Cost Sensitivity, Partisan Cues, and Support for the Green New Deal

Salil Benegal (salilbenegal@depauw.edu)
DePauw University https://orcid.org/0000-0001-7759-5725
Jon Green
Northeastern University

Research Article

Keywords: Climate change, Public opinion, Green New Deal, Polarization

Posted Date: May 19th, 2022

DOI: https://doi.org/10.21203/rs.3.rs-1569715/v1

Abstract

Opponents of climate policy proposals frequently ground their objections in terms of costs. However, it is unclear whether these objections are persuasive to voters considering whether to support such programs. Not only do people have difficulties in understanding large numbers, partisans in particular may place more weight on the originator of a given proposal – supporting it if their own party proposed it, and opposing it otherwise. We test these dynamics using a survey experiment that varied the costs associated with real-world climate policy proposals attributed to each of the two major U.S. political parties, compared to a control group where no cost was made salient. We find little evidence that citizens are systematically sensitive to program cost, and that partisans tend to prefer policies proposed by their own party. The results provide reason for skepticism that cost-based objections to climate spending programs are persuasive at scale, after accounting for partisan cue-taking.

Introduction

The most recent Intergovernmental Panel on Climate Change (IPCC) report highlights the urgent need for climate mitigation. As climate change creates new risks and exacerbates existing ones threatening public health, human security, and ecosystems globally, it becomes increasingly important to both mitigate the worst impacts of anthropogenic climate change and adapt to environmental risks that threaten societies and infrastructure (Masson-Delmotte 2018). This necessitates increasingly ambitious policymaking to accelerate a just transition away from societal reliance on fossil fuels and to help especially vulnerable communities and individuals adapt to the growing threats posed by climate change. The need for such policies to rapidly effect these changes is all the more urgent given decades of climate delay in the United States, in which international and domestic policymaking efforts have been largely ineffectual, limited by both the influence of polluting industries and economic interests, asymmetric partisan polarization, and misinformation about climate change (Franta 2021, Mildenberger 2020, Grumbach 2015, Boussalis and Coan 2016).

As climate change has become an ascendant issue dominating other environmental policy agendas, media coverage, and political discourse (Egan, Konisky, and Mullin 2022), the scale of the crisis has inspired ambitious policy ideas to address it that entail substantial changes to existing industrial and capitalist practices, and environmental justice-centered policies for both adaptation and just transitions away from a fossil fuel-centric economy. Most prominent among these has been the concept of the “Green New Deal” (GND), a set of policy proposals introduced as a resolution in the US Congress in 2019 by Representative Alexandria Ocasio-Cortez (D-NY) and Senator Edward Markey (D-MA). The policy ideas associated with the GND have been broad in scope and “bundled” climate initiatives with other economic and social policies, for example prioritizing a just transition to 100% clean/zero carbon energy by emphasizing programs such as a “Green jobs guarantee” to help workers in fossil fuel-intensive industries and jobs such as mining, or including funds and policies for adapting infrastructure and protecting existing natural resources such as wetlands (Carlock et al. 2018, Galvin and Healy 2020).

While there is evidence that such policy bundling can improve support for these initiatives (e.g. Bergquist et al. 2020, Stokes and Warshaw 2017), public opinion about the Green New Deal in the United States has rapidly become polarized (Gustafson et al. 2019), despite aggregate opinion trends showing increasing concern over climate change and support for more ambitious policies (Tyson and Kennedy 2020). This has come in an informational environment where Republican politicians and conservative media have attacked GND policies as being expensive and fiscally irresponsible, spread misinformation portraying these policies as threats to take away hamburgers or pickup trucks, and characterized the policies and their proponents as socialist (Firozi 2019).

We examine whether the divergence in public opinion about the Green New Deal is shaped by Americans' perceptions and concerns about economic costs, or by partisan associations and messaging. We present results from a survey experiment that shows that introducing considerations regarding economic costs, as well as raising those costs, does not substantially change voters' support for these climate policies. Rather, we find that voters tend to follow partisan leadership and messaging cues, with Democrats and Republicans both reporting support for different climate policies only when members of their party endorse them. In almost all instances, voters consistently support policies endorsed by co-partisans regardless of whether the cost of the policy is made salient, and irrespective of the magnitude of the cost.

Yet when members of the other party take ownership on a policy issue, we find considerably lower support for climate policies: Republicans become more supportive of climate policies endorsed by their party, whereas only a minority of Democrats express support for those policies. These partisan motivations on climate policies supersede cost considerations, implying that while voters may be supportive of such policies in general, they tend to endorse spending limited political capital and economic resources on climate policies when their party takes ownership on the issue, rather than when the opposing party does. Our results highlight the challenges that face climate policy advancement - both for policies associated with the Green New Deal and others - in the present polarized environment, while noting that the main obstacles to widespread public support for such policies are the result of partisan divisions and issue ownership, rather than any consideration of or sensitivity to the policies' costs.

Public Support For Climate Mitigation

Republicans and Democrats have been divided on climate change for over a generation now. While older environmental policies such as the Clean Air and Water Acts were passed with considerable bipartisan majorities in the 1970s, the two parties have disagreed about both objective facts about climate change and policies to address it since the late 1990s after the failure to ratify the Kyoto Protocol (Layzer 2012, Dunlap et al. 2016, Turner 2018). Since then, prominent Republican and conservative elites have frequently endorsed misinformation about climate change during the 2000s and 2010s, questioned the role of human activity in contributing to the greenhouse effect, argued that climate action would harm economic activity, and raised conspiracy theories about the validity of scientific findings (Guber 2013, Dunlap and Jacques 2013, Uscinski, Douglas, and Lewandowski 2017). In contrast, many in the

Democratic Party have emphasized the risks and urgency of climate change and made it an increasingly central part of their policy agenda (Merkley and Stecula 2021). This polarization has also been evident in state-level policymaking, with states with Republican majorities in legislative chambers adopting fewer climate policies while Democratic legislators have been more responsive to climate risks (Bromley-Trujillo and Poe 2018, Bromley-Trujillo, Holman, and Sandoval 2019).

Public opinion among Americans has become similarly polarized in this time period, with a growing divergence among Republican and Democratic voters in their reported agreement with the scientific consensus regarding climate change, concern over its potential effects, and support for mitigative policies since the late 1990s (Egan and Mullin 2017, Mildenberger et al. 2017). These trends continue today, with Pew Research Center surveys showing that much of the growing national concern over climate change is asymmetric, with 88% of voters who identify as or lean Democratic viewing climate change as a major threat in 2020, whereas only 31% of Republican identifiers or leaners agree with that statement (Kennedy 2020). This divergence is consistent with theories of public opinion suggesting that partisan voters “follow the leader” and embrace co-partisan positions on climate change (Lenz 2012), and also oppose policy positions endorsed by opposing parties in an era of extreme partisan polarization (Merkley and Stecula 2021).

While partisan identity and elite cues explain much of the public opinion divide we observe over climate change in the United States, much scholarship also points to the role of economic conditions, perceptions of cost, system-justifying preferences to maintain economic status quos in constraining support for climate policies. Multiple studies speak to how both agreement with climate science and support for related policies have declined during periods of economic recession, with these trends observed across partisan and ideological divisions in the United States, and also cross-nationally (Scruggs and Benegal 2012, Brulle, Carmichael, and Jenkins 2012). There are several potential reasons for why this may be the case: Hennes et al. (2016) posit the role of system justifying beliefs that support maintaining the present industrial, fossil fuel-reliant status quo. Another explanation is the possibility of solution aversion, in which individuals who are averse to the potential costs of mitigating climate change - such as a potentially-expensive clean energy transition - correspondingly dismiss the importance of the problem in order to avoid a necessary solution that they oppose (Campbell and Kay 2014).

These explanations both relate to the historic association of environmentally mitigative policies with stringent economic costs through regulatory policies that have been framed and perceived as inhibiting industrial production and economic growth. Such narratives that position policies such as the Clean Air Act and Clean Water Act as threatening economic growth have been used frequently since the Reagan presidency to frame opposition to these policies and create justifications to weaken them (Layzer 2012). These narratives pitting the environment against the economy have continued to be used by both politicians and fossil fuel energy interest groups during the Bush Jr. and Obama presidencies in opposition to advocacy for clean energy transitions and support for climate mitigation (Schneider et al. 2016). Consequently, voters have long perceived associations between mitigative environmental practices

and restrictions upon the economy that risk slowing economic growth, leading to declining support for these policies when either the economy or costs have become salient.

In recent years, progressive environmental advocates and policymakers have tried to challenge and change this narrative by highlighting the potential for job creation in emerging sectors such as renewable energy, and by also highlighting the economic costs associated with climate inaction (Kouri and Clarke 2014). However, multiple survey experiments show that the coupling of environmental policy and job creation or economic growth through policy bundles may make such policies more popular. In studies where climate policies are associated with affordable housing, wage increases, or job creation frames, such policies have received greater support (Diamond and Zhou 2021, Bergquist, Mildenberger, and Stokes 2020, Stokes and Warshaw 2017).

Recent political rhetoric about the Green New Deal can be examined through a similar pair of lenses, considering both partisan cues and the economic costs affect policy support. Republicans have attacked the GND's policy ideas as being fiscally irresponsible and expensive, highlighting both the possible costs of its various policies and their impact on the national debt. In contrast, Democrats and progressive environmental advocates have coupled economic benefits such as sustainable job creation as part of the GND, while emphasizing both the enormous costs of climate inaction and the economic benefits of a just transition away from fossil fuel industries that increasingly rely on subsidies (Galvin and Healy 2020, Data for Progress 2019). Such economic messages, however, are conjoint with their source in these cases, raising the question of how the interactions between partisan messaging and cost association in different climate policy narratives are perceived by voters.

Despite proponents' claims that policy ensembles such as the Green New Deal cost less than the consequences of climate change they are designed to avert, such proposals are not "revenue-neutral" with respect to the government's balance sheet. This is likely in part *because* they are designed to avoid slowing economic growth, thereby blunting anticipated objections that there is a tradeoff between addressing climate change and broader economic wellbeing. However, opponents of proposals such as the Green New Deal frequently highlight the collection of programs' estimated costs as a reason citizens and policymakers should reject them.

But are these cost-based attacks persuasive? It is well-documented that people have trouble interpreting and contextualizing large numbers (Paulos 1988; Scotto, et al 2017), such as the cost estimates for large public policy programs. Moreover, public opinion researchers consistently find that few citizens are willing to concede policy goals or partisan commitments over cost considerations (Zaller 1992). With respect to climate policy in particular, tailoring policies to be revenue-neutral so as to *avoid* cost-based attacks, such as the Baker-Shultz carbon tax-and-dividend proposal has gained little traction in the United States. While more revenue-neutral tax and rebate policies have been established in Switzerland and Canada, public opinion shows that citizens have not responded to the rebates and ideas of revenue neutrality in a significant manner, rather echoing partisan positions on these policies (Mildenberger et al. 2022). Taken

together, this suggests that policy preferences and partisan cues should override cost considerations as public debates over the Green New Deal unfold.

Methods

We tested these expectations by conducting a survey experiment on Lucid's Fulcrum Academic service (hereafter, "Lucid") in March/April 2019. The study surveyed a demographically diverse sample of American adults (N=2008). Funding for the study and IRB approval came from [institution redacted for peer review.] Although the sample is not nationally representative, Lucid samples include quotas using national benchmarks for race, age, and gender, providing a sample that is more diverse and representative than many other convenience samples used for survey experiments (e.g. Coppock and McClellan 2019, Callaghan et al. 2019). Moreover, convenience samples are of less concern in experimental research, when compared to descriptive research, as the outcome of interest is a treatment effect rather than a population estimate (Mullinix, et al 2015).

Our survey design presented vignettes for six different climate policies, four of which had been discussed by members of the Democratic Party in contexts related to the Green New Deal, and two other policies proposed by Republican politicians. For external validity, each of these policies included partisan source cues that indicated which party had endorsed it, along with a counter-frame from the opposing party arguing against the policy.

The four policies related to the Green New Deal/endorsed by Democrats used vignettes highlighting:

1. A "green jobs" proposal, in which an environmentally friendly job would be guaranteed to every American adult who could not find a full-time job.

2. A renewable energy mandate in which all electricity generated should come from renewable or zero-carbon sources such as solar and wind energy by 2050.

3. A reforestation policy committing to creating and protecting 40 million acres of public and private forests, and 5 million acres of wetlands.

4. A national adaptation fund to help vulnerable communities adapt and cope with extreme weather events and disasters.

The two policies endorsed by Republicans used vignettes highlighting:

5. A carbon fee-and-dividend plan, using the language and costs outlined in the Baker-Schulz plan developed by several policy advisors from previous Republican administrations.

6. An energy investment policy to boost federal funding for research that would help both carbon capture and nuclear programs, drawing on Sen. Lamar Alexander's proposal of a "New Manhattan Project for Clean Energy". (Joselow 2019)

Each policy vignette included a randomly-assigned cost pay-for treatment, in which the policy was presented with either no associated cost (the control condition), a relatively low, moderate, or high cost. This allows us to also examine whether respondents' opinions about these policies are affected by cost as well as their partisan or ideological stances. Respondents read versions of all six policy vignettes with their included cost pay-fors, with the six vignettes also being presented in random order. For the carbon fee and dividend plan, we presented the cost being placed on polluters ("Analysts estimate this carbon fee would cost energy polluters ___"). This differentiated it from the other five policy vignettes, in which costs were simply listed ("Analysts estimate this policy would cost ____") with the implication that these would be borne by government and taxpayers. This was in order to maintain external validity by using a real policy proposal developed by Republicans, albeit one that had made revenue neutrality a central part of the policy. After reading each policy proposal, survey respondents were asked to evaluate the policy with an indicator of support on a 5 point Likert scale with response options ranging from "Strongly support" to "Strongly oppose". Respondents also answered several questions providing standard social and political demographics: these were asked prior to the policy vignettes in order to minimize post-treatment bias when examining potential treatment effect heterogeneity (Montgomery et al. 2018).

The Senate's intended consideration of the Green New Deal proposals in late March and increasing national media coverage of the Green New Deal during this period meant that these policy ideas may be more salient for many Americans around the time of our survey. However, given the highly polarized coverage of the Green New Deal and prominent Democratic figures such as Alexandria Ocasio-Cortez on channels such as Fox News, we chose to only highlight the descriptions of the policies and costs, and the endorsing/opposing political parties in each vignette. While we included four of its core policy components, we omitted any reference to the "Green New Deal" itself or to specific politicians to avoid unnecessarily priming negative partisan responses against either the term or prominent political figures. The full wording of each policy vignette, along with the randomized cost pay-for treatments and post-treatment questions are provided in Appendix A. Descriptive statistics for our sample are in Appendix B.

Results

1. Effect of cost framing on policy support

We begin by examining the effect of cost association and variability with support for each policy. Our dependent variables are a question item for each policy vignette asking respondents their level of support for the policy on a five-item ordinal scale ranging from "Strongly support" to "Strongly oppose". We recode this to a binary variable combining "Strongly support" and "Support" into one category (1 - support policy) and "Neither oppose nor support", "Oppose", and "Strongly oppose" into another (0 - do not support policy), omitting those who chose not to respond to the question or those who did not complete the entire survey from the analyses.

We first examine aggregate support for each policy proposal by treatment. Table 1 shows the breakdown of respondents who reported either "strong support" or "support" for each policy across each cost

treatment group. We report percentages of respondents in each treatment group who supported the policy, with the total number of respondents in parentheses. Although this is not a nationally representative sample, we observe first that these policies all receive support from a substantial plurality of the sample. For five of the six policies, between 40–50% of respondents support or strongly support implementation, and for the sixth - the reforestation policy - nearly 60% of respondents support or strongly support it. We observe relatively little variation across each of the four cost treatments, with the percentage of respondents expressing support for each policy remaining relatively consistent from one treatment group to the next for each policy. For the adaptation policy, we do observe a larger decrease in aggregate support with 52% of respondents supporting it in the no cost treatment, but only about 40% of respondents expressing support in the medium and high cost treatments.

Table 1
Aggregate support for each policy by cost treatment

	Policy					
% support or strong support	Green jobs (Dem-endorsed	Renewables (Dem-endorsed)	Adaptation (Dem-endorsed)	Reforestation (Dem-endorsed)	Carbon tax (Rep-endorsed)	Energy investment (Rep-endorsed)
No cost shown	49.04% (229)	51.08% (236)	52.02% (257)	61.30% (301)	40.59% (194)	47.70% (239)
Low cost	45.83% (220)	45.36% (225)	49.79% (237)	57.05% (271)	47.28% (226)	49.56% (226)
Medium cost	43.89% (219)	52.26% (254)	40.66% (198)	56.50% (265)	45.11% (212)	42.23% (201)
High cost	47.93% (232)	47.78% (226)	40.72% (182)	58.28% (292)	43.19% (203)	47.29% (218)

We next estimate the effects of each of the three cost treatments upon likelihood of supporting the policy. Figure 1 presents coefficient plots from regressions modeling these effects, comparing effects of each of the three cost treatments to the baseline control of no cost treatment. Dots represent effect sizes for each treatment. The dashed lines indicate 99.75 Bonferroni-corrected confidence intervals to adjust for multiple comparisons, with markers on each line indicating standard 95% confidence intervals. The full regression results are presented in Appendix C. We do not include controls for other demographics such as age or education, expecting these are inherently controlled for by random assignment.

We observe that associating cost frames with the policy proposal has little effect on support for most of the policies presented. In four of the treatments - the green jobs, renewables mandate, reforestation, and energy investment - we do not observe any of the treatments significantly changing support for a policy.

For both the green jobs and reforestation policies, we notice aggregate support is slightly lower for all three of the cost-associated treatment groups compared to the no cost baseline; however, this difference is not significant at $p < 0.05$. We also do not notice any trend of cost sensitivity; that is to say support for a policy does not significantly change when respondents are told it comes with a higher, rather than a lower cost.

We notice that support for the national adaptation fund decreases significantly when respondents are told about a medium cost (coef= -0.114, $p < 0.001$) or high cost (coef= -0.113, $p < 0.001$). This is an anomalous finding given our other results, and one possibility for this may be due to the combination of cost perception and the frame used, which highlights climate adaptation rather than mitigation efforts. As the benefits of climate adaptation tend to be more localized and associated with areas at higher risk of impacts from extreme weather events compared to mitigative policies that create broader, more diffuse benefits, this may possibly reflect more constrained support for the policy from respondents who may feel relatively insulated from climatic risks and not imagine such needs for adaptation where they live. However, this is a result that may merit more exploration in other studies on the differences between public support for adaptation and mitigation-focused policies, and how people perceive the benefits of each.

For the carbon tax and dividend policy, we notice a small positive effect (coef = 0.067, $p = 0.037$) of a “low cost” frame when associated with the policy. Recall that this is the only policy vignette that directly imposes a cost on polluters while being revenue neutral for government or taxpayers, being based on the Baker-Shultz carbon tax and dividend plan. Consequently, it is possible that the framing of a cost imposed on polluters rather than taxpayers actually helped policy support: we also see small positive coefficients for the medium and high cost treatment effects, however, these are not significant at $p < 0.05$ thresholds.

Having established no consistent effect of the cost treatment on support in aggregate treatment groups, we then examine whether these results are consistent across partisans given how partisan elites have differed in their rhetoric highlighting the costs of climate inaction. We re-estimate our earlier models, but this time conducting separate analyses for only self-identified Republicans and Democrats (including independents who lean toward a party) rather than the full survey sample.

Figure 2 presents coefficient plots from regressions modeling these effects, comparing effects of each of the three cost treatments to the baseline control of no cost treatment. The top marker (X) represents effect sizes for Democrats and the bottom marker (O) represents effect sizes for Republicans. Dashed lines indicate 99.75 Bonferroni-corrected confidence intervals to adjust for multiple comparisons, with markers on each line indicating standard 95% confidence intervals. The full regression tables are in Appendix C. Across the three treatments for all six policies, we only observe two instances where cost treatments significantly change support: Republicans receiving the medium cost treatment in the green jobs policy frame (coef= -0.110, $p = 0.014$) and Democrats receiving the high cost treatment in the

adaption fund policy frame (coef= -0.105, p = 0.019). In all other cases, we do not observe the cost treatments significantly changing support for any policy.

We do not find consistent evidence from these treatments that associations with a cost significantly impacts support for climate policies on the whole. This is true for both our aggregate survey sample, and for analyses focused on only Democrats and Republicans. We find that associations with a medium or high cost frame negatively affects support only towards one of the five policies in which a cost is borne by taxpayers or government; however, this occurs for the only treatment that highlights an adaptation policy with more localized and less diffuse benefits, and not in any of the other mitigation policies presented.

2. Partisan differences in policy support

Having established that cost treatments do not substantially or consistently shape support for these policies, we now examine the effects of partisanship, drawing on both respondents' partisan identities and the partisan source associated with each policy endorsement. Recall that four of the policies (green jobs, renewable energy mandates, climate adaptation fund, and reforestation) were endorsed by the Democratic Party in our vignettes, and that the other two (revenue-neutral carbon tax, energy investment) were endorsed by the Republican Party. In these four policy vignettes, respondents read policy endorsement from Democrats (e.g. "Several Democrats in Congress are proposing a bill that would create a ___"), followed by a conflicting message from the Republican party (e.g. "Some Republicans say this is a waste of taxpayer money and will burden future generations with debt.") prior to receiving the cost treatment. In the other two vignettes for a carbon tax and dividend and energy investment policy, we reversed the framing with Republicans endorsing the policy and Democrats criticizing the policies as being insufficient or ineffective at dealing with climate change. This allows us to examine the effect of partisanship in policy messaging and endorsement while we simultaneously examine the effects of the different cost treatments.

We examine aggregate support by partisanship for each policy proposal, combining treatments and now disaggregating our sample by reported partisanship. We include Independents who reported a partisan leaning with their party of choice, coding non-leaning Independents separately, and we omit from the analysis those who did not respond to the partisanship questions. Table 2 shows the breakdown of respondents who reported either "strong support" or "support" for each policy, disaggregated by partisanship, reporting both total percentages and numbers (in parentheses) for each partisan identification.

Table 2
Aggregate support for each policy by partisanship

	Policy and endorsing party					
% support or strong support	Green jobs (Dem-endorsed)	Renewables (Dem-endorsed)	Adaptation (Dem-endorsed)	Reforestation (Dem-endorsed)	Carbon tax (Rep-endorsed)	Energy investment (Rep-endorsed)
Republicans	27.24%	30.90%	24.66%	44.31%	53.43%	59.49%
	(207)	(233)	(183)	(335)	(397)	(445)
Independents	38.63%	37.28%	39.05%	47.65%	33.09%	37.27%
	(107)	(104)	(107)	(132)	(90)	(101)
Democrats	65.91%	68.65%	66.17%	73.68%	39.38%	38.96%
	(582)	(600)	(581)	(658)	(343)	(337)
Total	46.63%	49.09%	45.90%	58.32%	44.04%	46.67%
	(900)	(941)	(874)	(1129)	(835)	(884)

We observe sizeable partisan gaps between the Democrats and Republicans in our sample. For three of the first four policies that are endorsed by Democrats and opposed by Republicans, we see a nearly 40 percentage point gap between the two partisan groups. This is consistent with the size of partisan gaps identified in other public opinion analysis on climate change and other environmental issue (e.g. Egan, Konisky, and Mullin 2022, Dunlap et al. 2016). For the fourth Democratic-endorsed policy on reforestation, we still observe a sizeable gap between Democrats and Republicans (33 points), albeit smaller than the gap in the other three policies. We observe higher aggregate support among Republicans for the two Republican-endorsed policies, but smaller proportions of Democrats responding support for these policies. In contrast, we see more a majority of Republicans supporting the two policies that their party endorses, but less than 40% of Democrats supporting either of these policies.

We then test to see how significant these differences are, regressing both partisan identity (with non-leaning Independents omitted as a reference category) and cost treatment on support for each policy, while controlling for gender, age, and education as other expected correlates of climate opinion (see Ross, Rouse, and Mobley 2019, Egan and Mullin 2017, and Hamilton 2011). Figure 3 presents coefficient plots for these six models that show effect sizes for our variables of interest - partisanship and cost treatment - with full regression tables in the appendix. Estimating these models with partisanship does not change the observed results for cost treatments from Fig. 1, when we only estimated the effects of each treatment. We again observe that the cost treatments only significantly change support for the national adaptation fund, with the medium and high cost treatment significantly reducing support for this policy compared to the no-cost treatment.

However, we observe much larger and consistent effects based on party ownership or endorsement of each policy. These results are consistent with top down theories of policy support following elite leadership. The top four panels show effects for the four policies endorsed by Democrats. In each of these, we see that Democrats are considerably more supportive for each of the policies (effect sizes for all policies are significant at $p < 0.001$) than Independents. In contrast, Republicans are significantly less likely to support the policies than Independents or Democrats, showing the most opposition to the national adaptation fund policy (coef= -0.130, $p < 0.001$) and the green jobs policy (coef= -0.106, $p = 0.001$). As the treatment vignettes include both a policy endorsement from Democrats and a competing, critical message from Republicans, we cannot determine the extents to which these are the result of partisans following their own leadership's cues or opposing the other party (as Merkley and Stecula 2021 also postulate); however, these results are consistent with our expectations that partisan cues and affiliations will override cost considerations.

Next examining the two policies endorsed by Republicans, we find similar patterns with respondents' support aligning with co-partisan endorsement or opposition to the policy. Republicans show far higher levels of support for both the revenue-neutral carbon tax and energy investment policies (coef = .199, $p < 0.001$ for the carbon tax and dividend policy; coef = .203, $p < 0.001$ for the energy investment policy), whereas Democrats are much less supportive of these policies. However, we notice that while Republicans are significantly less likely than Independents (our base category for reference) to support two of the Democratic-endorsed policies for green jobs and an adaptation fund, there is no significant difference between Democrats and Independents for the Republican-endorsed carbon tax and energy investment policies.

Aggregate support for the policies among Democrats in each treatment group falls substantially as well: while between 65–75% of Democrats reported "support" or "strong support" for each of the four policies endorsed by their party, only about 40% of Democrats in the survey reported "support" or "strong support" for the two Republican-endorsed policies. In contrast, while a minority of Republicans supported the four Democrat-endorsed policies (between 25–30% for the green jobs, renewable mandate, and adaptation policy, and 44% for the reforestation policy), a majority supported the two Republican endorsed policies (53% for the carbon tax, and 59% for the energy investment).

There are several possible explanations for why we see a majority of Republicans support these last two policies, while only a minority of Democrats do despite Democratic voters largely being more aware of, concerned about, and supportive of policy action on climate change (Egan, Konisky, and Mullin 2022). One reason may be due to the conflicting and changing partisan cues within the treatment message, where Republicans are proposing both the revenue-neutral carbon tax and energy investment policies, and Democrats are shown to be opposing both. Top-down theories of political attitude formation would lead us to expect that opinion among partisans would follow the divergent cues from co-partisans. Another is the possibility of partisan-motivated issue attachment, in which citizens assess the importance of policies and the competence of parties to enact them, based on which party they perceive as "owning" the specific issue (Kane and Anson 2022). While these policies may all relate to climate mitigation, an issue

generally perceived as owned or dominated by the Democratic party, fiscal policies may be better associated with Republicans (Egan 2013, Fagan 2021), and investment in nuclear energy and carbon capture (features of the energy investment policy proposal) are not substantially associated with either party (Gupta et al. 2019). Hence, respondents may perceive both the revenue-neutral carbon tax and energy investment policies as being owned by Republicans in these frames given the partisan endorsement, which would lead to significantly less Democratic support for either policy.

Conclusions

Our study examined how perceptions of climate policies may be shaped by both economic cost associations and partisan attachments. Using an original survey with an embedded experiment incorporating several climate policy proposals, we find that cost considerations do not substantially alter citizens' support of climate policies. Randomizing presentations of these policies that include a no cost, low cost, medium cost, and a high cost frame, we find in most instances that support for these policies does not significantly differ across cost-based treatment conditions. Furthermore, we find the lack of these effects are consistent within both the Democratic and Republican-identifying subsets of our samples.

However, we find that divergence in support for these policies is driven by partisan communication and identity, with survey respondents reacting more to the partisan endorsements and messaging associated with each policy than to any association of cost. In these instances, citizens appear to support policies endorsed by co-partisans: Democrats display high support for four climate policies when they are endorsed by their own party, but not for two climate policies endorsed by the Republicans, whereas Republicans only show support for environmental policies endorsed by co-partisans. We find these effects override associated cost considerations, regardless of whether the cost of the policy is made salient or what the magnitude of the cost may be.

Our findings have meaningful implications for understanding public perceptions of the Green New Deal and related climate policies. While policies related to the Green New Deal have been bundled with other broadly popular policy items such as job creation in order to generate support from as many Americans as possible (Deiseroth and Blank 2021), partisan messaging and ownership of climate policy have created substantial gaps between Republicans and Democrats in their support for such policies. While most Democratic elites have advocated for these policies, Republicans have largely opposed them, frequently turning to messages about cost and fiscal responsibility. Yet we find that the cost-focused content of such messages may not be what affects popular support for these: voters appear largely insensitive to these costs, and their support for most of the climate policies we examine in our study does not substantially fluctuate across randomized cost treatments. Rather, partisan voters are swayed by a combination of partisan messaging and issue ownership, such that they may display support for climate policies that their party "owns" or endorses regardless of cost, while being unwilling to do so for similar policies that the opposing party endorses. This suggests voters only support spending limited capital and economic resources on climate policies when their party takes ownership on the issue, rather than when

the opposing party does, regardless of their concern or support for the policies otherwise. While these findings explain much of the polarization and public division over the Green New Deal and associated policies, they also raise grim implications for domestic policy advancement, given the deeply polarized nature of American politics today.

Declarations

Funding

The authors declare that no funds, grants, or other support were received during the preparation of this manuscript.

Competing Interests

The authors have no relevant financial or non-financial interests to disclose.

Please refer to the “Competing Interests” section below for more information on how to complete these sections.

Author Contributions

Both authors contributed equally to this work in research design, data analysis, and manuscript writing and editing.

Data Availability

Datasets, replication files, and survey material will all be made available on the Open Science Framework repository on acceptance. (URL not made available for anonymity.)

References

1. Bergquist P, Mildenberger M, Stokes LC (2020) Combining climate, economic, and social policy builds public support for climate action in the US. Environ Res Lett 15(5):054019
2. Boussalis C, Coan TG (2016) Text-mining the signals of climate change doubt. Glob Environ Change 36:89–100
3. Bromley-Trujillo R, Poe J (2020) The importance of salience: public opinion and state policy action on climate change. J Public Policy 40(2):280–304
4. Bromley-Trujillo R, Holman M, Sandoval A (2019) Hot districts, cool legislation: Evaluating agenda setting in climate change bill sponsorship in US states. State Politics & Policy Quarterly 19(3):375–395
5. Brulle RJ, Carmichael J, Jenkins JC (2012) Shifting public opinion on climate change: an empirical assessment of factors influencing concern over climate change in the US, 2002–2010. Clim Change

114(2):169–188

6. Campbell TH, Kay AC (2014) Solution aversion: On the relation between ideology and motivated disbelief. J Personal Soc Psychol 107(5):809
7. Coppock A, McClellan OA (2019) Validating the demographic, political, psychological, and experimental results obtained from a new source of online survey respondents. Res Politics 6(1):2053168018822174
8. Callaghan T, Motta M, Sylvester S, Trujillo KL, Blackburn CC (2019) Parent psychology and the decision to delay childhood vaccination. Soc Sci Med 238:112407
9. Carlock G, Mangan E, McElwee S (2018) A Green New Deal: A Progressive Vision for Environmental Sustainability and Economic Stability. Policy Report by Data for Progress. https://www.filesforprogress.org/pdfs/Green_New_Deal.pdf
10. Deiseroth D, Blank L (2021) Voters Overwhelmingly Support the Green New Deal. https://www.dataforprogress.org/blog/2021/4/19/voters-support-green-new-deal
11. Diamond E, Zhou J (2021) Whose policy is it anyway? Public support for clean energy policy depends on the message and the messenger.Environmental Politics,1–25
12. Dunlap RE, Jacques PJ (2013) Climate change denial books and conservative think tanks: Exploring the connection. Am Behav Sci 57(6):699–731
13. Dunlap RE, McCright AM, Yarosh JH (2016) The political divide on climate change: Partisan polarization widens in the US. Environment: Sci Policy Sustainable Dev 58(5):4–23
14. Egan PJ (2013) Partisan priorities: How issue ownership drives and distorts American politics. Cambridge University Press
15. Egan PJ, Konisky DM, Mullin M (2022) Ascendant Public OpinionThe Rising Influence of Climate Change on Americans' Attitudes about the Environment.Public Opinion Quarterly
16. Egan PJ, Mullin M (2017) Climate change: US public opinion. Annu Rev Polit Sci 20:209–227
17. Fagan EJ (2021) Issue ownership and the priorities of party elites in the United States, 2004–2016. Party Polit 27(1):149–160
18. Firozi P (2019) The Energy 202: How the Hamburger Became the GOP's Rallying Cry against the Green New Deal. Washington Post, March 1, 2019
19. Franta B (2021) Weaponizing economics: Big Oil, economic consultants, and climate policy delay.Environmental Politics,1–21
20. Galvin R, Healy N (2020) The Green New Deal in the United States: What it is and how to pay for it. Energy Res Social Sci 67:101529
21. Grumbach JM (2015) Polluting industries as climate protagonists: Cap and trade and the problem of business preferences. Bus Politics 17(4):633–659
22. Guber DL (2013) A cooling climate for change? Party polarization and the politics of global warming. Am Behav Sci 57(1):93–115

23. Gupta K, Nowlin MC, Ripberger JT, Jenkins-Smith HC, Silva CL (2019) Tracking the nuclear 'mood'in the United States: Introducing a long term measure of public opinion about nuclear energy using aggregate survey data. Energy Policy 133:110888
24. Gustafson A, Rosenthal SA, Ballew MT, Goldberg MH, Bergquist P, Kotcher JE, Leiserowitz A (2019) The development of partisan polarization over the Green New Deal. Nat Clim Change 9(12):940–944
25. Hamilton LC (2011) Education, politics and opinions about climate change evidence for interaction effects. Clim Change 104(2):231–242
26. Hennes EP, Ruisch BC, Feygina I, Monteiro CA, Jost JT (2016) Motivated recall in the service of the economic system: The case of anthropogenic climate change. J Exp Psychol Gen 145(6):755
27. Joselow M (2019) GOP Counteroffer to Green New Deal Pushes Innovation. Scientific American. https://www.scientificamerican.com/article/gop-counteroffer-to-green-new-deal-pushes-innovation/
28. Kane JV, Anson IG (2022) Deficit Attention Disorder: Partisanship, Issue Importance and Concern About Government Overspending. Polit Behav. https://doi.org/10.1007/s11109-022-09783-5
29. Kouri R, Clarke A (2014) Framing 'green jobs' discourse: analysis of popular usage. Sustain Dev 22(4):217–230
30. Layzer JA (2012) Open for business: Conservatives' opposition to environmental regulation. MIT Press
31. Lenz GS (2013) Follow the leader?: How voters respond to politicians' policies and performance. University of Chicago Press
32. Masson-Delmotte V, Zhai P, Pörtner HO, Roberts D, Skea J, Shukla PR, Waterfield T (2018) Global warming of 1.5 C. An IPCC Special Report on the impacts of global warming of, 1(5)
33. McCright AM, Dunlap RE, Merkley E, Stecula DA (2011) (2021). Party cues in the news: Democratic elites, Republican backlash, and the dynamics of climate skepticism. *British Journal of Political Science*, *51*(4), 1439–1456
34. Mildenberger M, Marlon JR, Howe PD, Leiserowitz A (2017) The spatial distribution of Republican and Democratic climate opinions at state and local scales. Clim Change 145(3):539–548
35. Mildenberger M (2020) Carbon captured: how business and labor control climate politics. MIT Press
36. Mildenberger M, Lachapelle E, Harrison K, Stadelmann-Steffen I (2022) Limited impacts of carbon tax rebate programmes on public support for carbon pricing.Nature Climate Change,1–7
37. Montgomery JM, Nyhan B, Torres M (2018) How conditioning on posttreatment variables can ruin your experiment and what to do about it. Am J Polit Sci 62(3):760–775
38. Mullinix KJ, Leeper TJ, Druckman JN, Freese J (2015) The generalizability of survey experiments. J Experimental Political Sci 2(2):109–138
39. Paulos JA (1988) Innumeracy: Mathematical illiteracy and its consequences. Macmillan
40. Ross AD, Rouse SM, Mobley W (2019) Polarization of climate change beliefs: the role of the millennial generation identity. Soc Sci Q 100(7):2625–2640

41. Schneider J, Schwarze S, Bsumek PK, Peeples J (2016) Under pressure: Coal industry rhetoric and neoliberalism. Springer
42. Scotto TJ, Reifler J, Hudson D (2017) We spend how much? Misperceptions, innumeracy, and support for the foreign aid in the United States and Great Britain. J Experimental Political Sci 4(2):119–128
43. Scruggs L, Benegal S (2012) Declining public concern about climate change: Can we blame the great recession? Glob Environ Change 22(2):505–515
44. Stokes LC, Warshaw C (2017) Renewable energy policy design and framing influence public support in the United States. Nat Energy 2(8):1–6
45. Turner JM (2018) The Republican Reversal. Harvard University Press
46. Tyson A, Kennedy B (2020)) Two-Thirds of Americans Think Government Should Do More on Climate. Pew Research Center. https://www.pewresearch.org/science/2020/06/23/two-thirds-of-americans-think-government-should-do-more-on-climate/
47. Uscinski JE, Douglas K, Lewandowsky S (2017) Climate change conspiracy theories. In *Oxford research encyclopedia of climate science*

Figures

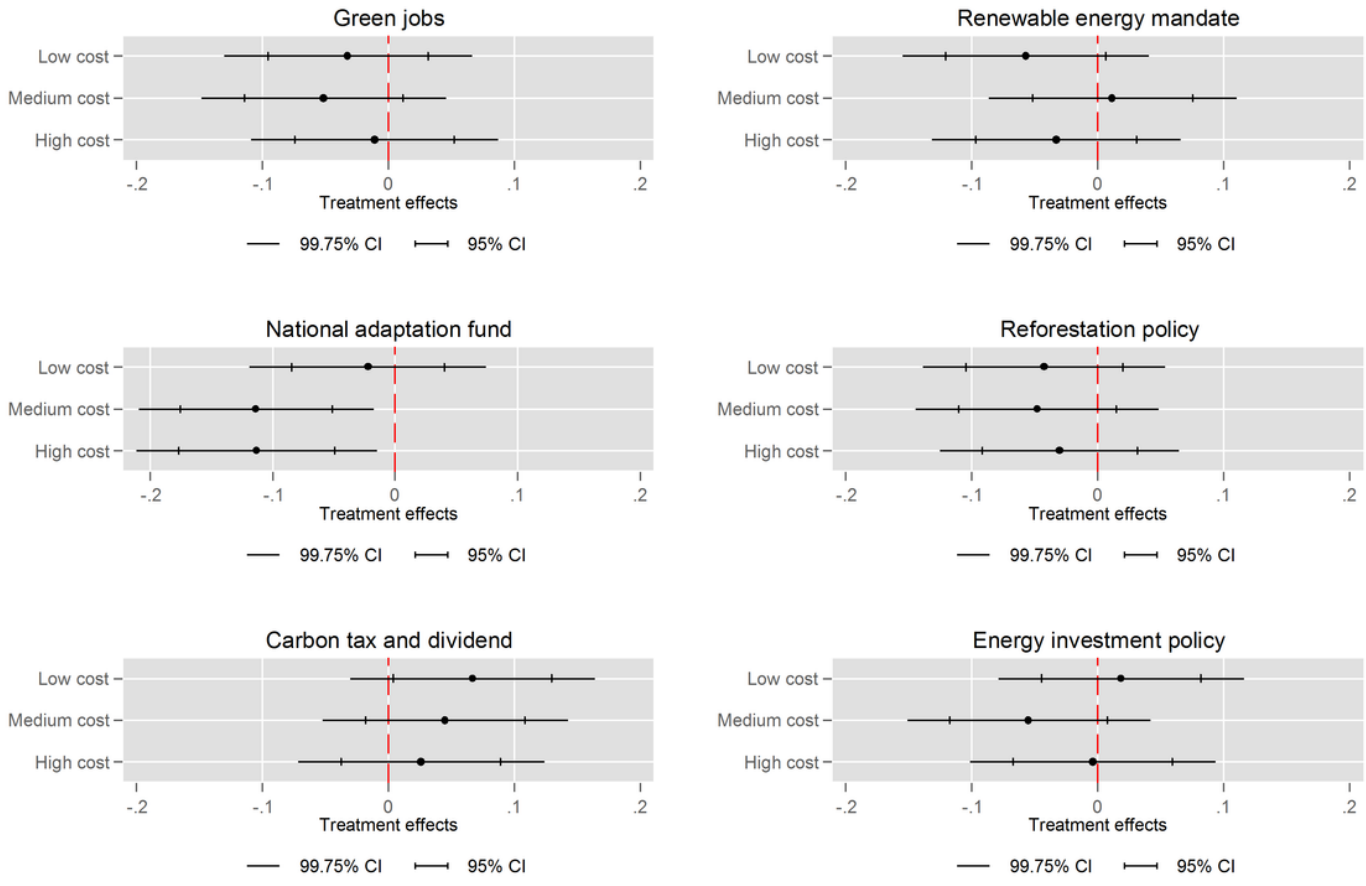

Figure 1

Effect sizes for each cost treatment on policy support

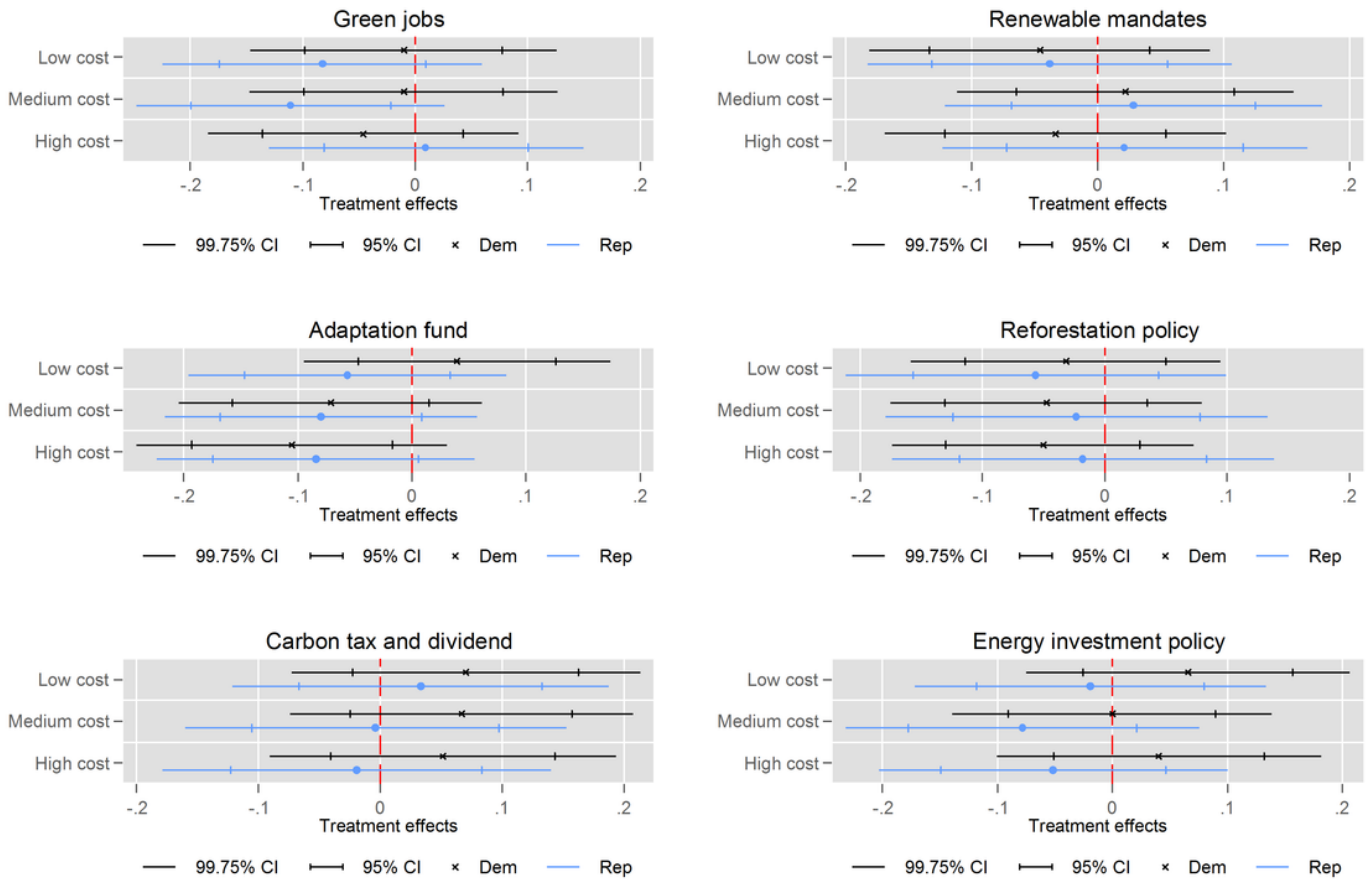

Figure 2

Effect sizes for each cost treatment on policy support for Democrats and Republicans

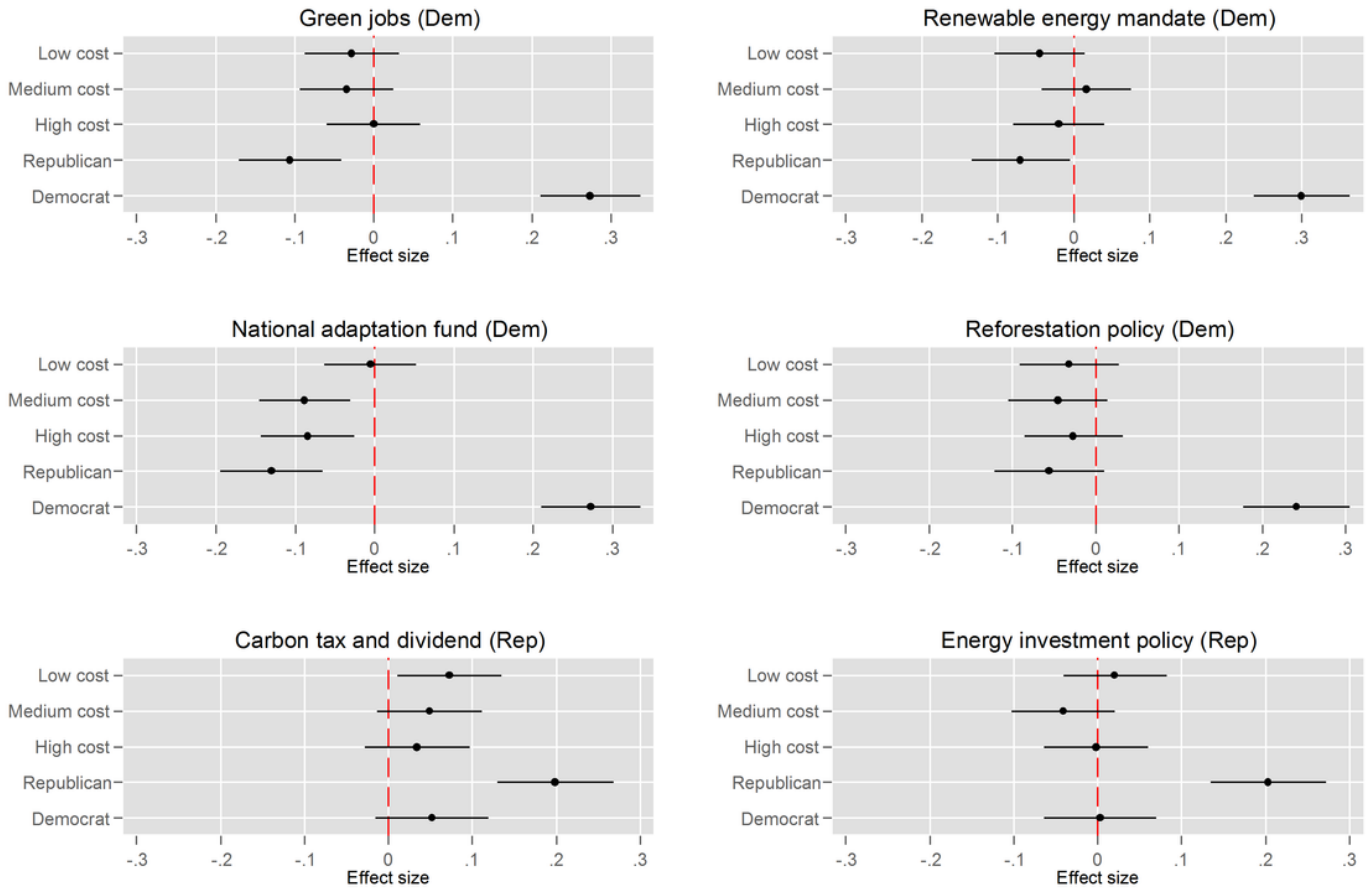

Figure 3

Effect sizes for partisanship and treatment conditions

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Appendix.docx