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# Polarized U.S. publics, Pope Francis, and climate change: Reviewing the studies and data collected around the 2015 Papal Encyclical

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Email: a.landrum@ttu.edu**Edited by Mike Hulme,  
Editor-in-Chief****Abstract**

As soon as it was clear that Pope Francis's 2015 Encyclical, *Laudato Si': On Care for Our Common Home*, would discuss, among other issues, the moral imperative to address global climate change, U.S. scholars and research institutions rushed to collect data surrounding its release. These groups aimed to determine whether there would be a "Francis Effect," in which U.S. Conservatives (and Conservative Catholics in particular) would show greater concern about the negative effects of global climate change. Here, we first provide context by discussing the history of political polarization in the U.S. over global climate change. Then, we review the published literature and publicly available data that aimed to examine potential influences of *Laudato Si'* on people's climate change attitudes. Taken together, the available scholarship provides strong evidence that U.S. publics were differentially responsive to the Pope's messaging (with political Conservatives expressing less climate change concern and viewing Pope Francis as less credible), but there is correlational evidence of an overall "Francis Effect." U.S. population data collected following the encyclical's release show small, potentially temporary, increases in perceptions of papal credibility, climate change concern, and the perspective that global climate change is a moral issue.

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## 1 | INTRODUCTION

In June 2015, Pope Francis released *Laudato Si': On Care for Our Common Home*, the first encyclical<sup>1</sup> letter addressing a global audience on issues related to the environment, global climate change, and a growing inequality between the

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rich and poor. Although *Laudato Si'* is about much more than climate change (e.g., Dean-Drummond, 2016; Miller, 2017), U.S. media outlets heavily emphasized the Pope's position on climate change (e.g., Goodstein & Gillis, 2015; Neuman, 2015; Rocca & Nakrosis, 2018). This emphasis was likely due, at least in part, to two historic events scheduled for later that year: Pope's address to Congress (September 2015) and the drafting of the Paris Agreement on Climate Change (December 2015). Regarding climate change, the Pope leverages his moral authority and widespread popularity to encourage the world to take action to address the global climate crisis. Pope Francis highlights morals and values in addition to scientific facts (Landrum, Lull, Akin, & Jamieson, 2016), bringing a principled perspective to the conversation about the consequences of climate change and advocating on behalf of the poor and vulnerable whom he says are at the greatest risk of being affected. The Pope's unique voice, position, and moral authority give him the pulpit necessary to integrate care and justice for humanity into complex conversations about politics and science.

To what extent, though, was Pope Francis able to heighten concern about climate change and catalyze societal change? Arguably, to drive effective global change, the United States needs to be involved. Data collected by the Pew Research Center (2015a) suggests the countries that emit the most carbon dioxide (CO<sub>2</sub>), are also the ones least concerned about global climate change; the United States is the top emitter and among the least worried. Furthermore, global climate change has become a highly polarized subject in the U.S., as people view even scientific findings through the lens of their political identities (e.g., Hamilton, 2011; Kahan et al., 2012; see also Douglas, 2009). Because of this, some were skeptical of the Pope's ability to unite the nation—or even just all Catholics—on the issue of climate change. Instead, people anticipated the Pope's own credibility would suffer, at least among political Conservatives who were aware of Pope Francis's progressive-leaning moral messages (see Landrum & Lull, 2017). This position was articulated, for example, by energy lobbyist and Catholic Republican Michael McKenna:

For practicing Conservative Catholics, the folks who sit in the pews on Sunday, this is not going to be an indictment of guys like [Marco] Rubio and Jeb [Bush]. Those guys have already made up their minds on climate change. For the real church goers, this is going to be an indictment of the Pope (Davenport, 2015).

Others, however, hoped that as the leader of a religious institution that aligns with political Conservatives on many social issues (e.g., abortion, same-sex marriage), Pope Francis would be uniquely positioned to change the minds of climate skeptics with moral and biblical arguments. Pope Francis was also likely to be perceived as a trustworthy communicator; according to the Pew Research Center (2016), 52% of U.S. respondents expressed either a great deal (13%) or a fair amount (39%) of confidence in religious leaders to act in the best interests of the public.

Professor Katharine Hayhoe, a Texas Tech University climate scientist and evangelical Christian said, “This is exactly what we need. We need leaders who speak to values, connecting the dots between values and climate change” (The Associated Press, 2015). Similarly, former, then current, U.S. President Barack Obama also expressed hope:

As we prepare for global climate negotiations in Paris this December, it is my hope that all world leaders—and all God's children—will reflect on Pope Francis's call to come together to care for our common home (The Associated Press, 2015).

In this review, we begin by briefly describing the history of political polarization over environmental protection and global climate change in the United States (for an overview of the relationship between religion and climate change, see Haluza-DeLay, 2014; see also Allitt, 1998). Then, we summarize and integrate the current published research with some of the publicly available datasets collected around the release of *Laudato Si'* to examine whether, and if so, to what extent, Pope Francis influenced the U.S. public's attitudes on global climate change.

## 2 | A BRIEF HISTORY OF POLARIZATION ON THE ENVIRONMENT

The inaugural Earth Day was celebrated on April 22, 1970, when support for environmental protection was still a bipartisan issue (Dunlap & Gale, 1974). Things changed in the late 1970s during worldwide economic recession; businesses came to strongly oppose environmental regulation that they had not done in earlier years (Dunlap & McCright, 2011). For instance, during former U.S. President Ronald Regan's tenure, his Conservative Republican administration was charged with adding oil, gas, and coal development land leases on millions of acres of national land, appointing anti-environmentalists to key political positions (e.g., Anne Gorsuch to head the Environmental Protection Agency, or

EPA), decreasing funding for the Clean Air Act, and shrinking the EPA enforcement program (Little, 2004). Despite these actions on the part of the executive branch, Republicans in Congress were not *yet* voting strongly against environmental protection (McCright, Xiao, & Dunlap, 2014).

Some scholars pinpoint the “real” start of political polarization on environmentalism to the fall of the Soviet Union in 1991, after the end of former President Reagan’s term, saying the Conservative movement “replaced the ‘red scare’ with a new ‘green scare’” (McCright et al., 2014, p. 252; see also Buell, 2003). Examining political polarization on support for environmental protection using data collected from the Global Social Survey (GSS) from 1974 to 2012, McCright and his colleagues found support for this hypothesis, stating:

Our finding of political polarization on support for spending on the environment is consistent with the argument that the decline of the Red Scare and the emerging threat of international regulations spawned by the Rio Earth Summit was a turning point for the U.S. Conservative movement and congressional Republicans. At this pivot point, Conservatives and Republicans began to demonstrate a sharp drop in support for environmental protection (McCright et al., 2014, p. 258).

Coinciding with the fall of the Soviet Union was a rise in anti-environmentalism among Conservative think tanks, which are typically funded by—and ideologically aligned with—Conservative foundations and corporations (Fischer, 1991; Jacques, Dunlap, & Freeman, 2008). These organizations, claiming the credibility of research institutions, have been accused of dressing propaganda as scholarship and augmenting environmental skepticism by questioning the seriousness of environmental problems, the validity of environmental science, and even the credibility of environmental scientists (Jacques et al., 2008; see also Austin, 2002). Indeed, since 1991, the members of the U.S. Congress and the general public predictably split along political party lines on support for environmental protection (e.g., McCright et al., 2014).

### 3 | A COUNTRY DIVIDED OVER GLOBAL CLIMATE CHANGE

As with environmental issues, the political divide on climate change has increased with stark differences between Democrats and Republicans emerging between 2003 and 2006 (e.g., Brulle, Carmichael, & Jenkins, 2012; Dunlap & McCright, 2008). Public concern about global climate change fluctuates annually, and it generally rises and falls depending on which societal issues (e.g., terrorism, war, recession, pandemics) are perceived to be the most important at the time. Data collected by the Gallup organization shows that U.S. citizens’ personal concern about global climate change was decreasing among both Democrats and Republicans in the early 2000s, from 2001 to 2004<sup>2</sup> (Dunlap, McCright, & Yarosh, 2016). Coinciding with the release of Al Gore’s “An Inconvenient Truth” in 2006 and its subsequent media coverage, concern rebounded to a peak of 41% of people in the U.S. saying they worry a great deal about climate change,<sup>3,4</sup> the highest recorded percentage of individuals to express concern about the issue. Yet this bump was short lived; concern declined to the 2004 lows by 2011.<sup>5</sup> Though concern about global climate change ebbs and flows among the entire U.S. public, a gap between Democrats’ and Republicans’ views persists with Democrats reliably expressing more concern.

Although political ideology strongly predicts people’s views about global climate change, there are also modest differences in such views between individuals from various religious traditions and ethnicities. Sampling respondents in 2015, Pew Research Center (2015b) found that whereas Hispanic Catholics (77%) were the group most likely to accept that global climate change is due to human activity, White Catholics (45%) and White Evangelicals (28%) were the least likely to say so.<sup>6</sup> Given that White Catholics are among the religious groups in the U.S. that are least likely to accept the existence of human-caused climate change, much hope surrounded Pope Francis’s anticipated discussion of climate change in his encyclical, particularly among environmental advocates. After all, simply converting White Catholics’ views on climate change to align with Hispanic Catholics and other groups would shift public concern to an undeniable majority. More importantly, however, was the potential for Pope Francis to influence the views and actions of those in government, where Catholics are overrepresented. While Catholics made up about 22% of the U.S. public in 2015—the year of the encyclical’s release—about 31% of members of Congress identified as Catholic, as did six out of the nine Supreme Court Justices (Berenson, 2015). Though the Pope was clearly speaking to a global audience, it would have been advantageous to move prominent Catholic Republicans in the U.S., such as John Boehner, Paul Ryan, Marco Rubio, Jeb Bush, and Rick Santorum, to support climate change mitigation policies (Schwom et al., 2015).

## 4 | COMMUNICATING ABOUT GLOBAL CLIMATE CHANGE FROM THE PULPIT

Research repeatedly shows that simply providing people with more facts does not change their views; and in the case of global climate change, more education or knowledge often leads only to greater polarization (e.g., Hamilton, 2011; Kahan et al., 2012; McCright, Marquart-Pyatt, Shwom, Brechin, & Allen, 2016). Historically, the scientific community's approach to public outreach has been to disseminate information through one-way channels. Yet, this approach focuses too much on the need to fill the knowledge gap between scientists and the public, and it overlooks the influence that ideological predispositions and values have on the public's interpretation of information (Besley, Dudo, Yuan, & Ghannam, 2016). Arguably, consensus reports such as those from the Intergovernmental Panel on Climate Change (IPCC) and campaigns communicating scientific consensus have done little to sway the public's attitudes as public opinion hardly shifts surrounding their release (e.g., Landrum, Hallman, & Jamieson, 2019; Landrum & Slater, 2020). As stated earlier, the strongest predictor of global climate change attitudes is not knowledge, but political ideology (e.g., Dunlap & McCright, 2008). Furthermore, people's political attitudes toward global climate change are often based on their moral concerns and values (Feinberg & Willer, 2013).

Using the moral foundations framework developed by Haidt and colleagues (e.g., Graham, Haidt, & Nosek, 2009; Haidt & Graham, 2007; see also Doğruyol, Alper, & Yilmaz, 2019), Landrum and colleagues analyzed the moral language of global climate change concern present in the encyclical (Landrum et al., 2016). Moral foundations theory proposes at least five moral foundations: care versus harm (e.g., concern for the suffering of others), fairness versus cheating (e.g., concerns about unfair treatment and justice), loyalty versus betrayal (e.g., concern regarding forming groups and acting for the group's greater good), sanctity versus degradation (e.g., concern for purity and sacredness and avoidance of disgust), and authority versus subversion (e.g., concern regarding social order and obedience). A sixth, sometimes studied foundation is liberty versus oppression (e.g., concerns about freedom and autonomy). The study found that Pope Francis primarily discussed global climate change concern in terms of *care* versus *harm*: care for the poor, care for the environment, and harm to future generations (Landrum et al., 2016). For example, the Pope writes:

Many of the poor live in areas particularly affected by phenomena related to warming, and their means of subsistence are largely dependent on natural reserves and eco-systemic services such as agriculture, fishing and forestry. They have no other financial activities or resources which can enable them to adapt to climate change or to face natural disasters, and their access to social services and protection is very limited (Francis, 2015, §25).

Politicians and scientists expected that, in contrast to merely presenting “the facts,” this moral framing combined with the Pope's authority over the Catholic constituency would sway climate skeptics (Cama, 2015).

However, there are at least two reasons to be skeptical. First, Pope Francis communicated his message in a traditional, top-down format reminiscent of the one-way transmission models that aim to inform and educate in hopes of persuading change, but which can lead to reactance (Hart & Nisbet, 2011). For example, Ma, Dixon, and Hmielowski (2019) found that those who already questioned the existence or importance of combatting global climate change (e.g., U.S. political Conservatives) were resistant to top-down messages communicating the scientific consensus surrounding climate change. The authors pose that this oppositional resistance stems from the belief that a message threatens one's sense of freedom or autonomy or manipulates one into believing something else. Therefore, understanding people's values, cultural worldviews, and morals is important when creating persuasive climate messages (Corner, Markowitz, & Pidgeon, 2014).

Second, although appealing to moral foundations has been shown to be effective for climate communication (e.g., Wolsko, Ariceaga, & Seiden, 2016), the specific foundations to which Pope Francis appealed were likely to be interpreted by U.S. audiences as predominantly progressive ones; thus, they would not likely resonate with U.S. Conservatives, even if they are Catholic (Landrum & Lull, 2017). Besides referencing more progressive foundations like care and fairness, in some places in the encyclical, the Pope outright criticizes core Republican values such as free-market capitalism and technological innovation:

The economy accepts every advance in technology with a view to profit without concern for its potentially negative impact on human beings. Finance overwhelms the real economy.... Some circles maintain that current economics and technology will solve all environmental problems, and argue...that the problems of

global hunger and poverty will be resolved simply by market growth.... Their behaviour shows that for them maximizing profits is enough. Yet by itself the market cannot guarantee integral human development and social inclusion.... We fail to see the deepest roots of our present failures, which have to do with the direction, goals, meaning, and social implications of technological and economic growth (Francis, 2015, §109).

In essence, his moral argument calls for a reduction in consumerism, individualism, capitalism, and encourages a move toward a collective, social, simplistic way of life that creates a sustainable (as opposed to destructive) relationship with nature (O'Neill, 2016). Even before the encyclical's official release, Catholic writer Stephen Moore stated that Pope Francis aligned himself with the "radical green movement that is at its core anti-Christian, anti-people, and anti-progress. He has aligned himself with a secular movement that is antithetical to the fundamental theological underpinning of Catholicism—the sanctity of human life and the value of all souls" (Moore, 2015, as cited by Held, 2016).

Indeed, the ways in which environmental concern is typically framed as a moral issue—mainly as harm to future generations and as an unjust distribution of burden—rarely resonates with political Conservatives (Markowitz & Shariff, 2012). Conservatives' moral sensibilities are not often swayed by narrow appeals to care for others and fairness (e.g., Haidt & Graham, 2007). Studies such as those conducted by Feinberg and Willer (2015) bolster the claim that Conservatives are more likely to perceive environmental concerns as moral concerns when framed in messaging that resonates with their broader moral foundations (e.g., sanctity, loyalty). So, although moral reframing might be one promising approach to environmental communication, it was questionable that the discussion of global climate change in Pope Francis's encyclical would influence Conservative climate skeptics.

## 5 | WAS THERE A "FRANCIS EFFECT"?

Several research groups in the U.S. aimed to investigate whether the release of Pope Francis's encyclical and subsequent visit to the U.S. in 2015 influenced people's global climate change attitudes. Of primary interest to most of these scholars was whether, and if so, to what extent, Pope Francis influenced people's concern about global climate change. Additionally, researchers examined whether Pope Francis influenced people to consider global climate change as a moral issue and whether he gained or lost credibility as a result of his public arguments and perceived position.

Scholars from the Annenberg Public Policy Center (APPC) at the University of Pennsylvania conducted several nationally representative surveys, with oversamples of Catholics, before and after the release of the Encyclical (pre- and post-encyclical surveys) and before and after the Pope's visit to the U.S. (pre- and post-visit surveys). In addition, researchers contacted and surveyed the same set of participants, so that the APPC had data from the same individuals at two different time periods (i.e., panel data). For one panel, the scholars re-contacted pre-encyclical survey participants after the release of the encyclical (encyclical panel). A second panel included the post-encyclical participants who were recontacted after the visit (Visit panel 1). And a third panel included previsit participants who were also recontacted after the visit (Visit panel 2). As of the submission of this review, two research papers have been published from these data.

The first paper to come from these data was authored by Li, Hilgard, Scheufele, Winneg, and Jamieson (2016). Using the pre- and post-encyclical survey data, this paper examined whether there were differences in how Progressives, Conservatives, Catholics, and non-Catholics were influenced by the Papal Encyclical. The authors used three outcome variables: (a) perceived risks of climate change to the poor, (b) perceived credibility of Pope Francis on the issue of climate change, and (c) an index of climate change concern (the index was created using three variables: participants' belief that global climate change is real and human-caused, perceived seriousness of the issue, and belief that there is a consensus among scientists). Notably, instead of examining whether the group of participants sampled before the release of the encyclical was different than the group of participants sampled after its release (e.g., time period), the authors grouped participants based on whether they reported hearing about the encyclical or not, regardless of time period.

Li et al. (2016) found that unlike those who were *not* aware of the encyclical, those who knew about it were much more polarized across all three outcome variables. That is, U.S. Progressives were more likely to believe that global climate change will have a greater effect on the poor; grant Pope Francis more credibility on the issue of climate change; and express more concern about global climate change. On the other hand, U.S. Conservatives were more likely to express the opposite: they were less likely to believe that global climate change will have a greater effect on the poor;

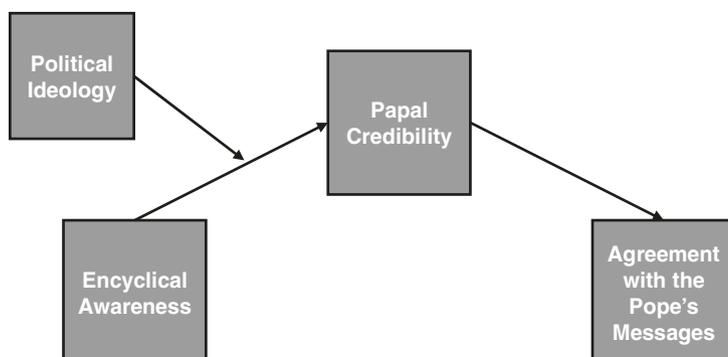
grant Pope Francis less credibility; and express less concern. Though this difference between Progressives and Conservatives was also identified for those who were unaware of the encyclical; the effect was much weaker. The authors believe the result suggests strong reactance among U.S. Conservatives to the Pope's messages. However, it is also possible that political partisans with stronger views about climate change were more likely to know about the encyclical and those with weaker views.

Compared to political ideology, Catholicism<sup>7</sup> played less of a role. In fact, Catholic Progressives responded much like non-Catholic Progressives, and Catholic Conservatives responded much like non-Catholic Conservatives. Even when it came to measuring the Pope's credibility, Catholic Conservatives who were aware of *Laudato Si'* attributed less credibility to Pope Francis on the issue of global climate change than those who were unaware of the encyclical (Li et al., 2016).

In the paper's discussion, the authors theorized that the Pope's pro-environmental messages sparked cognitive dissonance among Catholic Conservatives who were already skeptical about global climate change due to their political views. Catholic Conservatives rejected the Pope's messages and continued to adhere to the stance aligned with their political leanings, a finding consistent with research in the sociology of religion that argues that religions in the U.S. confirm their religious identity to meet national politics instead of the reverse (see Huntington, 2004). Furthermore, according to Hart and Nisbet (2011), as people's beliefs and values become more closely connected to their political identities, people are more likely to tune into messages that resonate with and reinforce their ideological views. The study by Li et al. (2016) suggests that awareness of the encyclical did not bring the country together on the issue of global climate change. Instead, people's views were either fixed or they became more extreme, with Conservatives expressing even less concern about global climate change than those who did not hear about the encyclical. This negative response, which occurs when a message is created with a specific purpose, but results in the opposite intention, is referred to as a "boomerang effect" (Hart & Nisbet, 2011, also see Myrick & Comfort, 2019).

The second paper to come out of the APPC data collection, authored by Landrum, Lull, Akin, Hasell, and Jamieson (2017), aimed to model the relationships among encyclical awareness, perceptions of papal credibility (collected after the encyclical's release, or "time 2"), and agreement with the Pope's messages about global climate change (at time 2) using the encyclical *panel* data. In particular, the authors wanted to examine whether perceptions of papal credibility mediated the relationship between being aware of the encyclical and agreeing with the Pope's messages. In addition, the authors asked whether Catholicism and/or political ideology moderated the relationship between encyclical awareness (i.e., having heard about *Laudato Si'*) and perceptions of the Pope's credibility. In other words, they expected that the Pope's messages would resonate differently with Conservatives compared to Liberals and with Catholics compared to non-Catholics.

The authors found no direct effect between having heard of *Laudato Si'* and agreeing with the Pope's arguments (i.e., that global climate change is a serious issue and that it will have a greater influence on the poor). However, they did find the predicted *indirect* effects where encyclical awareness influences agreement with the Pope's arguments *through* perceptions of papal credibility. Indeed, awareness of the encyclical predicted perceptions of the Pope's credibility, which positively predicted agreement with the Pope's messages. Importantly, the relationship between encyclical awareness and perceptions of the Pope's credibility was conditional on participants' political ideology. In other words, the more politically Conservative a participant reported to be, the less credibility that participant attributed to Pope Francis after the release of *Laudato Si'* (at time 2). The less credibility a participant attributed to Pope Francis, then, the less that participant agreed with the arguments made in the encyclical (Figure 1).



**FIGURE 1** Papal credibility mediates the relationship between being aware of the encyclical and agreeing with the Pope's messages. Furthermore, political ideology moderates the relationship between encyclical awareness and papal credibility such that Progressives who hear about the encyclical rate the Pope as being more credible and Conservatives who hear about the encyclical rate the Pope as being less credible. There was no direct relationship between encyclical awareness and agreeing with the Pope's messages (Landrum et al., 2017)

The study by Landrum et al. (2017) also provides additional analyses shedding light on the effect of the encyclical. In the appendix of their paper, the authors report the results of a mixed-design ANOVA examining whether papal credibility on three different issues (on the poor, climate change, and abortion) changed between time periods (pre-encyclical vs. post-encyclical) and whether political ideology and/or Catholicism influenced any potential effects. The authors found an overall effect of time, with greater papal credibility being ascribed after the release of the encyclical. Post-hoc *t*-tests show this effect was mainly driven by the significant difference between perceived papal credibility on the issue of global climate change ascribed before (3.04 on a scale of 1–5) and after the encyclical's release (3.27,  $p < .001$ ). People did not ascribe significantly more or less credibility to the Pope on the issues of the poor and abortion after the release of the encyclical. So, although Conservatives were more likely to reduce their perceptions of the Pope's credibility on climate change (but not on other topics) upon learning of his pro-environmental encyclical, most of the U.S. public (collapsed across political ideology) viewed the Pope as more credible after its release.

The Public Religion Research Institute (PRRI) has also asked nationally representative samples about global climate change, including whether respondents agree or disagree that “The U.S. government needs to do more to address the issue of climate change.” In its August 2015 survey, conducted after the release of the papal encyclical, the organization found that about 66% of the general public and 73% of Catholics believe the U.S. government should do more to address the issue of global climate change. Unsurprisingly, however, Republicans responded quite differently from Democrats.<sup>8</sup> Whereas Democrats typically reported they completely agreed with the statement, Republicans reported they mostly disagreed. There were no differences associated with being Catholic.<sup>9</sup> Moreover, on the publicly available copy of the survey instrument, PRRI provides the percentage of respondents who completely agree, mostly agree, mostly disagree, completely disagree, and do not know or refuse to answer for its surveys on December 2012, November 2014 and August 2015 (Table 1). These numbers suggest little to no change in agreement that the U.S. government needs to do more to address global climate change over that time period, which includes the encyclical's release (PRRI, 2015).

Affirming the findings from the surveys collected by APPC and PRRI, Schuldt, Pearson, Romero-Canyas, and Larson-Konar (2017), conducted an experiment (11 months after the release of *Laudato Si'*) examining whether being primed to think about Pope Francis and his views on global climate change influenced participants' perceptions of global climate change as a moral or ethical issue. Using a nationally representative U.S. sample, the researchers found that thinking about the Pope before answering questions about climate change increased the likelihood of perceiving climate change as a moral issue. Again however, political ideology had a stronger influence: Democrats were more likely to agree climate change was a moral issue than Republicans, regardless of whether they were primed to think about the Pope before they answered.

Most recently, in an effort to better understand why people accept or reject global climate change messages *beyond* political ideology, Myrick and Comfort (2020) examined how populist sentiment, elite source perceptions, and emotional responses (anger and fear) can influence the relationship between global climate change messaging and public support for policy. In an online-survey experiment ( $N = 406$ ), they tested how people with different degrees of populist beliefs respond to two elite sources of climate advocacy: Pope Francis and the American Association for the Advancement of Science. Findings revealed that populist sentiment was a significant positive predictor of support for global climate change policy, whereas viewing the source as “elite” was a significant negative predictor, and both were further amplified depending on audiences' emotional responses (anger and fear). In addition to supporting previous research on the influence of audience ideology on acceptance of climate messages, this study also provides new insight signaling

**TABLE 1** Percent of respondents from the PRRI surveys in 2012, 2014, and 2015 that chose each response level

Statement: “The U.S. government needs to do more to address the issue of climate change”			
	December 2012 (%)	November 2014 (%)	August 2015 (%)
Completely agree	34	34	33
Mostly agree	33	35	33
Mostly disagree	15	15	15
Completely disagree	16	14	14
Do not know/refused	2	2	5
Total	100	100	100

Note: *Laudato Si'* was published in June of 2015, in between the November 2014 and August 2015 data collections.

the influence of populist sentiment (which was nearly as strong of a predictor as ideology) and the influences of perceiving the source as elite and having strong emotional responses (fear in particular). Elements other than political ideology are often ignored, and this study underlines the importance of considering all these elements when designing global climate change messaging (Myrick & Comfort, 2020).

The studies from the data collected by APPC, the data from PRRI, and the experiments by Schuldt et al. (2017) and Myrick and Comfort (2019, 2020) add to the already strong body of work showing people view global climate change through a political lens and engage in politically motivated reasoning (e.g., Hamilton, 2011; Kahan et al., 2012; McCright et al., 2016). The ways in which the U.S. public responded to the encyclical were heavily influenced by their political worldviews. This is not surprising given the tumultuous history of politics and environmentalism described earlier in this review.

Data collected by the Center for Climate Change Communication at George Mason University in collaboration with the Yale Program on Climate Change Communication, however, paint a slightly more optimistic picture. Although there are still clear differences in the response to Pope Francis's messages based on political ideology, the researchers *did* find population-level increases in people's concern about global climate change. Between the spring prior to the release of *Laudato Si'* (Time 1) and the fall after Pope Francis's visit to the U.S. (Time 2)—a larger time interval than the APPC and PRRI studies, more U.S. respondents and U.S. Catholic respondents became concerned about global warming (Maibach et al., 2015). Importantly, this trend appears to be consistent across the different political groups. Additional data shared with the authors by Dr. Edward Maibach and Dr. Connie Roser-Renouf reveals that on average, Democrats, Independents, and even Republicans report increased concern about global climate change. Descriptively, Republicans shifted from responding “not at all” and “not very worried” to “somewhat worried,” on average, whereas Democrats shifted from responding “somewhat worried” to “very worried.”

In addition to global climate change concern, Maibach et al. (2015) found an increase in the percentage of participants who perceive global climate change to be a moral issue. In the fall after the Pope's visit to the U.S., more Republicans than expected said it was a moral issue given this group's responses prior to the encyclical's release. Although Republicans seemed to have increased concern about global climate change and are more likely to perceive it to be a moral issue (both positive results that are potentially due to the Pope's messaging), Pope Francis's favourability appeared to drop among this group, supporting the study by Landrum et al. (2017). After the Pope's visit, fewer Republicans said they had a positive view of Pope Francis, while more than expected (given the responses before the encyclical's release) said they had a negative view of Pope Francis. Similarly, Maibach et al. (2015) also found that more Republicans said they “strongly distrust” the Pope as a source of information about global climate change, shifting from saying they “somewhat distrust” him when interviewed at Time 1.

Also from this data set, Myers, Roser-Renouf, Maibach, and Leiserowitz (2017) found a strong association between exposure to Pope Francis' encyclical message and an increased likelihood to engage in collective activism, at least among U.S. respondents who are already concerned about global climate change. Building on prior literature about attitude-behavior inconsistency, this study examines how exposure to the Pope's messaging may have influenced people's motivations to become activists by strengthening their pre-existing attitudes and beliefs about global climate change. Using longitudinal survey data from Spring 2015 (Time 1, before the encyclicals' release) and Fall 2015 (Time 2, after the encyclical's release), the researchers examined differences in participants' self-reported behaviors related to global climate change activism. The self-reported behaviors included consumer activism (e.g., rewarding or punishing companies by buying or not buying their products or services) and political activism (e.g., contacting government officials). The researchers found the relationship between attitude and exposure to the Pope's messaging was strongest among the three activities requiring the least amount of effort (rewarding companies, punishing companies, and willingness to join a campaign), and weakest for contacting government officials (Myers et al., 2017). Overall, this study shows how opinion leaders such as Pope Francis can inspire not only individual actions but collective activism.

## 6 | KEY TAKEAWAYS

Pope Francis's encyclical and subsequent visit to the U.S. appeared to influence the U.S. public, if even just a little. Much like the bump in global climate change concern that occurred around the release of “An Inconvenient Truth,” nationally representative data from the U.S. show that we are currently in another upswing (Figure 2). A 2019 Gallup survey suggests that 66% of people in the U.S. believe global climate change is caused by human activities; 65% say most scientists believe global climate change is occurring, and 59% believe the effects of global climate change have already

**FIGURE 2** Percent of respondents from Gallup Polls who report worrying “a great deal” about global warming or climate change from 2000 to 2019. Polls were conducted in March of each year. The release of the documentary “An Inconvenient Truth” in 2006 and the Papal Encyclical in 2015 are marked on the figure. Note that the data are correlational, and it cannot be stated with confidence that the upticks following the release of *An Inconvenient Truth* and *Laudato Si’* were caused by their release



begun. Although these figures are higher than the previous peak in 2007, they have dipped slightly from higher peaks in 2017. Over the next few years, we will be able to see whether public acceptance of the reality of global climate change will continue to rise or continue to fall.

Despite population-level increases in acceptance of climate change, each of the reviewed studies and other publicly available data also demonstrates that Republicans and Democrats (Conservatives and Progressives) responded differently to the Pope's messages. These results are consistent with communication theories based on—or at least relevant to—motivated reasoning (e.g., *Differential Susceptibility Model*: Valkenburg & Peter, 2013; *Cultural Cognition*: Kahan, Jenkins-Smith, & Braman, 2011; *learning to trust and trusting to learn*: Landrum, Eaves Jr., & Shafto, 2015). Moreover, these results are consistent with the history of political polarization over global climate change discussed in this review.

Indeed, Gallup data from 2018 suggests a further cooling among Republicans in their global climate change views. From 2017 to 2018, Republicans moved from 41% to 34% agreeing the effects of global climate change have already begun; from 40% to 35% agreeing that it is human caused; and from 36% to 33% saying that they worry a great deal about it (Brenan & Saad, 2018). This may be due to a combination of any “Francis Effect” dissipating and a Republican president who is outwardly hostile toward the issue.

## 7 | CONCLUSION

Much has happened in the U.S. since Pope Francis released *Laudato Si': On Care for Our Common Home*. In 2017, President Donald Trump announced his decision to withdraw the U.S. from the Paris Agreement—an international agreement to lower greenhouse gas emissions to reduce the impact of global climate change. President Trump also removed global climate change from the list of top U.S. security threats (Chemnick, 2017); removed the verbiage “global warming” and “climate change” from U.S. government websites (Environmental Data & Governance Initiative (EDGI), 2018); and appointed Scott Pruitt, an adamant climate change denier, as the head of the EPA.<sup>10</sup> Despite being one of the largest emitters of greenhouse gases, the U.S. government is leaving the burden of combatting global climate change to the rest of the world. And lastly, the continuing political divide (Pew Research Center, 2020); lack of U.S. media coverage (Wibeck, 2014); and proliferation of climate denialism (Lewandowsky, Oreskes, Risbey, Newell, & Smithson, 2015) further confuses and disrupts public opinion and policy action.

For this review, we set out to evaluate the studies conducted and data gathered surrounding the release of the encyclical to determine whether Pope Francis was able to ignite concern for global climate change. In our analysis, we found limited ways in which Pope Francis' release of *Laudato Si'* influenced the U.S. public's attitudes. Though the Pope's arguments about global climate change align with scientific consensus on the issue, a crucial difference between this and other appeals for global climate change mitigation is the Pope's emphasis on morality (Bodansky, 2015). While Pope Francis is not a climate scientist, climate change communicator, or policy maker (Hulme, 2015), he arguably carries authority in ethical and moral matters, especially for those of the Catholic faith. In *Laudato Si'*, Pope Francis

argues that acting to address global climate change is a *moral* imperative, seeding his narrative regarding the issue within his own domain of expertise.

As an advocate for global climate change mitigation, Pope Francis's messages both in and outside of the 2015 encyclical convey the urgency of the global climate crisis as a legitimate and impending threat, and that we all need to act now to preserve our common home. However, as the reviewed studies have shown, Pope Francis' messaging did *not* resonate with all audiences, even those who may label themselves as Catholic. While he was able to engage with those who were already involved or concerned in climate issues, he was not able to influence politically conservative climate change deniers, which is unsurprising given the current state of political polarization in the United States.

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## CONFLICT OF INTEREST

The authors have declared no conflicts of interest for this article.

## AUTHOR CONTRIBUTIONS

**Asheley Landrum:** Conceptualization; data curation; formal analysis; writing-original draft; writing-review and editing. **Rosalynn Vasquez:** Writing-original draft; writing-review and editing.

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## ENDNOTES

<sup>1</sup> For the modern Roman Catholic Church, a papal encyclical is a specific document sent by the Pope that deals with aspects of Catholic doctrine that typically is addressed to bishops, priests, and clergy or even all Catholics. Pope Francis's encyclical, *Laudato Si'* is reported to be the first encyclical addressed to everyone and not just the Catholic community.

<sup>2</sup> Democrats declined from 45% saying they worry a great deal about global climate change in 2001 to only 35% saying so in 2004. Republicans declined from 23% saying they worry a great deal about global climate change to only 15% during the same time period.

<sup>3</sup> When divided by political party, Democrats peaked at 58% and Republicans at 24%.

<sup>4</sup> "An Inconvenient Truth" was released in May 2006, two months after the March 2006 Gallup Environment Poll. It is possible that the film and media coverage before and after its release influenced this uptick, but we cannot say that with confidence as the data are correlational.

<sup>5</sup> In 2011, only 36% of Democrats and 13% of Republicans reported worrying a great deal about global climate change.

<sup>6</sup> It is worth noting that most of these surveys relied on a simple dichotomous variable, asking participants' whether they identify as Catholic. These measures ignore several dimensions of religious life including strength of commitment, frequency of practice, knowledge of the faith.

<sup>7</sup> It is worth noting that most of these surveys relied on a simple dichotomous variable, asking participants' whether they identify as Catholic. These measures ignore several dimensions of religious life including strength of commitment, frequency of practice, knowledge of the faith.

<sup>8</sup> Agreement that the U.S. government should do more to address the issue of climate change is divided along party lines,  $F(3, 1,256) = 50.52, p < .001$ . Post hoc test with Tukey correction suggest significant differences exist between each of the different political affiliations. Democrats (median = completely agree) agree with this more than Independents (median = mostly agree;  $p < .001$ ) and Independents agree with the statement more than Republicans do (median = mostly disagree,  $p < .001$ ).

<sup>9</sup> There were no significant differences associated with being Catholic,  $F(1, 1,256) = 2.74, p = .098$ , nor a Catholic by political party interaction,  $F(3, 1,256) = 1.25, p = .29$ .

<sup>10</sup> Scott Pruitt was replaced in 2018 by Andrew R. Wheeler, who also is skeptical of the causes and consequences of climate change (Joselow, 2019).

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