



Climate change as a polarizing cue: Framing effects on public support for low-carbon energy policies

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ABSTRACT

This study examines how public support for four specific low-carbon energy policies (renewable energy investment, revenue-neutral carbon tax, fuel efficiency regulations, expansion of nuclear power) varies when these policies are framed as a way to reduce either climate change, air pollution, or energy dependence. A survey question wording experiment with a nationally representative U.S. sample is utilized. We find framing effects only among Republicans, whose policy support was lower in response to the climate change frame versus the air pollution and energy security frames for all policies except nuclear power. This suggests that framing effects are conditional on political partisanship and policy content. When testing the processing mechanism behind these effects, we find no evidence that the climate change frame functions as a simple heuristic; rather, the findings are consistent with motivated reasoning, whereby the framing effects on policy support are mediated by the policy's perceived relative benefits and costs.

1. Introduction

In the [Pew Research Center's \(2017\)](#) most recent annual survey of the U.S. public's issue priorities, of the 21 issues included, the widest partisan gap was on the importance of addressing global climate change: Just 15% of Republicans said that this should be a top governmental priority, compared to 62% of Democrats. Moreover, in studies of the drivers of belief in human-caused climate change, political identification typically outperforms all other variables in terms of their predictive power ([Hornsey et al., 2016](#)). Given these divides, scholars often point to climate change as a key marker of partisan identity in the U.S., arguing that concern about or dismissal of the threat of climate change increasingly defines what it means to be a Democrat or a Republican, respectively ([Nisbet, 2009](#); [Guber, 2017](#)).

As a result of this polarization, amassing public support for carbon-reducing energy policies has been a challenge; yet, such support may be key to policy change ([Ockwell et al., 2009](#)). In particular, simply mentioning “climate change” may cue partisans to respond to clean energy policies in ways that are consistent with their identities – making Republicans more resistant while signaling Democrats to be more supportive. Thus, one way to build broader public support for action to address climate change may be to avoid mentioning climate change and instead emphasize alternative benefits of clean energy policies. To investigate this possibility, this study uses a question wording

experiment to test how U.S. public support for four specific energy policies varies when these policies are framed as a way to address climate change or, alternatively, as a way to reduce air pollution or energy insecurity.

Although several recent studies have examined the effects of different policy justification frames on public support for climate mitigation policies ([Aklin and Urpelainen, 2013](#); [Bernauer and McGrath, 2016](#); [Lockwood, 2011](#); [McCright et al., 2016](#); [Mossler et al., 2017](#); [Petrovic et al., 2014](#); [Stokes and Warshaw, 2017](#); [Walker et al., 2017](#)), the results have been mixed, likely due to inconsistencies in sample, design, and measurement, thus signaling a need for additional research. This study builds on this literature in several specific ways. We study a nationally representative U.S. sample recruited from YouGov and, to our knowledge, are the first to test energy security as an alternative benefit frame with a U.S. audience. Existing studies also have not systematically compared framing effects across different policies. In this study, we compare framing effects between four specific policies that appeal differently across the political spectrum: fuel efficiency regulations, investment in renewable energy, expansion of nuclear power, and a revenue-neutral carbon tax. By examining specific policy proposals, we are able to understand more clearly how partisan identity in the context of the two-party U.S. system interacts with framing to influence public support for clean energy policies.

Additionally, questions remain as to the processing mechanism via

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which a climate change frame may polarize opinions (Kahan et al., 2017, p. 23). On one hand, “climate change” may serve as a simple heuristic (Lau and Redlawsk, 2001), cueing partisans to intuitively accept or reject a policy based on its association with climate change. Alternatively, a climate change frame may trigger motivated reasoning (Taber and Lodge, 2006), whereby people’s reaction toward climate change shapes their systematic processing of policy content – in terms of its perceived relative benefits and costs – which, in turn, drives their policy support. This study offers a test of these alternative mechanisms by examining whether the climate change frame prompts heuristic processing, measured via response latencies, or whether framing effects on policy support work through perceived benefits and costs.

Our findings show that the climate change frame does, indeed, result in more polarization between Democrats and Republicans; however, framing effects are confined to Republicans, who show reduced support for low-carbon energy policies when the policies are presented as a solution for climate change versus as a solution for air pollution or energy dependence. These effects are observed only for the fuel efficiency, renewables, and carbon tax policies – not nuclear power, suggesting important differences in framing effects between policies. There is no evidence that the climate change frame functions as a simple heuristic; rather, framing effects on policy support are mediated by the policy’s perceived relative benefits and costs.

1.1. Framing low-carbon energy policy

Scientists and policymakers have recommended a portfolio of energy-based solutions to help reduce greenhouse gas emissions and mitigate climate change, including investment in nuclear power and in renewables such as solar and wind, regulation of emissions from power plants and the transportation sector, and market-based approaches such as carbon pricing (Bertram et al., 2015; IPCC et al., 2014; Jacoby et al., 2014; Veerapen and Beerepoot, 2011). Public support for these approaches will play a key role in transforming the U.S. energy system away from fossil fuels and toward low-carbon sources that are critical for climate change mitigation. Importantly, these energy policies have implications not only for mitigating climate change but also for reducing air pollution and its related health effects, as well as for helping to free the U.S. from dependence on foreign energy sources. These co-benefits of low-carbon energy policies offer alternative solution justifications and, as such, function as frames that may differentially activate values so as to promote a certain interpretation of the solution itself (Entman, 1993).

Broadly, framing refers to the process via which a communication message, by emphasizing particular aspects of an issue over others, shapes people’s interpretation of that issue (Druckman, 2001; Entman, 1993). Numerous studies across multiple contexts have shown that shifting how an issue is framed – even through small changes in message wording – can alter the public’s support for policies (e.g., Gollust et al., 2013; Hurwitz and Peffley, 2005; Kinder and Sanders, 1990; Nelson et al., 1997; Simon and Jerit, 2007). According to Price and Tewksbury (1997), framing works by “activating certain constructs which then have an increased likelihood of use in evaluations made in response to the message” (p. 197). In other words, frames suggest to message recipients that particular considerations are applicable to evaluating the issue at hand; individuals then use these considerations to make sense of the issue and reach a judgment.

Thus, in the present context, framing a particular energy policy as a solution to climate change, for example, makes climate change relevant to evaluating that policy. Given the U.S. public’s divisiveness on climate change, applying climate change to an evaluation of a policy is likely to result in more polarized opinions between Democrats and Republicans than using an alternative frame for which there is greater partisan agreement. All else equal, individuals should be more supportive of a policy when its purported benefits cohere with their values and interests. In this study, we focus on reduction in air pollution and energy

security, respectively, as alternatives to a climate change frame. This follows prior research that found that the health benefits of climate mitigation resonate across the political spectrum (Maibach et al., 2010) and that conservatives and Republicans perceive health benefits and energy security as more compelling reasons than climate change for reducing fossil fuel use (Gromet et al., 2013; Maibach et al., 2013; Petrovic et al., 2014).

Several recent studies have examined how emphasizing alternative benefits of clean energy policy affect public support. On balance, these studies offer evidence for framing effects (but see Bernauer and McGrath, 2016) and taken together, suggest several key conclusions. First, emphasizing reductions to air pollution and health risks increases support for clean energy policies, particularly among Republicans and others predisposed to climate skepticism (Mossler et al., 2017; Petrovic et al., 2014; Stokes and Warshaw, 2017; Walker et al., 2017). Just one study (Lockwood, 2011), conducted in the United Kingdom, tested the effects of an energy security frame, finding that it increased support for expanding renewable energy among conservatives relative to a climate change frame. In the U.S., Aklın and Urpelainen (2013) found that the effects of a positive energy security frame on support for clean energy policy were diluted in the presence of a negative counter-frame; however, this study did not explicitly compare the energy security frame to alternative benefit frames, nor did it examine interactions with partisan identity. Thus, in the U.S., an energy security frame has yet to be directly tested as an alternative to a climate change frame, despite its prominence in U.S. political discourse (Vezirgiannidou, 2013), as well as evidence, noted above, that right-leaning publics see energy security as an important reason to reduce fossil fuel use (Gromet et al., 2013; Maibach et al., 2013).

Evidence for framing effects among Democrats and liberals is more mixed. Petrovic et al. (2014) found that liberals were more supportive of national policies to reduce air pollution when air pollution was linked to climate change concerns rather than to public health concerns. However, a study with students in the UK found that all respondents – regardless of political orientation – responded more negatively to a proposed car use reduction policy when it was framed as a way to address climate change versus public health (Walker et al., 2017). Still other studies found no evidence of framing effects among Democrats (Stokes and Warshaw, 2017). This latter finding may be due to a ceiling effect, such that Democrats are already quite supportive of many low-carbon energy policies and are thus not responsive to framing (Mossler et al., 2017).

Other studies, outside the context of energy policy, also point to climate change as a polarizing cue (Carrico et al., 2015; Hine et al., 2016; Kahan et al., 2017). For example, Hine et al. (2016) found that Australians dismissive of climate change were most responsive to climate adaptation messages when they did not mention climate change.

Based on this prior theory and research, we predict the following:

H1. Framing will interact with partisan identity such that Republicans [Democrats] will be less [more] supportive of low-carbon energy policies when they are framed as a way to address climate change versus as a way to reduce air pollution or energy insecurity.

In addition to how a policy is framed, the compatibility of the proposed policy solution with one’s partisan identity also may affect public support and the level of opinion polarization among political partisans. That is, policies themselves are not ideologically neutral but carry information that resonates with different political value orientations. For example, regulatory policies commonly proposed as solutions to climate change are viewed as threats to Republican principles of free markets and limited government (Campbell and Kay, 2014). At the same time, Democrats have long opposed nuclear power due to concerns about environmental and health dangers, whereas Republicans are less sensitive to these risks and see the growth of nuclear technology as a symbol of industrial prowess and free market ideals (Jenkins-Smith et al., 2011; Peters and Slovic, 1996; Rothman and Lichter, 1987).

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