

## Divine Attribution? The Interaction of Religious and Secular Beliefs on Climate Change Attitudes

### Abstract

After four decades of research, there is still little consensus about the relation of religious variables to environmental attitudes. Even putting aside variations in sampling and measurement, we still have doubts about even where consensus exists – the role of religious beliefs. Religious beliefs, such as mastery over nature, are more unstable than previously considered and, perhaps more importantly, these studies have generally failed to consider the role of secular beliefs about environmental problems and the interaction they may have with religion. Using data from a 2012 PRRI survey, we find religious variables have much weaker or conditional effects once secular beliefs are considered. Moreover, we draw upon an embedded experiment that shows instability in religious dominionism, the dominant religious effect in previous work. The results suggest previous reports of religious effects are not wrong, but overstated and that eliding secular beliefs is a serious sin of omission.

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In the last decade, prominent evangelical leaders have released a number of statements urging action on climate change. Coming from the National Association of Evangelicals (NAE), an umbrella group of many evangelical denominations, and then from a collection of ad hoc organizations, action on climate change was just one of a parcel of new issue concerns that would disrupt the connection of evangelicals to the Republican Party (e.g., Fitzgerald 2008). While the statements by the NAE, Evangelical Climate Initiative, the Sandy Cove Covenant, and others were firmly grounded in biblical mandates, the larger public debate took a different tack. Even religious leaders opposed climate change for reasons devoid of theology. For example, during a sermon in 2006 Rev. Jerry Falwell made the argument that, “‘scientists who are not on the payroll of the government’ believe that ‘the jury’s still out’” on climate change (Media Matters, 2006). Rather than focus on the values motivating environmental action, opposition to climate change action attacked the science behind climate change claims. Why?

We believe that one answer why is grounded in public opinion dynamics regarding religion that are not well understood. In particular, we know very little about how secular beliefs, such as the causes of climate change, interact with religious beliefs, such as whether humans were given dominion over nature. It is likely that secular beliefs are more proximate and influential than religious beliefs, such that adoption of salient secular beliefs eliminates variation by religious beliefs. Moreover, most work on religion and public opinion treats religious beliefs as fixed, though it is very likely that elites (like clergy) remind people about relevant beliefs while communicating policy stances.

Thus, we offer two arguments that challenge the premises of existing work on the influence of religion on public opinion (and the religion and environment link in particular). First, religious beliefs are not stable predispositions for many Americans and, second, religious beliefs do not function independently of scientific knowledge about the environment. These arguments do not

deny religious influence, but they do help explain why the fight for religious influence appears to be fought through the proxy of scientific arguments. We test for the contingent nature of religious influence on support for climate change action by the US government with new data that remedies many of the defects of the prior literature – they are representative of American adults, include a wide, inclusive range of religious and scientific beliefs, and employ a survey experiment that allows us to assess how stable core religious beliefs are.

### **Previous Literature**

The impetus for the majority of the work in the area of religion and environmentalism centers around an argument by Lynn White, a professor of medieval history, published in *Science* in 1967. Briefly stated, the Christian belief system guiding the lives of most Americans contends that God gave human beings dominion over nature. This belief guides Christians to the understanding that there is no need for environmental stewardship or conservation. Subsequent empirical work has tried to ferret out to what degree Christians embrace dominion beliefs and how this view shapes attitudes on the environment. Since White’s seminal essay, researchers have arrived at a variety of conclusions concerning the relationship between religiosity and environmental concern and behavior.

From the earliest pieces, researchers honed in quickly on prime candidates for the dominant sources of religious variation, focusing on individuals’ mastery-over-nature (“dominionism”) beliefs and their commitment to various religious organizations (e.g., Hand and Van Liere 1984). Most explanatory power is vested in dominionism, though of course such beliefs vary dramatically across Christian denominations. Subsequent work in this field has attempted to tighten the connection between religion and the environment through more, if not always better, measures of religion, utilizing measures of belief such as biblical literalism (Eckberg and Blocker, 1989; Guth et al., 1993; Greeley, 1993; Woodrum and Hoban, 1994; Guth et al., 1995; Schultz et al., 2000; Sherkat and

Ellison, 2007), and measures of religious behavior including church attendance (Kanagy and Willits, 1993; Sherkat and Ellison, 2007; Hand and Crowe, 2012) and frequency of prayer (Boyd, 1999; Hand and Crowe, 2012), while other studies have focused on differing measures of religious tradition (Eckberg and Blocker, 1989; Greeley, 1993; Woodrum and Hoban, 1994; Kanagy and Nelsen, 1995; Wolkomir et al., 1997).

The results of these varied approaches to measuring religion, not surprisingly, have led to a wide variety of findings concerning the relationship between religiosity and environmentalism. Some research has concluded that there is a positive relationship between religion and environmental protection (Shaiko, 1987; Kanagy and Willits, 1993; Wolkomir et al., 1997; Sherkat and Ellison, 2007), others have found a negative relationship (Hand and Van Liere, 1984; Eckberg and Blocker, 1989; Guth et al., 1995; Eckberg and Blocker, 1996; Schultz et al., 2000; Biel and Nilsson, 2005), while still other studies have concluded that there is no relationship between the two (Greeley, 1993; Kanagy and Nelsen, 1995; Boyd, 1999; Djupe and Hunt, 2009).

This is not to say that progress has not been made. Research that has not had access to explicit measures of dominionism or stewardship often used biblical literalism as a proxy (Eckberg and Blocker, 1989; Greeley, 1993; Guth et al., 1993; Schultz et al., 2000; Djupe and Hunt 2009). However, efforts that had access to both found little to no relationship between literalism and a dominion belief (Woodrum and Hoban, 1994; Wolkomir et al., 1997), while others found literalism immaterial once dominion beliefs were included (Boyd 1999; Eckberg and Blocker 1996; Sherkat and Ellison 2007). The outcome is that it is essential to employ direct measures of dominionism.

### **Belief Variability**

Utilizing ideal survey questions to capture religious concepts does not settle the matter of belief variability since this literature treats religious beliefs as fixed. In the “fixed” approach,

understanding religious influence is a function of recording salient religious beliefs and measuring the correlation to political objects. A large and growing body of work questions this assumption, including sociological work that shows how the nature and salience of particular beliefs are shaped by social contexts that also impart relevant political information (Cavendish, Welch, and Legee 1998; Cornwall 1987; Djupe and Hunt 2009; Welch 1981; Welch and Baltzell 1984). Without accounting for the flow of political information within religious contexts, relationships between religious beliefs and political attitudes are likely to be spurious (Djupe and Gilbert 2009). Further, the link between religion and political attitudes is subject to priming – where, for instance, question ordering in a survey environment make attitudes more accessible to a respondent as they answer subsequent questions (Fazio et al., 1983; Fazio, 1986). The simple reminder of religious beliefs, values, and behaviors has led to different expressions of support for public policies (Bloom and Arıkan 2013; Djupe and Calfano 2013a, 2013b) and pro-social attitudes and behaviors (e.g., Pichon, Boccato, and Saroglou 2007; Shariff and Norenzayan, 2007).

Both strands of inquiry suggest that religious beliefs are not stable predispositions, but subject to social influence and environmental priming. Priming may be a methodological critique showing easily induced variability, but it may also be suggestive of the mechanism for connecting religion to attitudes. Priming may be thought of as the essence of a sermon, which asks individuals to use particular criteria as they go about their week and evaluate choices in daily life (Djupe and Calfano 2013). At least some work on the religion-environment connection has arrived at this point. As Biel and Nillson (2005) argue, one reason for the variety of findings in the religion-environment literature is that religious beliefs may not be activated and accessible when respondents are asked their environmental attitudes. Therefore, the issue attention cycle generated by sermons and other agenda setting functions of churches and society may induce a variable connection between religious beliefs and environmental attitudes.

What complicates matters further in this field is the important and often unmeasured impact of non-religious beliefs about the environment on an individual's support for various environment policies. These beliefs might include the degree to which the environment is threatened, the source of the threats, and the ability to remediate problems. Many of the studies mentioned previously have included political ideology as a control variable in statistical modeling, though they have generally failed to account for how concepts of religiosity and ideology interact with one another. But beyond ideology is the constant flow of new information that reaches believers and that may interact with their religious beliefs and values. Indeed, there is a long literature now proposing that information can at least color and perhaps trump the influence of values on attitudes (e.g., Zaller 1992; Pollock, Lilie, and Vittes 1993). And there is another long literature demonstrating patterns of motivated reasoning in which values (and other predispositions) drive what information is acquired to support desirable attitudes (e.g., Berelson et al. 1954; Bartels 2002; Jerit and Barabas 2012). Clearly, both are possibilities here.

There have been notable exceptions in the religion-environment literature, however, with work thinking critically about how a number of religious variables interact with each other to affect environmental attitudes (Greeley 1993; Sherkat and Ellison 2007). Still, these controls, such as political ideology, do not serve as adequate proxies for beliefs about environmental problems that are central to the attitudes under study (though to be fair, Sherkat and Ellison [2007] did include measures of "problem seriousness").

For instance, when considering climate change, perhaps the most important determinants of whether we should attempt to address it are views about human culpability, which draw a sharp partisan divide (Pew 2014). The arguments for human attribution of climate change are well known – greater human activity in burning fossil fuels and deforestation have produced higher concentrations of CO<sub>2</sub> leading to climate change. The arguments against action on climate change

may be less well known, but include the long cycles of atmospheric CO<sub>2</sub> (e.g., Soon and Baliunas 2003<sup>1</sup>) and the inverse causal relationship between CO<sub>2</sub> and warming (Callion et al. 2003), among other arguments that climate science is “junk science.” The potential power of these beliefs is clear. If human behavior is causing global climate change, there are a number of solutions available and government action is necessary; if climate change is the result of natural (or even divine) processes, then government action is superfluous.

This debate draws on the tensions, supposed and real, between religion and science. There are a number of candidate forces driving this tension (see Evans 2011), including believers being less likely to pursue learning about science (e.g., Sherkat 2009) or becoming scientists (e.g., Ecklund 2010), opposition to science when it reaches conclusions that contradict scripture (Ecklund and Scheitle 2007), and opposition to the supposed political agenda of scientists (Evans and Evans 2008; Evans 2011). An alternate view unexplored in that literature is the question of the credibility of religious commentary on such scientific issues as environmental problems and policy (e.g., Djupe and Calfano 2009). From this perspective, acceptance of scientific consensus essentially dictates a particular attitude and therefore only by denial of that scientific consensus is the variation in religious belief relevant to reaching a conclusion.

## **Hypotheses**

Out of this wide ranging discussion can be distilled three basic hypotheses. First, we expect that the religious attributes identified in prior analyses should work as expected – religious beliefs and affiliations (especially evangelicalism) that attribute causation to the divine rather than to humans should undermine support for action on climate change. This leaves room for non-religious beliefs about human culpability and weather extremity and we expect that these beliefs will trump

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<sup>1</sup> This meta-analysis paper is quite controversial, with several researchers claiming that their results were used inappropriately in the analysis. The handling of the paper and its aftermath lead to resignations at the journal, including of the editor-in-chief (Monastersky 2003).

religious beliefs in two ways. First, the inclusion of these non-religious beliefs about the environment will reduce the estimated effects of religious variables. Second, holding the belief that human activity has caused climate change will reduce the variation generated by religious beliefs and attributes to levels indistinguishable from zero, meaning the interaction will be significant and negative. Lastly, we expect that religious beliefs – our test case will be dominionism – are actually quite malleable, in contrast to their general portrayal in the literature. If they are malleable then there are several mechanisms available to explain the greening of American religion over time, including shifts in religious as well as non-religious beliefs regarding the environment.

## **Data**

The results of this analysis are based on a nationally representative telephone survey conducted by Public Religion Research Institute in late 2012. The study included a random sample of 1,018 adults 18 years of age or older living in the continental United States and was conducted in both Spanish and English by professionally trained interviewers. Additionally, roughly 30% of respondents included in the survey (N=311) were interviewed on cellular telephones to ensure the sample reflected growing presence of cell phone only households.<sup>2</sup>

The dependent variable for our study is, “Please tell me whether you completely agree, mostly agree, mostly disagree or completely disagree with each one...The U.S. government needs to do more to address the issue of climate change.” The response options ranged from completely agree (1) to completely disagree (4). Given the structure of the question, we used ordered logit to estimate our models.

To capture the salient dimensions of religion to environmentalism, we include measures of whether the end times are imminent (Guth et al. 1995; Barker and Bearce 2012), a providential view of God (Greeley 1993; Glazier 2013), and an evangelical identity (see the Appendix for variable

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<sup>2</sup> Recent research has shown that the number of households that rely primarily on landline phones is shrinking dramatically, while the number of households that only have a cell phone has risen to 38% (Blumberg et al. 2013).



coding). We expect each to help drive attitudes in opposition to the government taking action on climate change. The first two support the idea that events are out of human control, either because there is too little time to take action or because God is responsible for the course of things. Evangelicals have traditionally been less supportive of the environment for a wide variety of reasons (Guth et al. 1995).

Given the centrality of dominion and stewardship beliefs in the literature, the survey asked respondents, “As I read a pair of statements, please tell me whether the FIRST statement or the SECOND statement comes closer to your own views, even if neither is exactly right.” The statements were:

1. God gave human beings the right to use animals, plants, and all the resources of the planet for human benefit. [Dominion]
2. God gave human beings the task of living responsibly with the animals, plants, and the resources of the planet, which are not just for human benefit. [Stewardship]

As argued above, we suspect that commitment to dominion and stewardship are actually more elastic than previously assumed and designed a simple experiment to assess that. Respondents were randomly given either statement 1 first ( $n=516$ ) or statement 2 first ( $n=502$ ). When the dominion statement (1 above) was read first, 21 percent adopted it. When it was presented second, 55 percent adopted it ( $p<.01$ ).<sup>3</sup> The treatment effect was not constant in the sample but varied by important indicators. The results of this analysis are presented in Table 1. One might suspect that evangelicals have more stable beliefs in this matter and that others who place less emphasis on being right with doctrine would experience more fluidity. The results confirm that presumption here. Seen in Figure 1, while non-evangelicals demonstrated a 42 percentage point shift in adopting a dominion belief when the statement was read second ( $p<.01$ ), evangelical support jumped by 10 percentage

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<sup>3</sup> We assessed whether randomization was successful and the treatment cells do not vary significantly by any demographic or religious indicator (all were well above  $p=.10$ ).

points from 29 percent to 39 percent (still  $p < .01$  among both groups). The difference in effect is significant as the interaction term in Table 1 shows.

[Table 1 and Figure 1 about here]

We assessed whether all of the other indicators in the model encouraged conditional response to the treatment and only found one. Tea party identifiers, as shown in the second panel of Figure 1, do not change their commitment to dominion beliefs in response to the statement order experiment. There appears to be an increase, but it is not significant. The evangelical interaction holds whether or not the tea party interaction is included.

It is important to note that a substantial majority of evangelicals hold stewardship beliefs. On average, between 60 and 70 percent (given the question order effect) of evangelicals believe in stewardship responsibilities compared to between 39 and 82 percent of non-evangelicals. A longitudinal view proves that this is not an inconsequential finding. Although no direct comparisons are available, these results suggest dominion beliefs have declined considerably. A generation ago just one-third of Baptists held a stewardship belief (Hand and Van Liere, 1984), while more recent findings showed 61 percent of North Carolina respondents affirming dominion beliefs (Woodrum and Hoban, 1994). What is more, there appear to be no differences in dominion belief by age among evangelicals in the 2012 PRRI data – older evangelicals are just as likely to be stewards as younger evangelicals. That older evangelicals appear to have changed along with young evangelicals helps to confirm the validity of the results we see here – evangelicals are likely to shift their understanding of even foundational religious beliefs which may mark the evolution in elite evangelical commitments over the last generation.

Going forward, our models will include a number of controls, including gender, education, race, region, and political party affiliation. We also include several key non-religious beliefs about the environment that are central to the analysis. The first assesses whether the respondent thinks that

humans are responsible for climate change. We suspect that this will be the dominant effect in the model and that it will interact with religion in a way that indicates that religious influence is conditional on rejecting the scientific consensus. We also include a measure assessing the belief that the weather has been getting more or less extreme. We expect that those who think the weather has been getting more extreme will be more likely to support taking action.

As we have argued above, another significant omission in the literature on religion and the environment is the overlap with non-religious beliefs about the environment. Perhaps the most important belief is whether humans are responsible for climate change. Belief that climate change is real *and* that it can be attributed to human activity is held by just under half of the population in 2012. About a quarter believes that there is no solid evidence for climate change and the other quarter is willing to say the climate has changed but are unwilling to attribute it to humans.

That willingness to attribute climate change to humans (“human attribution”) varies slightly in conjunction with other religious beliefs. As Figure 2 shows, those who believe in the imminence of the end times (13% of the sample<sup>4</sup>) are no less likely to believe in human attribution as others (difference of .03,  $p=.54$ ). Human attribution is actually slightly higher among those with dominion beliefs (by 7 percent), though the difference is entirely located among non-evangelicals. While believing that God granted dominion over nature to people and then denying human culpability is not necessarily illogical because there could still be natural climate fluctuation, it is hard to sustain credulity when dominion has such strong links to opposition to environmental regulation. Perhaps the more important point is that this pattern raises doubts about the effectiveness of dominion beliefs when they are connected to a proximate non-religious belief about climate change.

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<sup>4</sup> This figure of 13% represents agreement “that the end of the world, as predicted in the Book of Revelation, will happen in your lifetime.” It varies quite radically from the figure reported in Barker and Bearce (2012), who report that 56 percent of Americans believe “in the Second Coming of Jesus Christ – that is, that Jesus will return to Earth someday.” It also varies quite radically from reports from Pew’s finding in 2010 that 41 percent believe that by 2050 it is probable or definite that “Jesus Christ will return.” The variation raises questions about the degree to which the noted time horizons alter the effect of the belief – that imminence may heighten the effect.

[Figure 2 about here]

That view is reinforced in Figure 3, which shows how human attribution for climate change varies by beliefs about God. Human attribution declines quickly with any agreement that God is in control of everything that happens in the world, that God punishes nations for their political decisions, and that natural disasters are a sign from God. Put another way, only those who strongly disagree with those providential beliefs about God show majority support for human attribution. It almost goes without saying that those who believe in divine providence and control are more likely to have dominion beliefs. For further analyses, these three variables about views of God are combined ( $\alpha=.77$ ).

### **Results - Models**

The correlations between non-religious and religious beliefs, as well as among religious beliefs, demand that statistical controls be employed to sort out the relationship structure. Again, our dependent variable is whether the respondent agrees or disagrees that “The U.S. government needs to do more to address the issue of climate change.” The high value (4) represent “completely disagree” and the low value (1) represents “completely agree,” so we expect positive relationships with the religious beliefs investigated (end times, providential views of God, and dominion) and a negative relationship with human attribution.

We also include an interaction term between dominion belief and the order in which the statement was read. It is possible that the selection of a statement is dictated by recency effects – recalling the last thing in a list first. If that is true, then the selection may be trivial and indicate non-attitudes, which may then fail to generate effects on climate change. Specifically, if recency effects are in play, then they should be weaker, on average, when chosen second. This pattern would partly reflect a methodological concern, but would also signal that a large segment of society does not have stable religious beliefs, which would otherwise help mitigate order effects.

The ordered logit results are available in Table 2. The first model includes the religious variables and leaves out the non-religious beliefs about the climate. While by itself belief in the imminence of the end times is significant and positive, affirming past research that a short “time horizon” undercuts the willingness to combat climate change (Barker and Bearce 2012; Guth et al. 1995), end times beliefs drop away once other religious beliefs are included in the model. Without the secular beliefs, only providential beliefs and being evangelical are significant predictors. Once the non-religious beliefs are added in the second, “full model,” the only significant religious effect (evangelical at .05<sup>5</sup>) has about one-third the effect of human attribution (.15) or belief that the weather has become more extreme (.17).<sup>6</sup> Those who believe in human culpability and the weather’s growing extremity are more likely to agree that the US needs to do more on climate change. The fit statistics help to show the dominance of the non-religious beliefs. The chi-squared parameter for the likelihood ratio more than doubles and the AIC drops from 2420 to 2199 and the BIC drops from 2498 to 2287 when the secular beliefs are added.

There is evidence, seen in the final model with interactions, that religious beliefs are only effective when certain secular beliefs are held. Figure 4 shows the effect of adopting a stewardship or dominion belief conditional on its order (either read first or second). There are no distinguishable effects of statement order on dominion beliefs. There are, however, order differences for those who chose stewardship, which can be seen at the endpoints of the dependent variable. Those who picked stewardship when it was presented second are more likely to strongly agree that the government should do more on climate change and have a lower probability of strongly disagreement. This pattern, then, is loosely consistent with a recency effect, in which the most recently described option

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<sup>5</sup> These effects are average predicted probability changes across the four values of the dependent variable.

<sup>6</sup> There is evidence (not shown) that the two non-religious belief items interact such that those who adopt human attribution are unaffected by beliefs about the extremity of the weather. Only those who do not believe in human culpability for climate change are affected by belief in growing weather extremity, which makes them more supportive of action on climate change.

is better remembered or incorporated into their attitudes. While partly a methodological artifact, it also signals that stewardship beliefs are unstable and easily subject to vagaries in communication.

[Figure 4 about here]

Figure 5 presents the marginal effects of being evangelical on the probability of selecting each option in the dependent variable conditional on whether they believe in human attribution for climate change. Among those who do not ascribe to human attribution, being evangelical makes one less likely (by .08) to completely agree and more likely to completely disagree (by .10) that the US should do more on climate change. Among those who subscribe to human attribution, accepting the scientific consensus, evangelicals are not distinguishable. That is, the interaction between human attribution and evangelical indicates that believing in human attribution for climate change attenuates differences religion might otherwise encourage.

[Figure 5 about here]

There is even evidence that the effect of end times beliefs are contingent on their views of growing weather extremity. While the interaction term in the model appears to lack statistical significance, this is a summary statistic and does not reveal if any portions of the range host significant effects (Kam and Franzese 2009). We show the contingent effects of end times beliefs on weather extremity in Figure 5. The effects are very small, but do show that end times beliefs show statistically discernible effects only among those who believe the weather is getting more extreme (3 on the x axis). End times believers are less likely to “completely agree” and more likely to “completely disagree” when the weather is perceived to be getting more extreme. It is instructive to know that end times believers are somewhat more likely to agree that the weather is getting more extreme (71 percent versus 61 percent of others), but a substantial minority (29 percent) does not. No other religious belief interacts with the secular beliefs used here.

[Figure 6 about here]

The remainder of the model suggests little additional explanatory power from the controls. Only party affiliation helps explain climate change attitudes. Democrats are more likely to agree that the US should do more, while Tea Party and Republican identifiers are more likely to disagree (more the former than the latter).

## **Conclusion**

In this paper, we revisited the link between religion and environmental attitudes, traveling a well worn path by social scientists over the past 40 years. Most researchers following Lynn White's *Science* article supposed that religious beliefs are fixed and dictate attitudes on the environment. In particular, a belief in dominionism implies that humans may do as they wish with creation without concern for its long term health. Of course, numerous scholars have documented the variability in commitment to dominion versus stewardship, along with other facets of religion that may shape environmental concern.

We issued a critique of prior work that challenges its very foundation. While religious beliefs are not unimportant, they cannot be considered fixed and they do not work in isolation from contemporary secular information about how the world is believed to work. We demonstrated a substantial order effect in the adoption of dominion vs. stewardship beliefs; a smaller effect still maintains for the portion of the population that typically demonstrates the highest commitment to their faith – evangelicals. These results suggest that these religious beliefs are generally unstable and therefore finding a correlation between a particular religious belief and an attitude reflects a sort of state of the campaign, akin to election polling (“if the election were held today...”). That is, especially in an area of public concern where religious elites are actively trying to change the content of religious beliefs, we should regard the religion-environment connection as in a substantial state of flux.

Second, secular beliefs regarding the environment (regarding climate change in this article) are essential to consider for two reasons. First, the inclusion of secular beliefs helps to isolate the true effects of religious beliefs and affiliations. When secular beliefs are included, the estimated effects of religion drop considerably or drop out entirely. Second, secular beliefs interact with religious beliefs such that some religious variables matter only under particular secular belief conditions. Specifically, only when people deny that humans cause climate change do religious affiliations induce variation in attitudes.

One read on these results is that they deny religious influence. That is a reasonable interpretation since the results show that religious beliefs that have been shown to structure environmental attitudes are malleable and their effects are conditioned by secular beliefs about the environment. However, this interpretation is not the only one. An alternate view is that this is what religious influence looks like when religious institutions engage issues of public concern. Religious people are wrestling with the implications of propositions written long ago, attempting to make them relevant to current human problems. Such a process may induce new understandings of what those religious propositions mean, but also their application should change depending on the nature of the issue. This is the problem of seeking relevance – acknowledging new facts about the world may entail substantial feedback that raises uncomfortable questions about religious worldviews (or any kind of worldview, for that matter) or may make religious perspectives indistinguishable from others. The latter is surely more likely since many religious organizations have been arguing for decades that humans are responsible for pollution and climate change, showing that secular beliefs may not develop independently of religious attachments.

This might help to explain why the public debate concerning climate change does not focus on the content of religious beliefs, but has directed attacks instead on human attribution. Opponents have lobbed volley after volley of attacks on human attribution by attacking the science and the



scientists, and have tried to articulate counter-narratives that can substitute for human attribution. Once people acknowledge the role of human activity in environmental degradation, the link to collective institutions to help abate an ecological crisis is all but assured.

## Coding Appendix

**Dominion** <described in full in the text>

**End times imminent** “Do you think that the end of the world, as predicted in the Book of Revelation, will happen in your lifetime, or don't you think so?” 0=no, 1=yes.

**Providential view of God** Averages responses to three items, each coded 1=completely disagree, 2=mostly disagree, 3=mostly agree, and 4=completely agree. The statements were: “God is in control of everything that happens in the world;” “God sometimes punishes nations for the political decisions that their citizens make;” “Earthquakes, hurricanes, floods and other natural disasters are a sign from God.”

**Human attribution** Combines responses to two questions. First, respondents were asked, “From what you've read and heard, do you believe there is solid evidence that the average temperature on earth has been getting warmer over the past few decades, or not?” Responses included yes, no, and mixed/some evidence. Then respondents were asked, “Which statement comes closest to your view about the causes of climate change ...?” Responses included “Climate change is caused mostly by human activity such as burning fossil fuels.” And “Climate change is caused mostly by natural patterns in the earth's environment.” Human attribution (=1) means that respondents replied yes to the first question and adopted the first statement of the second question and equals 0 otherwise.

**Extreme weather** “From what you know, over the last few years do you think that the weather has been getting more extreme, getting less extreme or has it not really changed?” 1=less extreme, 2=not changed, 3=more extreme.

**Evangelical** asked only of self-identified Protestants, Protestant denominations, Baptists, Christians, and non-denominational Christians: “Would you describe yourself as a 'born-again' or 'Evangelical Christian', or not?” 0=no, 1=yes.

**Tea party ID** “Do you consider yourself part of the Tea Party movement, or not?” 0=no, 1=yes  
**Male** =1, female=0.

**Education** “What is the last grade of school you completed?” 1=Less than high school graduate, 2=High school graduate, 3=Some college or Technical school, 4=Graduated college, 5=Graduate school or more.

**Black** “Black Non-Hispanic”=1, 0=otherwise

**Hispanic** “Black Hispanic,” “White Hispanic,” or “Unspecified Hispanic” =1, 0=otherwise.

**South**=1, 0=otherwise.

**Democrat/Republican** “Generally speaking, do you usually think of yourself as:”  
Democrat/Republican=1, otherwise=0.

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**Table 1** – Question Order Effects on Dominion Beliefs  
(logistic regression estimates)

	Coeff	SE	<i>p</i>
Dominion given second	2.05	(.18)	.00
Evangelical	.52	(.24)	.03
Order * Evangelical	-1.42	(.31)	.00
Tea party ID	1.17	(.37)	.00
Order * Tea party	-1.42	(.50)	.00
Male	-.16	(.14)	.27
Education	.03	(.06)	.66
Black	.39	(.26)	.13
South	.15	(.15)	.33
Democrat	-.17	(.17)	.31
Republican	-.04	(.19)	.83
Age	.00	(.00)	.23
Constant	-1.35	(.33)	.00

Source: Public Religion Research Institute, PRRI/RNS  
Religion News Survey, December 2012. N=1016,  
 $\chi^2=169.97^{***}$ , % correctly predicted=69.9 (61.7 modal), %  
reduction in error=21.3

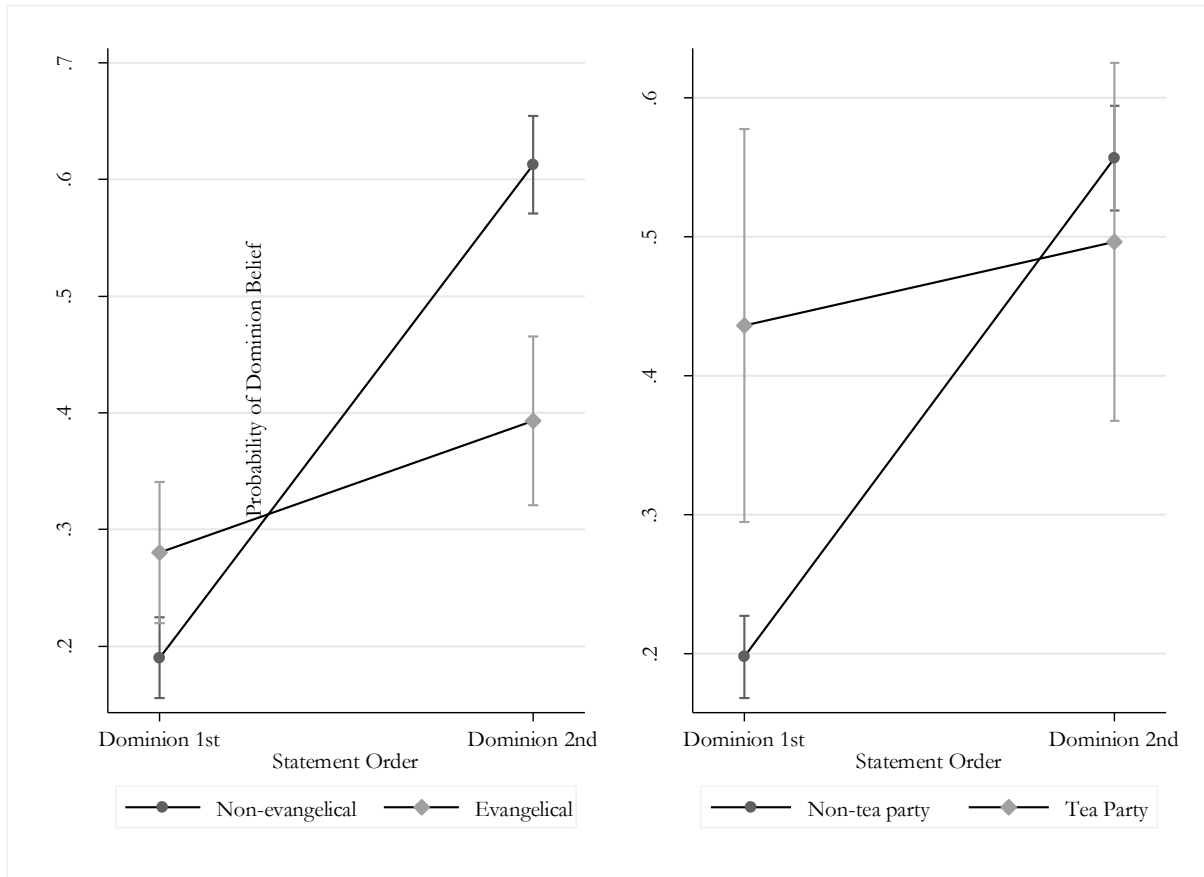


**Table 2** – Ordered Logistic Estimates of Whether the US Needs to Do More to Address the Issue of Climate Change

	Minus Secular Beliefs		Full Model		Full Model w/ Interactions	
	B	p	B	p	B	p
End times imminent	.13	.50	.29	.14	-.36	.66
Providential view of God	.38	.10	.17	.48	.20	.40
Dominion	-.10	.41	.08	.56	.48	.02
Statement order					.71	.00
Dominion * order					-.96	.00
Evangelical	.47	.00	.45	.00	.66	.00
Human attribution			-1.56	.00	-1.43	.00
Human attribution * evangelical					-.56	.06
Extreme weather			-.73	.00	-.79	.00
End times * extreme					.26	.38
Male	-.05	.68	-.11	.39	-.10	.44
Education	-.08	.16	.00	.99	.00	.98
Hispanic	-.45	.06	-.30	.22	-.35	.15
Black	.02	.93	.01	.98	-.15	.55
Other race	-.25	.31	-.19	.47	.06	.79
Southern state	.08	.53	-.03	.84	-.02	.88
Democrat	-1.05	.00	-.75	.00	-.77	.00
Tea Party identifier	1.08	.00	.82	.00	.77	.00
Republican	.65	.00	.37	.02	.40	.01
Cut 1	-.98	.26	-3.41	(.38)	-3.39	.40
Cut 2	.60	.25	-1.47	(.36)	-1.44	.38
Cut 3	1.58	.26	-.30	(.36)	-.26	.38
Model Statistics	N=985,		N=979,		N=979,	
	$\chi^2=225.95***$		$\chi^2=468.39***$		$\chi^2=475.20***$	

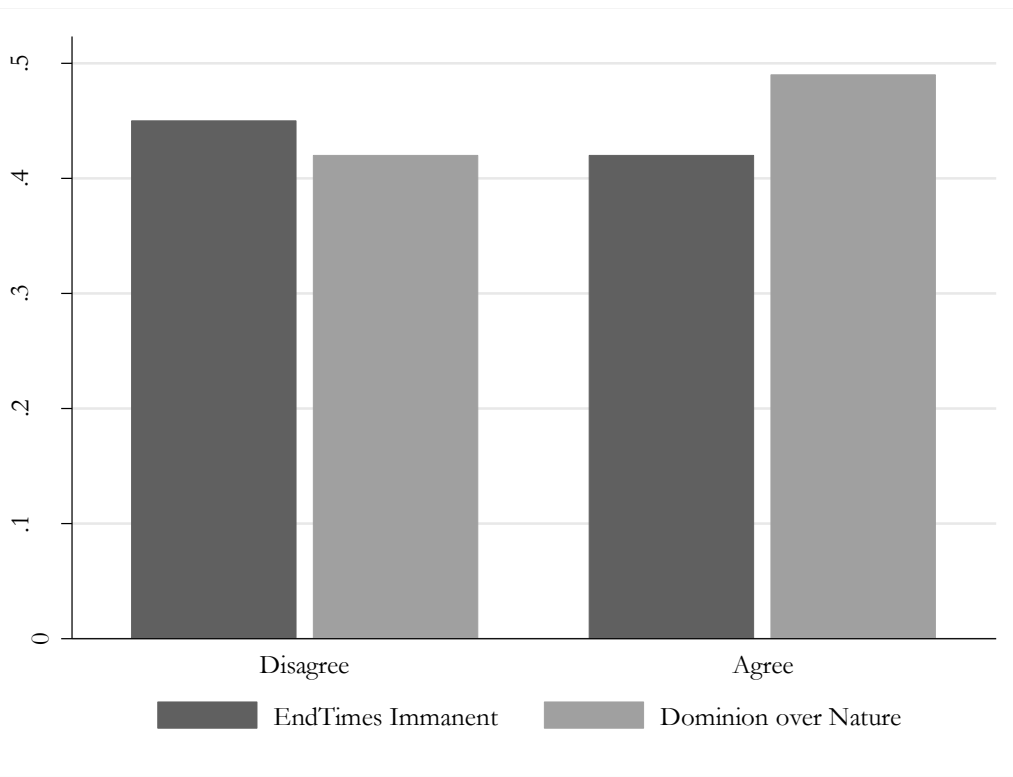
Source: Public Religion Research Institute, PRRI/RNS Religion News Survey, December 2012.

**Figure 1 – Contingent Dominion: Question Order Effects on Dominion Beliefs Among Evangelicals and Tea Party Identifiers**



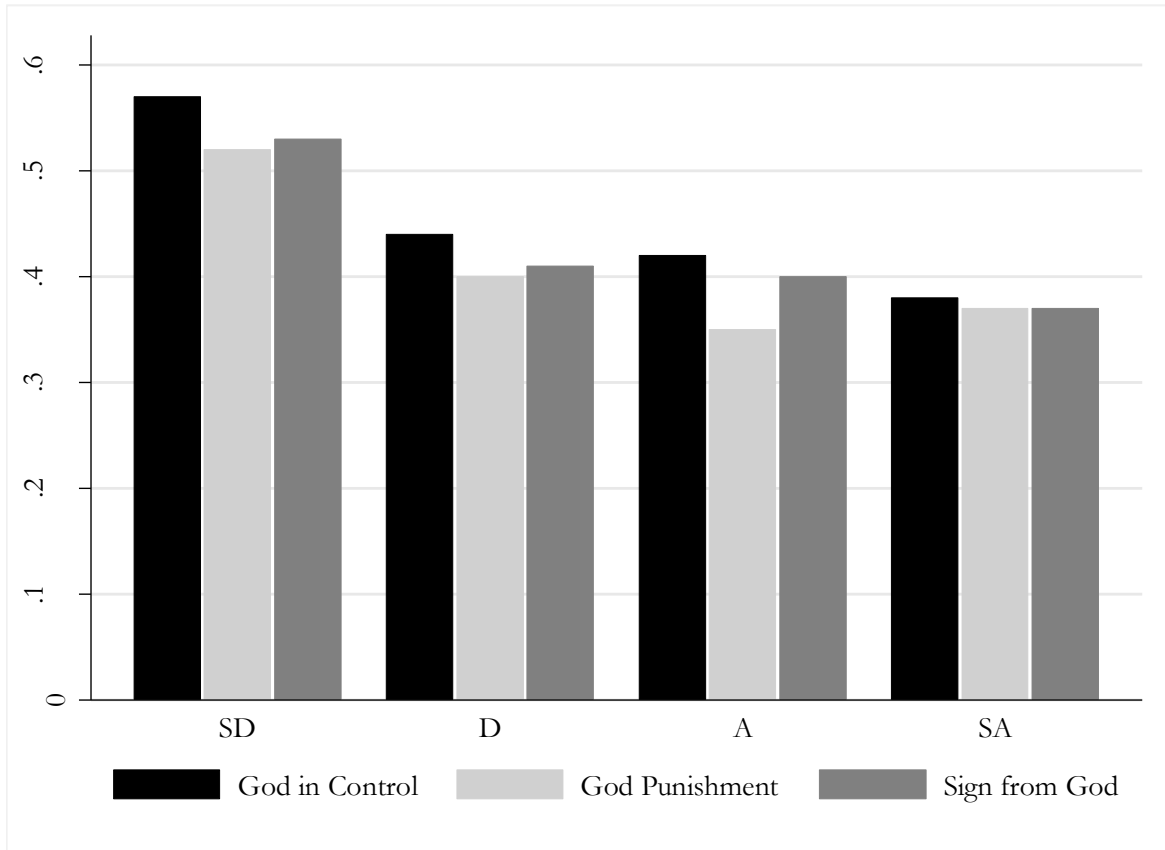
Source: Public Religion Research Institute, PRRI/RNS Religion News Survey, December 2012. 90% confidence intervals.

**Figure 2** – Agreement with Human Attribution for Climate Change by Belief in an Imminent End Times and Human Dominion Over Nature



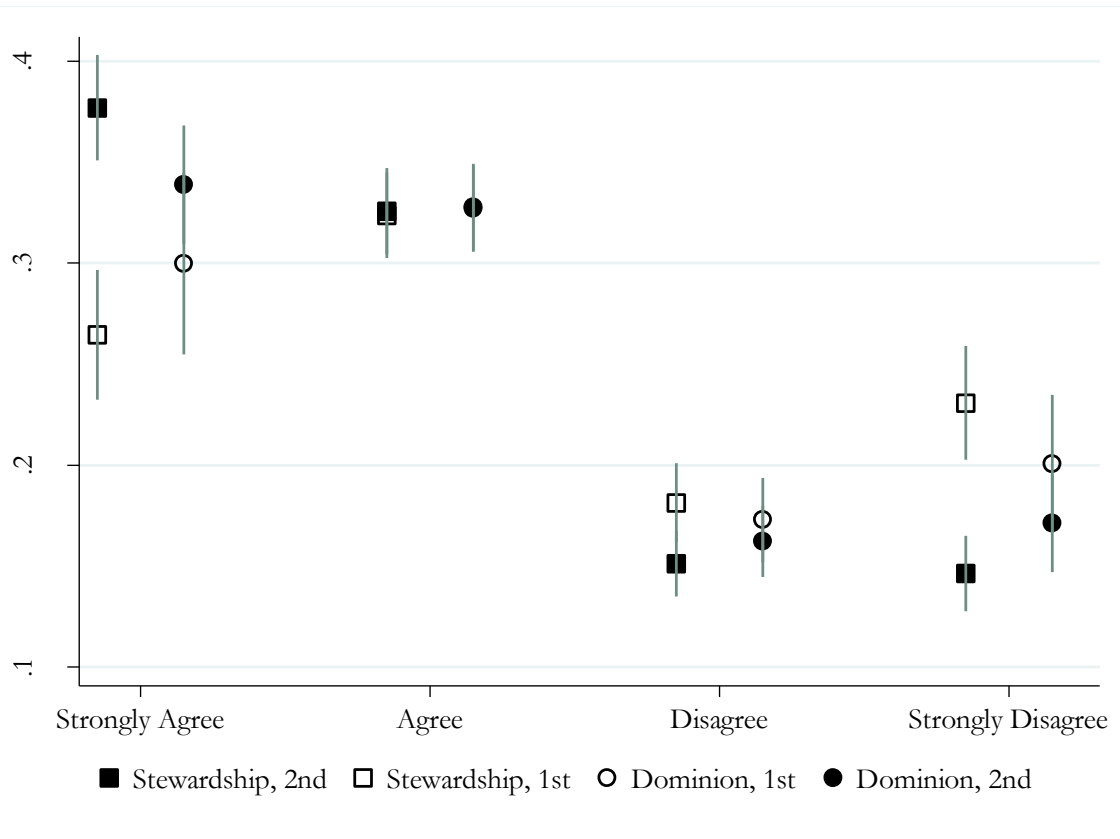
Source: Public Religion Research Institute, PRRI/RNS Religion News Survey, December 2012.

**Figure 3 – Human Attribution for Climate Change by Beliefs about God’s Relationship with Humans**



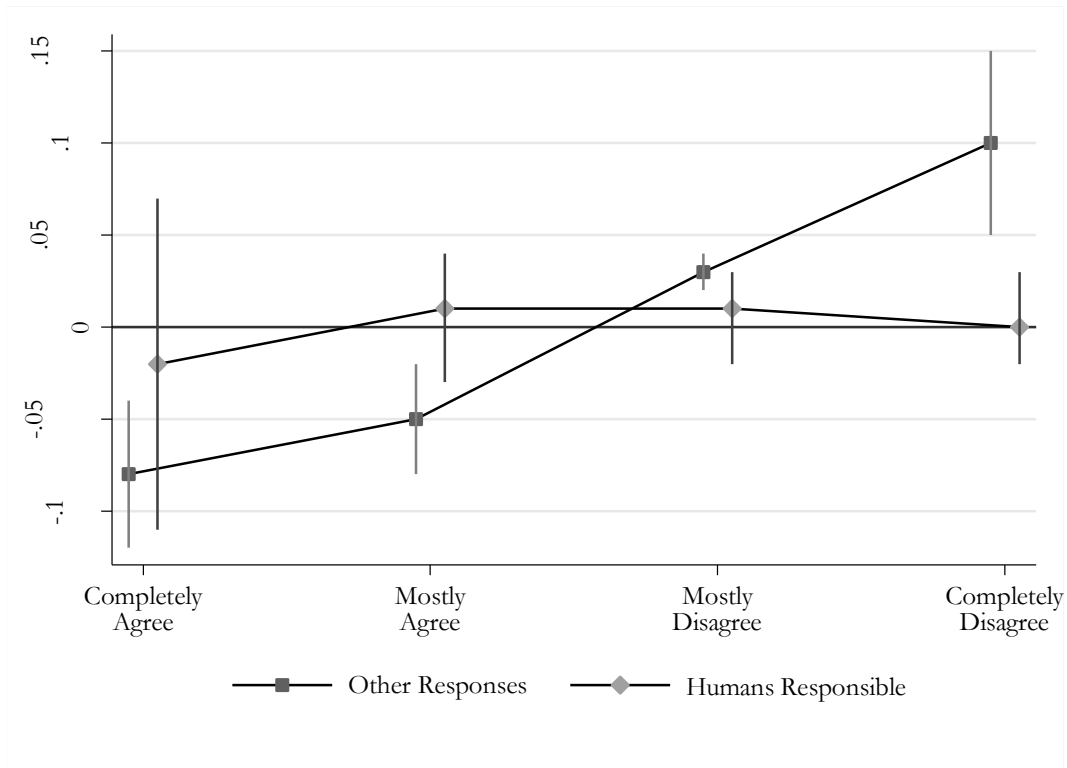
Source: Public Religion Research Institute, PRRI/RNS Religion News Survey, December 2012.

**Figure 4** – Interactive Effects of Dominion Beliefs and Statement Order on Predicted Probabilities of Supporting Climate Change Action



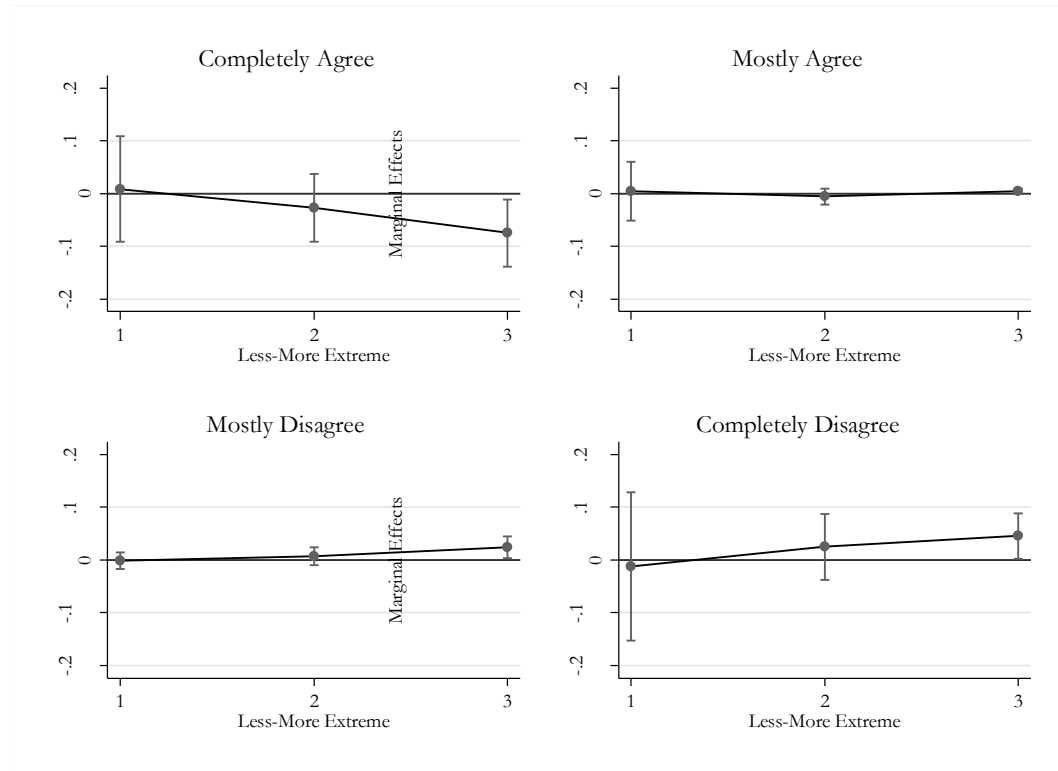
Note: 90% confidence intervals.

**Figure 5** – Marginal Effects of Being Evangelical Given Beliefs about Human Attribution for Climate Change on Attitudes that the US Government Should Do More on Climate Change



Note: 90% confidence intervals. This shows the marginal effect of being evangelical on the probability of choosing each response in the "US should do more" scale.

**Figure 6** – Marginal Effects of End Times Beliefs on Support for Action on Climate Change Contingent on Beliefs in Growing Weather Extremity



Note: 90% confidence intervals.