

Supplementary Material for “Beliefs about Climate Beliefs: The Importance of Second-Order Opinions for Climate Politics”

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Online Supplemental Analyses

In this section, we present results from a series of secondary analyses on second-order climate beliefs conducted on our MTurk samples. First, we examine whether egocentric bias and global underestimation of the true levels of climate beliefs varies by level of respondent education. We present evidence that it does not.

Second, we present data on US perceptions of the distribution of climate beliefs among US partisans. We find Democrats and most Republicans have relatively homogenous beliefs about the distribution of partisan climate preferences. The exception to this pattern are the minority of pro-climate Republicans. These individuals significantly overestimate the fraction of their Republican co-partisans who also believe in climate change and support climate policies.

Third, we present data on US perceptions of the distribution of climate beliefs in two additional countries beyond China: Canada and Japan. We find persistent egocentric bias in these results.

Perceptions of Second-Order Beliefs by Education Level.

We explore whether individual estimates of the distribution of climate beliefs varies across levels of education. We might expect that more highly educated individuals have more accurate beliefs about the global distribution of climate opinion and are less vulnerable to egocentric biases. Instead, we find that estimates of the distribution of second-order climate opinions do not strongly vary across education levels.

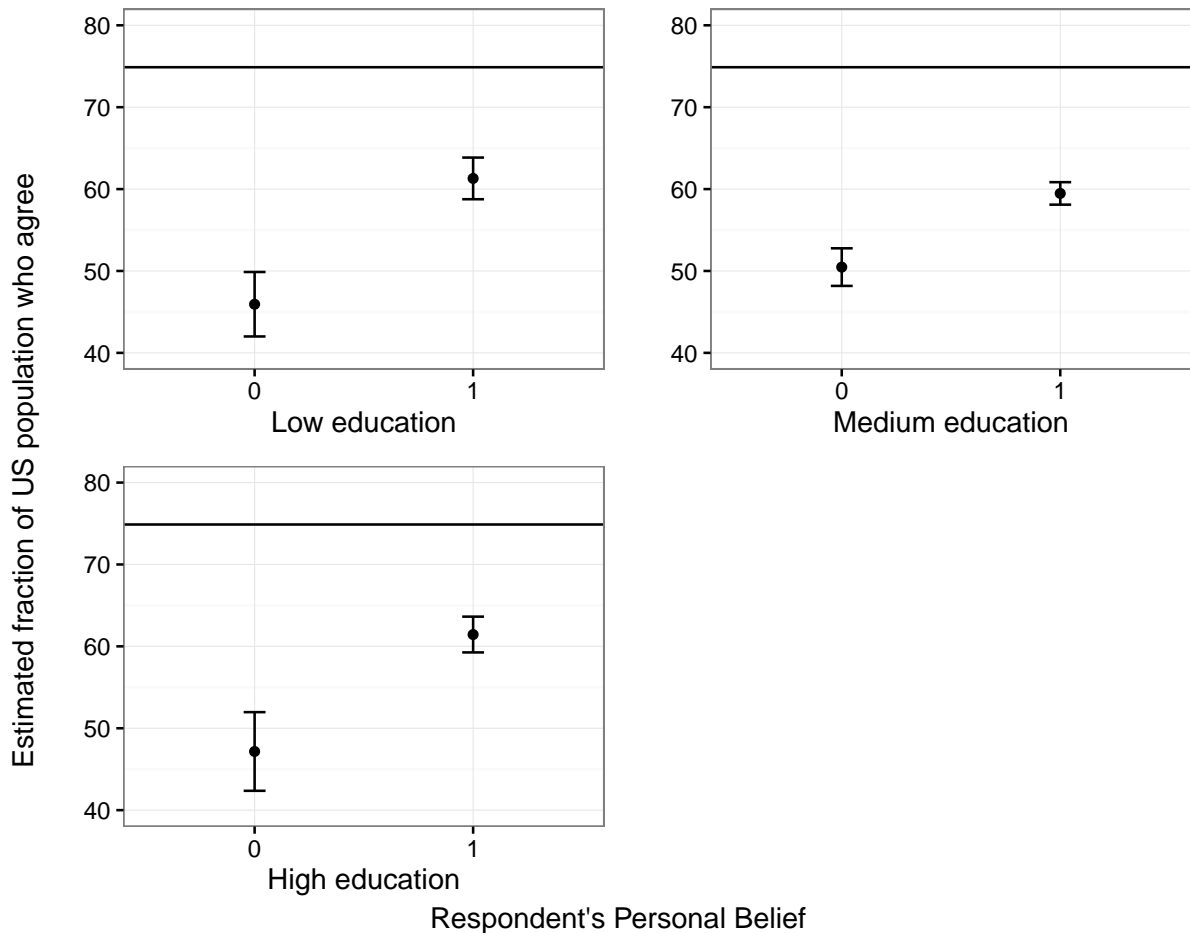


Figure 1: Estimates by US citizens of US population agreement with the statement “Global warming is happening,” conditional on a respondent’s reported personal beliefs. Respondents are split into three groups by level of education. The first pane provides estimates by respondents with a high school education or less. The second pane provides estimates for respondents with some college, technical school or a bachelor’s degree. The third pane provides estimates for respondents with some graduate degree or more. The horizontal line on each graph gives the true population agreement with each statement (as estimated by March 2014 nationally representative SSI survey of the US population). Error bars give the 95% confidence interval.

Perceptions of Second-Order Beliefs among Partisans.

We explore whether individual estimates of the distribution of climate beliefs are similarly biased when considering the distribution of beliefs among out-groups. Perceptions of out-group beliefs are critical for models of climate policy action, since they condition the willingness of particular actors to trust the climate commitments of other actors. For instance, perceptions about the distribution of climate beliefs in other countries could shape international climate negotiations if they shape expectations about credibility of other countries’ climate commitments. In this section, we report the results of experimentally varying the political party of the reference population; in the next section, we report results from experimentally shifting the national identity of the reference population. Both analyses draw from our Mechanical Turk sample.

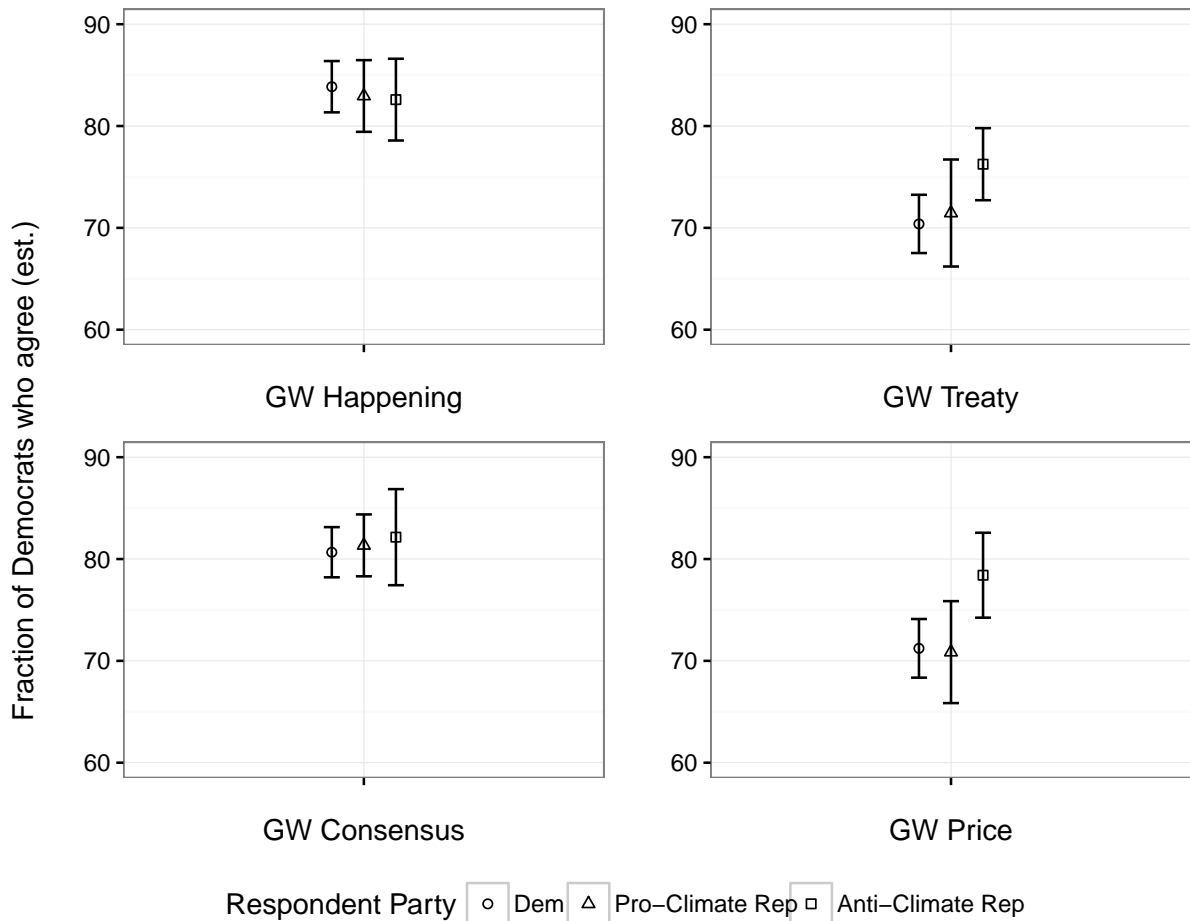


Figure 2: Estimated fraction of Democrats who agree with statements, by individual party type. *GW Happening* = “Global warming is happening.” *GW Treaty* = “US should sign treaty requiring 90% cuts by 2050.” *GW Consensus* = “Most scientists think global warming is caused by human activity.” *GW Price* = “US should put price on pollution.” Error bars give the 95% confidence interval.

First, we compare estimates of Democratic and Republican beliefs about climate change by Democratic and Republican partisans respectively. We differentiate between three partisan types: Democrats, Republicans who agree with a particular statement (pro-climate Republicans) and Republicans who disagree with a particular statement (anti-climate Republicans).¹ In Figure 2, we summarize estimates of the fraction of Democrats who agree with the statements, conditional on the partisan type of the respondent. In Figure 3, we summarize estimates of the fraction of Republicans who agree with the statements, conditional on the partisan type of the respondent.

As shown in Figure 2, respondents of all partisan types systematically estimate Democrats to have high level of agreement with each statement. In contrast, as shown in Figure 3, Republicans are estimated to have lower levels of support. This is consistent with significant partisan polarization in this issue domain. The public accurately perceives the existence of a major political cleavage between the two parties in the climate domain. More interestingly, when estimating the distribution of climate beliefs

¹The number of Democrats in our sample who disagreed with any given statement were negligible and are dropped from this analysis.

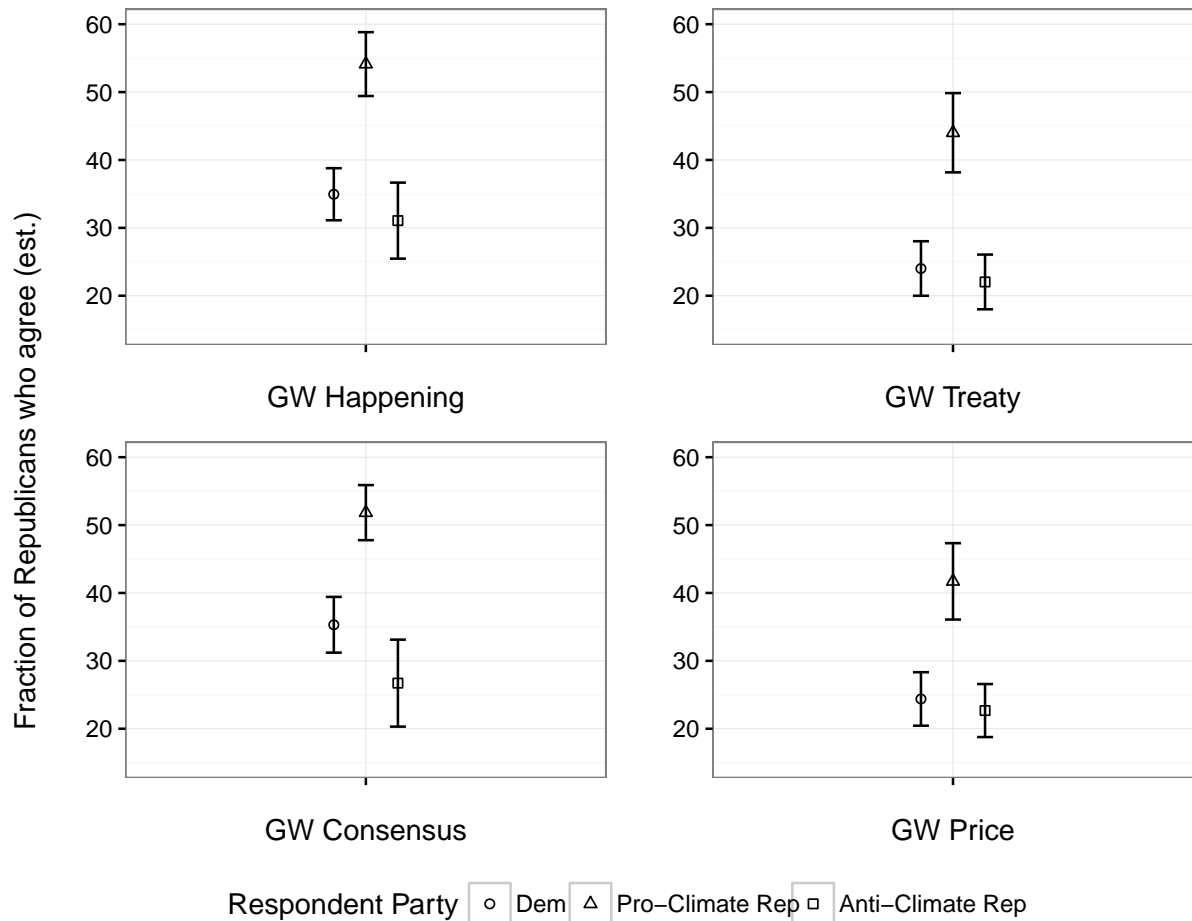


Figure 3: Estimated fraction of Republicans who agree with statements, by individual party type. *GW Happening* = “Global warming is happening.” *GW Treaty* = “US should sign treaty requiring 90% cuts by 2050.” *GW Consensus* = “Most scientists think global warming is caused by human activity.” *GW Price* = “US should put price on pollution.” Error bars give the 95% confidence interval.

among Democrats, respondent partisan identity does not appear to condition estimates of partisan beliefs. Both Republicans and Democrats share a similar view of Democratic positioning on the climate issue. However, when estimating the distribution of climate beliefs among Republicans, respondent partisan identity does matter. As shown in Figure 3, while Democrats and Republicans who *disagree* with any particular statement provide similar estimates for the fraction of Republicans who agree with a given statement, the same is not true for “pro-climate” Republicans. Across all four climate statements, pro-climate Republicans systematically overestimate the fraction of their co-partisans who share their pro-climate views. This may be due to a desire for these Republicans, who are a minority within their party, to project greater in-group homogeneity than exists in reality, an example of the “false consensus” effect.

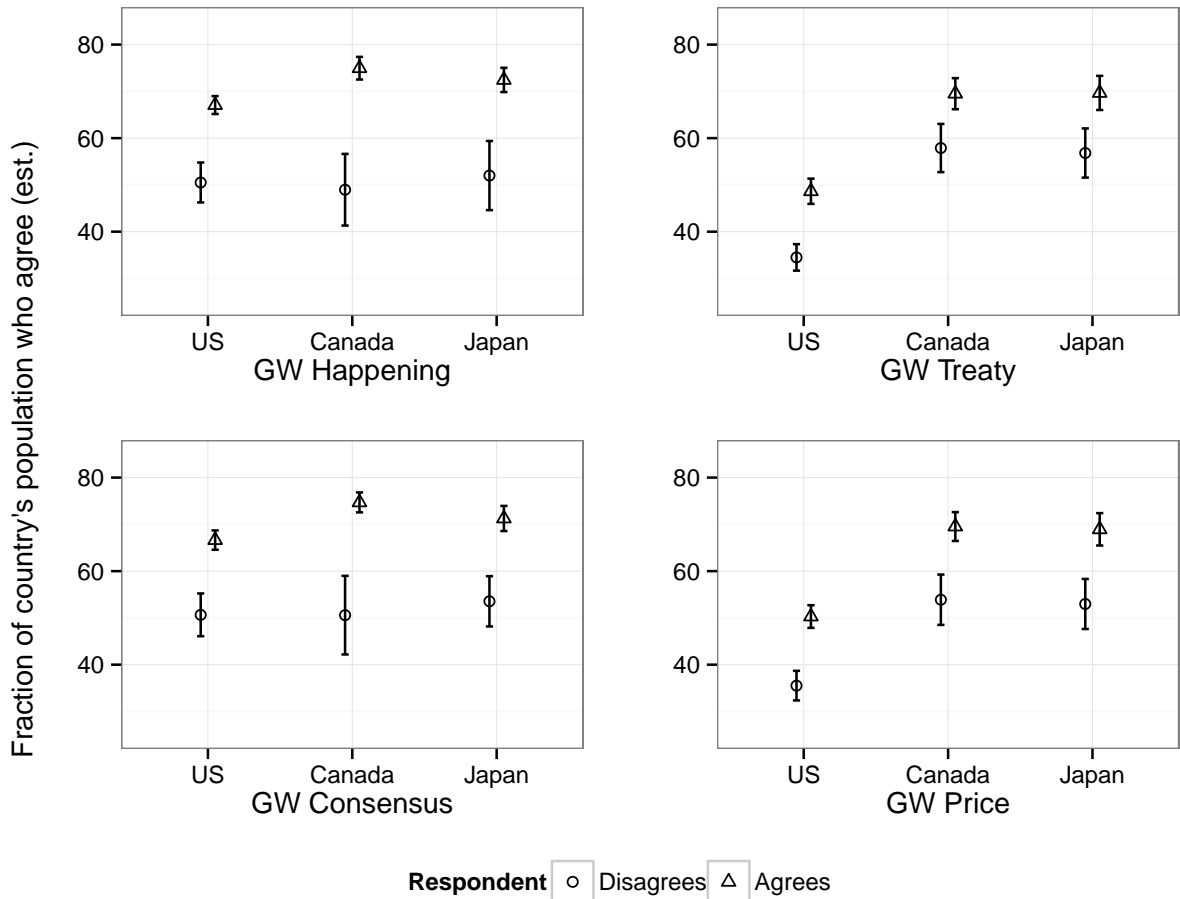


Figure 4: Estimates by US citizens of US, Canadian and Japanese population agreement with statements, conditional on respondent's personal beliefs. *GW Happening* = "Global warming is happening." *GW Treaty* = "US should sign treaty requiring 90% cuts by 2050." *GW Consensus* = "Most scientists think global warming is caused by human activity." *GW Price* = "US should put price on pollution." Error bars give the 95% confidence interval.

American perceptions of the distribution of climate beliefs among additional foreign publics

In Figure 4, we expand the analysis presented as Figure ?? to summarize the US public's estimates of the distribution of climate beliefs in Canada and Japan, two countries that are arguably perceived by many US citizens as reasonably similar to the United States. This data draws from our MTurk sample. We find persistent egocentric bias in estimates of the distribution of climate beliefs among the Canadian and Japanese publics. Further, while the US public estimates that levels of climate beliefs are similar to the United States in both countries, all individuals no matter their personal beliefs appear to believe that foreign populations have wider support for the US acting on climate change than the US population does. At the same time, US citizens perceive that levels of more factual climate beliefs are broadly similar in other countries to the beliefs they ascribe to the US population.

The content of climate beliefs imputed to political actors

Figure 5 presents the results for a political actors prompt. This prompt asked respondents to suggest the rationales that a politician might have for believing or disbelieving in climate change. Specifically, we asked: “Some politicians in the United States believe that climate change is not due to human activity. Other politicians think that humans are causing the planet’s climate to change. We would like for you to imagine you are talking to a member of Congress who does [does not] believe that humans are changing the climate. Imagine you asked each him or her why they believe humans are [are not] causing climate change. What do you think they would tell you? Please write several sentences, focusing on what you think their responses would be. They would say...”

The format of the figure is the same as in Figure ???. The top left plots words highly exclusive to reach topic and the top right plots the differences between those asked to write about a politician arguing that humans do and those arguing that humans do not cause climate change. Topics 5 reflects the main themes for politicians who do not believe that humans are causing climate change which discusses natural changes in the climate. Topic 8 focuses on behaviors that generate these mechanisms (e.g., humans driving cars) and is more associated with politicians claiming climate change is happening. The bottom left and bottom right plot differences, for each condition, between individuals in our survey that belief, or do not belief, climate change is happening.

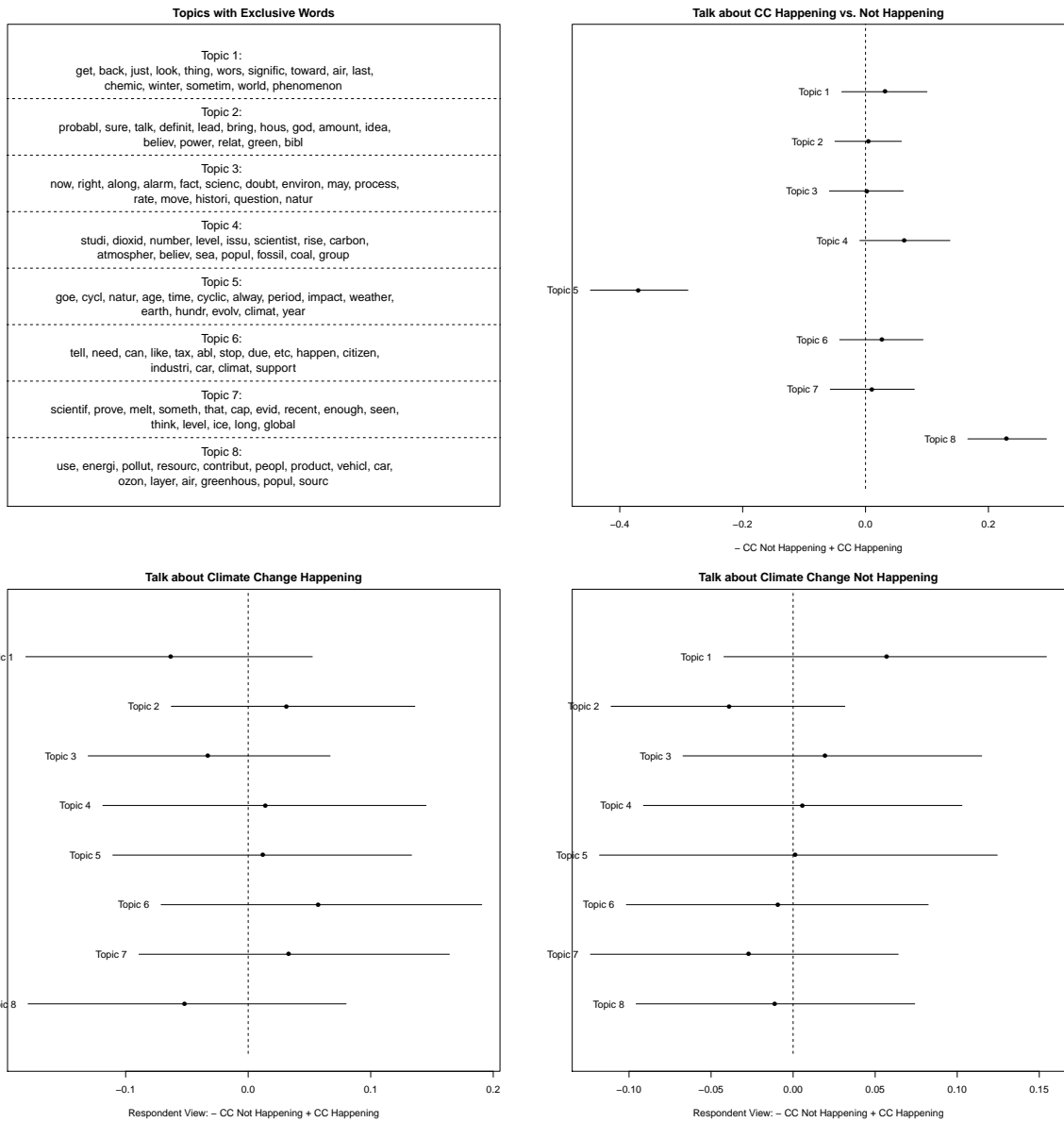


Figure 5: Top left of figure lists words highly exclusive to each topic. Top right gives the topic contrast between those in the climate change not happening versus happening conditions. Bottom half of figure plots the relationship between topics and respondent's own views on whether climate change is happening. The left hand plot is for people who were asked to write about a politician who thinks humans are causing climate change, and the right plot for people who were asked to imagine a politician who does not think humans are causing climate change. The lines in the plot represent 95% confidence intervals for the *difference* between respondents who themselves think climate change is versus is not happening. Effects that are further to the left are more likely to be mentioned by an individual who does not believe climate change is happening. Effects that are further to the right more likely to be mentioned by an individual who does believe climate change is happening.