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LETTER

The politics of intersecting crises: The effect of the COVID-19 pandemic on climate policy preferences

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Abstract

Few contemporary crises have reshaped public policy as dramatically as the COVID-19 pandemic. In its shadow, policymakers have debated whether other pressing crises–including climate change–should be integrated into COVID-19 policy responses. Public support for such an approach is unclear: the COVID-19 crisis might eclipse public concern for other policy problems, or complementarities between COVID-19 and other issues could boost support for broad government interventions. In this research note, we use a conjoint experiment, panel study, and framing experiment to assess the substitutability or complementarity of COVID-19 and climate change among American and Canadian publics. We find no evidence that the COVID-19 crisis crowds out public concern about the climate crisis. Instead, we find that the publics in both countries prefer that their governments integrate climate action into COVID-19 responses. We also find evidence that analogizing climate change with COVID-19 may increase concern about climate change.

Keywords: climate change; COVID-19; public opinion; finite pool of worry; public policy

1. Introduction

In the shadow of the COVID-19 pandemic, policymakers have debated whether other pressing crises—including climate change—should be integrated into their COVID-19 responses. Is it politically feasible to integrate climate policies into pandemic recovery plans? Conventional wisdom suggests that the public may struggle to prioritize multiple crises simultaneously, particularly when they unfold across different time scales. However, public experience with one crisis could also increase public comfort with the type of aggressive policy interventions necessary to manage other crises, especially where such interventions are complementary. The contemporary moment thus raises pressing questions about how policy preferences and issue prioritization shift in the face of competing policy challenges. Have the health and economic emergencies triggered by the pandemic displaced public concern about climate change? Or has public experience with one crisis – the COVID-19 pandemic – increased support for climate action?

In this letter we draw from four new surveys of the Canadian and American publics to explore linkages (or lack thereof) in the public mind between COVID-19 and climate change. First, we use a conjoint experiment to examine whether the public supports integrating climate action into COVID-19 recovery packages. Next, we use a panel study to examine whether the pandemic has changed the extent to which the public believes the government should prioritize climate change. We then use a framing experiment to explore whether communication about COVID-19 can shape the way the public thinks about climate change. Overall, we find that the COVID-19 crisis has not crowded out public support for climate action and, instead, has created political opportunities for integrated policy responses that include climate change mitigation in a COVID-related economic stimulus package.

While we assess potential linkages between climate change and COVID-19, the study's implications extend beyond this specific case. COVID-19 has dominated the news media and the zeitgeist for over two years. This intense media focus might lead the public to prefer a single-minded policy focus for COVID-19 (as distinct from other issues). Conversely, climate change might be easily displaced in public consciousness, since many view it as a temporally and geographically distant phenomenon. In this way the COVID-19 – climate change intersection can be viewed as a tough test of whether intersecting crises crowd each other out in the public mind.

2. The politics of intersecting crises

To date, public opinion scholars have largely studied COVID-19 and climate change as independent issues. Political analyses of COVID-19 have focused on support for pandemic-related policies (Amat et al. 2020; Lachapelle et al. 2021) and/or the impact of the pandemic on support for incumbent governments (Leininger and Schaub 2020; Yam et al. 2020; Esaiasson et al. 2020; Schraff 2020; Devine et al. 2020; Johansson, Hopmann, and Shehata 2021). Several studies have also examined the extent of partisan polarization about COVID-19. Political polarization was initially low in the US (Gadarian, Goodman, and Pepinsky 2021; Myers 2021) and in Canada (Merkley et al. 2020) but increased in the US as the pandemic wore on (Grossman et al. 2020; Allcott et al. 2020). By contrast, in an extensive literature assessing climate change opinion, scholars have focused on how drivers such as elite cues (Guntermann and Lachapelle 2020; Merkley and Stecula 2020; Lee et al. 2021), framing (Nisbet 2009; Gifford and Comeau 2011; Aklin and Urpelainen 2013; Spence and Pidgeon 2010; Bernauer and McGrath 2016; Feldman and Hart 2018), information about economic costs and benefits (Stokes and Warshaw 2017; Ansolabehere and Konisky 2014), personal experience with a changing climate (Egan and Mullin 2012; Konisky, Hughes, and Kaylor 2016; Bechtel and Mannino 2021; Bergquist and Warshaw 2019; Howe et al. 2019; Marlon et al. 2021), economic downturns (Inglehart 1977; Elliott, Seldon, and Regens 1997; Mildenberger and Leiserowitz 2017; Bakaki and Bernauer 2018), and social norms (Bechtel, Genovese, and Scheve 2019; Mildenberger and Tingley 2019) influence beliefs about climate change and support for policies to address it. Scholars have also mapped the spatial distribution of climate beliefs in both the United States (Howe et al. 2015) and Canada (Mildenberger et al. 2016).

These literatures leave open the question of how concern about one crisis—climate change–is impacted by other types of crisis experiences, but the climate opinion literature does provide some fruitful directions for theorizing on this question. Economic downturns represent one class of experiences which has been theorized to cause a downturn in public environmentalism (Inglehart 1977; Elliott, Seldon, and Regens 1997). Recent studies have revisited this link with mixed success in identifying a linkage between economic distress and climate action (Mildenberger and Leiserowitz 2017; Bakaki and Bernauer 2018). We extend this work by assessing the relationship between climate concern and a different type of massive public upheaval—COVID-19. Relatedly, scholars have explored how the framing of climate change and climate policy influences public attitudes (Nisbet 2009; Gifford and Comeau 2011; Aklin and Urpelainen 2013; Spence and Pidgeon 2010;

Bernauer and McGrath 2016; Feldman and Hart 2018). For the most part, this work has focused on emphasizing different features of climate change itself. But climate change is not occurring in a vacuum, and framing it as similar to or different from other pressing political issues might provide leverage for building climate policy support.

More generally, theoretical perspectives lead to three distinct expectations about how the public might respond to simultaneous crises. First, new crises may compete within the public's "finite pool of worry" (Weber 2006) and can crowd out concerns about other policy challenges. In this view, simultaneous crises act as substitutes in the public mind. Second, a new crisis may open a window of opportunity for addressing pre-existing issues (Kingdon and Thurber 1984). This might occur if the government response to a new crisis normalizes a particular type or scale of policy response. For example, the scale of COVID-19 stimulus spending could re-calibrate expectations about appropriate government interventions in the economy. In this view, simultaneous crises could complement each other in the public mind. Third, in the model implied by standard issue-specific studies of public opinion like those cited above, public attitudes about simultaneous policy challenges could remain independent. In this view, the emergence of new crises does not affect public opinion about longstanding issues.

To our knowledge, scholars have not tested these competing theories of public policy linkage. One study shows that climate policy is more popular when economic and social policies are integrated into policy packages - but does not examine COVID specifically (Bergquist, Mildenberger, and Stokes 2020). Separately, two recent studies have found that the public is more willing to accept some policies when they are proposed as measures to address COVID-19, as opposed to responses to climate change (Amat et al. 2020; Kallbekken and Sælen 2021). These findings suggest that the public views different policy instruments as more appropriate in some contexts rather than others, but they do not tell us whether exposure to intersecting crises influences how the public thinks about the crises or policies to address them. In practice, some governments have linked COVID and climate change by incorporating green stimulus into their coronavirus relief plans, but we lack an understanding of the political benefits or drawbacks to this strategy.

3. Methods

Our analysis leverages four datasets: two collected during the early months of the COVID-19 pandemic, and two from mid-2021, over a year after pandemic-related restrictions began in the United States and Canada.

First, we leverage data from the Canadian Climate Opinion Panel (CCOP). The CCOP was a custom five-wave public opinion panel survey administered online in five Canadian provinces between February 2019 and May 2020 to a sample drawn from the Leger 360 platform (Mildenberger et al. 2022). Complete information on the CCOP is provided as SM Section 1.1. Second, we fielded a national survey of the American public simultaneously with the fifth wave of the CCOP in May 2020. US respondents were recruited by Qualtrics between May 15 and May 20 (n=1049) and quota sampled by race, age and gender. Third, in April 2021, we fielded a second national survey of Americans, this time using the Lucid Theorem service (n=1,695). Again, respondents were quota sampled by race, age and gender. Fourth, in June 2021, we fielded a national survey of Canadians, also using Lucid. Canadian respondents were quota sampled on language, age, and gender (n=1,058). We then merged local COVID prevalence data into all four datasets, using data from provincial health authorities in Canada and a non-partisan repository of health data in the United States. We provide full details about the surveys and COVID-19 prevalence data in SM Section 1.2.

We use these surveys to explore the relationship between climate change and COVID-19 in three ways. Our primary focus explores whether public support for climate policy increases or decreases support for government responses to the COVID-19 pandemic. We explore this topic using a conjoint survey experiment embedded in the 2021 Canadian and US surveys. Conjoint experiments capture the dynamics of multi-dimensional decision-making and show how different choice dimensions vary in relative importance (Hainmueller, Hopkins, and Yamamoto 2014a; Bansak, Hainmueller, and Hangartner 2016). Respondents are asked to choose between two choice bundles that contain randomly varying combinations of policy elements. The researcher can then estimate Average Marginal Component-Specific Effects (AMCEs) for each policy element (Hainmueller, Hopkins, and Yamamoto 2014a). The AMCE shows how much a given policy element increases or decreases public support for the policy package, holding all other elements constant. We estimate the AMCE for each policy element by regressing a binary indicator for whether a policy bundle was preferred on treatment variables indicating the presence or absence of each element. Our results can be interpreted as the marginal change in support associated with the inclusion of each policy level, holding all other elements constant (including, crucially, the cost of the package).[1]

As explained more thoroughly in SM Section 2.1, we designed the conjoint to reflect contemporaneous policy discourses in the US Congress and the Canadian Parliament, and to speak to scholarly debates about climate policy, energy justice, and social policy. Respondents were asked to evaluate three randomly generated pairs of policy packages, which varied with respect to five dimensions (shown in Figure 1): climate action, infrastructure, individual support, business support, and costs. The elements included in each policy dimension are included in Appendix Table 2. Recall that our primary focus is on support for including climate policies in COVID-19 economic recovery packages. We thus focus particular attention on the elements contained within the climate action and infrastructure dimensions.[2]

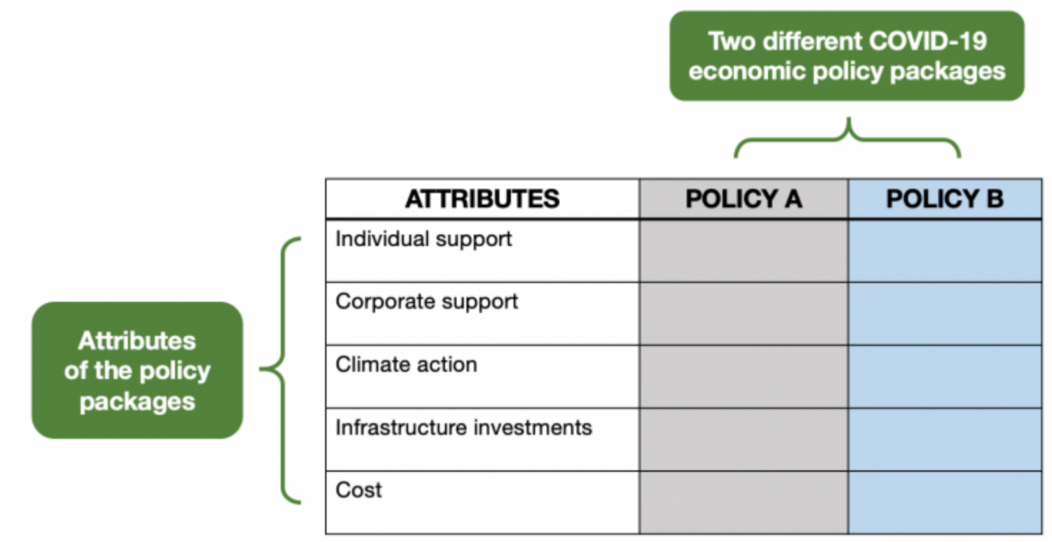


Figure 1. Policy attributes included in our conjoint experiment

The figure shows the policy dimensions included in our conjoint experiment and was presented to respondents in the explanation preceding the comparison task.

1. We note here that, since respondents were forced to select a package for each choice task, estimated AMCEs range from -0.5 (a 0.5 point decrease in the probability of supporting a package) to 0.5 (a 0.5 point increase in the probability of supporting a package).

2. In SM Section 2.1.3 we report the results from a follow-up study we conducted to confirm our results don't change if we also include COVID-19 mitigation policies in the conjoint. We did not include these policies in our primary study because responsibility for managing the severity of COVID-19 was left primarily to the states and provinces (not the federal government), and because these debates happened independently from economic recovery debates.

This conjoint experiment will reveal whether the American and Canadian publics prefer that COVID-19 response packages integrate policy to address climate change, but it does not tell us whether or how the pandemic has changed views of climate change and climate policy. We assess this question in two ways. First, we evaluate the effect of COVID incidence on climate concern by evaluating within-subject changes in Canadian climate policy preferences between the December 2019 and May 2020 waves of the Canadian Climate Opinion Panel. Details on question wording are provided in SI Section 2.2. We analyze this panel data using a (two-way, fixed effects) OLS model of the form,

$$\text{Concern}_{it} = \gamma_i + \omega_t + \alpha \ \text{COVIDincidence}_{it} + \eta_{it}, \tag{1}$$

where Concern_{it} is one of our two climate attitude measures (climate concern and support for carbon pricing) i in survey wave t, γ_i are individual respondent fixed effects, ω_t are survey wave fixed effects, and η_{it} is the error term. The key parameter of interest is α, the coefficient on $\text{COVIDincidence}_{it}$, which gives the best linear approximation of the average treatment effect, subject to the conditional ignorability assumption holding.

Second, in all four surveys, we tested whether framing the climate crisis as similar to the COVID pandemic might increase public climate concern or prioritization of climate change. We experimentally examined the effect of a vignette which described COVID-19 and climate change as problems that grow exponentially and are best mitigated through early action.[3] We randomly assigned survey respondents to read one of three vignettes that either discussed the COVID-19 pandemic alone or highlighted similarities between COVID-19 and the climate crisis. We provide further details about these experiments in SM Section 2.3. We identify the Average Treatment Effect (ATE) of the vignettes using ordinary least squares (OLS). We also conduct a mini-meta analysis using a random effects model to identify an overall effect size across the four surveys (Goh, Hall, and Rosenthal 2016; Baldwin and Lammers 2016).

4. Results

Our conjoint-experimental results show that Americans and Canadians support an approach to COVID relief that incorporates climate policy (Figure 2). All of the climate action measures boost support for a COVID relief package. Conditioning business support on pollution reductions boosts support by the greatest amount in both countries. Including green infrastructure spending also increases support for a coronavirus relief package. Further, in both countries, support for clean energy and clean transportation boosts support more than fossil fuel infrastructure investments. In Canada, clean energy investments boost support more than roads, bridges, and tunnels, whereas we cannot distinguish between the increased support associated with clean energy and traditional infrastructure in the United States.

Climate change is conditioned by a high degree of partisan polarization in both the United States and Canada (Lachapelle, Borick, and Rabe 2012; Mildenberger et al. 2017) However, as detailed in SM Section 2.1.1, these results are stable when disaggregated by partisan sub-groups in the US and ideological sub-groups in Canada.

We also examine whether these effects correspond to meaningful shifts in public support for a COVID-19 relief package. As explained in detail in SM Section 2.1.2 and following prior work (eg Bechtel and Scheve 2013), we address this question by comparing support for packages that include the most popular climate policy elements with baseline packages that do not. Even with large

3. We acknowledge that, while the structure of the underlying problems causing the pandemic and climate change are similar, the timing of policy impacts is quite different. The impact of policy responses to COVID-19 are observable in days, weeks, or months, whereas policies to mitigate climate change will take years or decades to realize their full impact. If respondents make this distinction, then their understanding of the problems as similar might not lead them to support aggressive climate policy. This could be one explanation for the null result from this experiment.

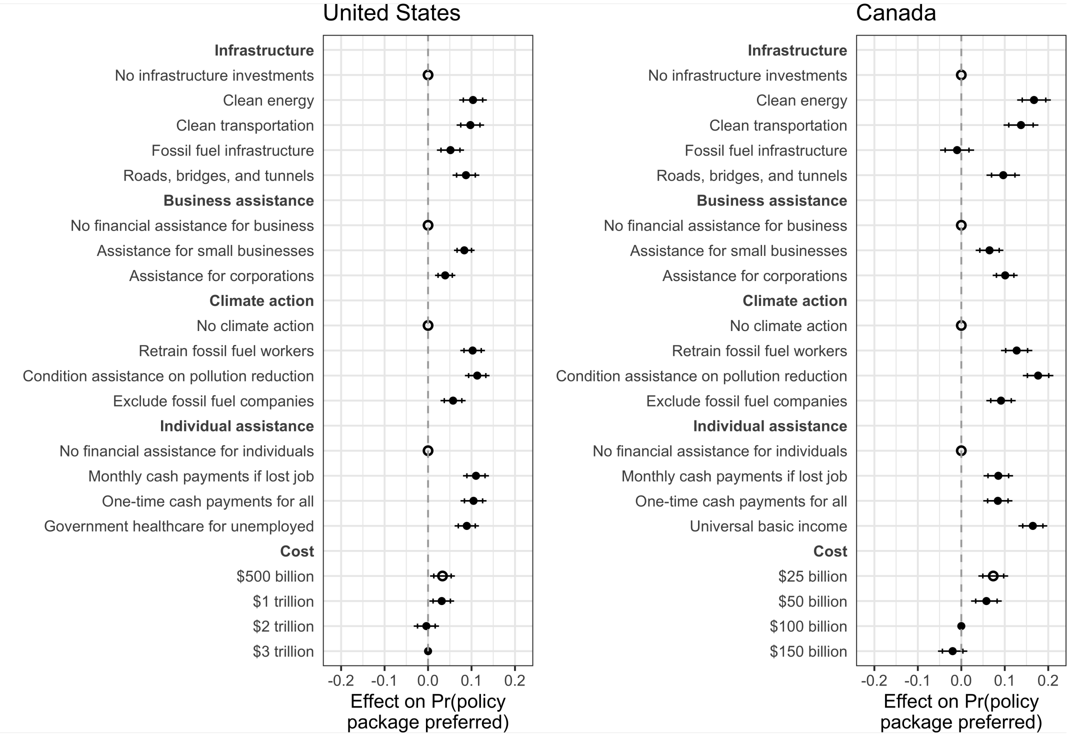


Figure 2. How social, economic, and climate programs shape support for bundled COVID-19 response packages in Canada and the United States

The figure shows average effects of each policy element on support for the COVID-19 policy bundle in the United States (left panel) and Canada (right panel). Point estimates are average marginal component effects (AMCEs): the change in probability of selecting a COVID-19 package, ceteris paribus, if the package includes each element. AMCEs are estimated using the R package **cjoint** (Hainmueller, Hopkins, and Yamamoto 2014b, 2014a). Standard errors are clustered at the respondent level. Bars reflect 95% confidence intervals. Hash marks show 83% confidence intervals, to aid visual inspection of significant differences in effect sizes (Payton, Greenstone, and Schenker 2003; Bolsen and Thornton 2014). Each element is compared against a base category for each policy dimension, denoted by a dot on the 0 intercept.

differences in costs, we find that including climate policy elements boosts support for a COVID-19 relief package by 12 and 14 points on a 0–100 point support scale in the US and Canada, respectively.

These conjoint results suggest that the public prefers that governments take simultaneous action to manage intersecting crises, although these results don't shed light on potential shifts in issue prioritization. For instance, the public might prefer addressing climate change in COVID recovery packages even as intensity with which they want climate change prioritized declines. Our panel study estimating the effect of local COVID-19 prevalence on Canadians' climate concern suggests otherwise. The results reported in Table 1 show no significant effect of local COVID-19 prevalence on the importance Canadians assign to the issue of climate change (Column 1) or support for carbon pricing (Column 2). Results are similar for a range of other issues reported in SI Section 2.2. We thus find no evidence that COVID-19 crowded climate change out of a "finite pool of worry" for Canadians.[4]

Table 1. Results of two-way fixed effects models, showing no statistically significant effect of COVID-19 prevalence at the local level on (1) the importance Canadians assign to climate change and (2) support for carbon pricing. Local COVID-19 prevalence is measured as the natural log of the percent of the local population that had contracted COVID-19 (cumulative through May 18, 2020). Issue importance is measured on a five-point scale (1:5), but has been rescaled to have mean of zero and standard-deviation of one. Support for carbon pricing is measured on a five-point scale (1:5), but has also been rescaled to have mean of zero and standard-deviation of one. The table reports standardized coefficients, such that the effects should be interpreted in standard-deviation units.

	Dependent variable:	
	Importance of clim. chg. (st.dev.)	Support for carbon pricing (st.dev.)
	(1)	(2)
COVID-19 prevalence (log)	.040	−.083
	(.118)	(.195)
Respondent fixed effects	Yes	Yes
Wave fixed effects	Yes	Yes
Waves	2	2
Observations	834	505
Note:		*p<0.05; **p<0.01; ***p<0.001
		Robust standard errors clustered at the respondent level

These results still leave open the question of how the public might respond to media or political communications that link the two crises. Thus, we also explore whether concern about climate change might be enhanced when respondents receive messages about parallels between the COVID-19 pandemic and the climate crisis. We find suggestive evidence that this is the case. While results across the four vignette experiments were inconsistently significant (see Figure 7 in SI Section 2.3), a mini meta-analysis of the four studies finds a small, positive, and significant overall effect of analogizing climate change to the "exponential growth" of COVID-19 on respondents' level of worry about climate change. Using a random-effects model, we estimate an overall standardized mean difference between the control groups (COVID-19 information only) and the treatment groups

4. In Appendix Figures 4 and 5, we show the results from a simulation examining the minimum detectable effect of our panel study. Our samples are large enough to enable us to detect an effect of about 0.2 standard deviations on the issue priority variable and 0.25 standard deviations on support for carbon pricing. Thus, while we acknowledge that our study is underpowered to detect very small effects, our design would enable us to detect a substantively meaningful effect.

(COVID-19 analogized to climate change) of 0.085 (standard error: 0.035, $p < 0.017$). Results of the mini-meta analysis are presented in Figure 3. These results mirror the results from the panel analysis. COVID-19 does not crowd climate change out of the public consciousness, but neither does its structural similarity to climate change dramatically increase public climate concern.

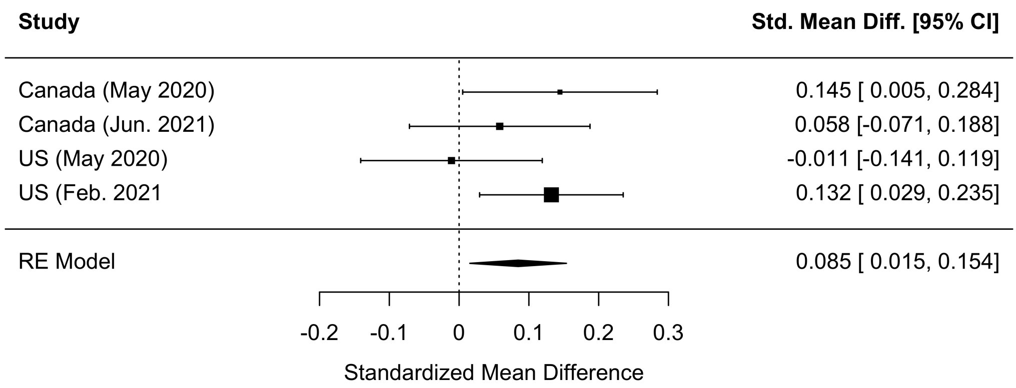


Figure 3. Mini-meta analysis of four survey experiments framing climate change as analogous to COVID-19.

The figure shows the results of a mini-meta analysis, presenting standardized mean differences between groups that read a vignette analogizing the "exponential growth" of COVID-19 to that of climate change. The experiment was conducted four times in two countries: the United States (May 2020 and Feb. 2021) and Canada (May 2020 and Jun. 2021). The dependent variable is *worry about climate change*, measured on a four-point scale. The meta-analysis was conducted using a random effects model.

5. Conclusion

In this research note, we have assessed public support for integrated policy approaches that address COVID-19 and climate change simultaneously. We have also explored the attitudinal bases for the public's policy preferences, by asking whether exposure to or communication about the new COVID-19 crisis changes how the public thinks about climate change. We find no evidence that the COVID-19 pandemic reduced support for climate action by crowding climate change out of a finite pool of worry. COVID recovery packages that included climate action were more popular than those that did not. Moreover, we do not find evidence that exposure to COVID-19 reduced the importance of climate change in the public mind nor eroded support for climate policy. In addition, we find evidence that rhetorically linking the two crises can increase public concern about climate change. The COVID-19 crisis has not dampened public support for climate action and, instead, may create opportunities for integrated policy solutions. While our study focuses on the direct relationship between public experience with COVID-19 and policy-relevant views, political elites can also mediate this relationship. Future research could investigate how the public responds to political elites' efforts to link issues or keep them distinct.

Supplementary Material

1. Data

1.1 Canadian Climate Opinion Panel

The Canadian Climate Opinion Panel (CCOP) was a custom five-wave public opinion panel survey administered on-line between February 2019 and May 2020 to a sample drawn from the Leger 360 platform. This platform is a web-based pool of over 400,000 Canadians, 60 percent of which were recruited randomly via Random-Digit-Dialing (RDD). Panel respondents were drawn from five Canadian provinces: British Columbia, Alberta, Saskatchewan, Ontario and Quebec, which comprise 90% of the Canadian population. The CCOP dataset has little systematic attrition and no survey design effects (Mildenberger et al. 2022).

The first four waves of the CCOP were conducted to study Canadian attitudes about federal climate policy. In May 2020, we collected a fifth panel wave in the early months of the COVID-19 pandemic by recontacting the 1,190 survey respondents who responded to the panel's fourth wave, conducted between 22 November and 16 December 2019. Fieldwork for the fifth wave was conducted between May 13 and May 28 2020. A total of 899 panelists completed the survey, delivered as a web-based questionnaire through the Leger 360 platform. This represented a 24% attrition rate between wave 4 and wave 5 of the CCOP. Panelists were given the option of responding in either English or French, with 147 panelists responding in French.

1.2 COVID prevalence data

Canadian COVID prevalence data was obtained from publicly available provincial government sources. All provinces report daily on COVID incidents, with local information reported regionally within the provinces. For the CCOP analysis, data were collected on May 19, 2020, for British Columbia's five health authorities, Alberta's five health zones, Saskatchewan's six health regions, Ontario's 34 public health units, and Quebec's 18 health regions. Local COVID prevalence is expressed in our dataset as the percentage of the population infected with COVID, up to and including May 18, 2020, to coincide with the CCOP's fifth wave. COVID prevalence in this sample ranges from 0% to 1.0880 %, with a median prevalence rate of 0.0431%. These data were then merged into the panel dataset based on the respondent's federal electoral district, which we matched with the provincial health regions.

COVID prevalence data are not available for the Canadian sample that was recruited on Lucid in 2021, because we were not able to obtain geographic identifiers below the province level for Lucid respondents.

For the United States sample, COVID prevalence data were obtained from the USAfacts.org resource, a publicly-available, non-partisan repository of data provided by US government agencies. COVID data is updated daily by USAfacts.org with county-level cumulative COVID case counts obtained from state-level public health agencies; where states do not report county-level data, USAfacts.org obtains county-level data from the Centers for Disease Control and county public health authorities. [5] COVID prevalence was then calculated as cases per 100 of population (or, percentage of population infected with COVID), up to and including May 16, 2020, to coincide with the timing of the US survey. COVID prevalence in this sample ranges from 0% to 3.718 %, with a median prevalence rate of 0.231%. These data were then merged with the US survey data, matched to the respondent's zipcode. Where a respondent's zipcode covered multiple counties, we calculated the mean COVID prevalence for the counties over which the zipcode spans.

2. Methods

5. Detailed information on USAfacts.org's methodology is available at https://usafacts.org/articles/detailed-methodology-covid-19-data/

2.1 Conjoint experiment

As we summarize in the main text, we designed the conjoint to reflect the COVID-19 policy discourse in the US Congress and the Canadian Parliament. These debates focused on the structure and generosity of programs to boost social welfare and economic recovery from the pandemic, and whether to capitalize on pandemic recovery as an opportunity to support the clean energy transition. The climate-action dimension compares support for policies that punish powerful incumbent industries with those that incentivize changes in corporate behavior, which reflect quite different political logics (Breetz, Mildenberger, and Stokes 2018). We also include a level that speaks to energy justice debates (Carley and Konisky 2020), by gauging the relative priority the public places on promoting a structural shift in the energy system vs. supporting displaced workers. The infrastructure dimension speaks to how the public trades off between supporting the incumbent fossil fuel industry, traditional infrastructure, and two key components of the clean energy transition: the transportation and electricity systems. The individual-support dimension reflects a central question in political economy (Esping-Andersen 1990): public views of means-tested vs. universal social programs. The corporate-support dimension allows us to compare whether Americans are more supportive of spending to support small businesses vs. large corporations. We include the cost dimension not only to explore public cost-sensitivity, but also to guard against "masking," which is when marginal support or opposition for a particular policy element reflects respondents' assumptions about a missing element, such as its cost.

Respondents were given the prompt: "As you may have heard, politicians are currently considering various policies to address the COVID-19 pandemic's economic impacts. We are interested in your views on how the federal government should address this COVID-19 crisis. On each of the next few screens, you will be shown a pair of proposed policy programs that the government may consider. Please read the descriptions of the proposals carefully. Then, please indicate which proposal you would prefer the government to pursue." The policy packages varied with respect to climate action, infrastructure, individual support, business support, and costs.

2.1.1 Ideological and partisan subgroup analysis

Since climate change is conditioned by a high degree of partisan polarization in both the United States and Canada (Gustafson et al. 2019; McCright and Dunlap 2011; Lachapelle, Borick, and Rabe 2012; Mildenberger et al. 2017), we examine whether these results vary across ideological and partisan groups. Figure 1 shows that our results are broadly stable when disaggregated by partisan sub-groups in the US and ideological sub-groups in Canada. In the US sample, the boost in support for packages that include clean transportation or retraining for fossil fuel workers, or that exclude fossil fuel companies from receiving assistance, is driven by Democrats. Still, we do not find evidence that including these elements causes a decline in support among Republicans. Similarly, among Canadians the boost in support associated with clean energy is driven by left-leaning voters, and the boost in support associated with fossil fuel infrastructure is driven by right-leaning voters, but we do not see a decline in support among other groups when packages include these policies. While including some climate policy elements elicits more enthusiastic support among particular segments of the population in both countries, we do not find evidence that climate policy reduces support among any group.

2.1.2 Comparison of support for policy packages

While our main results are based on the Average Marginal Component Effect (AMCE) of each policy element, we also describe the results from a comparison of support for policy bundles that do and do not include climate policy elements. We follow prior scholars (eg Bechtel and Scheve 2013) in using continuous policy package support scales to make this comparison.

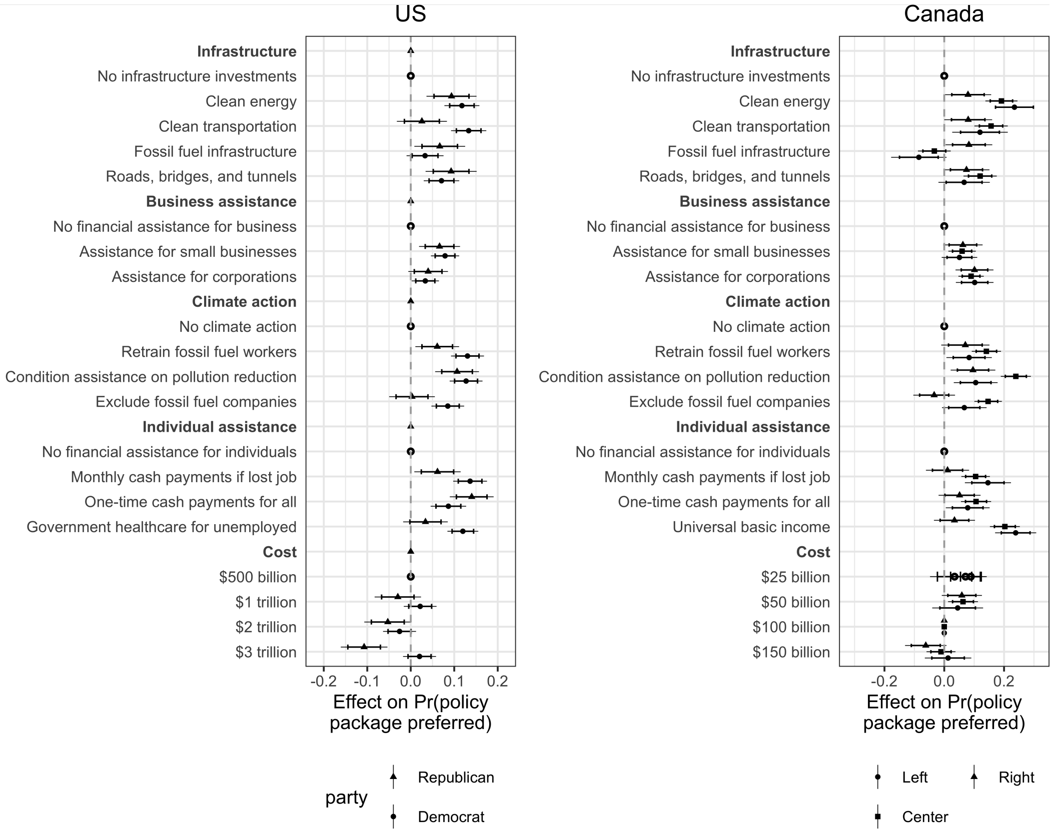


Figure 1. Conjoint results by partisan or ideological sub-groups

The figure shows how the average effect of each policy element varies between Democrats and Republicans (US) and self-reported sub-groups on the left, center and right of the political spectrum (Canada). Point estimates are average marginal component effects (AMCEs): the change in probability of selecting a COVID-19 package, ceteris paribus, if the package includes each element. Bars reflect 95% confidence intervals. Hash marks show 83% confidence intervals to aid visual inspection of significant differences in effect sizes (Payton, Greenstone, and Schenker 2003; Bolsen and Thornton 2014). Each element is compared against a base category for each policy dimension, denoted by a dot on the 0 intercept. AMCEs are shown as triangles for Republicans and conservatives, squares for centrists, and circles for Democrats and liberals.

After each comparison task, respondents were asked to report their level of support for both packages included in the comparison. We asked respondents:

> On the scale below, tell us how strongly you support each of these two options with 0 corresponding to no support and 100 corresponding to full support.

We then used these ratings as the dependent variable in a regression estimating the effect of each policy element on respondents' support for a policy package and used these effects to predict support for two hypothetical policy packages.

The baseline package for Canada included assistance for corporations (since this was slightly more popular than small business support) and monthly cash payments for those who lost their jobs (since this was the most feasible policy option in legislative debates). It did not include any infrastructure investment or climate action. We assigned this package the lowest cost included in our Canada-based conjoint: $25 billion. The comparison package included the most popular climate policy elements: the stipulation that companies reduce pollution to receive assistance, and clean energy investments. We assigned this package the highest cost ($150 billion).

The baseline package for the US was similar to the baseline package for Canada. We assigned it the lowest cost option included in the US-based conjoint experiment ($500 billion). The package contained no infrastructure investment or climate action elements. It included COVID-19 response in the form of assistance for small businesses (since the AMCE for this element was slightly higher than support for corporations) and monthly cash payments for those who lost their jobs. The comparison package was assigned the highest cost ($3 trillion) and contained the same individual and corporate support attributes as the baseline package. It also included a pollution-reduction condition for corporate assistance, and clean energy infrastructure investments.

Table 1 shows the results from this analysis. As discussed in the main text, we find that including climate policy elements increases support by about 14 and 12 points on a 0–100 scale in Canada and the US, respectively.

Table 1. Predicted support for hypothetical policy packages with and without climate policy elements. The baseline packages (Rows 1 and 3) contain the most politically feasible COVID-19 response policies, does not contain climate policy or infrastructure elements, and has the lowest cost. By comparison, Rows 2 and 4 reflect support for packages with the most popular climate action and infrastructure elements in each country and the highest cost. Predicted values reflect average support on a 0-100 scale. Standard errors are clustered at the respondent level.

	Support	Std. Error
Canada (baseline)	61.34	0.98
Canada (with climate policy)	75.46	2.06
US (baseline)	66.07	0.93
US (with climate policy)	77.71	1.86

2.1.3 *Robustness check: Additional conjoint adding COVID mitigation levels in package*

While our main focus was on the relative importance of policies to promote economic recovery from the pandemic, governments were simultaneously debating COVID-19 management policies. We did not include these policies in our core conjoint because responsibility for managing the severity of COVID-19 was left primarily to the states and provinces, particularly in the US, and because these debates happened independently from economic recovery debates. Still, as a robustness check to examine whether policies to mitigate the spread of COVID-19 influence our results, we also report a follow-up conjoint experiment which included a dimension for COVID-19 mitigation policies. This experiment contained the same levels as the initial conjoint, and we added a dimension called "COVID-19 management." Table 2 shows the levels included in both experiments.

Figure 2 provides an example of the conjoint choices for Experiment 1 as seen by one survey respondent.

	Policy A	Policy B
Cost	$3 trillion	$500 billion
Assistance to individuals	Government-sponsored healthcare for unemployed workers	Monthly cash payments for every American who has lost their job
Climate Action	Retrain workers in polluting industries, such as oil, coal, and gas	None
Infrastructure Investments	Investments in facilities to generate electricity from fossil fuels (oil, gas, and coal)	None
Assistance to corporations	Financial support to corporations if all workers keep their jobs	Financial support to small businesses if all workers keep their jobs

Figure 2. Example of conjoint choice table as seen by survey respondents

Figure 3 shows the results from this experiment, which are broadly consistent with the results shown here. For the levels included in the original study, the results generally reflect the direction and magnitude of the results show in Figure 2 in the main text. We also find that including a vaccine requirement, mask mandate, or funding for at-home COVID-19 tests increases support for the bundle. This robustness check confirms that our results are consistent when explicitly including COVID-19 management policies (like mask mandates), and continue to hold at an even later stage of the pandemic in late 2021.

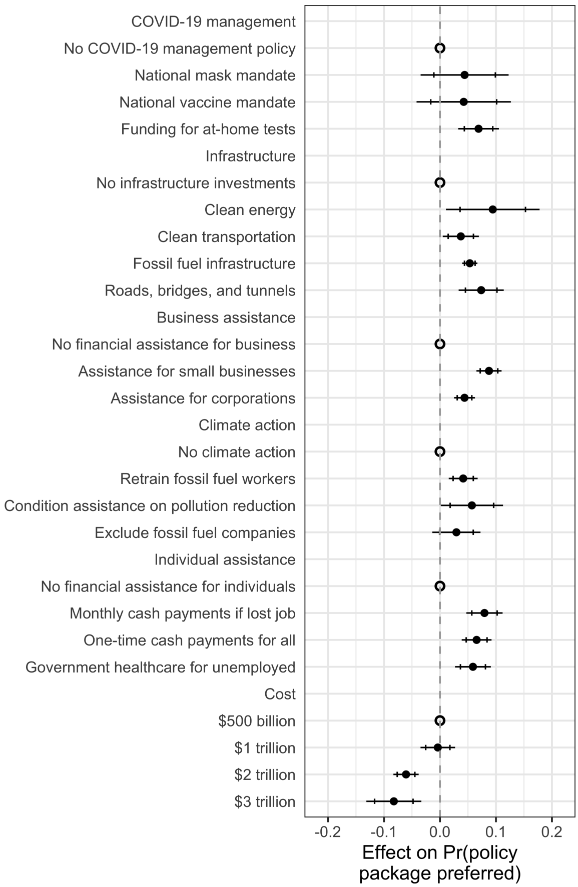


Figure 3. Conjoint results for follow-up study (November 2021)

Table 2. Policy elements included in the conjoint experiments

Dimension	US Level	Canada Level
Individual Support	None	None
	A one-time cash payment for every American (Canadian)	
	Monthly cash payments for every American (Canadian) who has lost their job	
	Government sponsored healthcare for unemployed workers	A guaranteed minimum annual income for every Canadian
Corporate support	None	
	Financial support to corporations if all workers keep their jobs	
	Financial support to small businesses if all workers keep their jobs	
Climate action	None	
	Exclude oil, coal, and gas companies from receiving assistance	
	Require that companies reduce pollution in exchange for receiving financial assistance	
	Retrain workers in polluting industries, such as oil, coal, and gas	
Infrastructure investments	None	
	Investments in clean energy, like wind and solar	
	Investments in clean transportation, like public transit and electric vehicle charging	
	Investments in facilities to generate electricity from fossil fuels (oil, gas, and coal)	
	Investments in roads, bridges, and tunnels	
Costs	$500 billion	$25 billion
	$1 trillion	$50 billion
	$2 trillion	$100 billion
	$3 trillion	$150 billion
COVID-19 management	None	
	Funding for reliable at-home COVID-19 tests	
	National COVID-19 vaccine requirement	
	National mask mandate for indoor public spaces	

Note: COVID-19 management was only included in the follow-up study fielded in November, 2021 in the US.

2.1.4 Data tables for conjoint experimental analysis

The following tables show the results underlying the figures presented in the main text.

Table 3. Full-sample results from conjoint experiment in the US

dimension	level	estimate	std.error	p
Business assistance	Assistance for small businesses	0.08	0.01	0.00
Business assistance	Assistance for corporations	0.04	0.01	0.00
Individual assistance	Government healthcare for unemployed	0.09	0.01	0.00
Individual assistance	One-time cash payments for all	0.10	0.02	0.00
Individual assistance	Monthly cash payments if lost job	0.11	0.02	0.00
Climate action	Exclude fossil fuel companies	0.06	0.01	0.00
Climate action	Condition assistance on pollution reduction	0.11	0.01	0.00
Climate action	Retrain fossil fuel workers	0.10	0.01	0.00
Infrastructure	Clean energy	0.10	0.02	0.00
Infrastructure	Clean transportation	0.10	0.02	0.00
Infrastructure	Fossil fuel infrastructure	0.05	0.02	0.00
Infrastructure	Roads, bridges, and tunnels	0.09	0.02	0.00
Cost	$500 billion	0.03	0.01	0.02
Cost	$1 trillion	0.03	0.01	0.03
Cost	$2 trillion	-0.00	0.01	0.79

Table 4. Results from conjoint experiment in the US by party

dimension	level	estimate	std.error	p	party
Business assistance	Assistance for small businesses	0.07	0.02	0.01	Republican
Business assistance	Assistance for corporations	0.04	0.02	0.09	Republican
Individual assistance	Government healthcare for unemployed	0.03	0.03	0.20	Republican
Individual assistance	One-time cash payments for all	0.14	0.03	0.00	Republican
Individual assistance	Monthly cash payments if lost job	0.06	0.03	0.02	Republican
Climate action	Exclude fossil fuel companies	0.00	0.03	0.91	Republican
Climate action	Condition assistance on pollution reduction	0.11	0.03	0.00	Republican
Climate action	Retrain fossil fuel workers	0.06	0.03	0.02	Republican
Infrastructure	Clean energy	0.09	0.03	0.00	Republican
Infrastructure	Clean transportation	0.03	0.03	0.38	Republican
Infrastructure	Fossil fuel infrastructure	0.07	0.03	0.03	Republican
Infrastructure	Roads, bridges, and tunnels	0.09	0.03	0.00	Republican
Cost	$1 trillion	-0.03	0.03	0.28	Republican
Cost	$2 trillion	-0.05	0.03	0.06	Republican
Cost	$3 trillion	-0.11	0.03	0.00	Republican
Business assistance	Assistance for small businesses	0.08	0.02	0.00	Democrat
Business assistance	Assistance for corporations	0.03	0.02	0.04	Democrat
Individual assistance	Government healthcare for unemployed	0.12	0.02	0.00	Democrat
Individual assistance	One-time cash payments for all	0.09	0.02	0.00	Democrat
Individual assistance	Monthly cash payments if lost job	0.14	0.02	0.00	Democrat
Climate action	Exclude fossil fuel companies	0.09	0.02	0.00	Democrat
Climate action	Condition assistance on pollution reduction	0.13	0.02	0.00	Democrat
Climate action	Retrain fossil fuel workers	0.13	0.02	0.00	Democrat
Infrastructure	Clean energy	0.12	0.02	0.00	Democrat
Infrastructure	Clean transportation	0.13	0.02	0.00	Democrat
Infrastructure	Fossil fuel infrastructure	0.03	0.02	0.13	Democrat
Infrastructure	Roads, bridges, and tunnels	0.07	0.02	0.00	Democrat
Cost	$1 trillion	0.02	0.02	0.26	Democrat
Cost	$2 trillion	-0.03	0.02	0.18	Democrat
Cost	$3 trillion	0.02	0.02	0.30	Democrat

Table 5. Full-sample results from conjoint experiment in Canada

dimension	level	estimate	std.error	p
Business assistance	Assistance for small businesses	0.06	0.02	0.00
Business assistance	Assistance for corporations	0.10	0.01	0.00
Individual assistance	Universal basic income	0.16	0.02	0.00
Individual assistance	One-time cash payments for all	0.08	0.02	0.00
Individual assistance	Monthly cash payments if lost job	0.09	0.02	0.00
Climate action	Exclude fossil fuel companies	0.09	0.02	0.00
Climate action	Condition assistance on pollution reduction	0.18	0.02	0.00
Climate action	Retrain fossil fuel workers	0.13	0.02	0.00
Infrastructure	Clean energy	0.17	0.02	0.00
Infrastructure	Clean transportation	0.14	0.02	0.00
Infrastructure	Fossil fuel infrastructure	-0.01	0.02	0.63
Infrastructure	Roads, bridges, and tunnels	0.10	0.02	0.00
Cost	$150 billion	-0.02	0.02	0.25
Cost	$25 billion	0.07	0.02	0.00
Cost	$50 billion	0.06	0.02	0.00

Table 6. Results from conjoint experiment in Canada by ideology

dimension	level	estimate	std.error	p	ideology
Business assistance	Assistance for small businesses	0.06	0.03	0.06	Right
Business assistance	Assistance for corporations	0.10	0.03	0.00	Right
Individual assistance	Universal basic income	0.03	0.04	0.33	Right
Individual assistance	One-time cash payments for all	0.05	0.04	0.15	Right
Individual assistance	Monthly cash payments if lost job	0.01	0.04	0.77	Right
Climate action	Exclude fossil fuel companies	-0.03	0.04	0.34	Right
Climate action	Condition assistance on pollution reduction	0.10	0.04	0.01	Right
Climate action	Retrain fossil fuel workers	0.07	0.04	0.09	Right
Infrastructure	Clean energy	0.08	0.04	0.04	Right
Infrastructure	Clean transportation	0.08	0.04	0.05	Right
Infrastructure	Fossil fuel infrastructure	0.08	0.04	0.04	Right
Infrastructure	Roads, bridges, and tunnels	0.07	0.04	0.06	Right
Cost	$150 billion	-0.06	0.04	0.08	Right
Cost	$25 billion	0.07	0.04	0.05	none
Cost	$50 billion	0.06	0.03	0.09	Right
Business assistance	Assistance for small businesses	0.06	0.02	0.01	Center
Business assistance	Assistance for corporations	0.09	0.02	0.00	Center
Individual assistance	Universal basic income	0.20	0.03	0.00	Center
Individual assistance	One-time cash payments for all	0.11	0.03	0.00	Center
Individual assistance	Monthly cash payments if lost job	0.10	0.02	0.00	Center
Climate action	Exclude fossil fuel companies	0.15	0.02	0.00	Center
Climate action	Condition assistance on pollution reduction	0.24	0.03	0.00	Center
Climate action	Retrain fossil fuel workers	0.14	0.02	0.00	Center
Infrastructure	Clean energy	0.19	0.03	0.00	Center
Infrastructure	Clean transportation	0.16	0.03	0.00	Center
Infrastructure	Fossil fuel infrastructure	-0.03	0.03	0.23	Center
Infrastructure	Roads, bridges, and tunnels	0.12	0.03	0.00	Center
Cost	$150 billion	-0.01	0.02	0.66	Center
Cost	$25 billion	0.09	0.03	0.00	none
Cost	$50 billion	0.06	0.03	0.01	Center
Business assistance	Assistance for small businesses	0.05	0.03	0.09	Left
Business assistance	Assistance for corporations	0.10	0.03	0.00	Left
Individual assistance	Universal basic income	0.24	0.04	0.00	Left
Individual assistance	One-time cash payments for all	0.08	0.04	0.04	Left
Individual assistance	Monthly cash payments if lost job	0.15	0.04	0.00	Left
Climate action	Exclude fossil fuel companies	0.07	0.04	0.08	Left
Climate action	Condition assistance on pollution reduction	0.11	0.04	0.00	Left
Climate action	Retrain fossil fuel workers	0.08	0.04	0.03	Left
Infrastructure	Clean energy	0.23	0.05	0.00	Left
Infrastructure	Clean transportation	0.12	0.05	0.01	Left
Infrastructure	Fossil fuel infrastructure	-0.09	0.05	0.07	Left
Infrastructure	Roads, bridges, and tunnels	0.07	0.04	0.13	Left
Cost	$150 billion	0.01	0.04	0.75	Left
Cost	$25 billion	0.03	0.04	0.41	none
Cost	$50 billion	0.04	0.04	0.30	Left

2.2 Panel study

We measure climate concern using two questions in the CCOP. First, we analyze a measure of climate issue prioritization. In both waves, respondents were asked to indicate "How important or unimportant are each of the following issues to you personally?" We focus on the response "Climate change and the environment", which respondents evaluated on a five point scale from 'Extremely important' to 'Not at all important'. These results are presented in the main text. While our focus was on the impact of COVID-19 prevalence on climate change prioritization, we also assessed whether COVID-19 impacted Canadians' prioritization of other issues. Thus, we also included measures of salience on the following issues: jobs and the economy, health care, education, climate change and the environment, taxes and government spending, affordability and cost living, and immigration. Results across this range of issues are presented in Table 7.

Table 7. Results of two-way fixed effects models, showing no statistically significant effect of COVID-19 prevalence at the local level on the importance Canadians assign to the following issues: jobs and the economy; health care; education; climate change; taxes and government spending; affordability; immigration. All variables are standardized. Local COVID-19 prevalence is measured as the percent of the local population that had contracted COVID-19 (cumulative through May 18, 2020) and logged for analysis. Issue importance is measured on a five-point scale (1:5).

	Dependent variable:						
	Jobs + econ.	Health care	Education	Climate change	Taxes + spending	Affordability	Immigration
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
COVID-19 prev. (log)	.077	.044	.077	.040	−.145	−.183	.034
	(.197)	(.225)	(.197)	(.118)	(.191)	(.186)	(.220)
Respondent fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wave fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Waves	2	2	2	2	2	2	2
Observations	834	834	834	834	834	834	834
Note:	*p<0.05; **p<0.01; ***p<0.001						
	Robust standard errors clustered at the respondent level						

Second, we consider respondents' specific support for a carbon price, which has been a source of substantial political debate in Canada as a result of the federal government's imposition of its own tax if provinces do not meet federal conditions. Here, respondents in both waves were asked: "Based on what you know, how do you feel about putting a price or tax on fossil fuels like coal, oil and gas in order to reduce carbon emissions in Canada? This type of policy is often referred to as 'carbon pricing.' Responses were collected on a five-point Likert scale from "Strongly Oppose" to "Strongly support." Results are presented in the main text, in Table 1, column 2.

In the main text, we present these results as standardized coefficients. In Table 8 below, we present these results in the units in which the original variables are measured.

Table 8. Results of two-way fixed effects models, showing no statistically significant effect of COVID-19 prevalence at the local level on (1) the importance Canadians assign to climate change and (2) support for carbon pricing. Local COVID-19 prevalence is measured as the natural log of the percent of the local population that had contracted COVID-19 (cumulative through May 18, 2020). Issue importance is measured on a five-point scale (1:5). Support for carbon pricing is measured on a five-point scale (1:5)

	Dependent variable:	
	Importance of clim. chg.	Support for carbon pricing
	(1)	(2)
COVID-19 prevalence (log)	.047	−.122
	(.135)	(.285)
Respondent fixed effects	Yes	Yes
Wave fixed effects	Yes	Yes
Waves	2	2
Observations	834	505
Note:	*p<0.05; **p<0.01; ***p<0.001	
	Robust standard errors clustered at the respondent level	

Below we show the results from a simulation we use to determine the minimum detectable effect (MDE) for the panel study, given the size of our sample. The MDE is based on 1,000 simulations for effect sizes ranging from 0.01 to 0.35, in increments of 0.01. For each effect size, we simulate 1,000 datasets in which the sample size is the same as the sample in our two models. N=834 respondents across both waves with the issue prioritization DV and N=505 respondents across both waves for the carbon pricing support DV. We assign each respondent a first-wave outcome which is randomly drawn from a normally distributed random variable with mean of zero and standard deviation of one, ie, with the same distribution as the scaled dependent variable in our analysis. We then randomly assign a second-wave outcome that is either equal to each respondent's first-wave outcome or their first-wave outcome plus the hypothetical effect size examined in the simulation. We use our two-way fixed effects model to estimate the effect for each simulated data set and calculate the statistical power of our model at each effect size (ie, the proportion of model runs for which we are able to reject the null hypothesis of no effect, with $\alpha = 0.05$). Figures 4 and 5 show that our sample is powered ($1 - \beta = 0.8$) to detect an effect of about 0.2 standard deviations for the issue prioritization dependent variable and 0.25 standard deviations for support for carbon pricing.

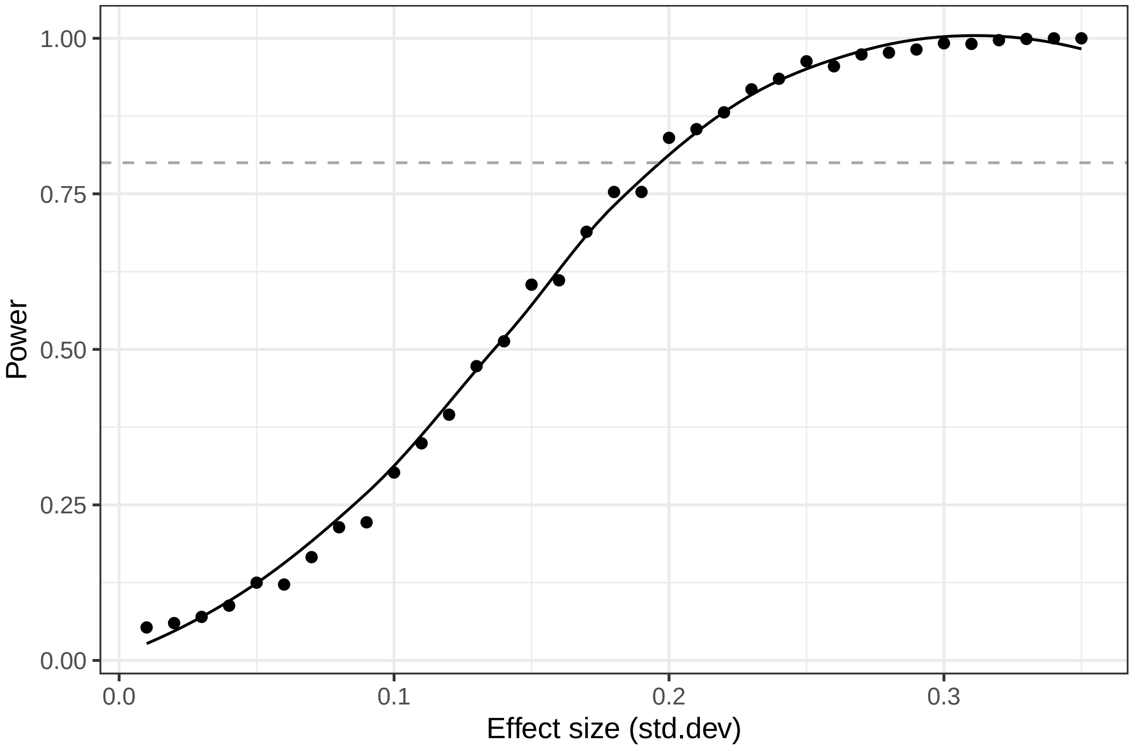


Figure 4. Minimum detectable effect of COVID-19 prevalence on issue prioritization. The figure shows the power of our analysis at a range of simulated effect sizes. Power at each effect size is calculated using 1,000 simulations with a sample size of 834 respondents across two survey waves.

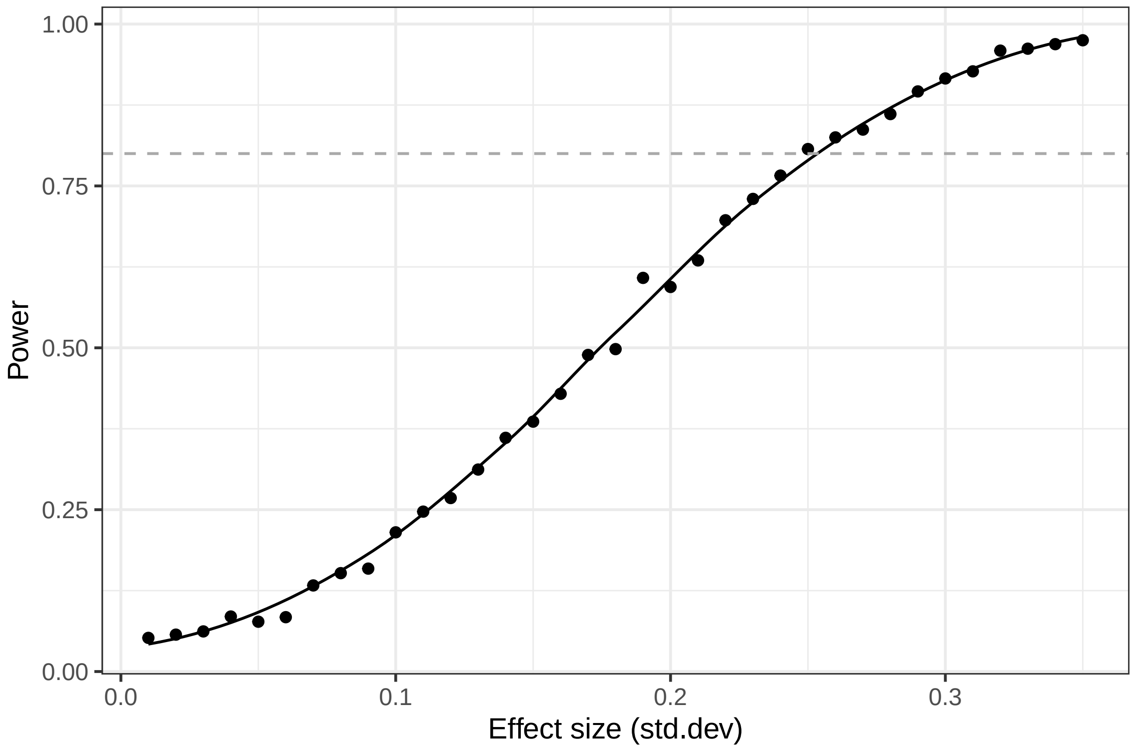


Figure 5. Minimum detectable effect of COVID-19 prevalence on support for carbon pricing. The figure shows the power of our analysis at a range of simulated effect sizes. Power at each effect size is calculated using 1,000 simulations with a sample size of 505 respondents across two survey waves.

Readers might also be concerned that COVID-19 prevalence was simply too low for respondents to perceive it as a tangible reality. However, by the time wave 5 of our survey was fielded, even the governments in the two provinces with the lowest levels of COVID-19 prevalence (Saskatchewan and Alberta) had enacted several policy measures to address COVID-19. These included emergency declarations, capacity limits for restaurants and bars, business closures, bans on large gatherings, and event cancellations.[6] Additionally, uptake of the Canadian government's emergency benefits was high in the month preceding wave 5 of our survey.[7] From this we conclude that COVID-19 was a perceptible reality to our survey respondents.

2.3 *Framing experiment*

In the first condition, *Control*, respondents received a vignette highlighting the exponential nature of COVID-19 spread.

6. Government of Saskatchewan (https://www.saskatchewan.ca/government/news-and-media/2020/march/18/covid-19-state-of-emergency); Government of Alberta (https://open.alberta.ca/publications/cmoh-order-07-2020-2020-covid-19-response); Global News (https://globalnews.ca/news/6815098/covid-19-2020-calgary-stampede-update/).

7. Government of Canada (https://www.canada.ca/en/services/benefits/ei/claims-report.html).

Control Condition: When something grows slowly at first but then spreads much much faster it is called **"exponential growth."**
The **new coronavirus** is an example of a problem that **grows exponentially**. The coronavirus spread slowly at first but then quickly sped up and overwhelmed health systems around the world. Some experts say that our experience with the new coronavirus has shown the risk of waiting to act on a problem that grows exponentially. If governments had acted sooner to contain the coronavirus, we might have been able to slow its growth and avoid the loss of many human lives and high economic costs.

In a second condition, *Climate text*, this vignette was extended to also describe the exponential growth of carbon pollution levels since the industrial revolution, and borrowing language from the COVID-19 pandemic response to suggest that we must collectively "flatten the climate curve."

Climate text: When something grows slowly at first but then spreads much much faster it is called **"exponential growth."**

The **new coronavirus** is an example of a problem that **grows exponentially**. The coronavirus spread slowly at first but then quickly sped up and overwhelmed health systems around the world. Some experts say that our experience with the new coronavirus has shown the risk of waiting to act on a problem that grows exponentially. If governments had acted sooner to contain the coronavirus, we might have been able to slow its growth and avoid the loss of many human lives and high economic costs.

Climate change is another problem that **increases exponentially**. Levels of carbon pollution are rising exponentially. This will cause severe heat waves, major droughts, and flooding from rising seas and intense rainstorms. Experts believe the economic damages from these disasters could also increase exponentially.

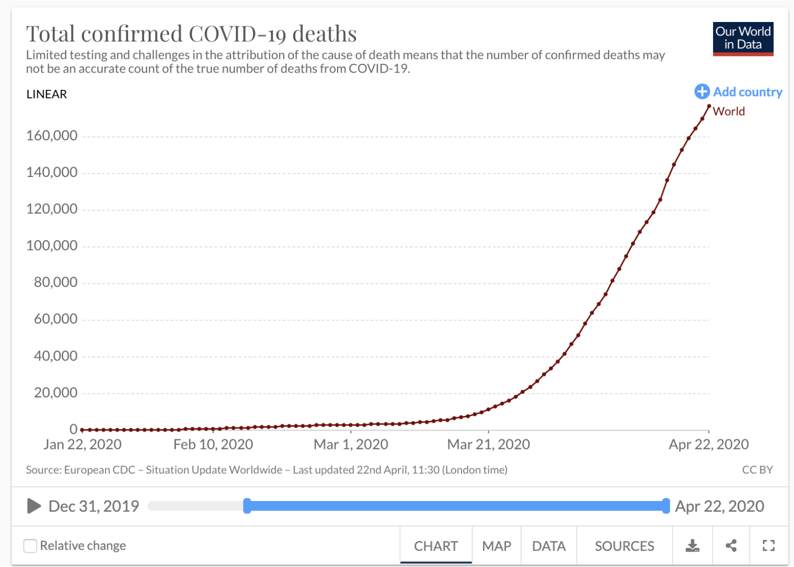
If governments take strong action now, we can slow the rate of carbon pollution and avoid the worst impacts of climate change, **"flattening the climate curve."** If we delay action, like some governments delayed action to contain the coronavirus, the costs of climate action will be higher and we won't be able to prevent the most severe and costly damages from climate change.

A third treatment arm, *Climate text + image*, used the same text as the Climate Text vignette, but supplemented this text with two images that provided a visual illustration of exponential growth in both the COVID and climate contexts. These images are presented as Figure 6

2.4 Vignette experiment

As a manipulation check, respondents were asked to identify the main topic of the text they just read, choosing between "Exponential growth," "Artificial intelligence," "Fashion," or "Nutrition." If they answered incorrectly, they were given text to read again, and given the same manipulation check. If they failed the manipulation check a second time, their responses were excluded from analysis.

After reading the vignettes, respondents were asked the following questions, which served as the dependent variables for the experiment. First, we measured respondents' level of worry about climate change with the question: "How worried are you about climate change?" Answer choices were "very worried," "somewhat worried," "not very worried," and "not at all worried." Next, we measured respondents' prioritization of climate change with the question: "Do you think that climate change should be a low, medium, high, or very high priority for the Prime Minister and Parliament?" (in



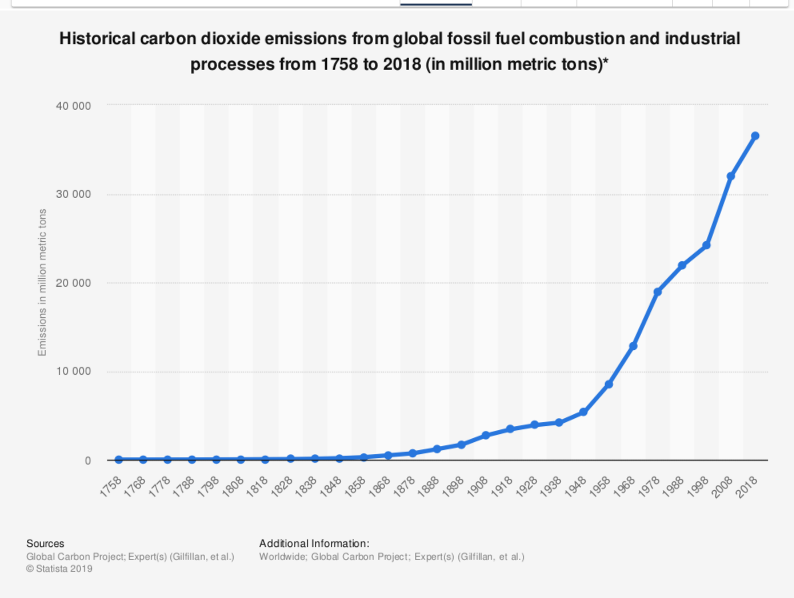


Figure 6. Images used to supplement the Climate Condition vignette in a third framing experiment treatment arm

Canada) or “Do you think that climate change should be a low, medium, high, or very high priority for the President and Congress?” (in the US). We analyze these responses by coding each variable as a four-point continuous scale.

Average treatment effects for each of the studies are presented in Figure 7.

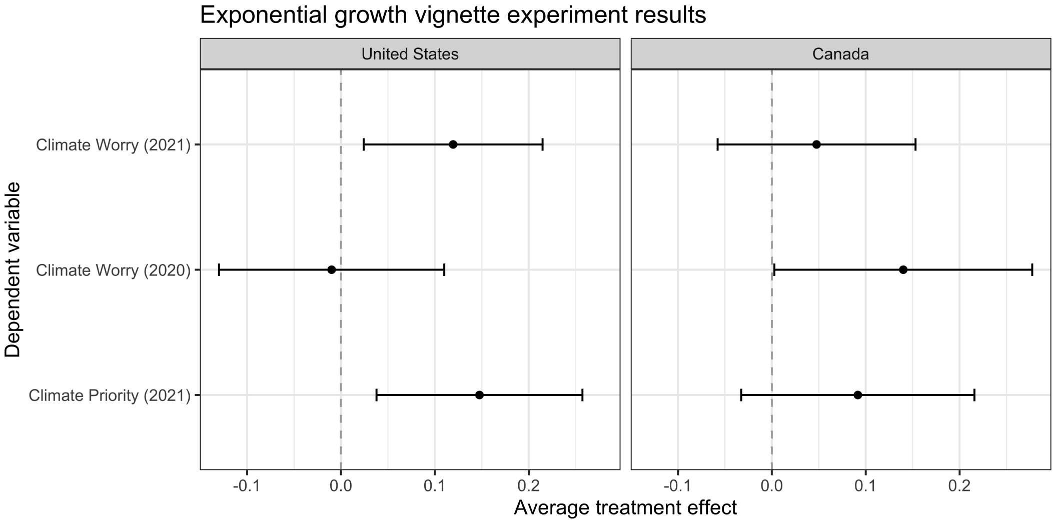


Figure 7. Effect of framing climate change as analogous to COVID-19 on climate concern

The figure shows the average treatment effect (with 95% confidence intervals) of framing climate change as analogous to the “exponential growth" of COVID-19. The vignette experiment was conducted four times, on two samples: the United States (May 2020 and Feb. 2021) and Canada (May 2020 and Jun. 2021). The dependent variables are: worry about climate change (all samples, measured on a four-point scale); and whether government should make climate change a priority (2021 samples only, measured on a four-point scale).

In the analysis presented in the main text, we assess whether framing climate change as analogous to COVID-19 influences worry or prioritization about climate change. In this analysis we regress the dependent variables on an indicator for whether a respondent was shown either the *Climate text* or *Climate text + image* vignette. These results are shown in Figure 7 in the main text and Tables 9 and 10 below.

For the survey waves where we detected a significant effect for the bundled framing treatments, we also assess whether the two versions of the treatment have different effects on Canadians’ and Americans’ worry about or prioritization of climate change. We estimate the model:

$$Y_i = \beta_0 + \beta_1 T_i + \beta_2 TI_i + \epsilon_i \tag{2}$$

where Y_i is each respondents’ answer to the worry or priority question, T_i is an indicator for whether a respondent received the *Climate text* treatment, and TI_i is an indicator for whether a respondent received the *Climate text + image* treatment. Tables 11 and 12 show the results. We use an F test to determine whether the *Climate text* and *Climate text + image* treatments have different effects on respondents’ worry or prioritization of climate change. We cannot conclude that the effects of the two treatments are different for either dependent variable ($p = 0.45, 0.892, 0.91$ for the *climate worry* dependent variable in Feb. 2021 (US), May 2020 (Canada), and *climate priority* dependent variable in Feb. 2021 (US)). Instead, we conclude that the treatments are jointly significant in these cases (as indicated by the analyses presented in the main text).

Table 9. Average treatment effects of analogizing climate change to the exponential growth of COVID-19 on respondents' level of worry about climate change.

	DV: worry about climate change			
	CAN: May 2020	CAN: Jun. 2021	US: May 2020	US: Feb. 2021
	(1)	(2)	(3)	(4)
Average treatment effect	0.140*	0.048	–0.010	0.119*
	(0.070)	(0.054)	(0.061)	(0.049)
Constant	1.694***	2.196***	2.060***	2.086***
	(0.058)	(0.044)	(0.051)	(0.040)
Observations	892	1,040	1,049	1,609
Note:	*p<0.05; **p<0.01; ***p<0.001 Robust standard errors in parentheses.			

Table 10. Average treatment effects of analogizing climate change to the exponential growth of COVID-19 on respondents' belief that government should prioritize climate change.

	DV: prioritization of climate change	
	CAN: Jun. 2021	US: Feb. 2021
	(1)	(2)
Average treatment effect	0.092	0.147**
	(0.063)	(0.056)
Constant	1.933***	1.865***
	(0.052)	(0.047)
Observations	1,040	1,611
Note:	*p<0.05; **p<0.01; ***p<0.001 Robust standard errors in parentheses.	

2.5 Mini-meta analysis

Given variation in effect sizes and, in the case of one study, effect direction, we conducted a mini-meta analysis of the four vignette experimental studies (Canada, May 2020 and June 2021; US, May 2020 and February 2021) (Figure 3). As described above, the four studies all use the same vignette analogizing COVID-19's exponential growth to climate change and measure its effect on the respondents' worry about climate change. For this mini-meta analysis, we compute the standardized mean difference (*Cohen's d*) between the treated and control groups in each study, calculated using the mean and standard deviations of both groups. To conduct the mini-meta analysis, we estimate overall effect size following standard procedures using the *metafor* R package (see, for example, Baldwin and Lammers 2016). We model the overall effect size using a random-effects model, finding an overall effect size of 0.085, with standard error 0.035 (CI = 0.015, 0.154), significant at the p = 0.017 level.

Table 11. Average treatment effects of analogizing climate change to the exponential growth of COVID-19 on respondents' level of worry about climate change. ATEs are presented for both the text-only treatment and a treatment that included images added to the text showing graphical representations of exponential growth. We present results in this table for the survey waves in which we find significant treatment effects.

	CAN: May 2020	US: Feb. 2021
Control Group Mean		
Text only trt. effect		
Text + image trt. effect		
R^2		
Adj. R^2		
Num. obs.	892	1618
RMSE		

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

Table 12. Average treatment effects of analogizing climate change to the exponential growth of COVID-19 on respondents' belief that government should make climate change a priority. ATEs are presented for both the text-only treatment and a treatment that included images added to the text showing graphical representations of exponential growth. We present results in this table for the survey wave in which we found significant effects.

	US Jun. 2021
Control group mean	1.86***
	(0.05)
Text only trt. effect	0.15*
	(0.06)
Text + image trt. effect	0.14*
	(0.06)
R^2	0.00
Adj. R^2	0.00
Num. obs.	1611
RMSE	1.04

$^{***}p < 0.001$; $^{**}p < 0.01$; $^{*}p < 0.05$

3. Robustness checks

We conduct a series of tests to scrutinize the robustness of our conjoint-experimental results. First, we examine the sensitivity of our results to the inclusion or exclusion of extreme policy profiles: those which contain little policy content but a high cost, and those which contain a great deal of policy content and a very low cost. In Figure 8 below, we show the results if we eliminate policy packages that only contain the "none" level (eg, no infrastructure investment, etc.) for each attribute and also cost the highest possible amount, and those that do not include the "none" level for any attribute and cost the lowest amount. The results are quite similar to those reported in the main text.

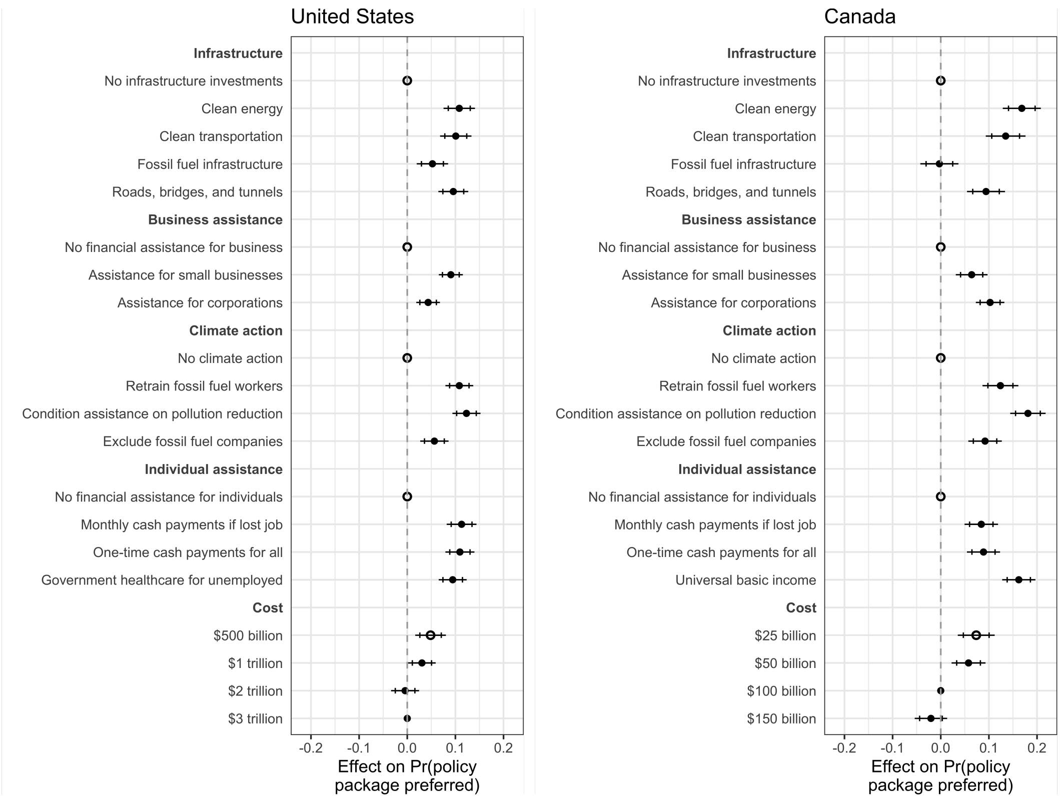


Figure 8. Results for the conjoint experiment if we eliminate policy packages with high content and low cost, or with low content and high cost

Next we examine differences in the AMCEs among respondents with high and low levels of attention. Here we define attentiveness using the time that respondents spend on the conjoint tasks. We estimate AMCEs separately for respondents who finished the conjoint tasks in above and below the median time taken by all respondents in the sample. We do not find meaningful systematic differences between these groups.

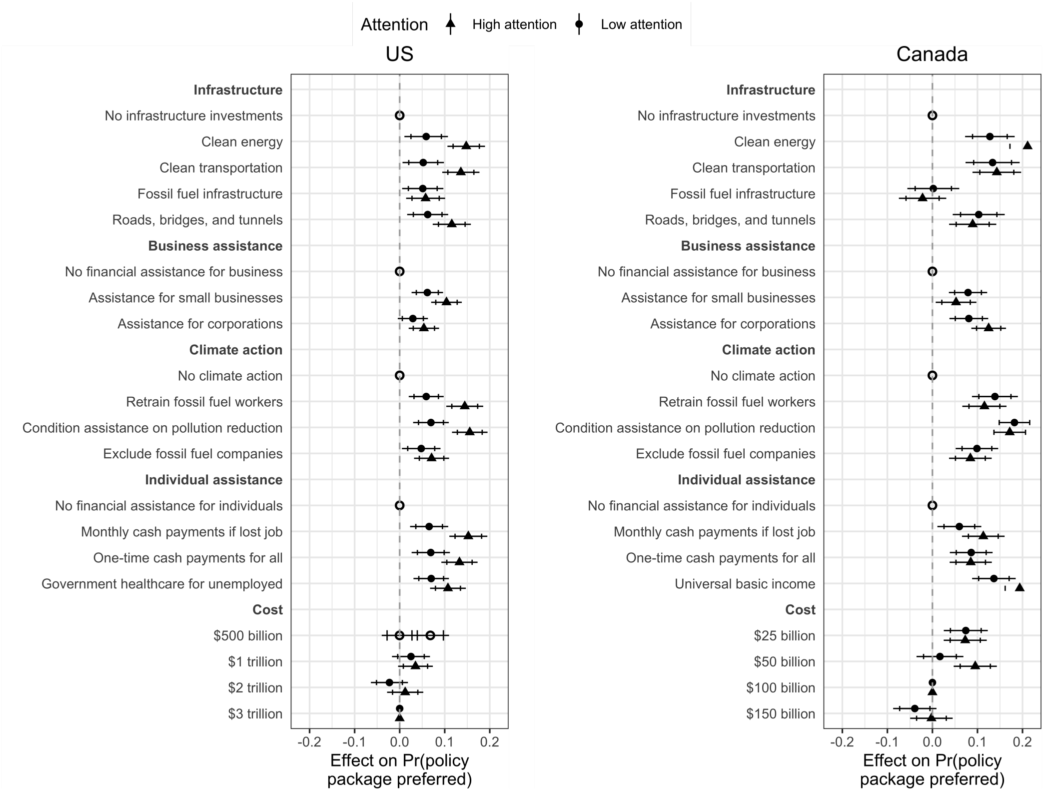


Figure 9. Results for the conjoint experiments among respondents with high and low levels of attention

Finally, we examine whether effects differ across the three choice tasks. We do not find a strong pattern of substantial variation in the effects across choice tasks.

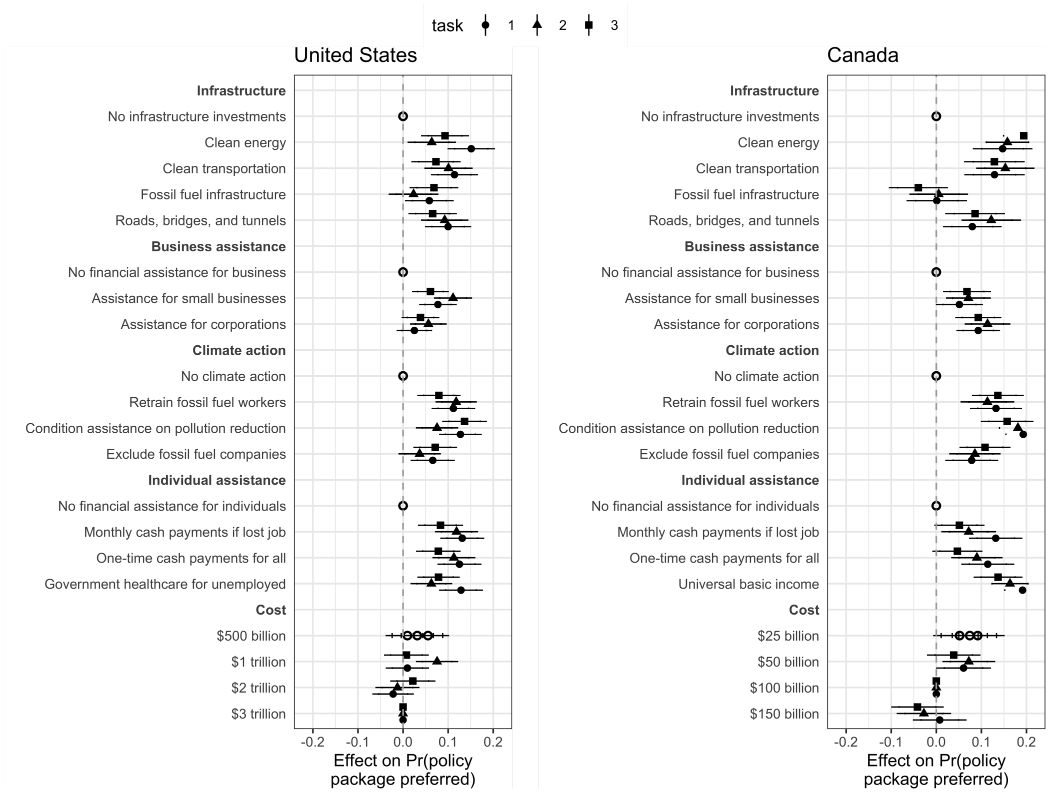


Figure 10. AMCES by task number

4. Data Availability

Replication data for this paper can be found at the *British Journal of Political Science* Dataverse (https://doi.org/10.7910/DVN/LULYEB).

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7. Competing Interests

The authors have no competing interests to disclose.

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