Party Cues in the News: Democratic Elites, Republican Backlash, and the Dynamics of Climate Skepticism

Replication Instructions and Codebook

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News Media Data

News coverage was downloaded from *Lexis Nexis Academic* for the *Washington Post* and the *New York Times* (source justification is provided in more detail in the article) by searching for the terms "global warming" or "climate change" over the relevant time span.

We used supervised machine learning using *RTextTools* to purge the sample of irrelevant stories with a manual coding over 1000 articles for relevance. We then analyzed the data using a combination of manual coding, dictionary methods, and supervised machine learning.

- First, we define a party cue in this context as an explicit or implicit stance on climate change science or related policy attributed to elites of either the Democratic or Republican Party.
    - We measure these cues using the automated content analysis software *Lexicoder* in conjunction with a dictionary of key terms, such as party names, office titles and party leaders. Dictionary details are in Section B of the online supplementary materials.
    - We verified these cues by manually coding a random sample of 700 articles that had a reference to either party in the text to check our automated measure. Approximately 80% of these articles contained what could be considered a cue on climate change by our definition. A detailed description of this process can also be found in Merkley and Stecula (2018).
- Second, to measure economic cost and uncertainty framing, we turn to supervised machine learning methods. Our detailed approach is outlined in Stecula and Merkley (2019).
    - We hand coded a stratified random sample of 2177 articles to train and test an algorithm (Support Vector Machines, or SVM). We stratified across three time periods (1988–1996, 1997–2005, and 2006–2014) to make sure the performance of SVM would not fluctuate as climate change increased in salience over time and to account for any other potential changes in the nature of coverage of this issue. We randomly divided our manually coded sets into a training set (80%) and a testing set (20%) for each period.
    - To measure economic cost framing, we coded whether or not a news article mentioned possible costs of climate change mitigation to the economy, for a discussion of higher taxes, higher energy prices, reduced employment or economic growth, or reduced competitiveness vis-à-vis developing countries.
    - To measure uncertainty framing, we coded each article for how balanced it was toward arguments of supporters and opponents of the IPCC consensus—that climate change is happening, manmade, and a serious problem. Articles could be scored as 1 if they had any discussion that cast doubt on the IPCC consensus and thus used an uncertainty frame, and 0 if they had no such discussion.

Public Opinion Data

Public opinion data, unless otherwise noted, was collected by the authors from the Roper Center for Public Opinion Research Database at Cornell University. The climate skepticism mood measure we utilize in this paper is a combination of all the questions on global warming and climate change that we were able to find at the Roper archive coded in the same direction – towards climate skepticism. We also included questions that were not in our pool, but were included in the work by Carmichael, Brulle, and Huxter.

The measure is primarily composed of two types of questions that were most common over a long period of time. The first asked respondents how serious of a problem climate change is, and the second inquired as to whether climate change was happening. The wording varied slightly, but the general spirit of the questions remained the same. There are a host of other questions asked periodically, including polls asking about global warming in terms of a threat, whether it was man made, and whether it is happening. Although questions were different, the mood measure remains robust. The full list of questions can be found here.

The measure was purged of two outliers. One was a question about the existence of global warming, from February of 2006. Only 6 percent of the respondents said that global warming is 'probably not happening,' substantially below the average response at the time. The survey was conducted by a relatively unknown pollster, Ayers, McHenry & Associates. The other question came from a CBS/NY Times poll fielded on April of 2007, in which only 9 percent of respondents state that global warming is not a serious problem. The latter, however, has virtually no effect on the mood measure.

The mood measure was constructed using the software developed by Jim Stimson, WCalc6, which is available from his website. More information about the skepticism measure, the number of questions by year, and particular factor loadings, can be found in Section A of the online supplementary materials.

References

Merkley E and Stecula DA (2018) Party Elites or Manufactured Doubt? The Informational Context of Climate Change Polarization. *Science Communication* 40(2): 258-274.

Stecula DA and Merkley E (2019) Framing Climate Change: Economics, Ideology, and Uncertainty in American News Media Content from 1988 to 2014. *Frontiers in Communication* **4** doi:10.3389/fcomm.2019.00006

Quarterly and Annual Time Series Data

Variable Name	Description
qt	Quarter
quarter	Quarter of the year
year	Year
skeptic	Unstandardized climate skepticism mood measure with Stimson's smoothing. The measure was calculated using WCALC6 software. The details on the data are in Appendix, Section A.
skeptic_ns	Unstandardized climate skepticism mood measure without Stimson's smoothing. The measure was calculated using WCALC6 software. The details on the data are in Appendix, Section A.
skeptic_std	Standardized climate skepticism mood measure withoout smoothing. The measure was calculated using WCALC6 software. The details on the data are in Appendix, Section A.
pccti	Carmichael et al's Partisan Climate Change Threat Index (PCCTI) for Republicans. See paper for more details.
pccti_std	Standardized PCCTI
pccti_std_rev	Standardized and reversed PCCTI, so that higher number means more climate skepticism.
unemp	Unemployment rate from the Federal Reserve's FRED database.
crude	Crude oil price from the Federal Reserve's FRED database.
climate	Climate index, comprised of a standardized index by the NOAA of the shareof days below the average temperature or in drought conditions.
volume	Number of relevant climate change news stories about climate change in the New York Times and Washington Post.
dem	Number of news stories with Democratic cue in the New York Times and Washington Post. Obtained using automated dictionary methods. Dictionary details are in Appendix, Section B.

gop	Number of news stories with Republican anti-climate cue in the New York Times and Washington Post. Obtained using automated dictionary methods. Dictionary details are in Appendix, Section B.
econcost	Number of stories with economic cost frame in the New York Times and Washington Post. Obtained using supervised machine learning methods utilizing Support Vector Machine (SVM). More details in the paper.
uncert	Number of stories with uncertainty frame in the New York Times and Washington Post. Obtained using supervised machine learning methods utilizing Support Vector Machine (SVM). More details in the paper.
dem_prop	Share of news stories with Democratic cue in the New York Times and Washington Post in a given quarter or year, depending on the dataset.
gop_prop	Share of news stories with Republican anti-climate cue in the New York Times and Washington Post in a given quarter or year, depending on the dataset.
econcost_prop	Share of news stories with economic cost frames in the New York Times and Washington Post in a given quarter or year, depending on the dataset.
uncert_prop	Share of news stories with uncertainty frame in the New York Times and Washington Post in a given quarter or year, depending on the dataset.

Experimental Data

Variable Name	Description
gender	Gender
race	Race
white	White, non-Hispanic
income	Income
educ	Educational attainment
age	Age
polint	Interest in politics (0-10).
ideol	Ideology (7 point scale, from extremely liberal to extremely conservative).
pid	Partisan affiliation (7 point scale, from strong Democrat to strong Republican).
trust	Trust in scientists (5 point scale, from trust a lot to distrust a lot).
screen	Number of attention check questions passed (0, 1, or 2).
skeptic	Agreement with the statement: The Earth is getting warmer mostly because of human activity, such as burning fossil fuels (7 point scale, from strongly agree to strongly disagree).
treat	Experimental conditions: 0 Control; 1 Democratic; 2 Anti-Climate GOP; 3 Polarization; 4 Pro-Climate GOP; 5 Consensus.