	0.963	4458
College education	0.45	0.45	0.563	4488

Notes: This table provides a balance test for the main filtering experiment (Experiment 1.1; see Table 1). The *p*-value of a joint F-test regressing the treatment indicator on a series of observables is given by $p = 0.62$.

Table C.3: Heterogeneity by beliefs about reporting: Filtering experiments

	Democrats				Republicans			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treatment	-0.032	-0.016	-0.015	0.012	-0.040**	-0.043	-0.006	0.036
	(0.021)	(0.030)	(0.026)	(0.037)	(0.020)	(0.028)	(0.026)	(0.045)
Treatment × Prior Left		-0.049		-0.068		0.007		-0.073
		(0.061)		(0.063)		(0.053)		(0.064)
Treatment × Prior Right			-0.098	-0.118			-0.120**	-0.165**
			(0.080)	(0.083)			(0.054)	(0.065)
N	1796	1796	1796	1796	1589	1589	1589	1589
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control group mean	0.317	0.317	0.317	0.317	0.227	0.227	0.227	0.227

Note: This table shows OLS regressions where the dependent variable is an indicator that takes the value one for respondents who wanted to read an article in the *New York Times* about a CBO report. The sample includes respondents from our main experiment (conducted with *Research Now SSI*; Experiment 1; see Table 1). Columns 1 to 3 use respondents who either identify with the Democratic Party or identify as Independents leaning towards the Democratic Party, and excludes respondents who think that the Trump Tax Plan will have somewhat positive or very positive consequences. Columns 4 to 6 use respondents who either identify with the Republican Party or identify as Independents leaning towards the Republican Party, and excludes respondents who think that the Trump Tax Plan will have somewhat negative or very negative consequences. "Prior left" is the percent chance (from 0 to 1) that the *New York Times* wrote an article about the CBO estimates on the Trump Healthcare Plan that mentioned only the number of people who would lose health coverage. "Prior right" is the percent chance (from 0 to 1) that the *New York Times* wrote an article about the CBO estimates on the Trump Healthcare Plan that mentioned only the impact on the federal debt. Regressions include the set of controls from Table 3.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table C.4: Political heterogeneity in demand for news: Spin experiment

	Democrats/lean Dem		Republicans/lean Rep	
	(1)	(2)	(3)	(4)
Treatment	-0.003	-0.098**	-0.048	0.003
	(0.030)	(0.049)	(0.034)	(0.047)
Treatment × Prior: 3 billion		0.303**		-0.198
		(0.126)		(0.141)
N	931	931	572	572
Controls	Yes	Yes	Yes	Yes
Control group mean	0.318	0.318	0.245	0.245

Note: This table displays OLS regressions using respondents from Experiment 2. The dependent variable in all columns is an indicator that takes the value one for respondents who wanted to read an article in the *New York Times* about the G.O.P. Tax Bill. "Treatment" is an indicator that takes the value one for respondents who received information that the *New York Times* reported the $3 billion long-term cost (rather than the $11 billion short-term cost) of the government shutdown. "Prior: 3 billion" is the percent chance (from 0 to 1) that the *New York Times* wrote an article about the CBO's evaluation of the government shutdown with a headline mentioning the long-run cost of 3 billion rather than the short-run costs of 11 billion. Column 1 and 2 use respondents who identify with the Democratic Party and respondents who identify as Independents but lean towards the Democratic Party. Column 3 and 4 use respondents who identify with the Republican Party and respondents who identify as Independents but lean towards the Republican Party. Regressions include the following controls: gender, age, income, region, race, education, employment status, frequency of reading the *New York Times*, pre-treatment beliefs about the probability that the *New York Times* would report the $3 billion number, and pre-treatment beliefs about the shutdown.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table C.5: Treatment effects on demand for news in the filtering experiment: Interaction effects

	(1)	(2)	(3)	(4)	(5)
Treatment	-0.027	-0.032**	-0.029**	-0.032**	-0.040**
	(0.018)	(0.014)	(0.015)	(0.015)	(0.017)
Interactant	0.016	0.033***	0.041***	0.056***	0.050**
	(0.020)	(0.010)	(0.012)	(0.012)	(0.023)
Treatment × Interactant	-0.016	0.005	-0.010	-0.009	0.014
	(0.028)	(0.013)	(0.015)	(0.014)	(0.028)
Interactant	Portfolio	Trust: CBO	Trust: Media	Trust: NYT	College
N	3856	3790	3223	3223	3856
Controls	Yes	Yes	Yes	Yes	Yes

Note: This table uses data from our main experiment with *Research Now SSI* (Experiment 1.1; see Table 1). This table displays heterogeneous treatment effects on people's demand for reading an article in the *New York Times*. Portfolio takes value one for respondents who read both at least one left-wing newspaper and one right-wing newspaper. "Trust: CBO" measures people's z-scored trust in the CBO. "Trust: Media" measures people's z-scored trust in the media. "Trust: NYT" measures people's z-scored trust in the media. "College" takes value 1 for respondents who received at least some college education.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table C.6: Treatment effects on demand for news: Robustness experiments

	(1) **Experiment 1.6** Incentives and reverse order	(2) **Experiment 1.7** Platform robustness
Treatment	-0.040	-0.063***
	(0.036)	(0.023)
N	752	1417
Controls	Yes	Yes
Control group mean	0.392	0.289

Note: This table shows OLS regressions where the dependent variable is an indicator that takes the value one for respondents who wanted to read an article in the *New York Times* (see Table 1). Regressions include the following controls: gender, age, income, region, race, education, employment status, frequency of reading the *New York Times*, pre-treatment beliefs about the probability that the *New York Times* would report unbiasedly, and beliefs about the consequences of the policy bills.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table C.7: Treatment effects: Placebo experiment

	(1) Article demand	(2) Quality	(3) No bias
Treatment	0.015	0.099*	0.019
	(0.029)	(0.054)	(0.030)
N	930	928	928
Controls	Yes	Yes	Yes
Z-scored	No	Yes	No
Control group mean	0.265	0	0.384

Note: This table shows OLS regressions using data from the "Placebo experiment" conducted with *Research Now SSI* (see Table 1). "Treatment" is an indicator taking the value one for respondents who were informed that the *New York Times* reported two out of two statistics from the CBO report. "Article demand" is a binary variable with value one if the respondent wanted to read the *New York Times* article about the Trump Tax Plan. "Quality" refers to perceptions of quality in the *New York Times* and is measured on a 5-point Likert scale and then z-scored by the mean and and standard deviation of control group respondents. "No bias" is a binary variable with value one if the respondent thinks that the *New York Times* is not politically biased. Regressions include the following controls: gender, age, income, region, race, education, employment status, and prior beliefs that the *New York Times* would report both statistics.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

Table C.8: Fake news experiment: heterogeneity by political views

	Demand for news in CNN		
	(1)	(2)	(3)
Treatment	-0.003	0.005	-0.013
	(0.025)	(0.023)	(0.026)
Treatment × Republican/lean Rep	0.023		
	(0.036)		
Treatment × Voted for Trump		0.010	
		(0.038)	
Treatment × Support Impeachment			0.038
			(0.036)
Treatment + Treatment × Interactant	0.020	0.015	0.025
	(0.026)	(0.030)	(0.026)
N	2081	2081	2081
Controls	Yes	Yes	Yes
Control group mean	0.237	0.237	0.237

Note: This table shows OLS regressions in which the dependent variable is an indicator that takes the value one for respondents who wanted to read an article in the CNN about the impeachment process against Donald Trump. "Treatment" is an indicator that takes the value one for respondents who received information that the CNN falsely reported that CIA decided to extract a spy from Russia because it feared that President Trump would mishandle classified information. "Republican/lean Rep" in an indicator that takes the value one for self-identified Republicans and Independents who lean towards the Republican Party. "Voted for Trump" is an indicator that takes the value one for respondents who said they voted for Trump in the 2016 presidential election. "Support Impeachment" is an indicator that takes the value one for respondents who said that "Yes" to the question of whether Donald Trump should be impeached. Regressions include the following controls: gender, age, income, region, race, education, employment status, political views, frequency of reading/watching CNN, pre-treatment beliefs about the probability that the CNN would cite Trump as the reason for the extraction, and wave fixed effects.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

D Instructions

This section contains screenshots from all experiments. We provide screenshots of the full experimental instructions for our main filtering design (Experiment 1.1 and 1.7). For all other experiments, we only provide screenshots for elements that differ from the main filtering design. For example, we omit screenshots of pre-treatment beliefs and characteristics to avoid repetition.

D.1 Experiment 1.1 and 1.7

D.1.1 Attention Check (Experiment 1.1)

NHH

The next question is about the following problem. In questionnaires like ours, sometimes there are participants who do not carefully read the questions and just quickly click through the survey. This means that there are a lot of random answers which compromise the results of research studies. To show that you read our questions carefully, please choose **both** "Extremely interested" and "Not at all interested" on the question below.

Given the text above, how interested are you in sports?

Extremely interested

Very interested

A little bit interested

Very little interested

Not at all interested

>>

D.1.2 Pre-treatment beliefs and characteristics (Experiment 1.1 and 1.7)

NHH

Please indicate your gender.

Male

Female

What is your age?

18–24

25–34

35–44

45–54

55–64

65 or older

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)

What was your family's gross household income in 2017 in US dollars?

Less than $15,000

$15,000 to $24,999

$25,000 to $49,999

$50,000 to $74,999

$75,000 to $99,999

$100,000 to $149,999

$150,000 to $200,000

More than $200,000

In politics, as of today, do you consider yourself a Republican, a Democrat, or an Independent?

Republican

Democrat

Independent

`>>`

NHH

In politics, as of today, do you lean towards the Republican Party or lean towards the Democratic Party?

The Republican Party

The Democratic Party

`>>`

NHH

How often do you read The New York Times (in print or digital)?

Daily

4-6 times a week

2-3 times a week

Once a week

Monthly

Once a year

Never

`>>`

Please rank the three newspapers that you are most likely to read from the list below
(where 1 is the one you are most likely to read), and drag them to the appropriate position.

Items	3 newspapers most likely to read
Breitbart	
BuzzFeed News	
Chicago Sun-Times	
Daily Mail	
Drudge Report	
InfoWars	
Los Angeles Times	
New Republic	
New York Daily News	
New York Post	
Palmer Report	
The Denver Post	
The Huffington Post	
The Mercury News	
The New York Times	
The Wall Street Journal	
The Washington Post	
The Washington Times	
USA Today	

>>

Do you approve or disapprove of Donald Trump's policy agenda?

Strongly approve

Approve

Disapprove

Strongly disapprove

>>

President Trump and Republicans in Congress have suggested two major legislative reforms:

- The **Trump Tax Plan** (to cut corporate taxes by $1.5 trillion)
- The **Trump Healthcare Plan** (to repeal and replace Obamacare)

On balance, do you think that the **Trump Tax Plan** will have positive or negative consequences?

Very positive consequences

Somewhat positive consequences

Neither positive nor negative consequences

Somewhat negative consequences

Very negative consequences

On balance, do you think that the **Trump Healthcare Plan** would have positive or negative consequences?

Very positive consequences

Somewhat positive consequences

Neither positive nor negative consequences

Somewhat negative consequences

Very negative consequences

>>

D.1.3 Prior: Filtering (Experiment 1.1 and 1.7)

NHH

The Congressional Budget Office (CBO) is Congress's nonpartisan provider of cost and benefit estimates for legislation. In 2017, the CBO analyzed the consequences of the Trump Healthcare Plan.

When debating the Trump Healthcare Plan, Republicans claimed that the plan would decrease the federal deficit, but would not increase the number of people without health coverage. The Democrats, by contrast, claimed that the plan would fail to decrease the deficit and massively increase the number of people without health coverage.

In its published report, the CBO estimated that the Trump Healthcare Plan would **decrease the deficit by $119 billion** and leave **23 million more people uninsured**.

What do you think?

After the CBO published its report, **The New York Times** wrote an article about its findings.

What would you say is the percent chance that **The New York Times** reported...
(Please note: The numbers need to add up to 100%)

that the deficit would decrease by $119 billion **but not** that the number of uninsured people would increase by 23 million.	0	%.
that the number of uninsured people would increase by 23 million **but not** that the deficit would decrease by $119 billion.	0	%.
that the deficit would decrease by $119 billion **and** that the number of uninsured people would increase by 23 million.	0	%.
Total	0	%.

>>

D.1.4 Treatment (Experiment 1.1 and 1.7)

NHH

In its article about the CBO estimates, The New York Times reported **both** that the federal budget deficit would decrease by $119 billion **and** that the number of people without health insurance would increase by 23 million.

>>

D.1.5   Main outcome (Experiment 1.1 and 1.7)

NHH

Last year, the Congressional Budget Office analyzed the consequences of the **Trump Tax Plan** over the next decade.

Do you want to read an article about its findings in **The New York Times**?

Yes
No

If you click "Yes" we will provide you with free access to the article (1100 words) at the end of the survey. If you click "No" you will proceed with the survey without receiving access to the article.

>>

D.1.6   Posterior beliefs (Wave 2 of Experiment 1.1 only)

NHH

When debating the Trump Tax Plan, Republicans claimed that the plan would create new jobs without increasing the federal debt. By contrast, Democrats claimed that the plan would fail to create more jobs and massively increase the federal debt.
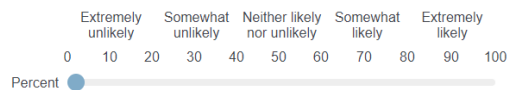
In its report, the Congressional Budget Office estimated that the Trump Tax Plan would add **$1.6 trillion to the federal debt** and **create 1.1 million jobs**.

What do you think?

After the CBO published its report, **The New York Times** wrote an article about its findings.

In its article, The New York Times reported that the Trump Tax Plan would add $1.6 trillion to the federal debt.

What would you say is the percent chance that The New York Times **also reported** that the Trump Tax Plan would create 1.1 million jobs?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely	
	0 10 20	30 40	50 60	70 80	90 100	

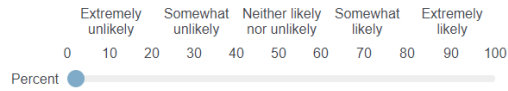Percent ⬤ ────────────────────

>>

Democrats have urged President Trump to grant citizenship status for up to 1.8 million young undocumented immigrants, known as the Dreamers. Democrats have claimed that this would decrease the federal debt, whereas Republicans have claimed that it would increase the federal debt.

The CBO recently also analyzed the impact of granting citizenship status for the Dreamers. In its report, the CBO estimated that this would **add $27 billion to the federal debt**.

What do you think?

What would you say is the percent chance that **The New York Times** did **not** write an article about the findings from this CBO report?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
0	10 20	30 40	50 60	70 80	90 100

Percent

>>

In general, how do you rate the **quality of news articles** in The New York Times?

Very low

Low

Medium

High

Very high

When thinking about its coverage of the CBO report about the Trump Tax Plan, how **dry and technical** do you expect the article to be?

Not at all dry and technical

Not dry and technical

Somewhat dry and technical

Very dry and technical

Extremely dry and technical

When thinking about The New York Times' coverage of the CBO report about the Trump Tax Plan, do you expect a **very simple message** or a **very complex message**?

Very simple

Simple

Neither simple nor complex

Complex

Very complex

>>

D.1.7 Perceptions: NYT and CBO (Experiment 1.1)

NHH

In general, do you think **The New York Times** is politically biased?

Very right-wing biased

Somewhat right-wing biased

Not biased

Somewhat left-wing biased

Very left-wing biased

>>

How much do you trust The New York Times?

Strongly trust

Trust

Somewhat trust

Do not trust

Do not trust at all

How much do you trust the media in general?

Strongly trust

Trust

Somewhat trust

Do not trust

Do not trust at all

How interested would you be in learning about statistics on whether The New York Times reports unbiasedly about political issues?

Very interested

Interested

Not interested

Not interested at all

>>

How much do you trust the forecasts of the Congressional Budget Office?

Strongly trust

Trust

Somewhat trust

Do not trust

Do not trust at all

In your opinion, how accurate are the forecasts of the Congressional Budget Office?

Very accurate

Accurate

Somewhat accurate

Inaccurate

Very inaccurate

Do you think the Congressional Budget Office is politically biased?

Very right-wing biased

Somewhat right-wing biased

Not biased

Somewhat left-wing biased

Very left-wing biased

>>

D.1.8 Post-treatment beliefs and characteristics (Experiment 1.1)

NHH

Why do you usually read political news? Please rank the three most important reasons (where 1 is the the most important one for you)

Items	Main 3 reasons
To improve my knowledge about political issues	
To be able to follow the national conversation	
To expose myself to different points of view	
For the entertainment value	
To make more informed voting choices	
Because it is important for my job	

>>

NHH

In newspapers, which section are you most interested in?

Entertainment

Advice columns

Editioral & opinion pages

Lifestyle

Political news

Which of these platforms are you most likely to use as news sources?

Radio

Social media

Print newspapers

News websites

Television

>>

Which of the following best describes your race or ethnicity?

African American/Black

Asian/Asian American

Caucasian/White

Native American, Inuit or Aleut

Native Hawaiian/Pacific Islander

Other

Are you of Hispanic, Latino, or Spanish origin?

Yes

No

Which category best describes the highest level of education you have completed?

Eighth grade or less

Some high school

High school degree/GED

Some college

2-year college degree

4-year college degree

Master's degree

Doctoral degree

Professional degree (JD, MD, MBA)

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)

>>

D.1.9 End of Survey

NHH

Please see below to find your free access to The New York Times article covering the CBO estimates of the Trump Tax Plan.

The New York Times

Federal Budget Deficit Projected to Soar to Over $1 Trillion in 2020

By Thomas Kaplan

April 9, 2018

WASHINGTON — The federal government's annual budget deficit is set to widen significantly in the next few years, and is expected to top $1 trillion in 2020 despite healthy economic growth, according to new projections from the nonpartisan Congressional Budget Office released Monday.

The national debt, which has exceeded $21 trillion, will soar to more than $33 trillion in 2028, according to the budget office. By then, debt held by the public will almost match the size of the nation's economy, reaching 96 percent of gross domestic product, a higher level than any point since just after World War II and well past the level that economists say could court a crisis.

The fear among some economists is that rising deficits will drive up interest rates, raise borrowing costs for the private sector, tank stock prices and slow the economy, which would only drive the deficit higher.

"Such high and rising debt would have serious negative consequences for the budget and the nation," said Keith Hall, the director of the budget office. "In particular, the likelihood of a fiscal crisis in the United States would increase."

The budget office forecast is the first since President Trump signed a sweeping tax overhaul, then signed legislation to significantly increase military and domestic spending over the next two years. The figures are sobering, even in a political climate where deficit concerns appear to be receding.

The tax overhaul, which includes permanent tax cuts for corporations and temporary ones for individuals, will increase the size of the economy by an average of 0.7 percent from 2018 to 2028, according to the budget office.

But that added economic growth does not come close to paying for the tax overhaul, which the budget office said would add more than $1.8 trillion to deficits over that period, from lost tax revenue and higher interest payments.

D.2 Experiment 1.2 - Robustness curiosity

D.2.1 Pre-treatment beliefs and characteristics

Which of these describes you more accurately?

Male

Female

What is your age?

18–24

25–34

35–44

45–54

55–64

65 or older

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)

What was your family's gross household income in 2018 in US dollars?

Less than $15,000

$15,000 to $24,999

$25,000 to $49,999

$50,000 to $74,999

$75,000 to $99,999

$100,000 to $149,999

$150,000 to $200,000

More than $200,000

In politics, as of today, do you consider yourself a Republican, a Democrat, or an Independent?

Republican

Democrat

Independent

>>

Do you approve or disapprove of Donald Trump's policy agenda?

Strongly approve

Approve

Disapprove

Strongly disapprove

Who did you vote for in the 2016 Presidential election?

Donald Trump

Hillary Clinton

Other

I did not vote

Who did you vote for in the 2012 Presidential election?

Barack Obama

Mitt Romney

Other

I did not vote

>>

Which of the following best describes your race or ethnicity?

White	Asian
Black or African American	Native Hawaiian or Pacific Islander
American Indian or Alaska Native	Other

Which category best describes the highest level of education you have completed?

12th grade or less

Graduated high school or equivalent

Some college, no degree

Associate degree

Bachelor's degree

Post-graduate degree

Which of these describes your current situation most accurately?

Employed full-time

Employed part-time

Self-employed

Unemployed and looking for a job

Unemployed but not looking for a job

Retired

Student

18

Other

How often do you read **The New York Times** (in print or digital)?

Daily

4-6 times a week

2-3 times a week

Once a week

Monthly

Once a year

Never

>>

D.2.2 Belief elicitation

Information

The Congressional Budget Office (CBO) is Congress's nonpartisan provider of cost and benefit estimates for legislation.

We will now ask you a question about how The New York Times covered the findings from a recent major policy report from the CBO.

We will tell you how The New York Times covered these findings at some later point in the survey.

>>

Democrats' $15 Minimum Wage Bill

In July, the CBO analyzed the consequences of a bill to increase the federal minimum wage to $15 an hour.

When debating the bill, **Democrats** claimed that the bill would lift more people out of poverty without reducing the number of jobs.
Republicans, by contrast, claimed that the bill would fail to lift people out of poverty and massively reduce the number of jobs.

In its report, the CBO estimated that the bill would **lift 1.3 million people out of poverty** and that the bill would **decrease the number of jobs by 1.3 million**.

What do you think?

After the CBO published its report, The New York Times wrote an article about its findings.

What would you say is the percent chance that **The New York Times** reported that...
(Please note: The numbers need to add up to 100%)

1.3 million people would be lifted out of poverty **but not** that the number of jobs would decrease by 1.3 million.	0	%.
the number of jobs would decrease by 1.3 million **but not** that 1.3 million people would be lifted out of poverty.	0	%.
1.3 million people would be lifted out of poverty **and** that the number of jobs would decrease by 1.3 million.	0	%.
Total	0	%.

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D.2.3 Treatment

Information

In its article about the CBO estimates, The New York Times reported **both** that 1.3 million people would be lifted out of poverty **and** that the number of jobs would decrease by 1.3 million.

D.2.4 Main outcome

The Congressional Budget Office recently also analyzed the consequences of establishing a **single-payer health care system** (to achieve universal health insurance coverage).

Do you want to read an article about its findings in **The New York Times**?

> Yes

> No

If you click "Yes" we will provide you with free access to the article (1100 words) at the end of the survey. If you click "No" you will proceed with the survey without receiving access to the article.

D.3 Experiment 1.3 - Cognitive constraints placebo

Figure B.1: Belief elicitation

The Congressional Budget Office (C.B.O.) is Congress's nonpartisan provider of cost and benefit estimates for legislation.

In 2017, the C.B.O. analyzed the consequences of the G.O.P. Health Bill.

When the C.B.O. published its report about the G.O.P. Health Bill, the **C.B.O. highlighted two key statistics** from the report.

After the C.B.O. published its report, **The New York Times** wrote an article about the report.

What do you think?

What would you say is the percent chance that the **The New York Times** cited zero, one, or two of the two key statistics from the C.B.O. report?

(Please note: The numbers must total 100%)

The New York Times cited 0 of the 2 key statistics.	0	%
The New York Times cited 1 of the 2 key statistics.	0	%
The New York Times cited 2 of the 2 key statistics.	0	%
Total	0	%

Next >>

Figure B.2: Treatment screen

In its article, **The New York Times** cited **2 of the 2 key statistics** from the C.B.O. report.

Next >>

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Figure B.3: Willingsness to read about GOP Tax Bill in the NYT

Last year, the C.B.O. analyzed the consequences of the **G.O.P. Tax Bill** over the next decade.

Do you want to read an article about its findings in **The New York Times**?

○ Yes

○ No

If you click "Yes" we will provide you with free access to the article (1100 words) at the end of the survey. If you click "No" you will proceed with the survey without receiving access to the article.

Next >>

D.4 Experiment 1.4 - Information demand

Figure B.4: Demand for information: Tax Bill

The Congressional Budget Office (CBO) is Congress's nonpartisan provider of cost and benefit estimates for legislation. In 2018, the CBO analyzed the economic consequences of the Trump **Tax** Plan (to cut corporate taxes by $1.5 trillion).

Would you like to receive the estimate from the CBO about how the Trump Tax Plan would affect the **federal debt** over the next decade?

If you click "Yes" you will receive the estimate at the end of the survey.

Yes

No

Would you like to receive the estimate from the CBO about how the Trump Tax Plan would affect the **number of jobs** over the next decade?

If you click "Yes" you will receive the estimate at the end of the survey.

Yes

No

>>

Figure B.5: Demand for information: Health Bill

The Congressional Budget Office (CBO) is Congress's nonpartisan provider of cost and benefit estimates for legislation. In 2018, the CBO analyzed the economic consequences of the Trump **Healthcare** Plan (to repeal and replace Obamacare).

Would you like to receive the estimate from the CBO about how the Trump Healthcare Plan would affect the **federal budget deficit** over the next decade?

If you click "Yes" you will receive the estimate at the end of the survey.

Yes

No

Would you like to receive the estimate from the CBO about how the Trump Tax Plan would affect the **number of people without health insurance** over the next decade?

If you click "Yes" you will receive the estimate at the end of the survey.

Yes

No

>>

D.5   Experiment 1.5 - Validation

NHH

You will now make multiple decisions that can have **real financial consequences for you**. Please consider each decision carefully.

In each decision, we will ask you to choose one of two options:

- Option A: 3-month digital subscription to **The New York Times**.
- Option B: Varying amounts of money.

We will randomly select **1 out of 10** participants of this study. If we select you, we will randomly choose one of your decisions and implement the option you chose. Each decision has the same chance of being implemented.
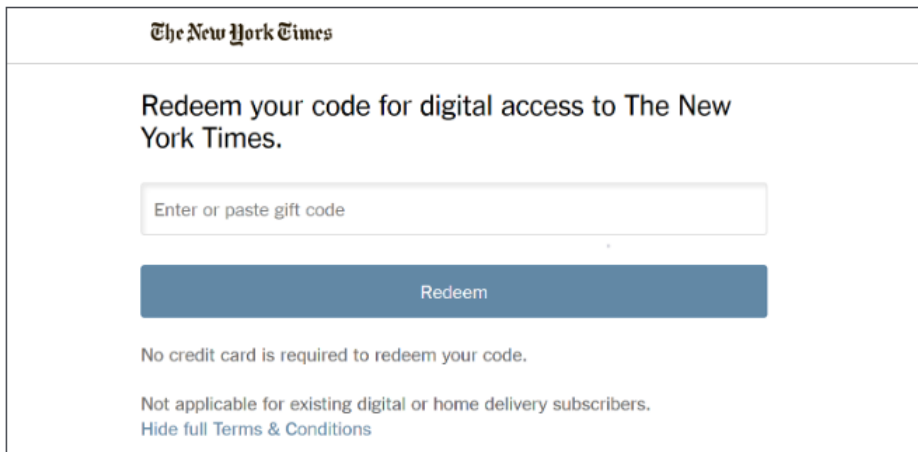
If we implement Option A, you will receive a unique gift code for a 3-month subscription. If we implement Option B, you will receive an amount of money (paid out as a bonus to your MTurk account).

>>

How would you receive your digital subscription to The New York Times?

1. We will send you a **unique gift code**. It looks like this: *4432a7af8c83b5da72gb*

2. We provide you with a **link to a website** where you can redeem it. It looks like this:

The New York Times

Redeem your code for digital access to The New York Times.

Enter or paste gift code

Redeem

No credit card is required to redeem your code.

Not applicable for existing digital or home delivery subscribers.
Hide full Terms & Conditions

3. Enter the code and **create an account**. You only need an email address for this.

4. **That's all!**

No credit card information is required to create an account. The subscription will automatically be canceled after the 3 month period. You can also cancel the subscription at any time if you want.

The code is completely anonymous and cannot be used to identify your email or any other of your personal characteristics.

We will now give you the opportunity to decide between two options:

- **Option A:** 3-month digital subscription to **The New York Times (NYT)**.
- **Option B:** Varying amounts of money.

Which option do you prefer?

Option A	Option B
NYT subscription	50 cents
NYT subscription	$1
NYT subscription	$2
NYT subscription	$3
NYT subscription	$4
NYT subscription	$5
NYT subscription	$10

D.6 Experiment 1.6

Figure D.6: Explanations of probability

In some of the following questions, we will ask you to think about the percent chance of something happening in the future. Your answers can range from 0 to 100, where 0 means there is absolutely no chance, and 100 means that it is absolutely certain.

For example, numbers like:

- 2 or 5 percent may indicate "almost no chance."
- 18 percent or so may mean "not much chance."
- 47 or 52 percent chance may be a "pretty even chance."
- 83 percent or so may mean a "very good chance."
- 95 or 98 percent chance may be "almost certain."

>>

Figure D.7: Explanations of incentive payment

In what follows, we will ask you to make some estimates on factual statements which are either true or false. One out of ten participants can earn additional money based on their estimates. For those participants, we will randomly pick one of the questions in which they can earn money, and pay them according to their estimate. They can earn up to an additional $1.

We will ask you to think about the percent chance that of different statements being true. The below formula explains in detail how the payout is determined. While this formula may appear to be complicated, the important take-away message from the formula is that participants will earn more money the closer they are to the truth. If the statement is true then participants will receive a higher payoff the higher their estimate. If the statement is false then they will receive a higher payoff the lower their estimate. Moreover, they can never make a loss by giving an estimate.

Your payment depends on your estimate in the following way:

Payment (in US dollars) = $1 - 1 \times (\text{estimate}/100 - \text{truth})^2$

where **truth** takes the value 1 if the statement is true, and zero otherwise.

Figure D.8: Beliefs about reporting I

The Congressional Budget Office (CBO), Congress's nonpartisan provider of cost and benefit estimates for legislation, recently analyzed the impact of the GOP Tax Bill on the economy.

When debating the GOP Tax Bill, Republicans claimed that the Tax Bill would create new jobs without increasing the federal debt. By contrast, Democrats claimed that the GOP Tax Bill would fail to create more jobs and massively increase the federal debt.

In April 2018, CBO published its report about the impact of the GOP Tax Bill on the economy. The CBO estimated that the GOP Tax Bill would add **$1.6 trillion to federal debt** and **create 1.1 million jobs** over the next decade.

What do you think?

After the Congressional Budget Office published its report in April 2018, **The Wall Street Journal** wrote an article about its findings.

What would you say is the percent chance that **The Wall Street Journal** reported...
(Please note: The numbers need to add up to 100 percent)

that jobs would increase by 1.1 millions **but not** that the federal debt would increase by $1.6 trillion	0	%.
that the federal debt would increase by $1.6 trillion **but not** that jobs would increase by 1.1 millions	0	%.
that the federal debt would increase by $1.6 trillion **and** that jobs would increase by 1.1 millions	0	%.
Total	0	%.

Notes: We randomized the order of the newspaper between respondents. This page had a timer. The timer was not shown to respondents.

Figure D.9: Beliefs about reporting II

After the Congressional Budget Office published its report in April 2018, **The New York Times** also wrote an article about its findings.

What would you say is the percent chance that **The New York Times** reported...
(Please note: The numbers need to add up to 100 percent)

that jobs would increase by 1.1 millions **but not** that the federal debt would increase by $1.6 trillion	0	%.
that the federal debt would increase by $1.6 trillion **but not** that jobs would increase by 1.1 millions	0	%.
that the federal debt would increase by $1.6 trillion **and** that jobs would increase by 1.1 millions	0	%.
Total	0	%.

Notes: We randomized the order of the newspaper between respondents. This page had a timer. The timer was not shown to respondents.

Figure D.10: Treatment screen: Democrats

In its coverage of the CBO estimates, The New York Times reported both that the federal debt would increase by $1.6 trillion **and** that jobs would increase by 1.1 millions.

Figure D.11: Willingness to read about the GOP Health Bill in the NYT

The Congressional Budget Office also analyzed the economic impact of the **GOP Health Care Bill.** Do you want to read a story about its findings in **The New York Times**?

If you click "Yes" we will provide you with free access to the article. If you click "No" you will proceed with the survey without receiving access to the article.

Yes

No

>>

D.7 Experiment 2 - Fake news

Figure D.12: Policy views

Do you approve or disapprove of Donald Trump's policy agenda?

Strongly approve

Approve

Disapprove

Strongly disapprove

Who did you vote for in the 2016 Presidential election?

Donald Trump

Hillary Clinton

Other

I did not vote

Democrats in Congress just started an impeachment inquiry after accusing Donald Trump of betraying his oath of office.

Do you personally think Donald Trump has betrayed his oath of office and should be impeached?

Yes

No

>>

35

Figure D.13: Acceptability of using unverified sources

To what extent do you agree or disagree with the following statement:

"It is acceptable for news organizations to publish stories based on unverified sources if the stories are potentially important but could lead to fake news."

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

>>

Figure D.14: Prior CNN consumption

How often do you watch or read **CNN** (on TV or online)?

Daily

4-6 times a week

2-3 times a week

Once a week

Monthly

Once a year

Never

\>\>

Figure D.15: Prior beliefs about false claims made by CNN

How often do you think CNN makes false claims in its political reporting?

Very often

Often

Sometimes

Rarely

Never

>>

Figure D.16: Addressing curiosity

Information

We will now ask you a question about how CNN covered the extraction of a CIA spy from Russia.

We will tell you how CNN covered this story at some later point in the survey.

>>

Figure D.17: Beliefs about CNN's reporting

CIA Spy Extracted From Russia

Two years ago, the US extracted a high-level CIA spy from inside Russia. The spy had provided the US with valuable intelligence on the inner workings of Putin's regime and how Moscow could threaten America. The news media shared details about the story in early September.

Some media outlets **correctly reported** that the CIA made the decision to extract the spy in late 2016 following widespread media speculation about CIA's sources.

Other media outlets **falsely reported** that the CIA made the decision to extract the spy because it feared that President Trump would mishandle classified information and potentially reveal the identity of the spy.

What do you think?

In its news article about the CIA spy extracted from Russia, what would you say is the percent that CNN reported that the spy was extracted ...

(Please note: The numbers need to add up to 100%)

because of widespread media speculation about the CIA's sources.	0	%
because the CIA feared that President Trump would mishandle classified information.	0	%
Total	0	%

Figure D.18: Information treatment

Information

In its article, **CNN** reported that the spy was extracted because the CIA feared that President Trump would mishandle classified information.

39

Figure D.19: Article demand

A recent whistleblower complaint following a phone conversation between President Trump and a foreign leader led Democrats in Congress to start an impeachment inquiry against the president.

After the impeachment inquiry was made public, CNN wrote a news article about the impeachment process with the full background story.

Do you want to receive free access to the CNN article?

> Yes

> No

If you click "Yes" we will provide you with free access to the article (1,600 words) at the end of the survey. If you click "No" you will proceed with the survey without receiving access to the article.

Figure D.20: Perceptions of CNN I

In general, how do you rate the quality of news articles by CNN?

Very low

Low

Medium

High

Very high

How much do you trust CNN?

Strongly trust

Trust

Somewhat trust

Do not trust

Do not trust at all

How much do you trust the media in general?

Strongly trust

Trust

Somewhat trust

Do not trust

Do not trust at all

>>

Figure D.21: Perceptions of CNN II

Do you think CNN is politically biased?

Very right-wing biased

Somewhat right-wing biased

Not biased

Somewhat left-wing biased

Very left-wing biased

How often do you think CNN has made false claims in its political reporting?

Never

Rarely

Sometimes

Often

Very often

To what extent do you agree or disagree with the following statement:

"CNN has intentionally made false claims to hurt President Trump."

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

Figure D.22: Perceptions of CNN III

To what extent do you agree or disagree with the following statement:

"CNN has intentionally made false claims to hurt President Trump."

Strongly agree

Somewhat agree

Neither agree nor disagree

Somewhat disagree

Strongly disagree

Imagine that you read an article about Donald Trump from CNN. What would you say is the percent chance that this article would contain any false claims?

	Extremely unlikely	Somewhat unlikely	Neither likely nor unlikely	Somewhat likely	Extremely likely
	0 10 20	30 40	50 60	70 80	90 100

Percent ●

How likely do you think CNN is to publish stories about President Trump based on unverified and potentially misleading sources?

Very likely

Somewhat likely

Neither likely nor unlikely

Somewhat unlikely

Very unlikely

How likely do you think CNN is to publish stories about Joe Biden based on unverified and potentially misleading sources?

Very likely

Somewhat likely

Neither likely nor unlikely

Somewhat unlikely

Very unlikely

43

D.8   Experiment 3 - Deceptive spin

Figure D.23: Beliefs about shutdown

President Donald Trump's standoff with Democrats over funding for his proposed U.S.-Mexico border wall resulted in a five-week partial government shutdown that that ended on January 25, 2019.

On balance, do you think that the government shutdown will have positive or negative consequences for the U.S. economy in 2019?

Very positive consequences

Somewhat positive consequences

Neither positive nor negative consequences

Somewhat negative consequences

Very negative consequences

>>

Figure D.24: Belief elicitation of media bias

The Congressional Budget Office (C.B.O.) is Congress's nonpartisan provider of cost and benefit estimates for legislation.

After the federal government shutdown ended on January 25, 2019, the C.B.O. analyzed the consequences of the shutdown on the U.S. economy.

In its published report, the C.B.O. estimated that the shutdown had cost the U.S. economy **$11 billion**, of which **$3 billion** would be permanently lost.

After the C.B.O. published its report, **The New York Times** wrote an article about its findings.

In its article, **The New York Times** used one of the two headlines below. What would you say is the percent chance that it used each of the following headlines...

(Please note: The numbers need to add up to 100%)

Government Shutdown Cost U.S. Economy $3 Billion, C.B.O. Says	0	%
Government Shutdown Cost U.S. Economy $11 Billion, C.B.O. Says	0	%
Total	0	%

Figure D.25: Treatment screen

The New York Times used the following headline in its article:

Government Shutdown Cost U.S. Economy $11 Billion, C.B.O. Says

Figure D.26: Willingness to read about GOP Tax Bill in the NYT

Last year, the C.B.O. analyzed the consequences of the **G.O.P. Tax Bill** over the next decade.

Do you want to read an article about its findings in **The New York Times**?

Yes

No

If you click "Yes" we will provide you with free access to the article (1100 words) at the end of the survey. If you click "No" you will proceed with the survey without receiving access to the article.