

**THE ROLE OF POLITICAL SKEPTICISM, REACTANCE, AND PARTISAN BIAS IN  
SHAPING ATTITUDES ON CLIMATE CHANGE IN THE UNITED STATES**

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Timothy Campbell

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**Examining Committee:**

Paul Quirk, Political Science  
Supervisor

Andrew Owen, Political Science  
Supervisory Committee Member

## **Abstract**

This thesis considers the relationship between three psychological traits – political skepticism, reactance, and partisan bias – and public opinion about climate change in the United States. Drawing on the results of a large national survey of American adults, I find that political skepticism (defined as “distrust of the claims made in policy debates and distrust of the evidence cited by participants in policy debates, regardless of the identity of the participants”) is the most important of the three psychological measures in shaping attitudes on climate change as well as Americans’ news consumption habits. Regression analysis was used to identify political and demographic correlates of political skepticism, reactance, and partisan bias, as well as correlations between each trait and respondents’ news consumption habits and their attitudes on four questions related to climate change. Politically-skeptical respondents are significantly less likely to think that global warming is happening, that such warming is caused by human activity, that it represents a serious problem, or that a carbon tax should be introduced to address the issue. In addition, more politically-skeptical respondents also tend to be older and more likely to identify as Republicans and conservatives, as well as less likely to report getting news from each of a wide range of news sources included in the survey. I conclude by highlighting the importance of political skepticism and offering suggestions for future research into the role that such skepticism may play in American politics more generally.

## **Lay Summary**

This study was conducted with the goal of understanding the impact that three psychological traits – political skepticism, reactance, and partisan bias – have on Americans’ opinions about climate change. Since very little research has considered the role played by these three attributes, this study offers important new insights into some of the factors shaping public opinion on the issue. Perhaps most importantly, this study finds that Americans with higher levels of political skepticism are significantly less likely to think that global warming is occurring, that it is caused by human activity, or that it is a serious problem, and they are also less likely to obtain news from a wide range of news sources. These findings may prove useful to policymakers and environmental activists as they seek to engage the public to build support for policies that reduce emissions and mitigate the effects of climate change.

## **Preface**

This thesis is the original, unpublished work of the author, Timothy Campbell. The survey data utilized in this thesis was kindly provided by my supervisor, Dr. Paul Quirk, who collected the data with his co-authors, Dr. Kathryn Harrison, Dr. Nancy Olewiler, and Dr. Andrew Owen.

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*For Andy*

## Chapter 1: Introduction

On a wintry day in February 2015, Senator James Inhofe of Oklahoma brought a snowball onto the floor of the U.S. Senate, observing, “It’s very, very cold out. Very unseasonable” (Bump 2015). He went on to question the scientific consensus on climate change, namely that human activities resulting in the emission of greenhouse gases are a primary cause of the increase in global average temperatures since the beginning of the Industrial Revolution (International Panel on Climate Change 2018; Oreskes 2004; Rosenberg, Vedlitz, Cowman, and Zehran 2010). While Inhofe’s antics drew considerable criticism, his views on climate change in fact closely reflect those of many Americans (particularly Republicans). As on many other issues, public opinion on climate change is highly polarized along party lines: Republicans are far more likely than Independents or Democrats to express skepticism about the existence of climate change and the role of human activity in driving it. The views of partisans in the general public largely parallel the beliefs of their copartisan elites, with Republicans expressing much more suspicion than Democrats (Bolsen, Druckman, and Cook 2015).

While the partisan divide over climate change is well-established, relatively little research has considered the role that three psychological traits – political skepticism, reactance, and partisan bias – may play in driving public opinion on climate change and the role they may play in American politics more generally. In an effort to study the connection between these traits and Americans’ beliefs about climate change, a team of researchers conducted a large, national survey of nearly 4,000 U.S. adults in the spring of 2018.<sup>1</sup> This study examines whether the three aforementioned psychological traits are important factors in promoting climate denialism and

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<sup>1</sup> The principal researchers for this project were Andrew Owen, Paul Quirk, Kathryn Harrison, and Nancy Olewiler.

resistance to mitigation policies, independent of the well-established effects of partisanship and political ideology.

I begin this paper by reviewing the academic literature on political skepticism, psychological reactance, and partisan bias and the literature on American public opinion on climate change more generally. I then discuss the large national survey on which this paper is based and describe the relevant methodology, including a discussion of how the three psychological traits of interest were operationalized. I subsequently outline the most salient findings and explore in greater detail what we can say about the correlates of political skepticism. I conclude by offering suggestions for future research and some analysis of the relevance of these findings for elected officials and environmental activists who hope to move the needle on climate change.

These findings should be of interest to elected officials and environmental activists, political scientists, and climate scientists. The wide public divide on climate change and environmental policies seems likely to frustrate efforts at bipartisan legislation on these issues – although public support for particular policies (e.g., investment in renewable energy technologies) may depend on how those policy proposals are framed by lawmakers and environmental activists. It is thus essential for elected officials and activists to understand the role that political skepticism plays in driving public opinion on climate change. Moreover, it is important for political scientists to understand the partisan divide on climate change, as the issue provides an important test case for various theories about the extent and causes of polarization in the United States. And these findings should also interest climate scientists who hope that the federal government will implement particular policies to mitigate the effects of climate change. Understanding the public divide on climate change and the role of political skepticism in driving

this divergence may help these individuals tailor their message to those communities that could be persuaded to support their preferred policy initiatives.

Before proceeding, I should also make a note about terminology. Throughout this paper, I will primarily use the term “climate change” to refer to the recent trend of changes in the Earth’s climate that have occurred since the large-scale burning of fossil fuels and attendant greenhouse gas emissions began in the mid-nineteenth century at the start of the Industrial Revolution. The term “anthropogenic climate change,” in turn, refers to the consensus view among scientists that human activity is responsible for such changes. However, at times I will also use the terms “global warming” or “anthropogenic global warming” in reference to the same phenomenon. Many opinion polls do not use these terms interchangeably because they may carry different connotations for respondents. Nevertheless, I will use these terms interchangeably.

## Chapter 2: Psychological Attributes and Resistance to Information

It will be useful to begin by describing the three psychological attributes of interest and discuss the anticipated relationship between each attribute and public opinion on climate change, as well as resistance to scientific information about the issue and efforts at persuasion. I will then survey previous research relating to public opinion on climate change, with an emphasis on the outsized influence of partisanship on Americans' opinions.

### 2.1. Political Skepticism

Countless opinion polls have found that Americans are deeply and increasingly distrustful of their government, but political scientists have not devoted much attention to a more particular facet of public opinion about politics: public distrust of the facts, statistics, and arguments employed in policy debates themselves, regardless of the individuals involved in these debates. This study extends our understanding of Americans' attitudes toward their government by devoting attention to this unique variety of skepticism. At this point, it is important to define our terms. Bennett et al. (2013) use the term “skeptical” to “capture a broad assortment of negative feelings toward politics, politicians, and the government, such as disapproval, disaffection, mistrust, and cynicism. It includes the perspective that the current [system] *could* work (but does not), as well as those who believe the system is more fundamentally broken” (520). But this is a much broader conception of political skepticism than what is meant in the context of this study. For the purposes of this study, “political skepticism” refers to distrust of the claims made in policy debates and distrust of the evidence cited by participants in policy debates, regardless of the identity of the participants.

The measure of political skepticism used in this study was adapted from a similar measure used in research on the psychology of advertising persuasion. Obermiller and Spangenberg (1998) developed a nine-item scale to measure respondents' degree of skepticism toward advertising or "ad skepticism" (Ham, Nelson, and Das 2015). Obermiller and Spangenberg define "skepticism toward advertising" as "the tendency toward disbelief of advertising claims" (1998, 160). They elaborate that such skepticism may be understood as "a stable, generalizable marketplace belief, one of the overarching propositions that compose a consumer's implicit theory of how the marketplace operates" (Ibid.). To measure their degree of ad skepticism, respondents were asked to report their level of agreement with a series of Likert-style statements pertaining to the information and claims made in advertisements, such as "Advertising is generally truthful," "I believe advertising is informative," and "Most advertising provides consumers with essential information" (Ham, Nelson, and Das 2015).

In a similar fashion, respondents to the survey on which the present study is based were asked to indicate their level of agreement (on a 1-5 scale) with a series of five statements pertaining to policy debates and the evidence – facts, statistics, and experts – cited in them. (These five statements are listed in the Research Design section.) Just as advertising skepticism may be a fundamental element of "a consumer's implicit theory of how the marketplace operates," (Obermiller and Spangenberg 1998, 160), so too may political skepticism be foundational to how many Americans view the policymaking process. By asking respondents for their attitudes about these elements of the political process, this study concentrates on a unique category of skepticism not considered in previous research. Respondents with a high score on this measure of skepticism are not merely distrustful of a political institution, a particular party, or an elected official; rather, they are skeptical about *the claims and arguments made as part of*

*the policymaking process*. Importantly, while “politicians, leaders of various groups, and commentators” are mentioned in the introduction to this section of the survey, the questions used to create this measure do not reference “politicians” or “elected officials,” terms which could certainly evoke negative associations for respondents. Consequently, this novel measure may provide valuable insights into a previously unidentified variety of skepticism that seems likely to shape attitudes on a whole range of political issues, including climate change.

Why should we care about political skepticism among the American public, and what relationship can we expect between political skepticism and attitudes on climate change? Here some reference to the research on advertising skepticism may be useful. On the basis of several experiments, Obermiller, Spangenberg, and MacLachlan (2005) observe that advertising skeptics are “generally less positive in response to advertising; they like it less, believe it less, and believe it is less influential. They avoid advertising when they can and report less connection between advertising and purchasing. ... The advertising skeptic regards advertising as not credible and, therefore, not worth processing” (15). Importantly, “Advertisers are not apt to ‘win over’ skeptics by presenting them with simple informational appeals”; rather, skeptics are more likely to respond positively to emotional appeals (Ibid.). To the extent that these findings about advertising skepticism can be extended to political skepticism, the implications may be profound.

Put simply, pervasive skepticism toward the assertions made and the evidence cited in policy debates can have a deleterious impact on democratic systems, since these systems rely to a large degree on public understanding of – and agreement about how to address – pressing policy issues. If citizens are not only distrustful of political institutions such as Congress or individual elected officials, but also skeptical of the very claims made and the facts referenced in political discourse, it will prove exceedingly difficult to forge the type of consensus necessary to address



issues like climate change. If an individual is highly skeptical about the facts, statistics, or experts cited in policy debates generally, she will likely also be skeptical of the facts and statistics cited by scientists or policy actors who claim that urgent action is necessary to prevent the worst effects of climate change or mitigate the damage that has already been done. And it seems plausible that this skepticism could extend to other issues as well; as the Analysis and Results section of this paper details, political skepticism is quite expansive indeed. As a result, I hypothesize that respondents who express higher levels of political skepticism will be less likely to support a carbon tax and less likely to agree with the scientific consensus on climate change.

*H1:* Respondents with higher levels of political skepticism will express lower levels of support for a carbon tax and will be less likely to think that climate change is occurring, caused by human activity, and a serious problem.

## **2.2. Reactance**

The second psychological trait of interest included in this study is reactance. Jack Brehm first introduced psychological reactance theory in 1966 in an effort to explain why people often react negatively to perceived threats to their freedom (Brehm 1966; Wicklund 1974; Mead 2007). “Psychological reactance” refers to “the motivational state that is hypothesized to occur when a freedom is eliminated or threatened with elimination” (Brehm and Brehm 1981, 37). According to Steindl et al. (2015), “the motivation to regain a freedom after it has been lost or threatened ... [often] leads people to resist the social influence of others” (205). Reactions to a perceived or actual loss of freedom vary: individuals may perform the restricted action in an effort to regain their freedom (known as “direct restoration” of the freedom), view the restricted

option more favorably than they did previously, or feel antipathy toward the source of such constraints (Mead 2007).

While Brehm originally believed reactance was impossible to measure (Brehm and Brehm 1981), Dillard and Shen (2005) propose what they call the “intertwined model,” arguing that “reactance is best understood as an intermingling of negative cognition and anger” (160). According to a subsequent meta-analysis by Rains (2013), the intertwined model best fits the data generated by multiple studies of reactance. In this model, a threat to an individual’s freedom is included as an exogenous variable, while reactance is “modeled as a latent factor with anger and counterarguments serving as indicators” (Rains 2013, 61). The measure of reactance included in this study builds on this conceptual understanding. Respondents were asked to rank their level of agreement with a series of statements intended to measure their affective and cognitive responses to perceived constraints on their freedom.

There may also be a connection between psychological reactance and attitudes on climate change. It seems *prima facie* likely that people may respond negatively when presented with claims about the threat posed by climate change, or they may distrust assertions about the near-unanimity of scientists on the issue. However, several recent studies have indicated that informing people about the overwhelming scientific consensus on climate change can actually be an effective way to change beliefs about the issue and increase public support for action to combat climate change, a mechanism van der Linden et al. (2015) term the “gateway belief” model (Bolsen and Druckman 2018; Lewandowsky, Gignac, and Vaughan 2013; van der Linden, Maibach, and Leiserowitz 2019). As a result, it may be more difficult to make predictions about the relationship between psychological reactance and beliefs about climate change. I hypothesize that respondents with higher levels of reactance will be less likely to support the introduction of a

carbon tax (since they may view it as an imposition on their freedom), but there will be no significant relationship between reactance and other beliefs about climate change.

*H2:* Respondents with higher levels of reactance will express less support for a carbon tax.

*H3:* There will be no relationship between a respondent's level of reactance and her other beliefs about climate change.

### **2.3. Partisan Bias**

Finally, perhaps the defining features of contemporary American politics are partisanship and polarization along party lines. In addition to shaping voting behavior and public opinion on matters of policy, partisanship also frequently manifests as bias toward one's own party and against the opposing party, a trait known as "partisan bias." Before discussing the literature about partisan bias in particular, it will be useful to situate the discussion within the context of partisanship and polarization more generally. Then I will discuss in greater detail the partisan bias measure used in this study, which extends beyond mere party preference to gauge respondents' tendency toward biased judgments about political parties and elected officials.

Scholars of polarization agree that political elites, most notably members of Congress, have grown considerably more polarized in recent decades (McCarty, Poole, and Rosenthal 2006; Sinclair 2006). However, scholars disagree about whether the public is similarly polarized. Some scholars argue that polarization is largely concentrated among political elites and activists (DiMaggio, Evans, and Bryson 1996; Fiorina, Abrams, and Pope 2005; Fiorina and Abrams 2008), while others claim that it extends to the mass public as well (Abramowitz and Saunders 2008; Abramowitz 2010; Hetherington, Long, and Rudolph 2016). In at least one respect, however, it seems clear that the mass public has polarized: attitudes of partisans toward members

of the opposing party have grown much more negative in recent years, perhaps as a response to increased elite polarization (Iyengar, Sood, and Lelkes 2012; Iyengar and Westwood 2015; Lelkes 2016; Webster and Abramowitz 2017; Iyengar et al. 2019; Banda and Cluverius 2018). This “affective polarization” can manifest as feelings of antipathy toward the opposing party, viewing opposing partisans as “extreme” or “unpatriotic,” or even thinking the other party’s policies are a threat to the nation’s well-being (Doherty and Kiley 2016).

This attitudinal polarization goes hand-in-hand with partisan bias. According to Bartels (2002), “Partisanship is not merely a running tally of political assessments, but a pervasive dynamic force shaping citizens’ perceptions of, and reactions to, the political world. Partisan bias in political perceptions plays a crucial role in perpetuating and reinforcing sharp differences in opinion between Democrats and Republicans” (138). Partisan bias takes multiple forms, shaping partisans’ factual beliefs about politics (Bullock et al. 2015), their assessments of the state of the economy (Ramirez and Erickson 2014), and the success or failure of high-profile policies like the Affordable Care Act (McCabe 2016). In effect, partisans tend to give co-partisan elites the benefit of the doubt while viewing elites in the opposing party or their performance while in office more negatively.

The novel partisan bias measure included in this study gauges respondents’ tendency toward biased judgments about the political parties and elected officials in each party. In order to measure their degree of partisan bias, respondents were asked which party they thought was more frequently involved in corruption scandals and whether each party’s elected officials do what is best for the country or what is necessary to win elections. While one would expect a clear correlation between a respondent’s partisan bias and her partisan affiliation, even an ardent conservative could acknowledge corruption in the Republican Party or a staunch liberal could

admit that Democratic members of Congress are unduly self-interested. These questions, therefore, help provide some insight into respondents' actual *bias* in their judgments of each party, not simply their agreement with one party's policies or support for individual candidates. Moreover, this measure is useful since it permits us to compare the relative levels of partisan bias among Democrats, Independents, and Republicans as well as between ideological liberals and conservatives. Two measures of partisan bias were used in this study: a 4-point scale that measures the direction of partisan bias from a strong Democratic bias to a strong Republican bias, and an absolute value measure ranging from 0 to 2 that gauges the extremity of partisan bias (respondents with a strong bias toward either party were coded as a 2, while those with no bias were coded as a 0). Since it seemed likely that the direction of a respondent's bias would be important in relation to her opinions on climate change, the former measure of partisan bias seemed more useful for these regressions. Accordingly, I hypothesize that respondents with extreme partisan bias scores (indicating a strong bias toward one party) will be more likely to adopt the position of their copartisan elites on a carbon tax and other climate-related issues.

*H4:* Respondents with extreme partisan bias scores will conform to the majority view of their respective parties: Democrats will be more likely to believe anthropogenic climate change is real and urgent, while Republicans will be considerably less likely to do so.

### **Chapter 3: Public Opinion on Climate Change**

Public opinion on climate change in the United States varies considerably by region, political party, age group, and level of education, and opinions have also varied over time. Opinion polls have typically gauged public opinion on climate change using a number of measures, including belief that the Earth's climate is warming, belief that humans are primarily responsible for such warming, and support for particular policy responses, such as a cap-and-trade system or a carbon tax. Much of the existing literature pertaining to American public opinion on climate change either analyzes the partisan split on the issue or considers the causes of this divide, including the relationship between various demographic characteristics and beliefs about climate change. I will begin by discussing the current state of public opinion on climate change, then consider the substantial partisan polarization on the issue and analyze the impact of several other factors, including age and educational attainment, on Americans' opinions.

Recent polling indicates that over the last several years, the American public as a whole has grown more likely to believe that climate change is occurring and that it represents a very serious problem (Murray 2018; Leiserowitz et al. 2019). Notably, these opinions have increased across nearly every demographic group, including Republicans, nearly two-thirds of whom now agree that the climate is warming (Murray 2018). According to the Yale Program on Climate Change Communication, a large majority (72%) of Americans think global warming is taking place, while only 12% disagree (Leiserowitz et al. 2019). The public is more divided over whether such warming is the result of human activities: 59% think that global warming is primarily human-caused, while 30% believe it is due mostly to natural causes (Ibid.). However, a large majority of Americans think that human activity contributes "a great deal" or "some" to

climate change, according to several recent national polls (Funk and Hefferon 2019; de Pinto, Backus, and Salvanto 2019).

Public opinion on climate change is an interesting case study for views on partisan polarization. Numerous opinion surveys have confirmed that there is indeed a significant partisan divide on the issue. In a Pew survey conducted in January 2017, for instance, 62% of Democrats said that dealing with climate change should be a top priority for the president and Congress, while only 15% of Republicans agreed (Pew Research Center 2017). The partisan divide over climate change was the largest of all 21 issue areas included in the survey, much larger than the divides over terrorism, the economy, education, and health care costs. Indeed, in a recent meta-analysis, Hornsey et al. (2016) found that political affiliation is the most important demographic correlate of climate change belief: “[the] effect [of political affiliation] is roughly double the size of any other demographic variable,” including age, education, income, race, or sex (622). Research also indicates that there is a relationship between affiliation with conservative political parties and skepticism of anthropogenic climate change (Tranter and Booth 2015), while ideological conservatism does not predict skepticism in other scientific domains, such as toward vaccines (Rutjens, Sutton, and van der Lee 2018). However, some of this apparent partisan divide may be an artificial byproduct of survey wording or a consequence of issue framing. Republicans are far more likely to agree that “climate change” is taking place (60%) than they are to affirm that “global warming” is occurring (44%) (Schuldt, Konrath, and Schwarz 2011), and they are more likely to oppose policies such as investments in renewable energy, a revenue-neutral carbon tax, and fuel efficiency standards when those policies are presented as a means to reduce climate change than when those same policies are presented as ways to reduce air pollution or ensure energy independence (Feldman and Hart 2018).

Age and education are also important factors shaping Americans' opinions. Young adults are considerably more likely than those age 55 and older to view climate change as a very serious problem (67% to 46%) and to support government action on climate change (82% to 61%) (Murray 2018). And similar generational divide also exists within the Republican Party. According to a recent Pew Research study, millennial Republicans are much more likely to believe in anthropogenic climate change, and much less likely to support coal mining, hydraulic fracturing (fracking), and offshore drilling, than their counterparts who are Baby Boomers or members of the Silent Generation (Funk and Hefferon 2019). Moreover, while Americans with higher levels of education are generally more likely to agree that the climate is changing and that human activity is responsible, Republicans with college degrees are in fact more likely than those with only a high-school education or less to express skepticism about climate change (McCright and Dunlap 2011; Newport and Dugan 2015). Newport and Dugan (2015) conclude that higher levels of education – and the attendant exposure to scientific information about climate change and elite cues on the issue – serve to strengthen partisan positions rather than build consensus between the two parties. In their words, “Partisan affiliation more so than education plays the dominating role in the American public’s attitudes about global warming today. Education does not mitigate the partisan divide in beliefs about global warming but instead strengthens it” (Ibid.).

So partisanship appears to be the most important factor shaping Americans' opinions on climate change (notwithstanding notable intraparty generational differences). Republicans are generally less likely to agree that the climate is changing, that human activity is responsible for such changes, and that urgent action must be taken to combat climate change. The most important question, then, is whether political skepticism, reactance, or partisan bias have an



effect on Americans' opinions independent of the effects of partisanship or political ideology. In the next section, I will describe the methodology used in this study, including the questions used to measure the three psychological traits of interest among survey respondents. I will then consider what we can say about political skepticism, reactance, and partisan bias among Americans in general, the relationship between each of these measures and other attitudes and habits (such as news consumption habits), and the connection between each trait and American attitudes on climate change.

## Chapter 4: Research Design

This study relies on data obtained from a YouGov survey of 3,839 online respondents across the United States who responded between March 29 and May 4, 2018. Respondents were asked a range of questions that helped to assess their degree of political skepticism, reactance, and partisan bias, along with their party identification, political ideology, religiosity, news consumption habits, and confidence in various institutions. To measure their degree of political skepticism, respondents were asked to indicate their level of agreement (on a five-point scale ranging from strongly agree to strongly disagree) with the following five statements:

- You can usually believe the facts and statistics that are used in policy debates.
- Even when participants in policy debates point out real facts, the facts are usually misleading.
- I believe that the arguments used in policy debates are informative.
- The experts who are quoted in policy debates are usually objective and reliable.
- The people in policy debates say whatever helps their case; they don't care about the truth.

For each statement, the least skeptical response was assigned a score of 0, while the most skeptical response was assigned a score of 1. For instance, if a respondent “strongly agreed” with the first statement, her response was recorded as a 0; if she “strongly agreed” with the second statement, her response was recorded as a 1. The five scores were then added to create a final measure of political skepticism ranging from 0 (least skeptical) to 5 (most skeptical).

A similar process was used to create a scale of reactance. Respondents were asked to rank their level of agreement on a five-point scale with each of the following six statements, which were drawn from a standard scale of reactance:

- When other people give me advice, it is usually none of their business.
- I get frustrated when I'm not free to make my own decisions.
- Advice and recommendations often make me do just the opposite.
- I don't let others influence me.
- It makes me angry when I'm told I should do things the way some other person does.

- I like disagreeing with other people.

For each statement, the least reactant response was assigned a score of 0, while the most reactant response was assigned a score of 1. The six scores were added to create a final measure of reactance ranging from 0 (least reactant) to 6 (most reactant).

Finally, partisan bias was calculated based on respondents' answers to three questions:

- Over the past few years, which party's members of Congress would you say have been involved in scandals involving corruption more often?
- Do you think leaders of the Democratic Party do what they think is best for the country or whatever it takes to win elections?
- Do you think leaders of the Republican Party do what they think is best for the country or whatever it takes to win elections?

Responses to these three questions were combined to create a final directional measure of partisan bias in which a score of -2 indicated a strong Democratic bias and a score of 2 indicated a strong Republican bias.<sup>2</sup> I also created a variable that measured the absolute value of respondents' partisan bias (from 0 to 2), which I used to compare the relative levels of bias of Democrats and Republicans and of liberal and conservative respondents.

Moreover, respondents were asked a series of questions that helped gauge their support for the adoption of a carbon tax and their beliefs about climate change more generally. Four questions were used to assess public opinion on climate change:

- (1) Do you support or oppose the government adopting a carbon tax?
- (2) You may have heard about the idea that the world's temperature may have been going up slowly over the past 100 years. What is your personal opinion on this? Would you say global warming is [certainly happening, probably happening, probably not happening, certainly not happening, don't know]?
- (3) [Assuming it is happening,] Do you think a rise in the world's temperatures has been caused mostly by human activity or mostly by natural causes?
- (4) How serious a problem is the warming of the earth's climate?

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<sup>2</sup> Responses to the first question were ranked on a seven-point scale (0 = always involve Republicans, 6 = always involve Democrats), which I converted into a final range from -1 to 1. Responses to the second and third questions were ranked on a five-point scale (0 = always do what it takes to win, 4 = always do what is best for the country). Responses to the second question were then subtracted from the third question, so someone who indicated a strong Democratic bias would receive the lowest possible score (on a range from -1 to 1).

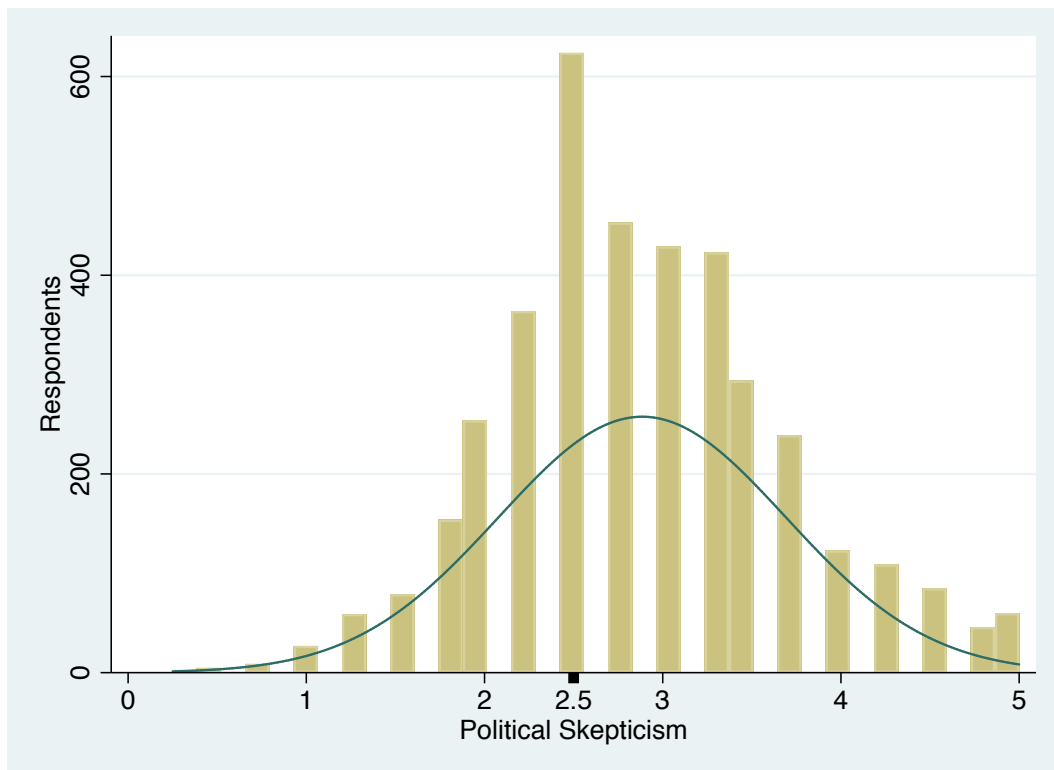
In response to the first question, respondents were asked whether they very strongly, strongly, or not very strongly supported (or opposed) the adoption of a carbon tax. Those who answered “don’t know” were then asked whether they leaned toward supporting or opposing a carbon tax. Respondents’ answers to these two questions were then used to create an eight-point scale of support for the adoption of a carbon tax, ranging from 1 (very strongly oppose) to 8 (very strongly support). Responses to the second question were used to create a five-point scale ranging from 1 (certainly not happening) to 5 (certainly happening). Similarly, responses to the third question were used to create a two-point scale, and responses to the fourth question were used to create a four-point scale, ranging from 1 (not at all serious) to 4 (very serious).

## **Chapter 5: Analysis and Results**

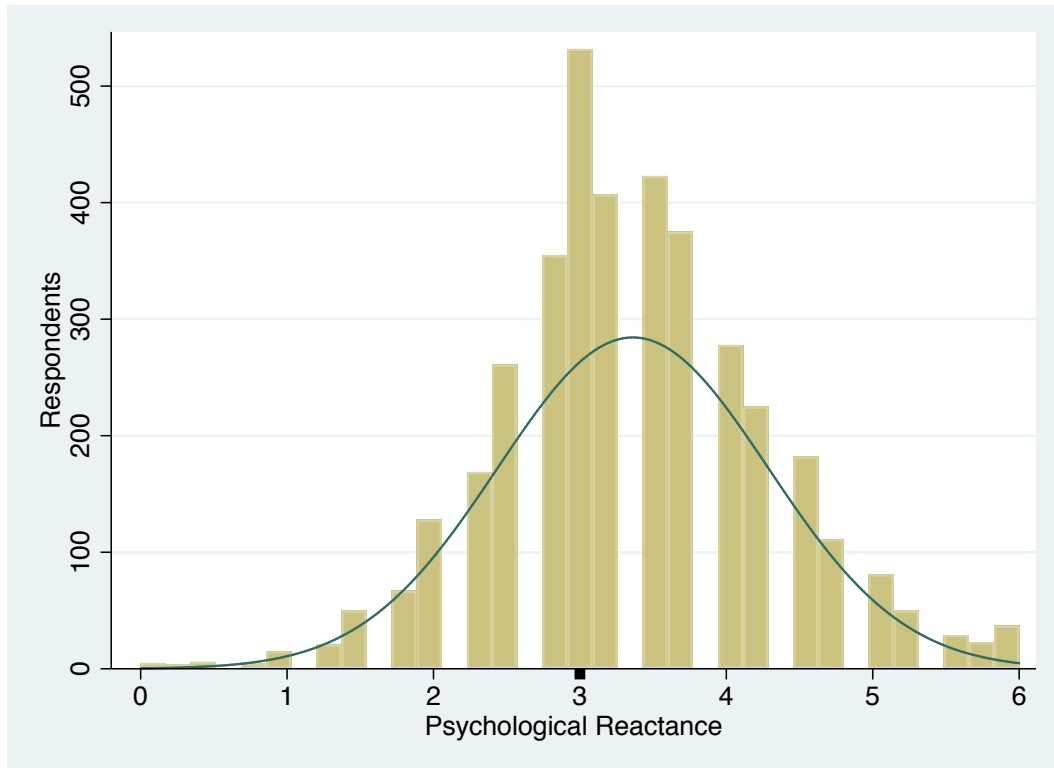
This study offers several significant insights into the three psychological traits of interest and the roles they play in creating resistance to scientific information about climate change and shaping public opinion on the issue. I began by conducting several regressions to identify demographic and political correlates of political skepticism, reactance, and partisan bias (these results are displayed in Table 2 below). I then conducted additional regressions to analyze the relationship between these traits and respondents' news consumption habits, which seemed likely to influence their attitudes on climate change and attendant policies (see Table 3). For these regressions, political skepticism, reactance, and partisan bias served as independent variables while the frequency of news consumption from a given outlet served as the dependent variable. Finally, I conducted four regressions to gauge the impact of the three psychological traits on attitudes regarding climate change, one for each of the questions mentioned above (see Table 4). For each regression, respondents' attitudes on the issue in question (e.g., support for a carbon tax) served as the dependent variable, while political skepticism, reactance, and partisan bias served as independent variables. Controls for a respondent's party identification (on a three-point scale from Democrat to Republican), age, highest level of education obtained, and household income were also included in each regression.

**Table 1.** Mean Scores by Subgroup (Party and Ideology).

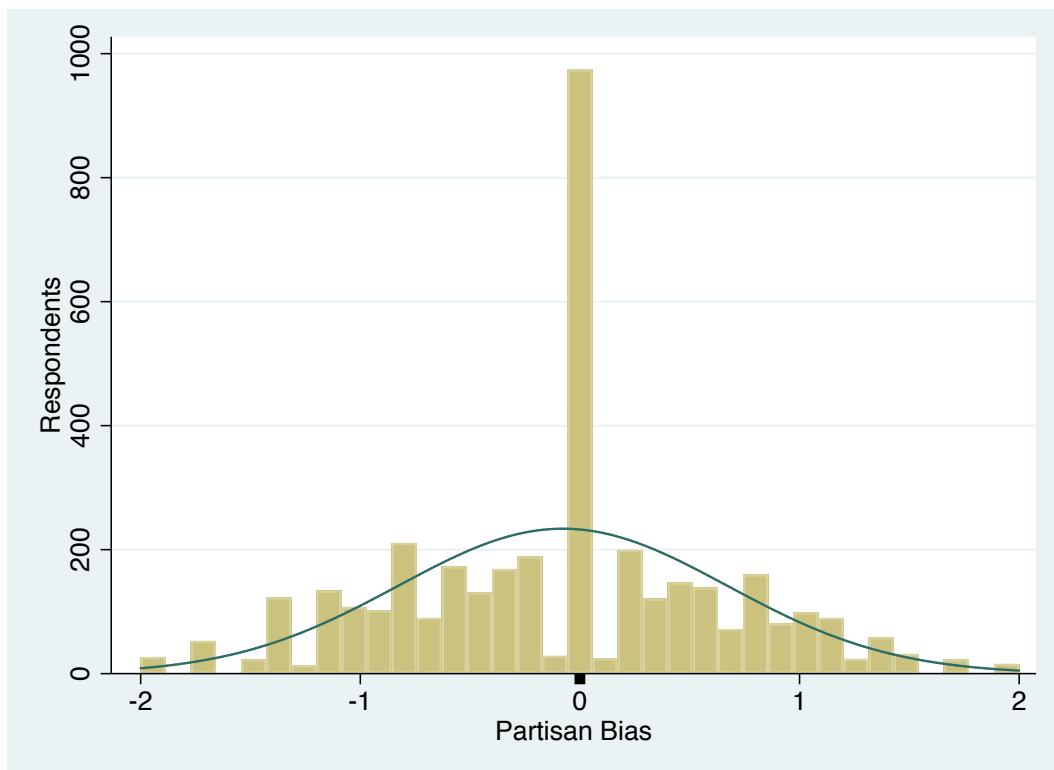
	Skepticism	Reactance	Partisan Bias (AV)	<i>Obs.</i>
<b>Partisan Identity</b>				
Democrats	2.65	3.31	0.70	1,328
Independents	3.03	3.33	0.48	1,088
Republicans	3.00	3.45	0.58	1,033
<b>Political Ideology</b>				
Very Liberal	2.66	3.25	0.84	457
Liberal	2.72	3.29	0.69	575
Moderate	2.92	3.31	0.42	1,108
Conservative	3.01	3.41	0.53	808
Very Conservative	3.04	3.59	0.70	511



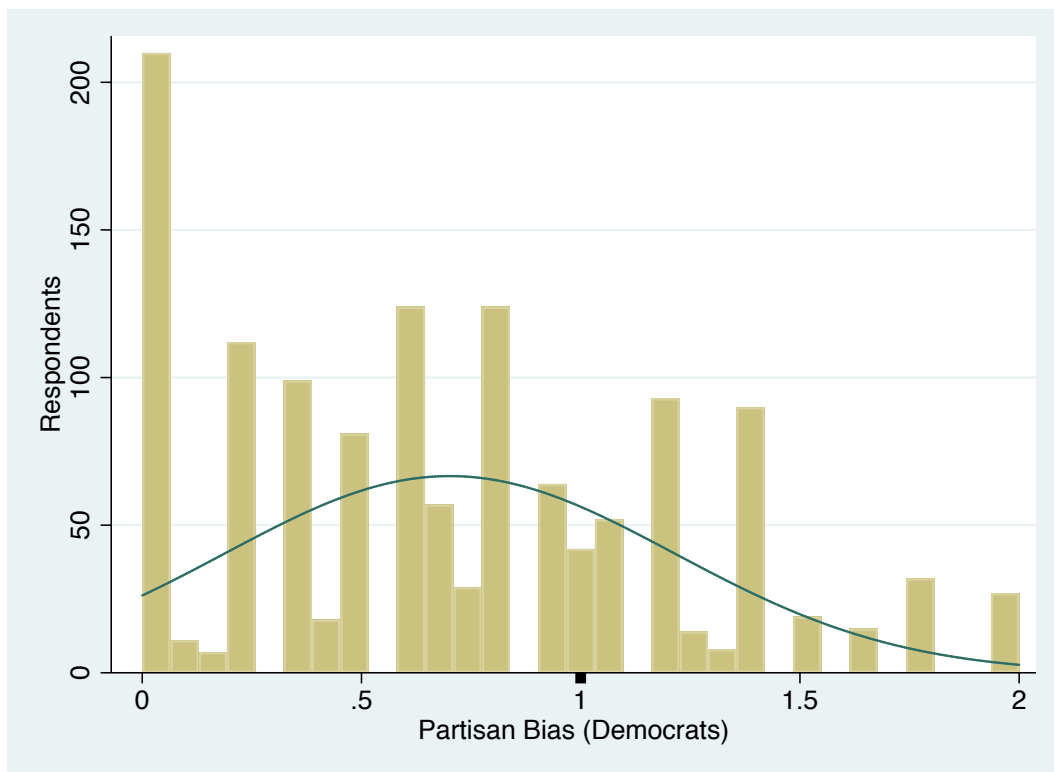
**Figure 1.** Distribution of Political Skepticism Variable.



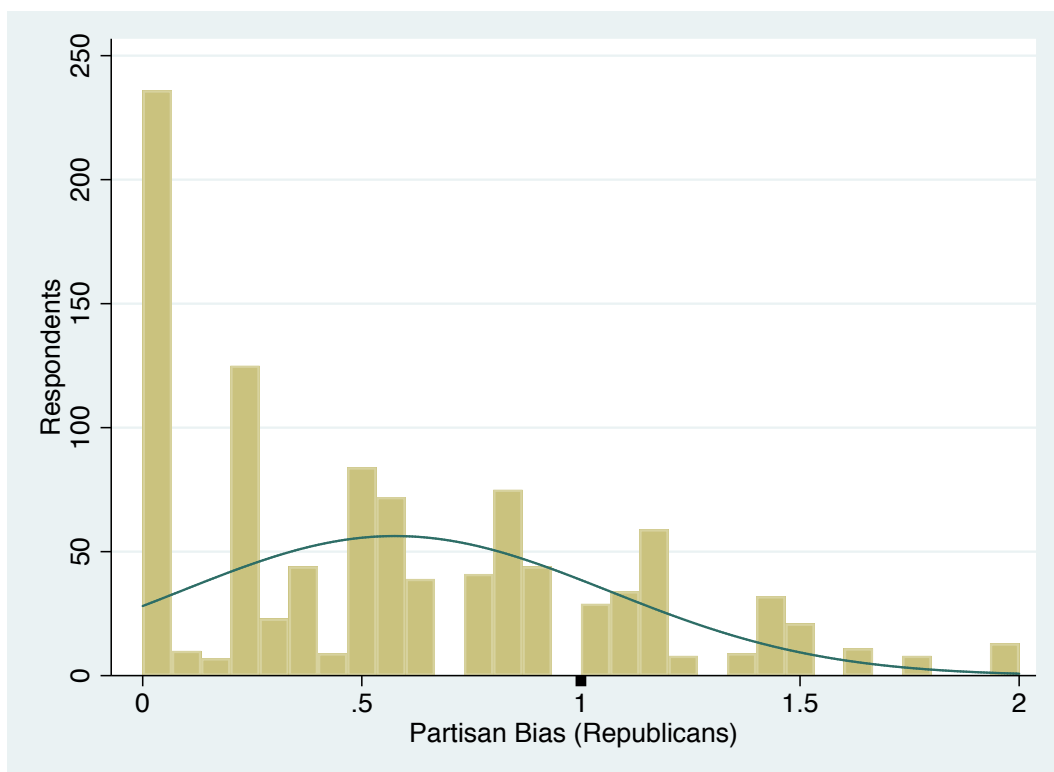
**Figure 2.** Distribution of Psychological Reactance Variable.



**Figure 3.** Distribution of Partisan Bias Variable from Democratic to Republican Bias.



**Figure 4.** Distribution of Partisan Bias (AV) among Democratic Respondents.



**Figure 5.** Distribution of Partisan Bias (AV) among Republican Respondents.



### **5.1. Distributions and Correlates of the Three Psychological Attributes**

Figure 1 above displays the distribution of political skepticism among respondents to the survey. It appears to be roughly normally distributed with a mean value of 2.89 and a standard deviation of 0.81 on a scale from 0 to 5. This suggests that Americans incline toward more skeptical views of the claims made in policy debates and of the evidence cited by participants in policy debates. Respondents also rate highly on the scale of psychological reactance (see Figure 2). This variable is also roughly normally distributed with a mean of 3.36 and a standard deviation of 0.92 on a scale from 0-6. However, while respondents evince fairly high levels of skepticism and reactance, they do not show a clear bias toward either party among the public as a whole (see Figure 3); the mean value of partisan bias on the -2 to 2 scale is -0.08, and there is a large cluster of respondents at 0 (indicating no bias toward either party). While it is not surprising that the mean partisan bias score is approximately 0, it is notable that a large proportion of respondents indicated no bias toward either party.

Moreover, levels of political skepticism, reactance, and partisan bias vary based on a respondent's partisan identity and political ideology, as shown in Table 1 above. It is noteworthy that Independents, Republicans, and more conservative respondents exhibit higher levels of political skepticism than Democrats or more liberal respondents, and Republicans and conservatives display slightly higher levels of reactance. On the other hand, Democrats and liberal respondents display higher levels of partisan bias than Republicans and conservative respondents, respectively; moreover, Figures 4 and 5 show the distribution of the partisan bias variable on an absolute value scale, with very similar results. However, this divergence may reflect the acutely negative view among Democrats of Republican officials during the Trump era given the abnormal behavior of the Republican Party and the President, rather than an actual

psychological difference between Democrats and Republicans. Still, some of these differences may be promising grounds for future research into the psychological dispositions of Democrats, Independents, and Republicans, as well as ideological liberals and conservatives. Moreover, correlation tests<sup>3</sup> between the three psychological traits, partisan identity, and political ideology indicate that variables of political skepticism, reactance, and partisan bias (on the absolute value scale) are measuring three distinct psychological dispositions, and none of these variables are simply additional measures of respondents' partisan or ideological attitudes or inclinations.

What can we say about the demographic correlates of political skepticism, reactance, and partisan bias? I conducted a series of regressions in which the psychological trait of interest served as the dependent variable and partisan identity was the independent variable; the results of these regressions are in Table 2 below. I also included controls for political ideology, partisan intensity, age, education, income, religiosity, sex, and voter registration status in each regression model. The partisan intensity variable included in these regressions used data on respondents' self-reported party ID on a seven-point scale (from strong Democrat to strong Republican). Respondents who identified as strong partisans were coded as 4, while pure Independents were coded as 1. Additionally, information about respondents' frequency of attendance at religious services, frequency of prayer, and self-described importance of religion was used to create a scale of religiosity ranging from 0 to 3.

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<sup>3</sup> The correlation matrix containing these results is available in the Appendix.

**Table 2.** Demographic Correlates of Political Skepticism, Reactance, and Partisan Bias.

	(1) Political Skepticism	(2) Reactance	(3) Partisan Bias (AV)
Party ID	.115*** (5.084)	.027 (1.029)	-.044** (-3.289)
Ideology	.060*** (3.685)	.062*** (3.317)	-.024* (-2.441)
Partisan Intensity	-.107*** (-7.583)	.036* (2.235)	.119*** (14.163)
Age	.006*** (6.536)	-.001 (-1.161)	.002*** (3.452)
Education	.023* (2.029)	-.052*** (-4.027)	.002 (.36)
Income	-.001 (-.197)	-.024*** (-4.266)	.000 (-.111)
Religiosity	-.051* (-2.562)	-.006 (-.285)	-.027* (-2.276)
Female	-.009 (-.293)	.035 (1.008)	-.066*** (-3.623)
Registered Voter	.021 (.381)	.029 (.443)	.046 (1.374)
Constant	2.468*** (27.185)	3.363*** (32.129)	.329*** (6.063)
Observations	2841	2841	2841
R-Squared	.071	.033	.096

T-statistics are in parentheses.

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

**Political Skepticism.** There is a clear, highly significant relationship between a respondent's degree of skepticism and his or her party identification, ideology, partisan intensity,

and age: Republicans, conservatives, and older respondents display higher levels of skepticism, on average, while strong partisans evince lower levels of skepticism. Additionally, more religious respondents are slightly less skeptical, while more highly-educated respondents are more skeptical. At the same time, there is no significant relationship between a respondent's household income, sex, or voter registration status and her degree of political skepticism.

**Reactance.** While there is notably no relationship between a respondent's partisan identity and her degree of psychological reactance, there is a highly significant relationship between political ideology and reactance: more conservative respondents express higher levels of reactance than their more liberal counterparts. Strong partisans are also slightly more reactant, on average, while respondents with higher levels of education and higher incomes are less reactant. There is no significant relationship between a respondent's age, religiosity, sex, or voter registration and her level of psychological reactance.

**Partisan Bias.** Consistent with the results in Table 1, there is also a significant relationship between partisan bias (on an absolute value scale) and both partisan identity and political ideology: Democrats and liberal respondents exhibit higher levels of partisan bias, as do strong partisans and older respondents. On the other hand, more religious respondents and women tend to have lower levels of partisan bias, while there is no relationship between partisan bias and education, income, or voter registration status.

In sum, each of the measures of the three psychological traits of interest appears to be significantly different from respondents' partisan identity or political ideology; they are not simply redundant measures of Americans' partisan affiliations. As a result, these attributes may provide new insights into American public opinion, and it will be beneficial to examine the effect of each of these attributes on opinions about climate change.

**Table 3.** Impact of Political Skepticism, Reactance, and Partisan Bias on News Habits.

	(1) Local TV News	(2) Fox News	(3) MSNBC	(4) CNN	(5) NPR	(6) Talk Radio	(7) Social Media
Political Skepticism	-.096*** (-3.97)	-.139*** (-6.078)	-.248*** (-11.235)	-.212*** (-9.573)	-.205*** (-9.136)	-.111*** (-5.217)	-.122*** (-4.714)
Reactance	.049* (2.329)	.134*** (6.768)	.093*** (4.89)	.078*** (4.056)	.015 (.777)	.129*** (7.011)	.017 (.741)
Partisan Bias (DV)	-.056 (-1.875)	.594*** (20.975)	-.372*** (-13.632)	-.319*** (-11.59)	-.193*** (-6.951)	.531*** (20.075)	-.031 (-.977)
Party ID	-.050 (-1.81)	.246*** (9.497)	-.260*** (-10.384)	-.251*** (-9.984)	-.111*** (-4.378)	.181*** (7.467)	-.040 (-1.367)
Age	.014*** (11.698)	.005*** (4.082)	.002 (1.56)	.000 (.336)	-.004** (-3.239)	.000 (-.05)	-.014*** (-10.917)
Education	-.053*** (-3.739)	-.011 (-.789)	.003 (.24)	.019 (1.477)	.117*** (8.904)	.002 (.147)	.012 (.824)
Income	.001 (.219)	.014* (2.438)	.019*** (3.428)	.012* (2.064)	.026*** (4.564)	.016** (2.927)	-.005 (-.699)
Constant	2.587*** (19.768)	1.281*** (10.4)	2.535*** (21.348)	2.636*** (22.045)	2.280*** (18.875)	1.270*** (11.041)	3.712*** (26.632)
Observations	3004	3006	3005	3007	3002	3004	3001
R-Squared	.057	.279	.229	.192	.141	.238	.057

T-statistics are in parentheses.

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

## **5.2. Effects of the Three Attributes on News Consumption Habits**

Respondents were also asked about their news consumption habits, which seem likely to influence opinions on climate change and policy responses to the issue. As a result, it will be useful to examine the relationship between each of the three psychological traits and Americans' news consumption behavior. Respondents were presented with a list of twelve news outlets (or categories of outlets, such as social media) and asked to rate how likely it was that they would turn to a given news source on a typical day ("very likely," "somewhat likely," "not very likely," and "never"). Among their options were network evening news, local television news, major cable news outlets like Fox News, CNN, and MSNBC, national newspapers, conservative talk radio, and social media. In Table 3 above, I present the results of seven of these regressions. Perhaps the most striking result from these regressions is the fact that there is a highly significant relationship between a respondent's level of political skepticism and his or her behavior toward each of the news sources included in the survey. More politically-skeptical respondents are less likely to report getting news from each of the seven outlets in Table 3.

Many of these results should come as no surprise to political scientists and observers of American politics. For instance, there is a strong relationship between partisan identity and likelihood of consuming news from certain outlets (Republicans are more likely to watch Fox News or listen to talk radio, while Democrats are more likely to watch CNN or MSNBC), but there is no relationship between partisan identity and watching local TV news or getting news from social media. Moreover, there is a slight but significant relationship between age and news consumption habits: older respondents are more likely to watch local news and Fox News, while they are less likely to get their news from NPR and social media. Additionally, respondents with higher levels of reactance are more likely to turn to sources such as Fox News, MSNBC, CNN,

and conservative talk radio (though a respondent's partisan identity almost certainly influences which sources they trust), and there is also a slight relationship between reactance and watching local television news.

However, the clearest connection in Table 3 is between political skepticism and news habits: political skepticism is significantly related to all seven news sources listed above (and to every one of the twelve outlets or categories of outlets included in the survey). In every single case, more politically skeptical respondents said they were less likely to turn to a given news outlet on a typical day. Importantly, their tendency to eschew news extends to outlets across the political spectrum: highly-skeptical respondents are less likely than non-skeptics to consume news from both Fox News and CNN, as well as more neutral sources like local TV news and social media. In short, political skeptics appear to simply consume less news (at least from traditional news sources) than less-skeptical respondents do.

When it comes to news consumption habits, then, political skepticism appears to be the most predictive of Americans' behavior across the board, while the relationship between reactance and partisan bias and that same behavior depends on the news outlet in question. These findings may have implications for the impact of the three traits on climate change opinions. Perhaps most importantly, politically-skeptical respondents are considerably less likely to turn to *any* of these news outlets for information, and this reluctance to get news from traditional sources may help to explain why skeptical respondents are distrustful of scientific information about the existence and urgency climate change (see the results in the following section). In the next section, I will consider the relationship between the three psychological traits and opinions on climate change, then summarize the most important findings from this study.

### **5.3. Effects of the Three Attributes on Climate Change Opinions**

Overall, responses to the four questions about climate change closely resemble those from other recent national surveys, such as the polls conducted in 2019 by the Yale Program on Climate Change Communication (Leiserowitz et al. 2019). A large majority (68%) of respondents feel that global warming is “certainly” or “probably” happening, while only 24% believe it is “certainly not” or “probably not” happening. Moreover, 63% of respondents think that such warming is caused primarily by human causes while 37% think that natural causes are primarily responsible. And Americans also largely believe that global warming presents a serious problem: more than seven-in-ten respondents (72%) believe that the warming of the earth’s climate is a “very serious” or “somewhat serious” problem, while only 28% say it is “not very serious” or “not at all serious.” However, although Americans are largely in agreement about the fact that the climate is changing and the gravity of the issue, only a minority support introducing a carbon tax to address the problem. About 35% of respondents reported that they “very strongly” or “strongly” opposed introducing such a tax, while 25% supported it equally strongly. The remainder felt less strongly about the issue, with 20% inclined to oppose a carbon tax and 20% inclined to support it.

The four regressions discussed above provide some insights into opinions on each of these four questions. The results of the regressions are displayed in Table 4 below. Once again, political skepticism is significantly related to opinions on all four questions related to climate change. That is, respondents with higher levels of political skepticism are (1) less likely to support the adoption of a carbon tax, (2) less likely to believe that global warming is happening, (3) less likely to believe that a rise in the world’s temperatures (assuming it is happening) has been caused by human activity, and (4) less likely to believe that the warming of the earth’s



climate is a serious problem. These results confirm my first hypothesis: respondents with higher levels of political skepticism express lower levels of support for a carbon tax and skepticism about the existence and urgency of anthropogenic climate change. Importantly, a respondent's degree of political skepticism is significantly related to opinions on all four questions even when controlling for the impact of reactance and partisan bias, as well as party affiliation, age, education, and household income.

While political skepticism is significantly related to attitudes on all four questions, psychological reactance appears largely irrelevant to Americans' opinions on climate change. Reactance is only significantly related to opinions on the third question: those with higher levels of reactance are less likely to believe global warming is caused by human activity. This contradicts my second and third hypotheses (that more reactant respondents will express lower levels of support for a carbon tax, but there will be no relationship between reactance and other beliefs about climate change). However, this result may make sense if we consider the implications of a belief in anthropogenic climate change. If human activity is causing dangerous changes to Earth's climate, then dramatic changes to human behavior may be necessary and certain activities may need to be restricted, resulting in a loss of freedom. More highly reactant respondents may balk at this suggestion, which may explain the correlation between reactance and attitudes on the third question.

**Table 4.** Impact of Political Skepticism, Reactance, and Partisan Bias on Public Support for a Carbon Tax and Beliefs about Anthropogenic Global Warming.

	(1) Carbon Tax	(2) Warming	(3) Cause of GW	(4) Serious
Political Skepticism	-.473*** (-9.706)	-.139*** (-5.328)	-.034*** (-3.543)	-.138*** (-7.377)
Reactance	-.032 (-.755)	-.025 (-1.108)	-.020* (-2.398)	.005 (.302)
Partisan Bias (DV)	-1.066*** (-17.705)	-.711*** (-22.021)	-.214*** (-17.483)	-.550*** (-23.265)
Party ID	-.484*** (-8.767)	-.334*** (-11.296)	-.121*** (-10.742)	-.283*** (-13.054)
Age	-.012*** (-5.037)	-.003* (-2.302)	-.002*** (-4.598)	-.003*** (-3.768)
Education	.139*** (4.87)	.056*** (3.629)	.017** (2.925)	.030** (2.7)
Income	.032* (2.539)	-.002 (-.224)	-.004 (-1.596)	-.009 (-1.782)
Constant	6.431*** (24.501)	4.841*** (34.466)	2.082*** (39.13)	4.068*** (39.676)
Observations	2973	3010	2810	2811
R-Squared	.287	.328	.282	.393

T-statistics are in parentheses.

\*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

- (1) Do you support or oppose the government adopting a carbon tax?
- (2) You may have heard about the idea that the world's temperature may have been going up slowly over the past 100 years. What is your personal opinion on this? Would you say global warming is [certainly happening, probably happening, probably not happening, certainly not happening, don't know]?
- (3) [Assuming it is happening.] Do you think a rise in the world's temperatures has been caused mostly by human activity or mostly by natural causes?
- (4) How serious a problem is the warming of the earth's climate?

Perhaps not surprisingly, respondents' level of partisan bias is significantly related to opinions on each of the four questions as well. In each case, respondents with higher partisan bias scores (indicating a bias toward the Republican Party) are more likely to hold views that are common among Republicans: opposition to a carbon tax and suspicion about climate change in general. This result confirms my fourth hypothesis, namely that respondents with extreme partisan bias scores (on the -2 to 2 scale) will conform to the majority view of their respective parties. Notably, this result is highly significant even when controlling for party membership, indicating that partisan bias may have an impact on Americans' beliefs over and above the effects of simple partisan identification.

In addition, several other variables are also significantly related to respondents' opinions on climate change, most notably their age and level of education. On average, older respondents are somewhat less likely to support a carbon tax or believe that global warming is taking place, caused by human activity, or a serious problem, while more highly-educated respondents tend to hold the opposite views. While age and education are significant on all four of these measures, household income is only significantly related to attitudes on the first: respondents with higher incomes are slightly more supportive of introducing a carbon tax.

#### **5.4. Comparing the Three Psychological Attributes**

At this point, two main findings should be evident. First, the measures of political skepticism, reactance, and partisan bias included in this survey are measuring quite distinct psychological dispositions (as seen from the divergent results in Tables 2-4 as well as their modest correlations in the Appendix), indicating that they may be quite useful tools for studying American public opinion on a range of issues, including climate change. It is particularly

significant to note that political skepticism is not merely a function of psychological reactance: the correlation between these two measures is fairly weak (0.092), and while skepticism is predictive of attitudes and habits on each of the measures above, reactance is only significantly related to about half of them (and it is only significant on one of the four measures of climate change opinion). In other words, political skepticism and reactance have quite different effects on climate change opinion – and this may be important to consider when determining how to advance climate policies.

Second, the most important of the three psychological traits is political skepticism. In every single regression pertaining to news consumption habits and public opinion on climate change, there is a statistically significant relationship between political skepticism and the dependent variable in question. As a result, when it comes to an issue like climate change, political skepticism appears to have a greater impact on attitudes than either psychological reactance or partisan bias (though of course, partisanship and ideology are also tremendously important). Therefore, it will be worth considering what else we can learn about political skepticism in the American public and what new avenues this might suggest for future research.

## **Chapter 6: Political Skepticism in the American Public**

All of the findings above indicate that political skepticism is an important – if neglected – aspect of contemporary American politics and deserves attention from scholars of political psychology. In an era in which partisanship and polarization have come to color so much of American politics, politically-skeptical citizens appear to be relatively distrustful of and detached from both political parties and a wide range of news outlets from across the political spectrum, as well as scientific findings relating to climate change. They also tend to be older, more highly educated, less religious, and less likely to identify as strong partisans (though they incline slightly toward the Republican Party and ideological conservatism). What can we conclude from this? Put simply, political skepticism appears to be a highly relevant psychological trait that deserves to be studied more extensively, since it may provide great insights into Americans' political behavior and public opinion on a wide range of topics. I will conclude this section by outlining several potential avenues for future research and consider the relevance of this study for environmentalists and activists who are concerned about climate change.

While this study finds a clear relationship between political skepticism and opinions on climate change, future research might consider the impact of all three psychological traits on American attitudes about a wide range of topics. For instance, are more politically-skeptical Americans less likely to support U.S. military involvement in wars in the Middle East or participation in international organizations like the United Nations, NATO, or the OSCE? Do skeptical Americans tend to hold conservative or progressive views on social issues, such as the legalization of marijuana or LGBTQ rights – and how can advocates tailor their appeals in response to these important psychological dispositions? Are more reactant Americans averse to certain healthcare policies, such as Medicare-for-all, a public option, or Medicaid expansion?

Are Americans with higher levels of partisan bias less willing to support compromise or more likely to believe that shutting down the federal government may be necessary in order to achieve one's preferred political ends?

Perhaps more importantly, future research should attempt to identify the most effective means of convincing politically-skeptical Americans of the existence and exigency of anthropogenic climate change. Multiple studies have considered the most effective means of convincing Republicans and conservatives of the reality of climate change; some of the lessons learned from these studies may be profitably applied to the task of convincing political skeptics as well. To be sure, certain approaches may not be effective: for instance, some studies have highlighted the important role that Republican elites who agree with the scientific consensus can play in convincing their copartisans that climate change is real and needs to be addressed. Benegal and Scruggs (2018) find that "Republicans speaking against their expected partisan positions are most effective in increasing concern about and acknowledgement of the scientific consensus on climate change" (62). However, since more politically-skeptical Americans may eschew partisan affiliations altogether, such a party-driven approach seems unlikely to convince many political skeptics.

But one approach in particular may hold some promise for convincing political skeptics: framing climate change as a local rather than a global issue and presenting citizens with projections of the local impacts of climate change, which will likely be more severe in regions that have been reluctant to embrace climate policies. Wiest, Raymond, and Clawson (2015) find that a frame that emphasizes local climate impacts leads to an increase in perceptions of the severity of climate change and an increase in support for local and state-level policy responses. They find that "when people are confronted with information on how climate change will affect

the state in which they live, they appear to be less able to engage in ‘psychological distancing’ to minimize the issue, instead perceiving it as a more serious problem *for their state*” (196).

Moreover, political skeptics may be more readily convinced of the importance of combatting climate change if they hear more about the issue from friends and family members who agree with the scientific consensus – or who have been personally affected by climate change – than if they only hear about it from elected officials. In that case, a broad public effort to get more citizens to talk about how climate change affects them personally may be the most effective way to spread awareness and build consensus on the issue. And this approach may be essential since “many of the jurisdictions that have selected political leaders opposed to climate policy are the most exposed to the harms of climate change,” including the Southwest, Southeast, and Florida (Muro, Victor, and Whiton 2019). If skeptical Americans are made aware of the threat that climate change poses to their local community, or hear more about the issue from those they trust, they may grow more supportive of policy action to address the mounting climate crisis.

## Chapter 7: Conclusion

President Trump's decision to withdraw from the Paris Agreement in June 2017 reflected a broad current of suspicion about anthropogenic climate change within the Republican Party. However, it also hinted at an even broader current of skepticism among Americans as a whole. This study has considered the psychological traits of political skepticism, psychological reactance, and partisan bias and the relationship between each of these traits and attitudes on climate change. While it presented several interesting findings relating to reactance and partisan bias, perhaps the most significant findings involved the novel measure of political skepticism. This skepticism appears to extend to both political parties and a wide range of media outlets, as well as scientific findings about climate change. On average, respondents who expressed higher levels of skepticism tended to be older, more highly educated, less religious, and less likely to identify strongly with either party or report high levels of interest in politics, though they were slightly more likely to identify as Republicans and conservatives. They were also less likely to think that climate change is occurring, the result of human activity, or a serious problem, and they were less likely to support the introduction of a carbon tax to address the issue.

These findings should be of interest to elected officials, policymakers, and environmental activists, as well as scholars of American politics, public opinion, and environmental politics. Policymakers who hope to build public support for their proposals may find greater success if they can hone their messaging strategy to appeal to political skeptics, who may be more receptive to messages that stress the local impacts of climate change or stories from people who have been personally affected by it. In short, any effort to address climate change must take into account the role that political skepticism plays in shaping Americans' opinions on the issue. While skeptical Americans may oppose a carbon tax, they may still support other mitigation



proposals, such as funding for research and development of renewable energy technologies, electric vehicles, and tax rebates for installing solar panels on one's home. Determining how to convince politically-skeptical Americans of the reality of climate change must be a top priority, because climate change will not wait for us to figure out what to do about it.

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## Appendix

**Table A.** Correlation matrix of the three psychological traits, party ID, and ideology.

	Political Skepticism	Reactance	Partisan Bias (D)	Partisan Bias (AV)	Party ID	Ideology
Political Skepticism	1.000					
Reactance	0.092	1.000				
Partisan Bias (Directional)	0.202	0.103	1.000			
Partisan Bias (Abs. Value)	-0.043	0.064	-0.143	1.000		
Party ID	0.186	0.070	0.555	-0.121	1.000	
Ideology	0.164	0.110	0.613	-0.111	0.608	1.000