What is driving the demand for news?

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PhD Course on Subjective Beliefs, Attention and Economic Behavior

Motivation

- Mounting empirical evidence documents that news outlets often report the news in a politically biased way (Gentzkow and Shapiro, 2010).

  - Increasing concerns about media bias contributing to political polarization.

- Economic models differ in their explanation for why media bias occurs in equilibrium.

  - Readers value accuracy but also have a preference for news that distort signals towards readers' prior beliefs (Mullainathan and Shleifer, 2005).
  - Readers only value accuracy but face quality uncertainty (Gentzkow and Shapiro, 2006).

- These two explanations often make predictions that are observationally equivalent.

  - Challenging to quantify the importance of different motives for reading news with naturally occurring data.

The Demand for News: Accuracy Concerns versus Belief Confirmation Motives

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What we do

- We experimentally study the importance of accuracy concerns versus belief confirmation motives in driving the demand for news.
  - Pre-registered, large-scale experiments.
  - Measure people's demand for a real newsletter.
  - Exogenously vary whether a news outlet reports the news in a balanced or biased way.

- Discrete choice model to estimate the relative weight on accuracy concerns and belief confirmation motives.

Contribution to the literature

Media bias and the demand for news
Allcott and Gentzkow (2017); Gentzkow and Shapiro (2006, 2010); Mullainathan and Shleifer (2005).

$\rightarrow$ Estimate the relative importance of accuracy versus belief confirmation motives.

Information demand
Chopra et al. (2022); Faia et al. (2021); Falk and Zimmermann (2017); Fuster et al. (2020); Ganguly and Tasoff (2016); Golman et al. (2017); Nielsen (2020); Thaler (2019); Zimmermann (2015).

$\rightarrow$ Evidence from an important setting: News consumption.

$\rightarrow$ Natural outcome: Newsletter subscriptions.

Experimental samples

- We collected the data in collaboration with *Prolific*.

- We recruited more than 5,000 respondents who had voted for either Donald Trump or Joe Biden in the 2020 US presidential election.

Key design features

- Define an **objective benchmark** of underlying facts.
  - The quality uncertainty mechanism by Gentzkow and Shapiro (2006) is **by design** not relevant as the underlying source of the news is kept constant.

- Clarify the main political **party's views** on these underlying facts.
  - Creates scope for belief confirmation motives by aligning some facts with people's preferred political party.

- Exogenously vary beliefs about whether a news outlet reports the news in a right-wing biased, left-wing biased, or unbiased way.
  - **Experiment 1**: Right-wing bias vs no bias
  - **Experiment 2**: Left-wing bias vs no bias

- Measure **demand for news** by whether respondents want to sign up for an online newsletter.

Experiment 1: Right-wing bias

Pre-treatment beliefs about selective reporting

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3. **CBO report**. "In its published report, the CBO estimated that the bill would **lift 900,000 people out of poverty** and **reduce employment by 1.4 million jobs.**"

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3. **CBO report**. "In its published report, the CBO estimated that the bill would **lift 900,000 people out of poverty** and **reduce employment by 1.4 million jobs.**"

4. **Beliefs**. "After the CBO published its report, **The Boston Herald** published an article about the economic impact of the bill. If you had to guess, how do you think the article reported about the CBO findings?"

<div align="center">

Right-wing bias Only the employment statistic.

Left-wing bias Only the poverty statistic.

No bias Both statistics.

</div>

Main treatment variation: **No bias** versus **Right-wing bias**

Treatment: No bias

The article, published in **The Boston Herald** on March 2, 2021, reported that the bill would reduce employment by 1.4 million jobs **and** that it would lift 900,000 people out of poverty.

→

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Treatment: Right-wing bias

The article, published in **The Boston Herald** on February 26, 2021, reported that the bill would reduce employment by 1.4 million jobs **but not** that it would lift 900,000 people out of poverty.

→

Main treatment variation: **No bias** versus **Right-wing bias**

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Treatment: Right-wing bias

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Advantages

- Attention, curiosity, exposure to new information constant across treatments.
- Identification does not depend on prior beliefs.

Main outcome: Demand for news

We would like to offer you the opportunity to sign up for our weekly newsletter.

Our **Weekly Economic Policy Newsletter** will cover the **top three articles about economic policy** published in **The Boston Herald**.

If you say "Yes" below, we will message you the newsletter on your Prolific account on a weekly basis over the next month.

Would you like to subscribe to the newsletter?

○ Yes

○ No

Beliefs about newsletter characteristics

- **Accuracy**: "How accurate do you expect the newsletter to be?"
  - Very accurate
  - Accurate
  - Somewhat accurate
  - Inaccurate
  - Very inaccurate

- **Political bias**: "What kind of political bias do you expect the newsletter to have?"
  - Very right-wing biased
  - Somewhat right-wing biased
  - Not biased
  - Somewhat left-wing biased
  - Very left-wing biased

- (**Other measures**: perceived trust, quality, entertainment value, and complexity)

Results

First stage: Beliefs about the **accuracy** of the newsletter
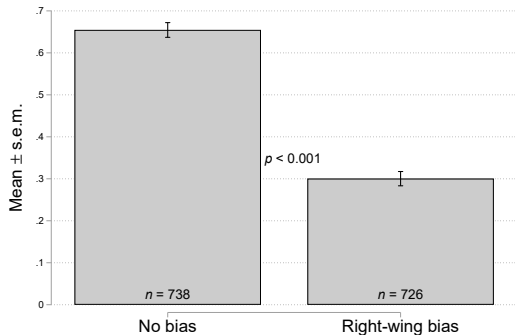
Biden voters
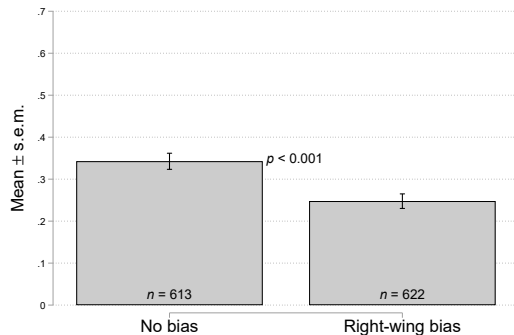
Trump voters

First stage: Beliefs about the **right-wing bias** of the newsletter
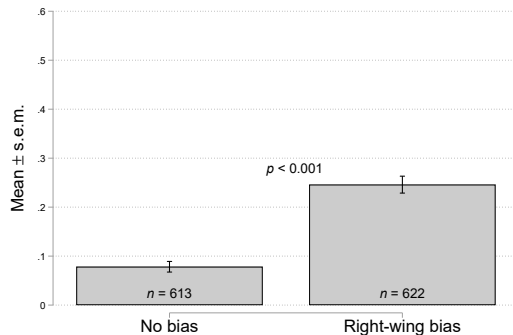
Biden voters

Trump voters

Theoretical predictions

Accuracy concerns

Respondents in the **no bias** treatment perceive the newsletter as more accurate $\implies$ everyone in the **no bias** treatment should display higher demand for the newsletter.

Belief confirmation motives

Respondents in the **no bias** treatment perceive the newsletter as less right-wing biased $\implies$

Democrats in the **no bias** treatment should display **higher** demand for the newsletter.

Republicans in the **no bias** treatment should display **lower** demand for the newsletter.

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Accuracy concerns *and* belief confirmation motives

Democrats should display higher demand for the **no bias** newsletter.

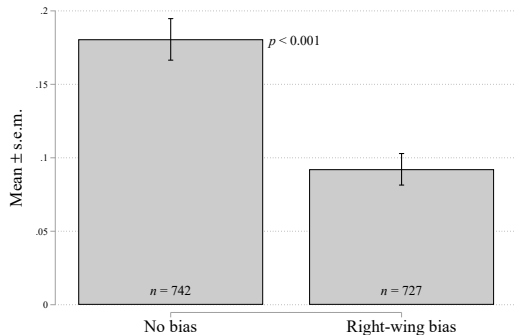**Ambiguous** prediction for Republicans.

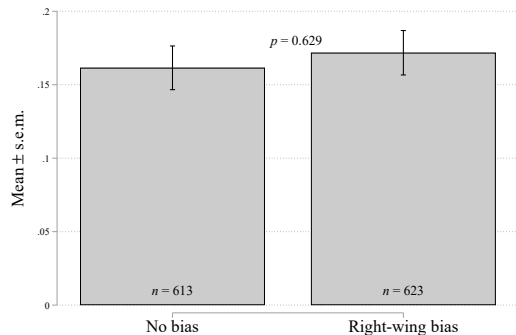# Main results: **Demand for the newsletter**
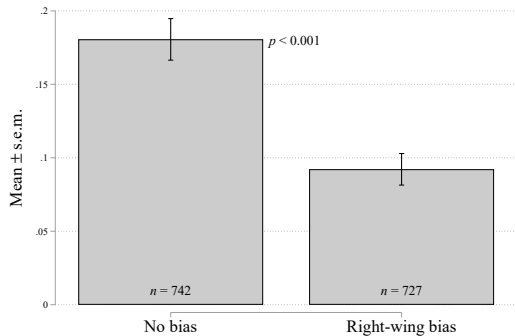
Biden voters

Main results: **Demand for the newsletter**

Biden voters

Trump voters

Experiment 2: Left-wing bias

Pre-treatment beliefs about selective reporting

1. **Context**. "In 2017, the CBO analyzed the consequences of the Republican Healthcare Plan to repeal and replace Obamacare."

2. **Political debate**. "When debating the Republican Healthcare Plan, **Republicans** claimed that the plan would decrease the federal deficit without increasing the number of people without health coverage. **Democrats**, by contrast, claimed that the plan would fail to decrease the deficit and increase the number of people without health coverage."

3. **CBO report**. "In its published report, the CBO estimated that the Republican Healthcare Plan would **decrease the deficit by over \$100 billion** and **leave over 20 million more people uninsured.**"

4. **Beliefs**. "After the CBO published its report, **The Boston Herald** published an article about the economic impact of the plan. If you had to guess, how do you think the article reported about the CBO findings?"

   Right-wing bias   Only the deficit statistic.

   Left-wing bias   Only the statistic on the number uninsured.

   No bias   Both statistics.

Treatment conditions: **No bias** versus **left-wing bias**

Treatment: No bias

The Boston Herald article about the House Republican Healthcare Plan reported that the plan would leave over 20 million more people uninsured **and** that it would decrease the deficit by over $100 billion.
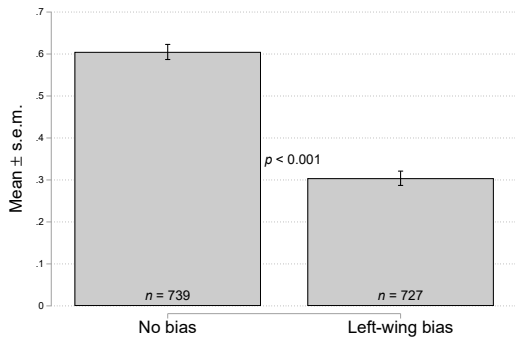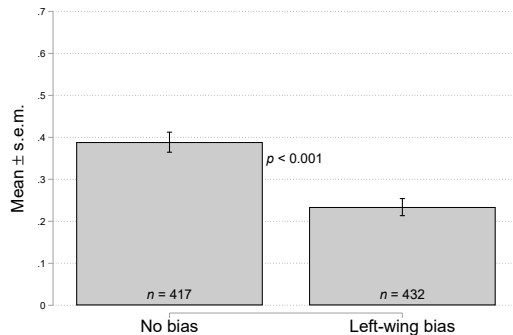
→

Treatment: Left-wing bias

The Boston Herald article about the Senate Republican Healthcare Plan reported that the plan would leave over 20 million more people uninsured **but not** that it would decrease the deficit by over $100 billion.

→

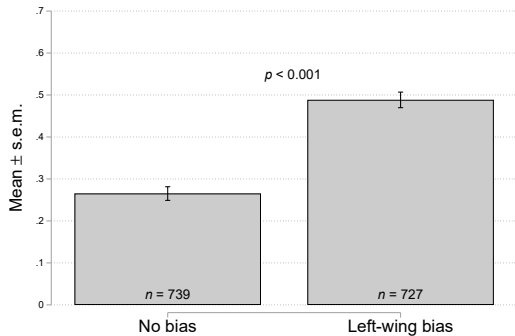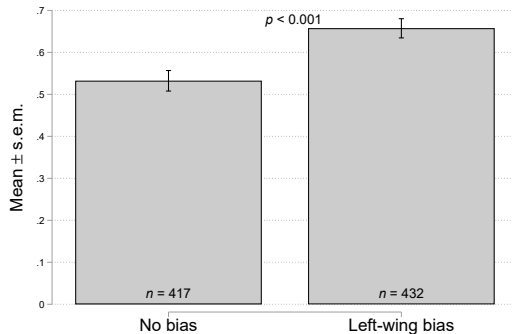# First stage: Beliefs about the **accuracy** of the newsletter

Share of respondents selecting "somewhat accurate" or "very accurate'.

First stage: Beliefs about the **left-wing bias** of the newsletter

Biden voters

Trump voters

Share of respondents selecting "somewhat left-wing biased" or "very left-wing biased'.

Theoretical predictions

Accuracy concerns

Respondents in the **no bias** treatment perceive the newsletter as more accurate $\implies$ everyone in the **no bias** treatment should display higher demand for the newsletter.

Belief confirmation motives

Respondents in the **no bias** treatment perceive the newsletter as less left-wing biased $\implies$

Democrats in the **no bias** treatment should display **lower** demand for the newsletter.

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Accuracy concerns *and* belief confirmation motives

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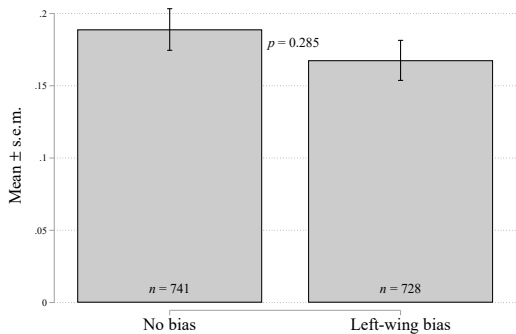
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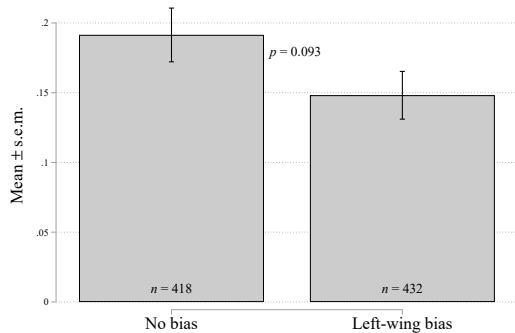
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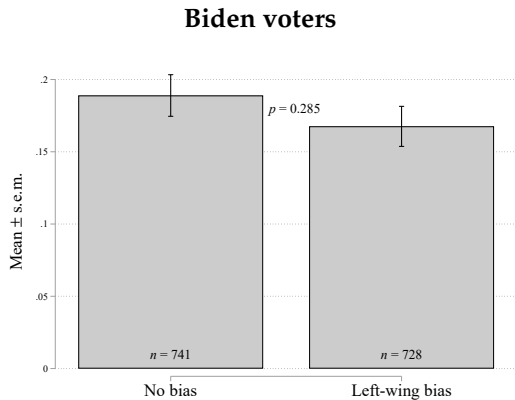
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Main results: **Demand for the newsletter**

Biden voters

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Regression

Summary of reduced form evidence

- **Main finding**: People reduce their demand for biased news, but only if the bias is inconsistent with their own political beliefs.

  – Republicans decrease their demand for left-wing biased, but not right-wing biased news.

  – Democrats decrease their demand for right-wing biased, but not left-wing biased news.

- Results suggest that both accuracy concerns and belief confirmation motives are important determinants of people's demand for news.

  – Relative importance of the two motives is unclear because of the differential first-stage effects on perceptions.

Accuracy concerns versus belief confirmation motives

- What is the **relative importance** of accuracy and belief confirmation motives?

- **We employ a simple discrete choice model to answer this question**
  - Assume that the treatments affect news demand only through perceived accuracy and belief confirmation.
  - Assumption validated by a mechanism experiment where we elicit open-ended responses on how people interpreted the treatments. Figure
  - Model combines information about differential first stages on beliefs about the accuracy and political bias of the newsletter.

Discrete choice model

Setup

- The agent subscribes to the newsletter ($y = 1$) if the utility u from subscribing to the newsletter exceeds the reservation utility r of his outside option (i.e., $u \geq r$).

- Following Mullainathan and Shleifer (2005), we assume that

$$u_i = \bar{u} + \alpha s_i + \beta b_i + \varepsilon_i \tag{1}$$

  where

    – s_i: perceived **accuracy** of the newsletter (z-scored)
    – b_i: perceived **belief confirmation** (recoded perceptions of political bias, z-scored)

$\rightarrow$ Key parameter of interest: $\alpha/(\alpha + \beta)$ = relative weight of accuracy

Estimation

- We use Stata's `ivprobit` command to estimate equation (1)
- We use the treatment assignments across experiments as excluded instruments

Discrete choice model: Parameter estimates

	Parameter estimates:		
	(1) Full sample	(2) Biden voters	(3) Trump voters
Preference for accuracy (α)	0.241*** (0.076)	0.204** (0.085)	0.266 (0.190)
Preference for belief confirmation (β)	0.345*** (0.081)	0.374*** (0.091)	0.190 (0.160)
Relative weight on accuracy $\left(\frac{\alpha}{\alpha+\beta} \right)$	0.412*** (0.111)	0.353*** (0.131)	0.583** (0.270)
N	5,014	2,930	2,084

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors in parentheses.

$\rightarrow$ **Main finding**: Both motives are approximately **equally important** drivers of the demand for news.

# Alternative mechanisms

Motives: Why did people subscribe?

- We collect data on people's motives for subscribing to the newsletter at the end of the main experiments.

- To get an unprompted response, we asked our respondents to answer an **open-ended question** on their motives for subscribing or not subscribing to the newsletter.

- We manually categorize the 4,991 open-ended text responses by determining whether political bias was cited as a reason for subscribing or not subscribing to the newsletter.

Motives for subscribing

(a) Fraction among **subscribers** mentioning **unbiased news** as a motive for subscribing to the newsletter, by treatment status
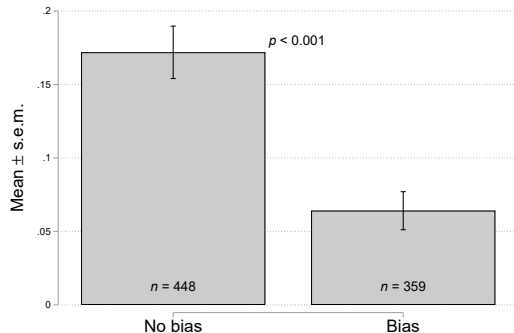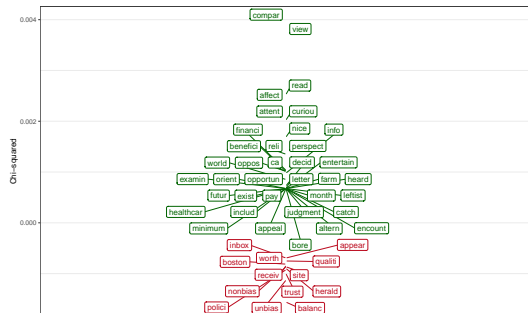
(b) Fraction among **non-subscribers** mentioning **biased news** as a motive for not subscribing to the newsletter, by treatment status
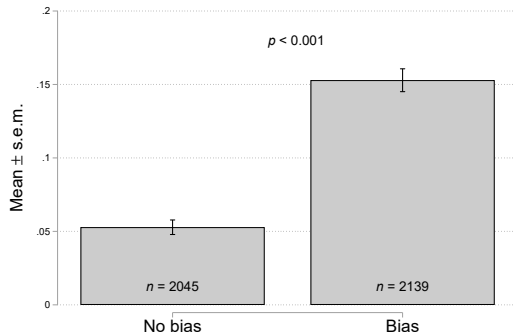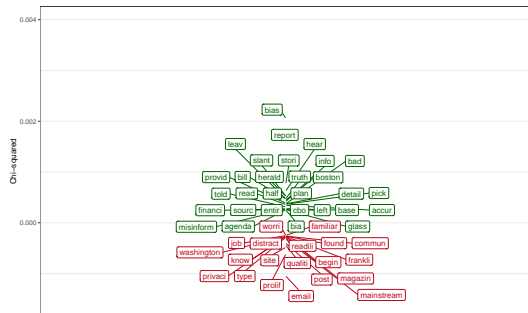
Motives for subscribing to the newsletter: Characteristic phrases

Distinctive phrases of **subscribers**

Distinctive phrases of **non-subscribers**

Phrases with a positive χ^2 statistic are more distinctive of open-responses in the bias treatment arms (in green).
Phrases with a negative χ^2 statistic are more distinctive of responses in the *unbiased* treatment arm (in red).

Experiment 3: Interpretation of the treatment

- To shed light on psychological mechanisms, we measure thoughts about the **motives** behind different reporting strategies.

- 388 Biden and Trump voters are randomized into the same treatments as in the previous experiments but are not offered the newsletter.

- For instance, respondents assigned to the bias treatment of the first experiment are instead asked the following open-ended question:

  *Why do you think that The Boston Herald reported that the bill would reduce employment by 1.4 million jobs **but not** that it would lift 900,000 people out of poverty?*

- We hand-code responses with a pre-specified procedure.

Coding procedure

- The following example responses were assigned to the "bias" category:
    - *I think it's biased reporting*
    - *I believe it is a left-leaning newspaper*
    - *They clearly support the Democrats*

- The following example responses were assigned to the "balanced" category:
    - *They were probably trying to report fairly without bias*
    - *They were trying to give the full picture*
    - *They tried to report fairly and accurately*

- We also categorize responses that mention motives related to entertainment, complexity, or rational delegation.

Treatment effects on mentioning political bias in the open-ended responses
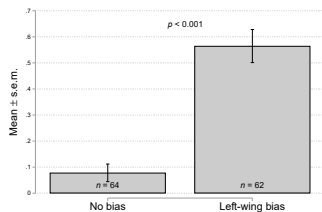
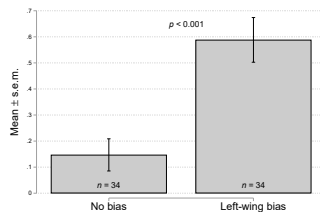### (a) Biden voters: Right-wing bias

(b) Trump voters: Right-wing bias

(c) Biden voters: Left-wing bias

(d) Trump voters: Left-wing bias

◀ Balanced reporting
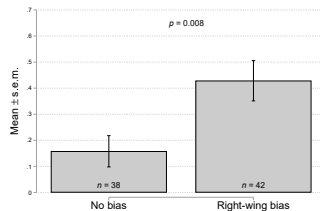
Other mechanisms

Very few of the open-ended responses mention any of the following motives:

- Entertainment

- Complexity

- Rational delegation

- Diversification

Experimenter demand effects

- Respondents could understand the purpose of the experiment and adjust their behavior accordingly to please the experimenter (de Quidt et al., 2018)

- At the end of the main experiments, we ask everyone an open-ended question about their perceived study purpose.
  - We hand-code roughly 5,000 open-ended responses with a conservative coding scheme.

- Only 4.1% of our respondents correctly guess the study purpose, suggesting experimenter demand effects at most play a negligible role in our experiment. ◂ Figure
  - Treatment effects are **virtually unchanged** if we exclude respondents who correctly guessed the study purpose.

Conclusion

Conclusion

- Both accuracy concerns and belief confirmation motives are important drivers of people's demand for news.
  - Discrete choice model suggests that the two motives have a **similar quantitative importance**.

- We provide empirical support for demand-side explanations of media bias.
  - E.g., behavioral models where media bias is the equilibrium outcome of firms catering to consumer preferences for like-minded news.

- Our results have implications for the regulation of media markets and for understanding the role of media in contributing to political polarization.
  - Under demand-side explanations, efforts to increase competition—such as limiting ownership concentration—tend to exacerbate media bias.

References I

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de Quidt, Jonathan, Johannes Haushofer, and Christopher Roth, "Measuring and Bounding Experimenter Demand," *American Economic Review*, 2018, *108* (11), 3266–3302.

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Golman, Russell, David Hagmann, and George Loewenstein, "Information Avoidance," *Journal of Economic Literature*, 2017, *55* (1), 96–135.

Mullainathan, Sendhil and Andrei Shleifer, "The Market for News," *American Economic Review*, 2005, *95* (4), 1031–1053.

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Zimmermann, Florian, "Clumped or Piecewise? Evidence on Preferences for Information," *Management Science*, 2015, *61* (4), 740–753.

Regression results

|	Experiment 1: Right-wing bias			Experiment 2: Left-wing bias		
	(1) Accuracy	(2) Left-wing bias	(3) Demand	(4) Accuracy	(5) Left-wing bias	(6) Demand
Panel A: Biden voters						
Bias treatment (a)	-0.903***	-0.849***	-0.086***	-0.720***	0.305***	-0.026
	(0.057)	(0.061)	(0.017)	(0.055)	(0.059)	(0.019)
N	1,464	1,464	1,469	1,466	1,466	1,469
Z-scored	Yes	Yes	No	Yes	Yes	No
Controls	Yes	Yes	Yes	Yes	Yes	Yes
No bias treatment mean	0	0	0.181	0	0	0.189
p-value: Ex. 1 = Ex. 2	0.026	0.000	0.017	0.026	0.000	0.017
Panel B: Trump voters						
Bias treatment (b)	-0.165***	-0.490***	0.005	-0.542***	0.266***	-0.052**
	(0.056)	(0.063)	(0.020)	(0.072)	(0.072)	(0.024)
N	1,235	1,235	1,236	849	849	850
Z-scored	Yes	Yes	No	Yes	Yes	No
Controls	Yes	Yes	Yes	Yes	Yes	Yes
No bias treatment mean	0	0	0.162	0	0	0.191
p-value: Ex. 1 = Ex. 2	0.000	0.000	0.072	0.000	0.000	0.072
p-value: a = b	0.000	0.005	0.001	0.073	0.947	0.395

* p < 0.1, ** p < 0.05, *** p < 0.01. Robust standard errors in parentheses.

◀ Return

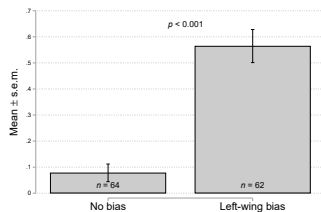# Treatment effects on mentioning political bias in the open-ended responses

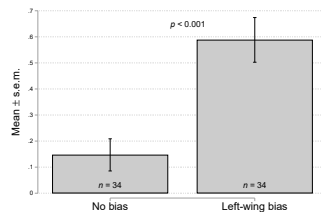(a) Biden voters: Right-wing bias
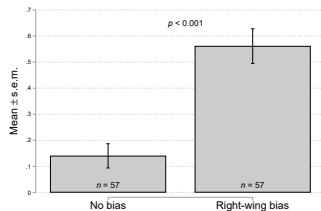
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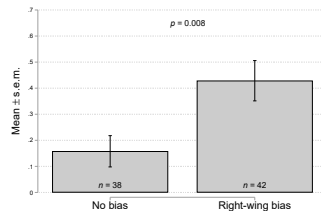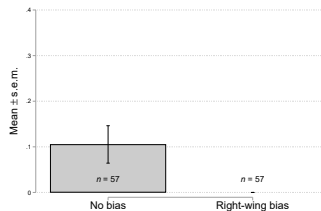
(c) Biden voters: Left-wing bias
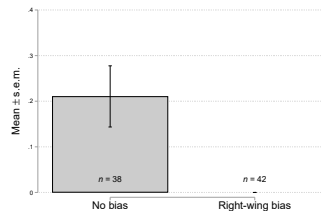
(d) Trump voters: Left-wing bias

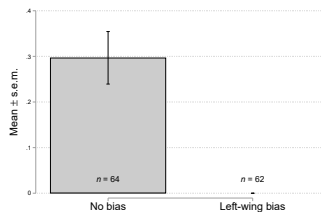# Treatment effects on mentioning balanced reporting

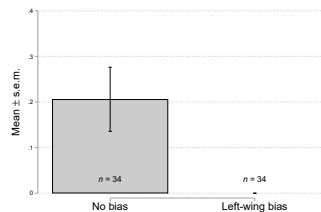(a) Biden voters: Right-wing bias

(b) Trump voters: Right-wing bias

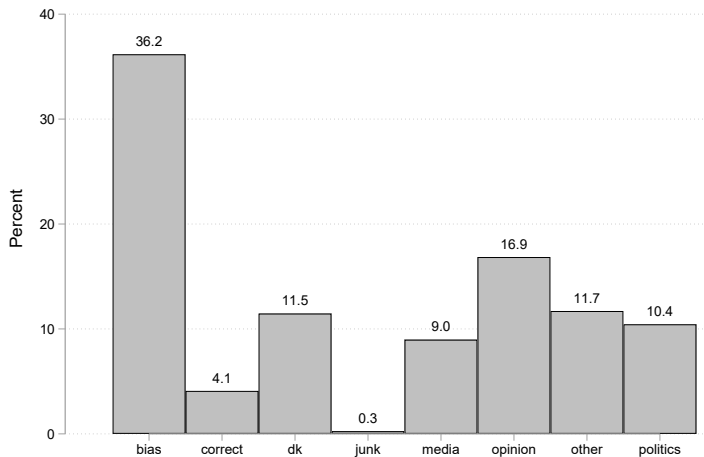(c) Biden voters: Left-wing bias

(d) Trump voters: Left-wing bias

Hand-coded purpose data

Figure: Perceived study purpose

Summary statistics

	(1) US pop.	(2) Exp 1	(3) Exp 2	(4) Exp 3	(5) Exp 4	(6) Au. Exp. 1	(5) Au. Exp. 2
Male	0.492	0.468	0.436	0.479	0.481	0.508	0.497
Age (years)	47.78	35.487	36.304	35.737	38.829	41.390	39.332
White	0.763	0.834	0.840	0.827	0.821	0.836	0.738
Employed	0.620	0.681	0.724	0.724	0.715	0.774	0.691
College	0.329	0.649	0.678	0.683	0.695	0.684	0.708
High income	0.482	0.443	0.429	0.461	0.446	0.440	0.389
Northeast	0.17	0.174	0.194	0.157	0.189	0.266	0.195
Midwest	0.21	0.231	0.235	0.206	0.204	0.234	0.188
South	0.38	0.389	0.398	0.412	0.396	0.382	0.383
West	0.24	0.206	0.173	0.224	0.211	0.118	0.235
Vote Trump	0.469	0.457	0.367	0.381	0.493	0.236	0.178
Observations		2,705	2,319	388	1,910	500	298