Measuring and Analyzing Media Bias from Text

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Abstract

Partisan bias infiltrates the media in ways that can affect political behavior. In this research, we analyze political news articles from six media organizations: CNN, Fox News, New York Times, Wall Street Journal, HuffPost, and Breitbart. We measure article-level ideological leaning by comparing the text of the news articles to that of congressional speeches. This research further analyzes partisan bias in news article text by examining two choices made by newsmakers: which events to cover and how to cover them. Combining manual coding of news articles from several major media outlets and statistical analyses, we determine whether they cover the same issues and whether they relay them similarly or in different ways. The ideological leanings of each major media organization can be due to structural differences, but they can also be accentuated by presentation bias. Some of the common strategies used to portray bias through text are selective coverage and framing, which exacerbate polarization and lead readers to seek out media that shares their pre-existing political views. The exposure of voters to partisan bias in news coverage has implications for political discourse. Our research allows us to understand the coverage of political events by media organizations and how they manifest into partisan bias.

Introduction

- Partisan bias in the news has been affecting the political behavior of ordinary citizens and political elites alike
- Prior research has indicated that partisan bias can enter media coverage through two types of choices by newsmakers: which events to cover (selection bias) and how to cover them (presentation bias)
- Our research aims to first estimate the magnitude of media bias by comparing news articles published by major media outlets to congressional speech data, and then examine to what extent the biases were driven by partisan framing versus selective coverage

Methods

- We measured media ideological leaning by examining texts of news articles published by six news outlets: CNN, Fox News, New York Times, Wall Street Journal, HuffPost, and Breitbart
    - In particular, we compared phrases used in articles in the years 2017 and 2018 against data from congressional speeches
    - Each phrase utilized within congressional speeches was analyzed by number of uses per party to identify the top 2000 phrases that were most informative about partisanship
    - After comparing the two datasets, an ideology score was calculated for each media outlet by measuring how often each outlet used congressionally partisan phrases; the second figure shows these ideology scores, and which outlets tend to be more favorable to Democrats versus Republicans
- Next, qualitative comparison was used to determine which events were covered by the same news outlets
    - The first figure below demonstrates selection bias as it shows the same event being covered by three different media organizations with outlets choosing to cover certain events and covering the same events in different ways
    - To determine which outlets covered the same events, we compared headlines and body text from articles in each organization
    - Biases due to framing corresponds to the ideological differences conditional on covering the same event
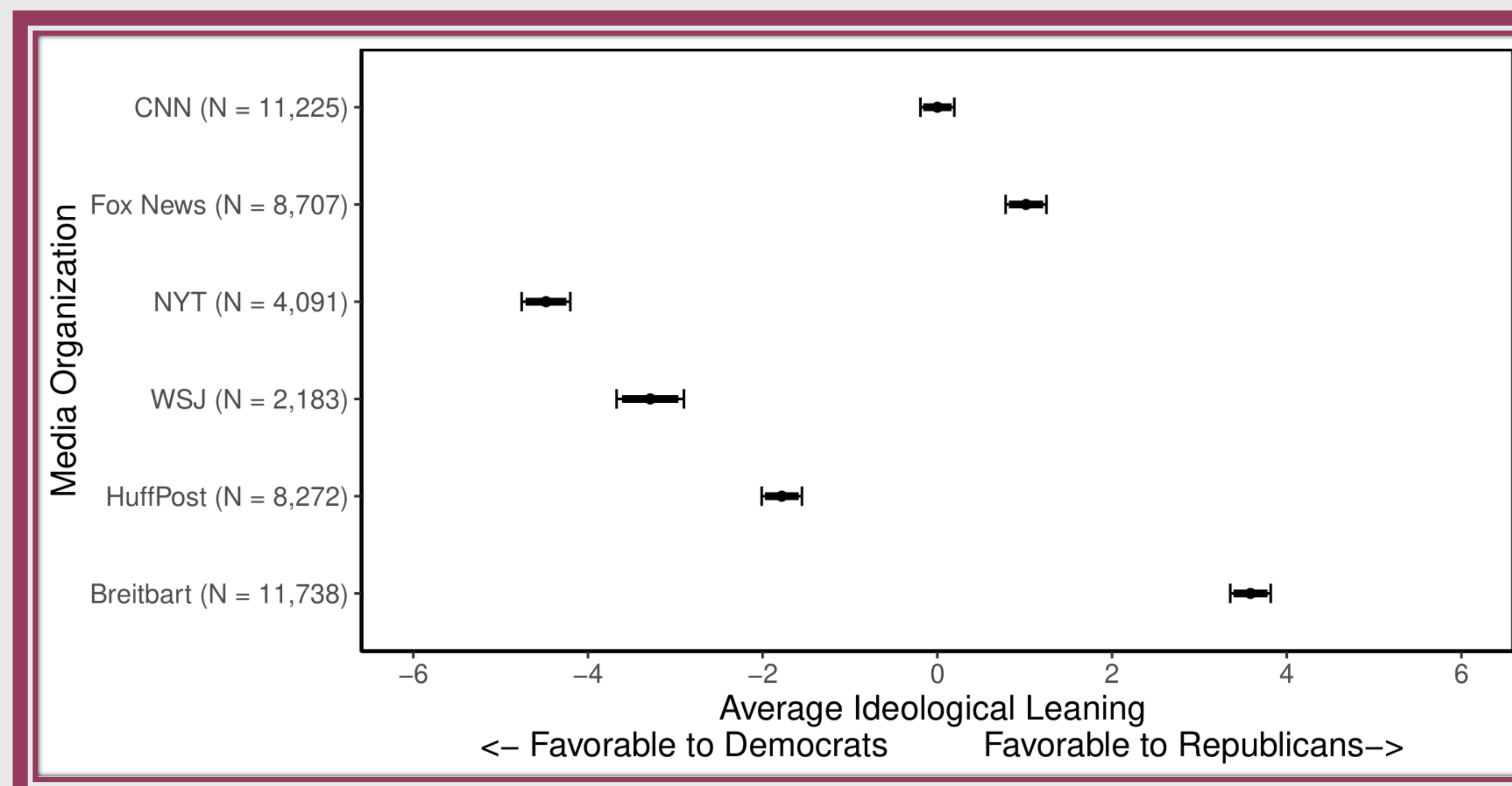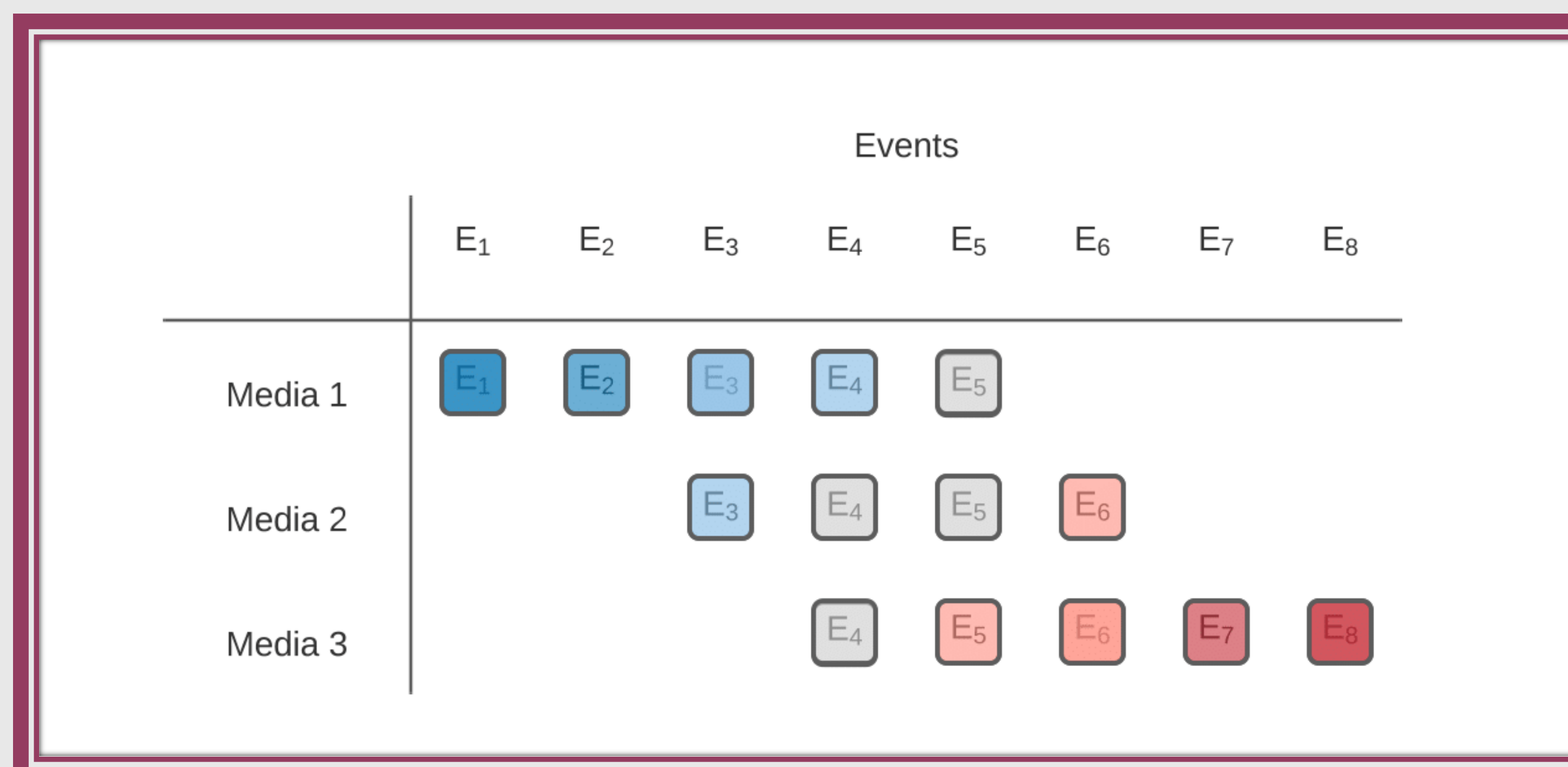
Results

Table: Differences in Ideological Leanings due to Partisan Presentation

	Diff Cond. on Same Event	Bootstrap Std. Error	Unconditional Difference
CNN vs. Fox News	0.3	0.1	1.0
NYT vs. WSJ	1.6	0.1	1.2
HuffPost vs. Breitbart	3.5	0.4	5.4

Conclusion

- By examining texts of news articles published by major media outlets alongside contents from congressional speeches, we were able to recognize and estimate the magnitude of partisan bias in media organizations.
- Combining manual coding of news articles from several major media outlets and statistical analyses, we were able to determine to what extent the biases were driven by partisan framing versus selective coverage.
- Future research could analyze changes in biased presentation over time and apply these methods to other substantive questions about news media.

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