Social Media, News Consumption, and Polarization: Evidence from a Field Experiment

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Motivation: Concerns Over Social Media

- Consumption of news through social media is increasing
  - 12% (2008) $\rightarrow$ 72% (2019)
- Pro-attitudinal news $\rightarrow$ polarization?
  - News based on social network
  - News based on algorithm
  - Users personalize their feed
- Users easily manipulated?

Consumption by Year

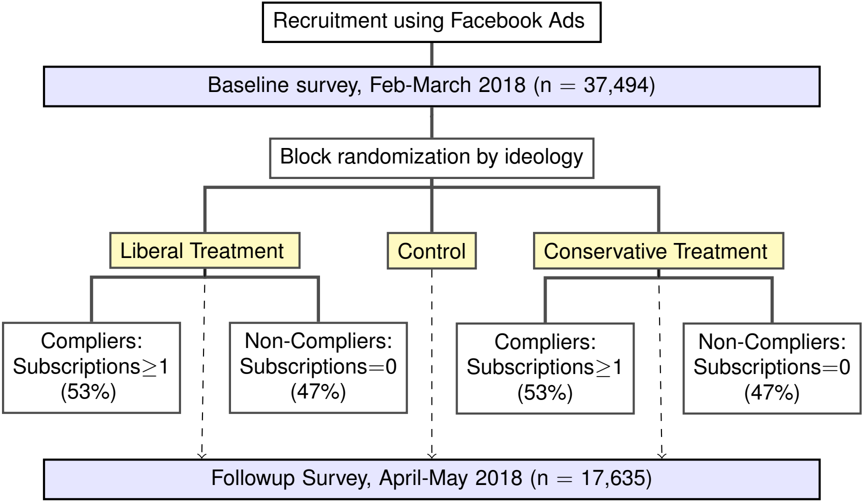
Overview

- **Research questions**
  1. How does social media affect news consumption?
  2. How does exposure to news through social media affect political opinions and polarization?

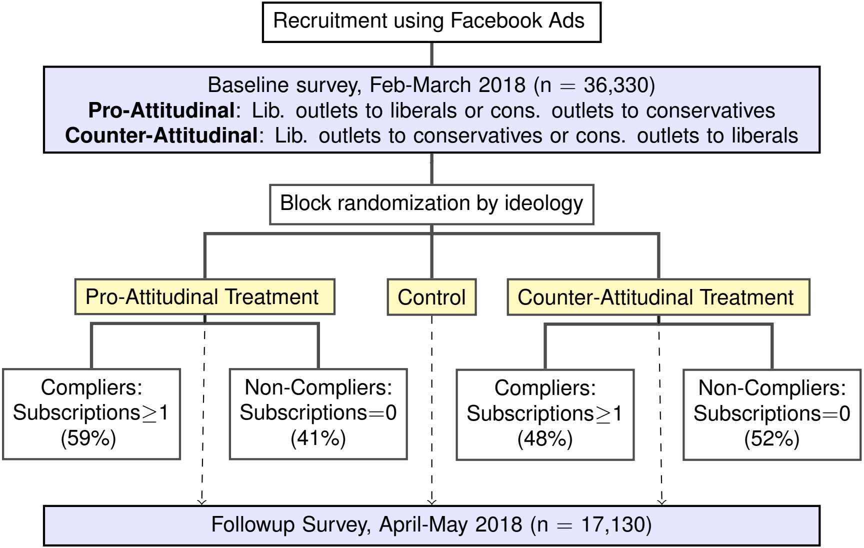
- **Approach**
  - Descriptive - collect social media and news consumption data
    - Social media associated with extreme, pro-attitudinal news
  - Causal - field experiment varying social media feeds
    - Analyze chain of media effects: exposure on Facebook, visits to news sites, changes in political opinions and attitudes

Design

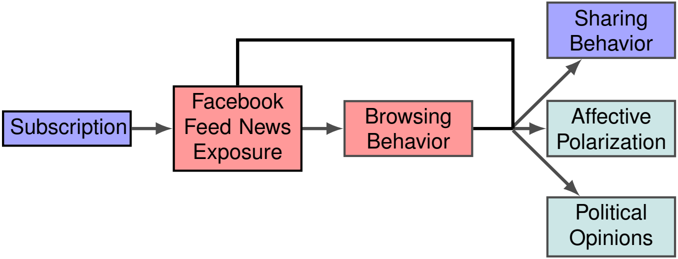
Design Overview



Design Overview



Data: Causal Chain of Media Effects



Data sources

- FB data: subscriptions (N=37,494) and post sharing (N=34,592)
  - Facebook app Facebook Data Screenshots
- Extension data: exposure and browsing behavior (N=1,835)
  - Chrome extension Extension Data Screenshots
- Survey data: political opinions and attitudes (N=17,635)
  - Endline survey, analysis pre-registered Survey Data

Balance Subsamples CA

External Validity

- Intervention similar to common social media nudges
- Natural behavior in every other aspect:
  - Media content
  - Platform algorithms
  - Individual decisions
- Important setting
  - Dominant social network
  - Popular news outlets

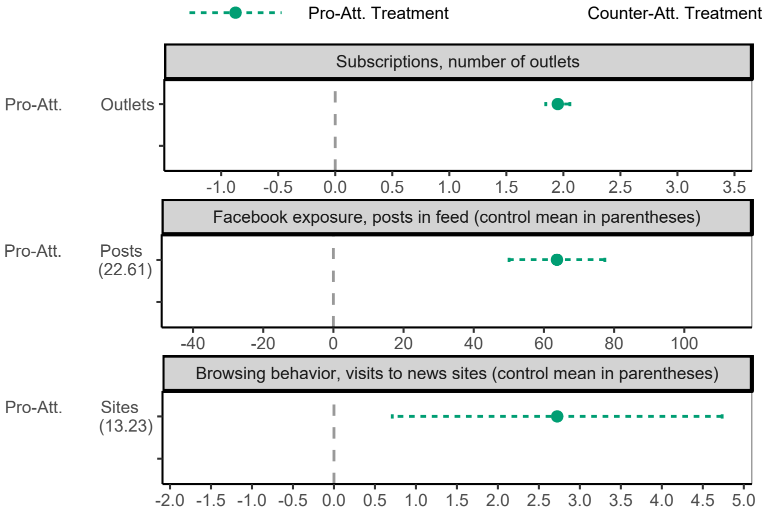
Nudges Examples | Facebook Dominant | Outlets | News Content | Experimenter Effect

Results

Results

- Individuals engage with new outlets when nudged
- Social media feed substantially affects online news consumption
- No evidence that outlets' slant affect political opinions
- Counter-attitudinal news decreases affective polarization, compared to pro-attitudinal news
- Algorithm limits exposure to counter-att. posts, conditional on subscription

ITT After Two Weeks: Pro vs. Counter Attitudinal



Participants in Post Sharing and Extension Subsamples with an ideological leaning (N=1,648)

All Spec. Reg. Alt. Lib/Cons. Post Type Source Hetero. Persistent SD Content

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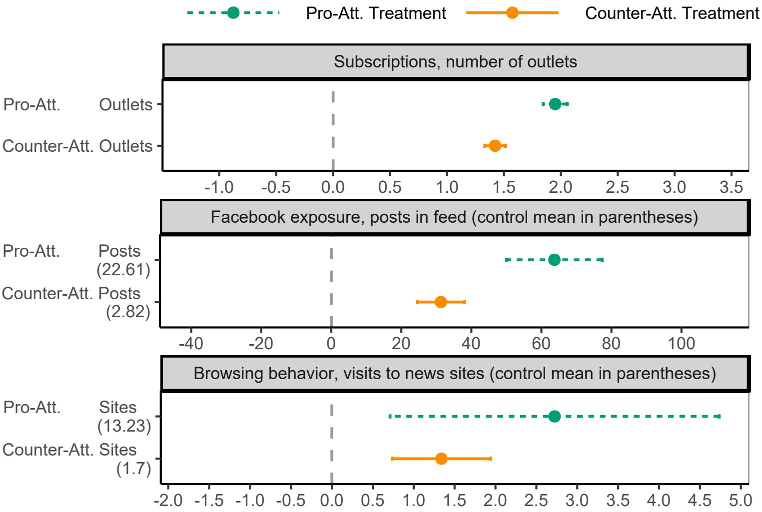

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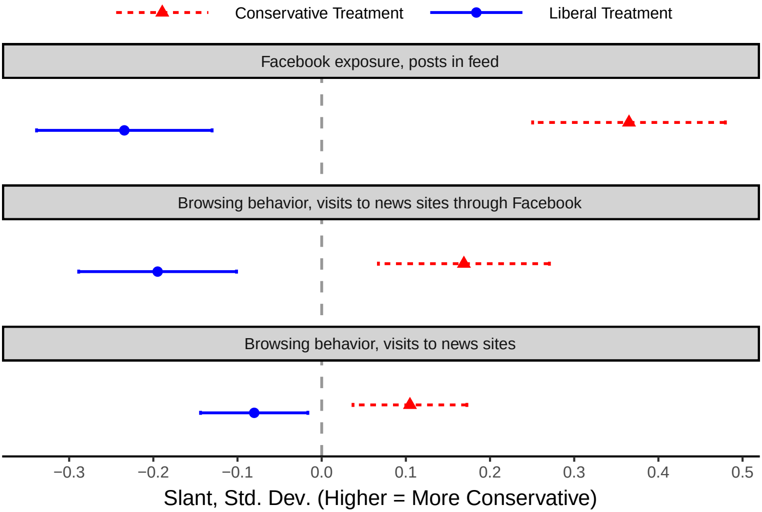
Slant (Higher = More Conservative)



Participants in Post Sharing and Extension Subsamples (N≤1,699)

Regressions Match By Sample Article Level Crowdout Within Outlet Persistent Shared

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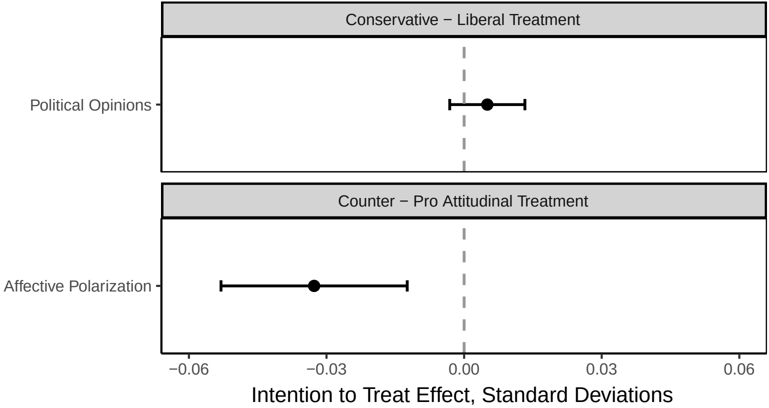
Followup Survey Primary Outcomes

- Political Opinions Index ($\uparrow$ = More conservative)
  - 20 questions on issues covered during the study period
    - March for Our Lives, Stormy Daniels, Mueller investigation, etc.
  - Compare conservative and liberal treatments
- Affective Polarization Index ($\uparrow$ = More partisan hostility)
  - 5 questions, measuring attitudes toward political parties
    - Feeling thermometer
    - Difficult to see things from Dem/Rep point of view
    - Important to consider the perspective of Dem/Rep
    - Dem/Rep party has good ideas
    - Son or daughter married other party
  - Compare pro- and counter-attitudinal treatments

Specifications Knowledge Other Outcomes

Treatment Effects on Primary Outcomes



Participants in Endline Survey Subsample (N=17,130-17,635)

- Effect on attitudes, not political opinions; in line with long-term trend

Regressions | By Treatment | Primary Outlets | Subsamples | Heterogeneity | Null Effect | Mechanisms

Treatment Effect Magnitude

- Focus on feeling thermometer questions (0-100 degrees)
- Counter vs. pro-attitudinal treatment
  - ITT: -0.58
  - TOT: -0.96
- Benchmarks
  - Secular trend 1996-2016 (ANES): 3.83-10.52
  - One month Facebook disconnection (Allcott et al., 2020): -2.09

Components | By Party | Robustness to Component | Affective Polarization Implications | Counterfactuals

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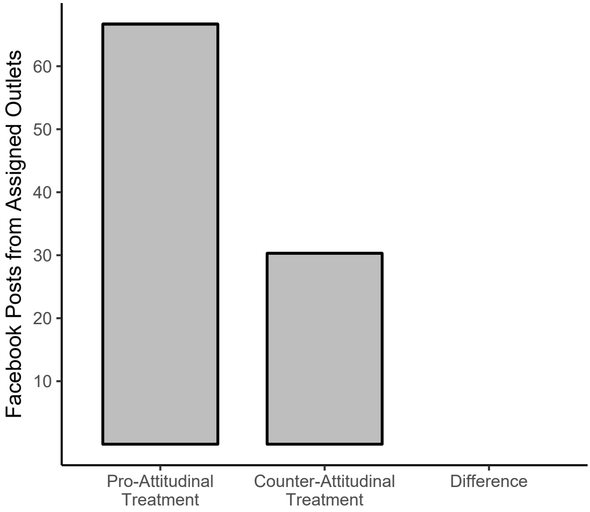
Differential Exposure to Matching vs. Opposing Posts



Participants for whom FB posts and subscriptions are observed for at least 2 weeks (N=1,059)

Explaining Differential Exposure

- The exposure of individual i to posts shared by outlet j:

$$E_{ij} = S_{ij} P_{ij} U_i$$

  - $S_{ij} \in \{0, 1\}$ is i's subscription to outlet j ("selective exposure")
  - P_{ij} is posts supplied from j to i conditional on subscription ("filter bubble")
  - U_i is the total number of posts i observed (usage)

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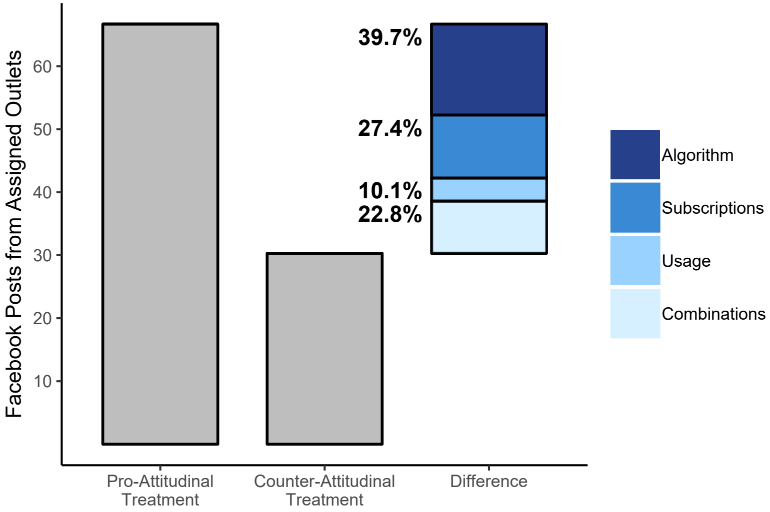
$$\Delta E = \underbrace{S_\Delta * P_C * U_C}_{\text{Subscriptions}} + \underbrace{S_C * P_\Delta * U_C}_{\text{Platform Algorithms}} + \underbrace{S_C * P_C * U_\Delta}_{\text{Platform Usage}} + \underbrace{...}_{\text{Combinations}}$$

  - S_C is subscriptions in the counter-attitudinal treatment
  - S_Δ is the difference in subscriptions between the treatments

Differential Exposure to Matching vs. Opposing Posts



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Specifications Regressions Alt. Decompositions Not Only Social

Conclusions