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To cite this article: Kathryn McConnell (2022): 'The Green New Deal' as partisan cue: Evidence from a survey experiment in the rural U.S., Environmental Politics, DOI: [10.1080/09644016.2022.2090655](https://doi.org/10.1080/09644016.2022.2090655)

To link to this article: <https://doi.org/10.1080/09644016.2022.2090655>



Published online: 15 Jul 2022.



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'The Green New Deal' as partisan cue: Evidence from a survey experiment in the rural U.S.

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ABSTRACT

Recent research suggests that public support for climate action can be increased by bundling environmental policy with social and economic programs – the Green New Deal being one of the most widely known iterations of this strategy. Yet, party cue theory suggests that public support for the policy will be shaped by the strong Democratic associations of the proposal. In a preregistered survey experiment conducted among 1,203 residents of the rural western United States, I find strong evidence that the phrase 'the Green New Deal' functions as a partisan cue, lowering support for a bundled climate policy among rural residents by 9.1 percentage points. This depressive effect is robust even when framing around region-specific climate impacts is added to the survey question.

KEYWORDS Climate policy; Green New Deal; partisan cues; rural; survey experiment; infrastructure

Introduction

Reducing global carbon emissions remains one of the most critical political problems of the century (McGrath 2021). High-emitting countries such as the U.S. – where emissions reductions are most needed – have been largely unable to enact broad policies that would meaningfully mitigate climate change (Bergquist *et al.* 2020). Recent efforts to advance national-level climate policies in the U.S. have shifted towards bundling environmental reforms with a broader program of social and economic policies. Rather than addressing environment and energy concerns in isolation, this new strategy seeks to integrate them with policies focused on areas such as labor, housing, and racial justice.

The Green New Deal is one of the most widely publicized incarnations of this bundled approach. Originally introduced in 2019 in the U.S. House of Representatives, the Green New Deal called for a broad range of federal investments in climate-related initiatives, such as enhancing access to renewable energy, improving the energy efficiency of buildings, and expanding

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public transportation, all with the goal of reaching net-zero greenhouse gas emissions. The resolution coupled these explicitly environmental proposals with social and economic policies, such as expanding living-wage jobs, bolstering collective bargaining protections, and providing funding for higher education (H.R., 2019).

While initially proposed at the federal level, the idea of the Green New Deal quickly spread sub-nationally, with elements of bundled climate policy by now having been formally proposed or adopted in states such as New York and California, and cities such as Los Angeles, California and Portland, Maine (Sierra Club [n.d.](#)). In addition to its rapid transmission across various policy settings, recent research suggests that a Green New Deal-like omnibus policy would be politically popular among voters. Specifically, combining climate policy with proposals to either expand affordable housing, set a \$15 minimum wage, or guarantee jobs was found to increase public support for the policy bundle compared to a climate policy alone (Bergquist *et al.* 2020). These findings suggest that the Green New Deal's bundling approach may have the potential to garner public support to a greater degree than traditional, singularly climate-focused policy proposals.

The originating house resolution which proposes the Green New Deal identifies twelve demographic or social groups as 'frontline and vulnerable communities'¹ which are prioritized by the bill due to their disproportionate exposure to environmental harms (H.R., 2019). Among this list are 'depopulated rural communities.' Indeed, rural regions are expected to be exposed to severe climate change impacts in the coming decades (IPCC 2014) and many further experience concentrated, persistent poverty (Tickamyer and Duncan 1990, Tickamyer *et al.* 2017). But despite their explicit inclusion in the bill, U.S.-based rural populations may pose a unique challenge for bundled climate policy coalition building. Rural residents tend to support climate policy to a lesser degree than urban residents (Olson-Hazboun and Howe 2018), and, in some rural communities, cultural ties to extractive industries may make transitioning to renewable energy production politically unpalatable (Olson-Hazboun 2018). These characteristics suggest that rural residents' support for a bundled climate policy will likely be informed not only by the policy components of the proposal, but also by the broader political and cultural context of the bill.

A wide-ranging literature on party cues and political polarization – beyond just rural regions – illustrates how voters consistently respond to the perceived political affiliation of a policy, relying on both in-group and out-group cues to guide their own political preferences (Nicholson 2012, Druckman *et al.* 2013). While party cue literature tends to test the effects of a specific political figure's or political party's support for a policy,

preliminary observational research suggests that the phrase ‘the Green New Deal’ itself may have become a partisan cue, further driving polarization over the policy (Gustafson *et al.* 2019).

Gustafson *et al.* (2019) document rapid attitudinal changes in the U.S. towards the Green New Deal in just a four-month period. When the policy was first introduced and still relatively unknown, there were generally high levels of public support for the proposal, with 81% of registered voters and even 57% of conservative Republican voters ‘strongly’ or ‘somewhat’ supporting the Green New Deal (Gustafson *et al.* 2019, p. 940–941). Between December 2018 and April 2019, the percent of respondents who were familiar with the proposal increased substantially, with 59% of registered voters having heard of the Green New Deal by the end of the study period (Gustafson *et al.* 2019, p. 940). In step with this growing awareness was a widening attitudinal polarization over the proposal. While support for the Green New Deal remained relatively high among Democrats, it declined dramatically among Republicans.

This documented pattern of polarization and high level of public awareness of the policy provide an opportunity to test how strong partisan cues can become, even in the absence of stated partisan support of or opposition to the bill. Evaluating the extent to which bundling climate and social policies enhances public support, while an important line of study, can only partially explain how a policy will actually be received in a given context. Critically, whether these bundles in turn become partisan-affiliated and trigger party cue responses may have an outsized effect on their ability to build public support. Domestic support for climate action in the world’s highest greenhouse gas emitting countries is, in turn, a key element of reducing global emissions and upholding international climate agreements (McGrath 2021).

Has ‘the Green New Deal’ become a partisan cue among rural U.S. residents? On one hand, recent findings on bundled climate policy would indicate that an omnibus proposal such as the Green New Deal would be more popular than a traditional, singularly climate-focused policy. But scholarship on partisan cues suggests that the strong association of the Green New Deal with Democratic political leaders may trigger out-group party cue responses among certain populations, instead reducing public support. Based on a preregistered survey experiment conducted in rural counties across eleven U.S. states,² I test the extent to which ‘the Green New Deal’ has become a partisan cue, and, further, whether reframing the policy around salient regional climate impacts can attenuate party cue effects.

Partisan cues & public attitudes towards climate change

Environmental sociologists and scholars working across social science fields have long established that public opinions about climate change and environmental policies are stratified across political party lines (McCright 2011, Hart and Nisbet 2012, Guber 2013, Hamilton *et al.* 2015, Clark *et al.* 2020). Those who identify as Democrats or politically liberal tend to express greater concern for climate change than those who identify as Republicans or politically conservative, and the differences between these two groups have widened over time (McCright 2011).

This study contributes to sociological understandings of polarized climate change attitudes in several ways. First, much attention has been given to the role that individual elites play in shaping policy (Domhoff 1990, Bonds 2011, Downey 2015, Farrell 2020), and how elite institutions – such as corporations, philanthropies, and political lobbying groups – have promulgated climate misinformation (Brulle 2014, 2018, Farrell 2016, 2019). This sociological scholarship runs parallel to a large body of research, based primarily in political science, which documents how elites indirectly influence policy among non-elites via partisan cues. This literature does not take elites themselves as the object of study, but rather focuses on whether and how non-elites respond to political elite signaling around a policy issue. While some have posited the elite or partisan cue hypothesis as a competing explanation to the documented institutional drivers of climate skepticism (Merkley and Stecula 2020), I present cue theory as a complementary way of understanding how polarization on climate change is propagated.

A robust line of research has shown how signals from political parties and their leaders have strong, consistent effects on political attitudes. Such partisan cues operate as ‘information shortcuts’ or ‘heuristics’ by which individuals can quickly form an opinion about a policy without needing large amounts of information or time to process its substantive content (Arceneaux and Kolodny 2009, Goren *et al.* 2009, Nicholson 2012, Linde 2018). These heuristics tend to be even more influential in the context of complex or relatively unknown subjects (Nicholson 2012), such as an omnibus bill like the Green New Deal, which covers a wide range of content areas spanning from reducing greenhouse gas emissions and infrastructure upgrades to economic development and labor protections. Such information shortcuts are further shaped by ‘partisan motivated reasoning,’ in which individuals tend to be more receptive to information that confirms their prior beliefs and is endorsed by in-group members (Hart and Nisbet 2012, Druckman *et al.* 2013).

While political cues can persuade via in-group affiliation, they can also dissuade via out-group affiliation. In other words, a person may support a policy more strongly because a political leader from their party advocates

for it, but that person may be less inclined to support the same policy if a political leader from an opposing party advocates for it. In some cases, these out-group cues have proven to be even stronger than in-group cues (Goren *et al.* 2009, Nicholson 2012, Lelkes 2021), a phenomenon referred to as ‘backlash effect’ (Pink *et al.* 2021).

Party cues have been shown to influence attitudes towards climate change and support for climate policy. For example, longitudinal analyses document positive correlations between Democratic and Republican press releases on climate change and climate opinions (Brulle *et al.* 2012), as well as between climate news coverage featuring Democratic elite messages and climate skepticism (Merkley and Stecula 2020). Experimental work has tested similar relationships, demonstrating significant effects of elite party cues on support for energy policy (Stokes and Warshaw 2017, Kousser and Tranter 2018) and a range of other climate-related policies, such as gas vehicle phase-outs, carbon capture (Rinscheid *et al.* 2020), carbon taxes (Ehret *et al.* 2018, Linde 2018), and cap and trade policies (Van Boven *et al.* 2018). Scholars focused on climate communication strategies have further leveraged partisan cues in attempt to proactively *increase* acceptance of climate change among Republicans. These experiments leverage in-group cues through the use of, for example, experimental treatments that feature Republican congress people speaking about the importance of climate change (Benegal and Scruggs 2018, Goldberg *et al.* 2021).

Existing sociological literature which documents the effects of partisan cues on climate policy support are predominantly observational. Such studies can be complemented by targeted experimental research such as this, which strengthen claims of causality (Crabtree and Fariss 2016) and address concerns of confounding and reverse causality (Prakash and Bernauer 2020). A further benefit of this study’s experimental approach is its ability to investigate whether specific re-framings of a policy can counteract party cues, opening up the ability to pursue research questions around how political polarization might be mitigated.

Attenuating partisan cue effects with localized climate framing

Scholarship on partisan cues suggests that the strong party association of the Green New Deal may trigger out-group, depressive effects on support for the policy bundle among rural U.S. West residents, only 34.5% [CI 31.0%, 38.0%] of whom identify as Democrats. If elite party cues do in fact depress climate policy support among rural residents, can communication of this policy be adjusted to counter the effect?

One strategy that has been adopted in climate change communication is to emphasize place-specific climate change risks, which, in theory, makes climate change more relevant to residents’ personal experiences (Lorenzoni

et al. 2007, Spence *et al.* 2011, Mildenberger *et al.* 2019). This approach is thought to address a tendency known as ‘spatial optimism,’ in which people often consider climate change to be more dangerous in distant places compared to their home regions (Leiserowitz 2006, Tvinnereim *et al.* 2020). Such a personalization of climate change risk information also leverages research findings which suggest that climate opinions and behaviors can be influenced by local weather conditions and climate change-related hazards (Borick and Rabe 2017, Bergquist and Warshaw 2019).

However, research in both these areas – the effects of particular weather experiences and localized climate risk information on residents’ climate opinions – report mixed findings. In their review of this question, Howe *et al.* (2019) report that, while there is some evidence for an association between weather variations and climate opinions, this effect is not consistently observed and is often small in magnitude. In an experiment testing the effects of local flood risk maps on residents’ level of concern over sea-level rise, Mildenberger *et al.* (2019) report that this form of localized climate information actually reduced climate concerns. Research likewise yields mixed results on the ability of communication frames to influence climate beliefs or policy preferences (Lewandowsky 2021, McGrath 2021). Some have suggested that certain frames can enhance support for climate policies (Spence and Pidgeon 2010, Severson and Coleman 2015) while others have concluded that such ‘simple reframings’ are not sufficient to move the needle on public support (Bernauer and McGrath 2016).

The second treatment in this study tests whether additional framing that emphasizes region-specific climate impacts can attenuate the anticipated partisan effects of the Green New Deal. The study region offers an ideal population in which to test this approach, as rural economies in the western U.S. tend to be heavily tied to the environment through industries such as forestry, agriculture, and tourism, and thus are more economically vulnerable to changing climatic conditions. While evidence is weaker that this reframing will have a strong counteractive effect, I include it for its dual purpose of testing the durability of the partisan cue.

Rural U.S. West study region

This study examines partisan cue and counterframe treatment effects among rural U.S. residents in particular for several reasons. In a recent review of climate opinion literature, Howe *et al.* (2019) call for research in this field to examine a wider range of geographic contexts, as well as how place-specific weather experiences may influence climate behaviors. Much research on climate opinions draws on national-level samples (Howe *et al.* 2019), as was the case with previous research conducted on polarization over the Green New Deal (Gustafson *et al.* 2019). Given data collection limitations

in sparsely populated rural regions, such national-level data collection can bias research towards more urbanized settings (Brooks and Voltaire 2020, Mueller *et al.* 2021). Yet, rural residents are specifically identified as a core constituency in the original Green New Deal bill text. To this end, the study's focus on rural residents follows both Howe *et al.* (2019)'s call for further research on key subpopulations and McGrath (2021)'s appeal for researchers to examine which climate policies garner most support among specific groups.

The broader socio-political context of the study's rural sampling frame also suggests that residents may exhibit particularly strong responses to the Green New Deal partisan cue. Historically, federal initiatives in the 1930's under the original New Deal came to be strongly opposed by many western residents (Patterson 1969). And contemporary ethnographic research has documented rural distrust of the federal government (Wuthnow 2018) – a key actor in the originally proposed Green New Deal. Politically, the Republican Party tends to have stronger sway in rural regions (Scala *et al.* 2015), which would suggest a stronger out-group cue response to the Democratic-associated Green New Deal.

There are also reasons to believe that rural residents would respond to framing around localized climate impacts, given that rural regions tend to be more closely tied to the environment via natural resource economies (Mueller 2020). The western U.S. has been especially hard hit by growing wildfire impacts (Abatzoglou and Williams 2016) and drought (Cook *et al.* 2004) over the past two decades, and recent record-breaking temperatures across the Pacific Northwest (DiLiberto 2021) are affirming model projections of increased climate-change induced heat-waves in the region (Lopez *et al.* 2018). In short, rural West residents are certainly experiencing the localized effects of global climate change. For these reasons, the sampling frame is geographically well-suited for testing the capacity of a localized counter-frame to influence climate attitudes, much as Mildenberger *et al.* (2019) tests the effects of localized sea-level rise information on climate attitudes specifically among San Francisco Bay Area residents.

Sampling and design

Data were collected from a representative survey conducted in rural counties of eleven western U.S. states between February 28 and April 3 of 2021. A random sample of households from the United States Postal Service Delivery Sequence File was drawn from sample counties, and residents were subsequently contacted by phone, email, text, and postcard. Total responses collected by each delivery mode are included in Appendix Table A6. Surveys were available in both English and Spanish. Soft quotas were used for sex, state, Latino/a, Native American, and age. In total, 1,203

completed responses were collected with a sampling error of $\pm 3.1\%$ at the 95% confidence level. All participants gave informed consent before taking the survey. The survey was conducted with approval from Yale University's Human Research Protection Program (exemption determination ID#2000027941).

Surveys were collected in line with polling conventions, in which a target number of completed surveys was established (1,000) and responses were collected until either the target number was reached or the survey timeframe concluded. Ultimately, the survey was in the field for 5 weeks to best match a previous survey wave. The survey's American Association of Public Opinion Research contact rate was 2.5% with a corresponding 0.9% response rate and 38.1% AAPOR Cooperation Rate 1 (AAPOR 2016).

I applied post-stratification raking weights to address concerns over low response rates. Weights were applied by sex, state, age, education, Native American, and Latino/a to better align the data with 2010 Census estimates. Weighted responses are largely in line with 2015–2019 American Community Survey population estimates for the region, with the exception of education, for which there is slightly higher representation of more educated respondents relative to the population (see Appendix Table A5).

While the final weighted sample very closely mirrors demographic characteristics of the target population (see Appendix Table A5), the survey's low response rate raises some concerns regarding its representativeness. Acknowledging this limitation, I report sample average treatment effects (SATEs) rather than population average treatment effects (PATEs). This approach is in line with Mildenerger *et al.* (2019), whose survey experiment conducted among San Francisco Bay Area residents draws from an imperfect population-weighted sample (in their case, a sample that included substantial under- and over-representation of particular demographic groups) (Mildenerger *et al.* 2019, p. 17). Like these authors, I argue that the results reported here offer improved representativeness compared to commonly used convenience samples such as Amazon's Mechanical Turk (MTurk), but are not without limitations.

Yet, even with sample-level results, there is reason to believe that treatment effects observed among non-representative samples may be generalizable to a broader population. Experimental researchers have documented that treatment effects are often very similar when estimated with a convenience sample versus a population-representative sample (Coppock *et al.* 2018; Mullinix *et al.* 2015). For instance, by replicating 27 experiments on MTurk which had originally been conducted on population-representative samples, Coppock *et al.* (2018) demonstrate strong homogeneity in treatment effects across these distinct sampling techniques. Given this finding, I report SATEs, yet suggest that my findings are still broadly relevant to the rural West target population.

Respondents' political party was determined by the question, 'Generally speaking, do you usually think of yourself as a Republican, Independent, Democrat, or something else?' Those who answered 'Independent' to this question were then asked a follow-up question to determine whether they identified as 'Closer to Republican,' 'Closer to Democrat,' or 'Neither.' Those who responded 'closer to' were grouped into the corresponding party, while those who answered 'Neither' were grouped into an 'Other' category along with respondents who declined to answer the question. True Independents and non-responders were grouped together in this way because neither were a key focus for the study's hypotheses, both groups were relatively small compared to Democrats and Republicans, and doing so prevented observations from being dropped for which full experimental results were available. Relative proportions of each group are reported in Appendix [Table A5](#).

In the experimental question, survey respondents were randomly assigned by simple random assignment to one of the following three question frames. The core question framing ('that would reduce greenhouse gases, create millions of jobs, and invest in infrastructure') is adapted from components of House Resolution 109 of the 116th Congress.

- **Control Frame:** A policy has been proposed that would reduce greenhouse gases, create millions of jobs, and invest in infrastructure. Please tell me your level of support for this policy on a 7-point scale, where 1 means 'extremely opposed' and 7 means 'extremely supportive,' with 4 being 'neutral.'
- **Green New Deal Treatment Frame:** The Green New Deal has been proposed as a policy that would reduce greenhouse gases, create millions of jobs, and invest in infrastructure. Please tell me your level of support for this policy on a 7-point scale, where 1 means 'extremely opposed' and 7 means 'extremely supportive,' with 4 being 'neutral.'
- **Green New Deal + Local Treatment Frame:** A changing climate will reduce the water available for farmers, increase wildfire damage to property, and increase heat waves in the western United States. The Green New Deal has been proposed as a policy that would reduce greenhouse gases, create millions of jobs, and invest in infrastructure. Please tell me your level of support for this policy on a 7-point scale, where 1 means 'extremely opposed' and 7 means 'extremely supportive,' with 4 being 'neutral.'

I test three pre-registered hypotheses, the first of which is that the Green New Deal Treatment will reduce support for the policy bundle relative to the control frame. Second, given that the Green New Deal is most strongly associated with Democrats, I test the hypothesis that the Green New Deal Treatment will have a larger negative effect among Republicans compared to

Democrats. Finally, I hypothesize that the Green New Deal + Local Treatment will reduce support for the policy bundle, but to a lesser degree than the Green New Deal Treatment alone.

I report both adjusted and unadjusted ordinary least squares (OLS) models, which predict support for the Green New Deal policy bundle across the three different question frames. I include two types of adjusted models, one which draws on a smaller range of covariates determined to be significant predictors of renewable energy support in the pre-analysis process (The pre-analysis plan is available in the study's data repository at <https://osf.io/dfkzx/>). This model (reported in the Appendix tables as 'Adj. (1)') is the preferred specification, as the inclusion of covariates increases the precision of my estimated treatment effects (Gerber and Green 2012). I also report a second adjusted model (reported in the Appendix tables as 'Adj (2)'), which includes additional demographic and survey mode covariates, including education, race, sex, and survey delivery mode. These models are included as a check to ensure that any covariate imbalance across question frames is accounted for in the final estimates. All models report HC2, or Neyman, robust standard errors (Freedman 2008), which provide a conservative error estimate unlikely to result in Type 1 errors.

The selection process for non-demographic covariates began by including all variables outlined in the pre-analysis plan, which I selected via data simulation and substantive theory. From there, I selected only covariates from this list which significantly predicted support for the Green New Deal policy bundle (text of all covariate questions is included in Appendix). Ultimately, the adjusted models include the following covariates: political party affiliation, support for land repatriation to American Indian tribes, and support for government relief spending towards healthcare, state governments, oil and gas companies, and clean energy companies. In contrast to observational research, the inclusion of covariates is not intended to address omitted variables bias. Because of random assignment, there are no 'back-door paths' which could connect covariates to the treatment and, in turn, to the outcome variable (Morgan and Winship 2015). Any covariate imbalance observed across treatment conditions will be the result of random variability in the sampling procedure, and is accounted for in Adjusted Models (2). All covariate questions were placed prior to the experimental question on the survey to avoid post-treatment bias. There were no missing responses in the outcome or treatment variables, and cases of missingness in the covariates were coded as their own unique category and included in the models. Analyses were conducted in R Version 3.6.3.

Public opinion researchers have raised concerns that 'expressive responding' among survey respondents can limit the validity of survey results. Research on this question suggests that partisan-identified survey respondents do not sincerely report their true beliefs, but rather use the survey as an

opportunity to ‘cheerlead’ their own party (Bullock *et al.* 2015, Bullock and Lenz 2019). There are several reasons why this trend is not a major concern for the following study. First, expressive responding is primarily documented in the context of survey questions about factual statements and political rumors, rather than in the context of attitudes towards particular policies, such as this study. Second, in the study’s results, there are already significant party differences in support for the control condition, in which the Green New Deal is unnamed (see Table 1). This suggests that there are true, underlying differences in policy preferences across parties, which are then exacerbated by the introduction of the Green New Deal cue.

Results

The results of the survey experiment provide strong support for my core hypothesis, that the phrase ‘the Green New Deal’ has itself become a partisan cue, in turn lowering support for the policy bundle among rural U.S. West residents (see Figure 1). The Green New Deal Treatment frame caused a statistically significant 0.64 CI $[-0.86, -0.41]$ point decline (on the seven-point measurement scale) in support for the policy across all residents ($p < 0.001$), which corresponds to a 9.1 percentage point decrease. Similarly, the Green New Deal + Local Treatment frame caused a statistically significant 0.53 CI $[-0.78, -0.28]$ point decline in support for the policy ($p < .001$), which corresponds to a 7.6 percentage point decrease. The smaller effect size for this treatment frame is in line with my hypothesis that communicating place-specific climate impacts may be able to attenuate some of the negative effects of the partisan cue, although these findings are both small in magnitude and much less conclusive. Given that the difference between estimates is not statistically significant, I cannot rule out the possibility that the difference between these two treatments’ effects is due to sampling variability alone ($p = .37$). Results for all adjusted and unadjusted OLS models are reported in Appendix Tables A1 and A2.

Differences in treatment effects along political party lines follow the expected pattern, in which Republicans are more strongly repelled by ‘the Green New Deal’ as an out-group cue compared to Democrats (see Figure 2). Across both treatment frames, effects were significant for both self-identified

Table 1. Mean policy support across parties.

Policy	Democrat	Republican	Other
Green New Deal Control Frame	6.2, CI [6.0, 6.5]	3.2, CI [2.8, 3.6]	4.3, CI [3.7, 4.8]
Green New Deal Treatment Frame	6.0, CI [5.7, 6.3]	2.4, CI [2.1, 2.7]	3.6, CI [3.0, 4.2]
Green New Deal + Local Treatment Frame	6.1, CI [5.9, 6.4]	2.6, CI [2.1, 3.1]	3.4, CI [2.9, 4.0]

^aSupport for bundled climate policy across treatment frames. Responses for Green New Deal questions are measured on a scale from 1 (extremely opposed) to 7 (extremely supportive).

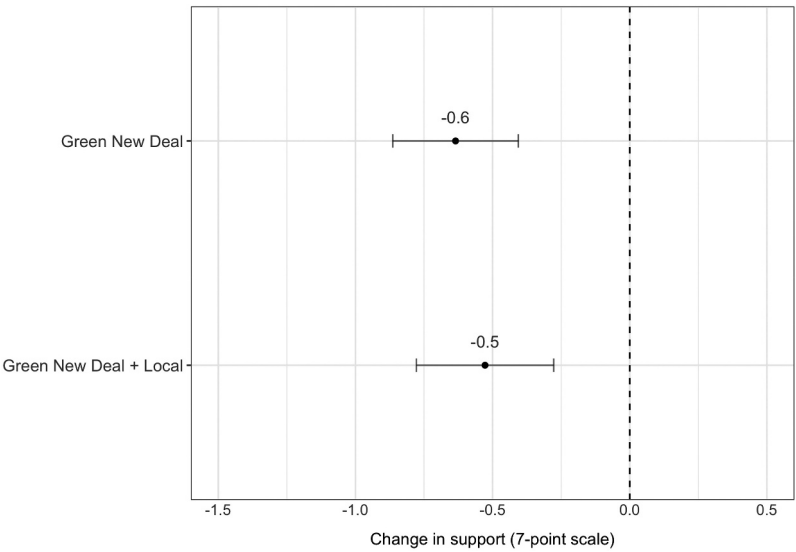


Figure 1. Average treatment effects of the Green New Deal treatment frame and Green New Deal + Local treatment frame. Estimates are from adjusted OLS models (Adj. 1 in Appendix). Error bars indicate the 95% CI.

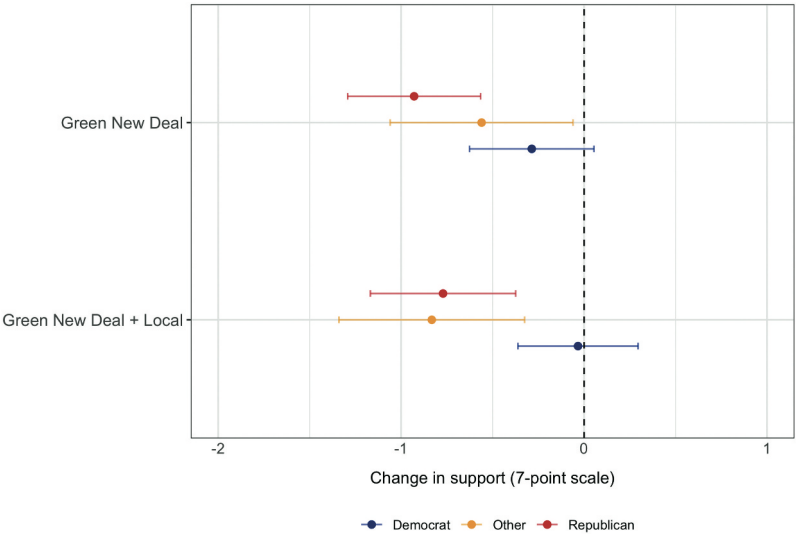


Figure 2. Average treatment effects of the Green New Deal treatment frame and Green New Deal + Local treatment frame across political parties. Estimates are from adjusted OLS models (Adj. 1 in Appendix). Error bars indicate the 95% CI.

Republicans and those who identified as either true Independents or did not respond to the political affiliation question ('Other'). For the Green New Deal Treatment, the effects were largest among Republicans at a 0.93 CI [-1.29, -0.57] point reduction in support ($p < .001$). This was followed by those categorized as 'Other,' who experienced a 0.56 CI [-1.06, -0.06] point reduction in support ($p < .05$). Among Democrats, the effect of the Green New Deal treatment frame was non-significant and the smallest in magnitude, a 0.29 CI [-.63, 0.05] point decline ($p = .099$).

The effects of the Green New Deal + Local frame follow a similar pattern. Those categorized as 'Other' experienced the largest effect, an 0.83 CI [-1.34, -0.32] point reduction ($p < .01$). This was slightly larger than the 0.77 CI [-1.17, -0.37] point reduction observed among Republicans ($p < .001$). Democrats experienced a near-zero change in support compared to the control group ($p = .84$). While the width of these point estimates' confidence intervals indicates that differences in effect sizes between treatment frames may well be due to sampling variability, the 3.7 percentage point difference in support among rural Democrats relative to the Green New Deal Treatment suggests that this approach may have some, if very small, countervailing effect on the partisan cue response. Results of these heterogeneous treatment effects analyses should not be considered as causally identified, as political party affiliation cannot be randomly assigned and may well be correlated with other attributes which moderate the treatment.

Who constitutes the 'Other' political category, and why are treatment effects approximately as large among this group as among Republicans? The 'Other' political category makes up 23.3% of the weighted sample (Appendix Table A5), and spans a wide ideological spectrum. Slightly over a third of this group identify as ideologically moderate, while slightly under a third identify as ideologically conservative. The remainder of those who are categorized as 'Other' in roughly equal parts either identified as ideologically liberal or declined to answer questions regarding political identity. Given the ideological heterogeneity in this category, it is unclear why effect sizes are large in magnitude. As a robustness check, I report treatment effects by political ideology in Appendix Table A3, and find a similar pattern of the strongest effects among ideological conservatives.

As an additional robustness check, I reproduce all preferred model specifications without population weights, the results of which are reported in Appendix Table A4. I find very minimal differences in general magnitude, significance, and direction of treatment effects between weighted and unweighted models. In cases in which coefficients differed more than .10 points on the 7-point survey response scale, the effects were almost always larger in the unweighted models. In no cases would the substantive interpretation of the coefficients change between model sets.

In sum, it is clear that the negative impact of the phrase, ‘the Green New Deal’ on rural support for bundled climate and social policy is far greater than any potential positive effect of local climate impact framing, which cannot be definitively determined as greater than zero.

Discussion

Recent policy research suggests that bundling environmental and social welfare policies may be a successful approach to building public support for climate action (Bergquist *et al.* 2020), which is especially critical in high-emitting countries such as the U.S. Yet, results from this experiment suggest that the Green New Deal, one of the most widely-known iterations of such a bundled climate policy, now elicits a strong backlash effect among a key constituency identified in the bill: rural residents. This study tested the effects of describing a bundled climate policy as ‘the Green New Deal’ on a sample of 1,203 residents of the rural western U.S. The observed effects were largest among rural Republicans and rural residents who either identified as Independents or did not respond to the political affiliation question. While I could not rule out the possibility that cue effects observed among rural Democrats were simply the result of sampling variability, there is some evidence that the phrase ‘the Green New Deal’ even has a cue effect among rural Democrats, despite being a largely Democrat-backed proposal.

These findings suggest that future public opinion research on bundled climate policies should not solely evaluate a policy’s level of support in the absence of its cultural and political context. To this end, many rural populations may pose a significant challenge for building climate policy support in the U.S., given past histories of rural skepticism towards the federal government (Patterson 1969, Wuthnow 2018) and historical dependence on carbon-intensive industries (Mueller 2020).

I further test whether a recognized climate communication strategy, emphasizing place-specific climate impacts, can ameliorate the cue effect that ‘the Green New Deal’ exerts. Given how closely many rural West economies are tied to the environment, I hypothesized that framing the Green New Deal around climate change impacts to water availability, wild-fire damage, and heat waves would lessen depressive cue effects. While adding framing around these region-specific environmental changes reduced the partisan effect slightly, the magnitude of change was quite small and not statistically significant. Druckman *et al.* (2013) describe how ‘strong frames win out when pitted against relatively weak frames,’ a pattern I also observe in this experiment (Druckman *et al.* 2013, p. 58). It is clear that the Green New Deal’s partisan affiliation is a strong frame, and swamps any effect of

reframing the policy around more personally relevant environmental context. In short, the backlash caused by the phrase ‘the Green New Deal’ was robust in the face of local climate impact reframing.

Research on the homogeneity of treatment effects (Coppock *et al.* 2018) suggests that my findings can be extrapolated to the larger rural U.S. West population, even though response rates for the survey are lower than traditionally expected for non-experimental survey research. Gustafson *et al.* (2019)’s related descriptive findings conducted at the national level further indicates that similar patterns of polarization around the Green New Deal likely exist among non-rural West populations as well. Future experimental research with distinct sampling frames could confirm whether this is the case.

This study builds on sociological scholarship which examines the polarization of climate change attitudes and policy support, adopting an experimental design infrequently used in environmental sociology. My emphasis on how regular residents respond to party elite signaling complements sociological scholarship on elite influence, which has tended to emphasize elite institutions and elites themselves as the object of study. In recent years, sociologists have called on the discipline to more directly address the climate crisis (Dunlap and Brulle 2015, Klinenberg *et al.* 2020) and policy scholars have called for research that can identify which types of climate policies are most attractive to specific populations, especially those least likely to support climate action (McGrath 2021). This experiment contributes to these aims by demonstrating how partisan cues hinder support for an omnibus climate policy among residents of the rural western U.S.

What implications do these findings have for communicating climate change policies? Experimental research in this area has placed great emphasis on techniques for convincing skeptics of the reality and importance of climate change, and encouraging pro-climate political behaviors (see McGrath (2021) for a review). Studies in this line of research have shown how in-group partisan cues, such as Republican political elites’ affirmation of the importance of climate change, can be operationalized to increase individuals’ acceptance of climate change facts (Benegal and Scruggs 2018, Goldberg *et al.* 2021). While this work is of great importance, prior research on non-climate-related partisan cues suggests that *out-group* cues can have just as much if not more influence on political attitudes (Goren *et al.* 2009, Nicholson 2012, Lelkes 2021). My findings illustrate this trend, showing that an entire policy – even in the absence of a stated party association – can come to exert a strong out-group cue effect among a specific population. This suggests that an important question for climate communication scholars to consider is not only how to utilize in-group cues, but how to strategically

avoid triggering out-group cues. In certain contexts, there may be value in talking about the substantive content of the Green New Deal without talking explicitly about ‘the Green New Deal.’

Notes

1. These groups include, ‘indigenous peoples, communities of color, migrant communities, deindustrialized communities, depopulated rural communities, the poor, low-income workers, women, the elderly, the unhoused, people with disabilities, and youth. . . ’ (H.R. 109, 2019).
2. States sampled include Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Acknowledgments

This material is based upon work supported by the National Science Foundation under Grant 2029990: RAPID: Impacts of COVID-19 Pandemic on Rural Attitudes about Federal Aid and Recovery. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation. Many thanks to J. Farrell, A. Coppock, J. T. Mueller, M. Goldberg, P. Burow, and four anonymous reviewers for feedback on the research design and manuscript.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Appendix

OLS results

Adjusted models (1) include covariates selected in the preanalysis process which strongly predict the outcome variable. Results from these models are presented in the main manuscript. Adjusted models (2) include both the covariates from models (1) in addition to the following demographic covariates: education, race, sex, and survey delivery mode. These models are included as a check to ensure that any covariate imbalance across the three treatment frames is accounted for when estimating treatment effects. The differences in treatment effects between adjusted models (1) and (2) are generally minimal, with the exception of the ‘Other’ political party models (see Appendix Table A2). In this case, the differences in estimates between models does not substantively change the interpretation of the results.

Table A1. Average Treatment Effects.

	Unadj.	Adj. (1)	Adj. (2)
Control Frame	4.46*** (0.14)	2.25*** (0.28)	2.83*** (0.45)
Green New Deal Frame	−0.50* (0.20)	−0.64*** (0.12)	−0.64*** (0.11)
Green New Deal + Local Frame	−0.45* (0.22)	−0.53*** (0.13)	−0.51*** (0.13)
Land Rematriation		0.14*** (0.03)	0.15*** (0.03)
Gov Spending: Healthcare		0.12** (0.04)	0.11** (0.04)
Gov Spending: State Governments		0.24*** (0.04)	0.23*** (0.04)
Gov Spending: Oil and Gas Companies		−0.13*** (0.03)	−0.12** (0.04)
Gov Spending: Clean Energy Companies		0.34*** (0.04)	0.34*** (0.04)
Political ID: Other		−0.76*** (0.16)	−0.76*** (0.16)
Political ID: Republican		−1.23*** (0.18)	−1.23*** (0.19)
Graduate or Professional Degree			0.15 (0.14)
High School or GED			−0.14 (0.16)
Less than High School			0.50 (0.27)
Education Missing			−0.70 (0.38)
Some College			−0.11 (0.12)
Black or African American			−0.09

(Continued)

Table A1. (Continued).

			(0.83)
Hawaiian or Pacific Islander			1.47*
			(0.72)
Race Missing			−0.35
			(0.36)
Mixed Race			−0.32
			(0.38)
Native American			−0.51
			(0.46)
Other Race			−0.54
			(0.46)
White			−0.42
			(0.33)
Male			−0.04
			(0.11)
Sex Missing			−0.15
			(0.24)
Other Sex			0.32
			(0.45)
Phone Delivery Mode			−0.04
			(0.11)
Postcard Delivery Mode			0.08
			(0.47)
Text Delivery Mode			−0.37**
			(0.13)
Num. obs.	1203	1203	1203

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table A2. Estimated Treatment Effects by Political Party.

	Democrats			Republicans			Other		
	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)	Adj. (2)
Control Frame	6.23*** (0.12)	3.69*** (0.58)	4.26*** (0.72)	3.21*** (0.19)	1.24*** (0.30)	3.02 (1.84)	4.29*** (0.28)	0.98** (0.34)	1.82*** (0.66)
Green New Deal Frame	-0.24 (0.19)	-0.29 (0.17)	-0.28 (0.17)	-0.83*** (0.24)	-0.93*** (0.18)	-0.98*** (0.18)	-0.66 (0.41)	-0.56* (0.25)	-0.81** (0.26)
Green New Deal + Local Frame	-0.10 (0.17)	-0.03 (0.17)	-0.01 (0.15)	-0.63* (0.31)	-0.77*** (0.20)	-0.80*** (0.20)	-0.86* (0.40)	-0.83** (0.26)	-1.06*** (0.26)
Land Remediation		0.16* (0.06)	0.20*** (0.06)		0.09 (0.04)	0.09 (0.05)		0.23*** (0.08)	0.24** (0.08)
Gov Spending: Healthcare		0.00 (0.10)	-0.03 (0.10)		0.09* (0.05)	0.11* (0.05)		0.19* (0.08)	0.13 (0.08)
Gov Spending: State Governments		0.16** (0.06)	0.16** (0.06)		0.19** (0.06)	0.15* (0.06)		0.34*** (0.07)	0.33*** (0.07)
Gov Spending: Oil and Gas Companies		-0.14* (0.06)	-0.07 (0.05)		-0.12** (0.04)	-0.12* (0.05)		-0.18** (0.07)	-0.19* (0.08)
Gov Spending: Clean Energy Companies		0.21** (0.07)	0.23*** (0.07)		0.48*** (0.07)	0.46*** (0.07)		0.26** (0.08)	0.24** (0.09)
Graduate or Professional Degree			-0.05 (0.16)			0.15 (0.30)			0.43 (0.29)
High School or GED			-0.25 (0.28)			-0.22 (0.23)			0.12 (0.34)
Less than High School			0.29 (0.29)			0.58 (0.79)			0.71 (0.43)
Some College			-0.17			-0.08			0.15

(Continued)

Table A2. (Continued).

	Democrats			Republicans			Other	
	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)
Education Missing			(0.15)			(0.20)		(0.24)
						-3.13***		-0.05
						(0.63)		(0.45)
Black or African American			-1.60**			0.08		-1.79
			(0.53)			(1.97)		(1.69)
Hawaiian or Pacific Islander			1.10*			0.89		
			(0.52)			(2.28)		
Race Missing			0.14			-1.44		-0.49
			(0.43)			(1.81)		(0.62)
Mixed Race			-0.66			-1.50		-0.41
			(0.62)			(1.82)		(0.67)
Native American			-0.83			-1.10		-2.02*
			(0.65)			(1.91)		(0.79)
Other Race			-1.27*			-0.55		-0.97
			(0.54)			(1.90)		(0.71)
White			-0.48			-1.59		-0.51
			(0.38)			(1.81)		(0.57)
Male			0.18			-0.13		-0.22
			(0.13)			(0.17)		(0.24)
Sex Missing			-0.57			-1.81***		-0.06
			(0.37)			(0.38)		(0.50)
Other Sex			0.38			-0.10		0.58
			(0.43)			(1.17)		(0.64)

(Continued)

Table A2. (Continued).

	Democrats			Republicans			Other	
	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (2)
Phone Delivery Mode			-0.40** (0.14)			-0.01 (0.18)		0.57* (0.24)
Postcard Delivery Mode			0.17 (0.23)			0.98 (1.16)		-1.07 (0.72)
Text Delivery Mode			-0.32 (0.19)			-0.39 (0.23)		-0.32 (0.25)
Num. obs.	449	449	449	488	488	488	266	266

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$



Table A3. Estimated Treatment Effects by Political Ideology.

	Liberal		Conservative		Moderate	
	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)	Adj. (2)
Control Frame	6.23*** (0.13)	2.76*** (0.62)	2.46*** (0.67)	3.22*** (0.20)	1.02*** (0.30)	1.27* (0.59)
Green New Deal Frame	-0.55* (0.25)	-0.47* (0.19)	-0.44* (0.17)	-0.86*** (0.25)	-0.79*** (0.19)	-0.85*** (0.19)
Green New Deal + Local Frame	-0.23 (0.20)	0.00 (0.16)	0.08 (0.15)	-0.84** (0.30)	-0.87*** (0.21)	-0.95*** (0.21)
Land Remediation		0.19** (0.07)	0.24*** (0.06)		0.11* (0.05)	0.11* (0.05)
Gov Spending: Healthcare		0.12 (0.08)	0.12 (0.07)		0.04 (0.07)	0.04 (0.08)
Gov Spending: State Governments		0.13* (0.06)	0.10 (0.05)		0.35*** (0.09)	0.34*** (0.09)
Gov Spending: Oil and Gas Companies		-0.26*** (0.07)	-0.15* (0.06)		-0.09 (0.05)	-0.08 (0.05)
Gov Spending: Clean Energy Companies		0.28*** (0.06)	0.32*** (0.06)		0.39*** (0.08)	0.38*** (0.08)
Graduate or Professional Degree			0.14 (0.17)			0.50* (0.25)
High School or GED			-0.39 (0.26)			0.34 (0.26)
Less than High School			-0.02 (0.38)			0.90 (0.65)
Some College			-0.35			0.15

(Continued)

Table A3. (Continued).

	Liberal			Conservative			Moderate		
	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)	Adj. (2)
Education Missing			(0.18)			(0.19)			(0.26)
						−0.88*			
						(0.42)			
Black or African American			−0.94			−0.62			0.23
			(0.61)			(1.14)			(1.60)
Hawaiian or Pacific Islander			2.17***			1.71			
			(0.44)			(1.13)			
Race Missing			0.10			−0.08			−0.87
			(0.39)			(0.46)			(1.06)
Mixed Race			0.07			−0.25			−1.04
			(0.50)			(0.54)			(1.04)
Native American			0.26			−0.31			−0.40
			(0.56)			(0.69)			(1.10)
Other Race			−0.59			0.12			−0.78
			(0.46)			(0.69)			(1.06)
White			0.03			−0.32			−0.55
			(0.31)			(0.43)			(0.98)
Male			0.42**			−0.16			−0.11
			(0.15)			(0.18)			(0.24)
Sex Missing			−0.39			−0.36			0.37
			(0.45)			(0.28)			(0.68)
Other Sex			−0.37			−0.74			0.39
			(0.57)			(0.85)			(1.15)

(Continued)

Table A3. (Continued).

	Liberal			Conservative			Moderate	
	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)	Adj. (2)	Unadj.	Adj. (1)
Phone Delivery Mode			-0.59*** (0.15)					0.29 (0.28)
Postcard Delivery Mode			0.02 (0.18)					1.22 (0.89)
Text Delivery Mode			-0.40 (0.20)					0.10 (0.38)
Num. obs.	408	408	408	510	510	510	221	221

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Table A4. Unweighted Estimated Treatment Effects.

	Main Effects		Political Party				Political Ideology		
	All Respondents	Democrat	Republican	Other Political Party	Liberal	Conservative	Moderate		
Control Frame	1.22*** (0.16)	3.28*** (0.44)	1.52*** (0.23)	1.52*** (0.28)	3.03*** (0.46)	1.41*** (0.22)	1.29*** (0.36)		
Green New Deal Frame	-0.68*** (0.10)	-0.33** (0.12)	-0.89*** (0.16)	-0.73*** (0.22)	-0.44** (0.14)	-0.94*** (0.16)	-0.36 (0.24)		
Green New Deal + Local Frame	-0.62*** (0.10)	-0.16 (0.12)	-0.90*** (0.16)	-0.89*** (0.22)	-0.13 (0.12)	-1.01*** (0.16)	-0.26 (0.23)		
Land Remediation	0.20*** (0.03)	0.16*** (0.04)	0.07 (0.04)	0.25*** (0.07)	0.19*** (0.04)	0.12** (0.04)	0.15* (0.06)		
Gov Spending: Healthcare	0.14*** (0.03)	0.10 (0.06)	0.09* (0.04)	0.13 (0.07)	0.11 (0.07)	0.05 (0.04)	0.18* (0.09)		
Gov Spending: State Governments	0.25*** (0.03)	0.14*** (0.04)	0.20*** (0.05)	0.22** (0.07)	0.11** (0.04)	0.30*** (0.06)	0.19* (0.08)		
Gov Spending: Oil and Gas Companies	-0.24*** (0.02)	-0.14*** (0.04)	-0.16*** (0.04)	-0.24*** (0.06)	-0.23*** (0.05)	-0.17*** (0.03)	-0.18*** (0.06)		
Gov Spending: Clean Energy Companies	0.43*** (0.03)	0.22*** (0.04)	0.42*** (0.06)	0.35*** (0.07)	0.26*** (0.05)	0.40*** (0.06)	0.40*** (0.07)		
Num. obs.	1203	449	488	266	408	510	221		

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$

Treatment effects by political ideology

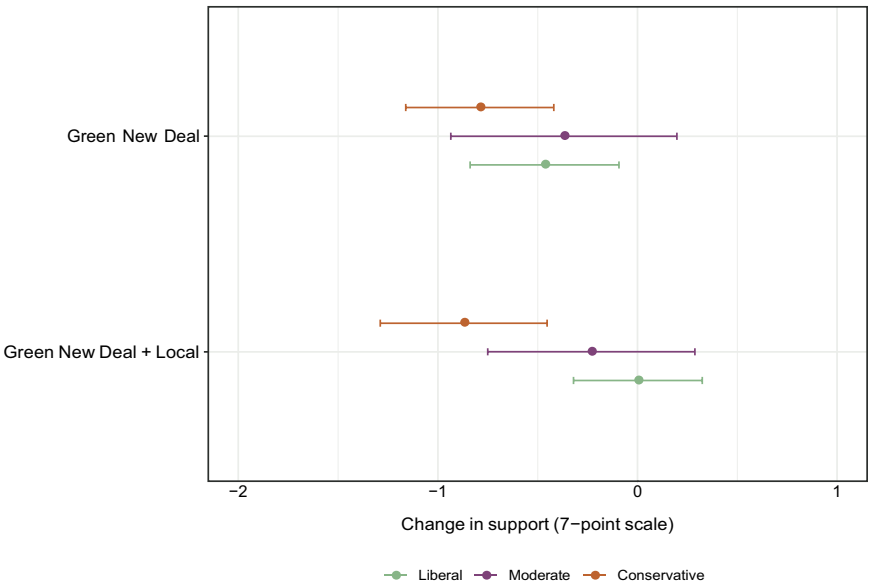


Figure A1. Average treatment effects of the Green New Deal treatment frame and Green New Deal + Local treatment frame across political ideologies. Estimates are from adjusted OLS models (Adj. 1 in Appendix). Error bars indicate the 95% CI.

Demographics

Table A5.

Demographics characteristics of sample and target population.

	N	Unweighted percent	Weighted percent	Nonmetropolitan west
Age				
18-29	106	8.8	12.4	19.5
30-39	143	11.9	20.6	15.5
40-49	195	16.2	15.0	14.2
50-64	341	28.3	28.0	26.1
65+	404	33.6	21.0	24.7
Missing	14	1.2	3.0	-
Sex				
Female	551	45.8	48.0	49.3
Male	624	51.9	50.0	50.7
Other	11	0.9	0.6	-
Missing	17	1.4	1.4	-
Latina or Latino				
Latina/o	109	9.1	14.5	15
Not Latina/o	1054	87.6	82.4	85
Missing	40	3.3	3.0	-

(Continued)

	N	Unweighted percent	Weighted percent	Nonmetropolitan west
Race				
White	988	82.1	78.3	86.1
Black	13	1.1	1.3	1.1
Asian	13	1.1	0.9	1.2
Native American	31	2.6	4.0	5.5
Hawaiian or Pacific Islander	3	0.2	0.2	0.2
Other	47	3.9	5.3	2.4
Mixed Race	49	4.1	5.2	3.5
Missing	59	4.9	4.9	-
Education				
Less than high school	29	2.4	3.6	11.4
High school or GED	150	12.5	19.5	28.7
Some college	326	27.1	40.7	26.1
Bachelors or Associates	406	33.7	21.8	25.2
Graduate or Professional Degree	278	23.1	13.4	8.6
Missing	14	1.2	1.0	-
State				
Arizona	51	4.2	5.0	5.4
California	215	17.9	14.0	13.9
Colorado	129	10.7	12.0	11.6
Idaho	105	8.7	9.0	8.7
Montana	119	9.9	11.0	11
Nevada	67	5.6	11.0	4.5
New Mexico	80	6.7	4.0	10.7
Oregon	142	11.8	11.0	10.9
Utah	74	6.2	5.0	4.8
Washington	147	12.2	12.0	12.2
Wyoming	74	6.2	6.0	6.4
Political Party				
Republican	488	40.6	42.2	-
Democrat	449	37.3	34.5	-
Independent	178	14.8	14.7	-
Missing	88	7.3	8.6	-

^aPopulation estimates taken from the 2015–2019 American Community Survey.

^bValues may not total to 100 due to non-responses and rounding.

Survey responses by delivery mode

Table A6.

Survey response mode.

Response Mode	Total Responses	Total Weighted Responses
Email	478	388
Phone	500	595
Postcard	18	18
Text	207	202

Survey question wording for covariates

- (1) Support for government relief spending preferences were assessed by asking the following question: Now, I am going to read a list of some areas of government spending related to the COVID-19 pandemic. For each of the following areas, please tell me how you would like to see government spending change in that area. Please use a scale where 1 means 'much less spending,' 7 means 'much more spending,' and 4 means you prefer 'keeping spending at the same level.'
 - Healthcare
 - Relief to state governments
 - Relief to oil and gas companies
 - Relief to clean energy companies
- (2) Support for land rematriation was assessed by asking the following question: Some people have proposed returning a portion of public lands to American Indian tribes in order to make up for past harms and land loss. Do you support giving a portion of public lands to American Indian tribes for this purpose? Please use a scale where 1 means 'extremely opposed' and 7 means 'extremely supportive,' with 4 meaning 'neither supportive nor opposed.'
- (3) Party identification was determined by asking the following set of questions: Generally speaking, do you usually think of yourself as a Republican, Democrat, Independent, or something else?
 - Republican
 - Democrat
 - Independent
 - Other

If Republican in Q3, ask: Would you call yourself a strong Republican, or a not very strong Republican?

- Strong Republican
- Not a very strong Republican

If Democrat in Q3, ask: Would you call yourself a strong Democrat, or a not very strong Democrat?

- Strong Democrat
- Not a very strong Democrat

If Independent in Q3, ask: Do you think of yourself as closer to the Republican or Democratic party?

- Closer to Republican
- Neither
- Closer to a Democrat

- (4) Respondents' race was determined by asking the following question: Do you consider yourself white, Black or African American, Asian, Native American, Pacific Islander, mixed race, or some other race?
- (5) Respondents' education level was determined by asking the following question: What is the highest level of education you have completed?
 - No high school diploma

- High school graduate
 - Some college, no degree
 - Two or four-year college degree
 - Graduate degree
 - (DON'T READ) DK/NA
- (6) Respondents' sex was determined by asking the following question: What is your gender? (OPEN-ENDED; RECORD VERBATIM RESPONSE AND CODE IN CATEGORIES BELOW)
- Male
 - Female
 - Other
 - Refused
- (7) Respondents' political ideology was determined by asking the following question: Generally speaking, where would you place yourself on this scale?
- Extremely liberal
 - Moderately liberal
 - Slightly liberal
 - Moderate; middle of the road
 - Slightly conservative
 - Moderately conservative
 - Extremely conservative
 - (DON'T READ) DK/NA