Improving Public Support for Climate Action Through Multilateralism*

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Abstract

For decades policymakers have been attempting to negotiate multilateral climate agreements. One of the motivations for such agreements is the belief that securing cooperation among multiple states will induce greater political support for climate action. Voters may be more willing to adopt costly policies if other countries do so, both because the effort of other countries make it more likely that policies will be effective and because those efforts resonate with widely held reciprocity fairness norms. Yet, some recent research suggests that public approval of climate action is independent of the policy choices made by other countries. We present two different experimental studies fielded in multiple countries showing that multilateralism significantly increases public approval of costly climate action. Multilateralism makes climate policy more appealing by improving effectiveness beliefs and fair burden-sharing. Pursuing climate action within a multilateral setting does not only promise improved policy impacts, but may also generate higher levels of public support.

Millions of people around the world have mobilized to protest the failure of governments to implement policies that would substantially reduce greenhouse gas emissions and address the climate challenge.[1] It would seem that these concerns resonate not just with activists but the majority of voters in many of the major emitter countries.[2] Nonetheless, often when governments have acted to try to reduce emissions, they have been met by intense opposition, some of it certainly by organized special interest groups but some of it by mass publics reluctant to incur the costs of higher carbon prices.[3]

What explains why addressing the climate problem is so challenging? One part of the answer is surely the scale of the distributional conflict associated with the sort of energy transition necessary to address the problem. The costs and benefits of climate change and climate policy vary across individuals, generations, firms, industries, regions, and countries (Bechtel, Genovese and Scheve, 2017; Kennard, 2020; Cory, Lerner and Osgood, 2021; Colgan, Green and Hale, 2021). Even in surveys that initially seem to indicate that large majorities favor climate policy action, making the costs and their distribution explicit can quickly erode support. Another common explanation points to the global public goods character of addressing climate change (Barrett, 2003; Stavins, 2011; Keohane, 2015; Underdal, 2017; Dolšak and Prakash, 2018; Nordhaus, 2019). Manageable greenhouse gas emissions are a global public good with the usual characteristics that may lead to underprovision. Policymakers and researchers have invested significantly in identifying international agreements and institutions that would address the international compo-

[1] Examples include large-scale social movements such as Fridays for Future. See *Protesting Climate Change, Young People Take to Streets in a Global Strike*, The New York Times, https://www.nytimes.com/2019/09/20/climate/global-climate-strike.html, last accessed on Nov 27th, 2019; *Global warning: climate protests around the world–in pictures*, The Guardian, https://www.theguardian.com/environment/gallery/2019/oct/09/international-rebellions-to-save-the-planet-in-pictures, last accessed on Nov 27th, 2019.

[2] "Climate crisis seen as 'most important issue' by public, poll shows", *The Guardian*, https://www.theguardian.com/environment/2019/sep/18/climate-crisis-seen-as-most-important-issue-by-public-poll-shows; *Gallup*, "Environment", https://news.gallup.com/poll/1615/environment.aspx.

[3] "Hundreds of Thousands in France Protest Taxes by Blocking Roads", *New York Times*, https://www.nytimes.com/2018/11/17/world/europe/french-drivers-protest-fuel-taxes.html?searchResultPosition=17.

nent of the problem. This practical and scholarly effort builds on insights into how small and large communities across many diverse issue domains solve public goods problems (Ostrom, 1990; Taylor, 1987; Axelrod, 1984). One of the many motivations behind policymakers' interests in creating a workable international framework for cooperation on climate change is to secure greater public support for policies to reduce greenhouse gas emissions, especially policies that are costly to the citizens that they represent. The theory of the case is that voters will be more willing to contribute to the global public good if other countries are doing so as well because the climate policies are more likely to be effective and, under these agreements, resonate with reciprocal fairness norms.

In this paper, we investigate whether multilateralism increases support for costly climate policies. Early public opinion on climate agreements found that publics value broad international participation and multilateral climate action (Bechtel and Scheve, 2013; Tvinnereim and Lachapelle, 2016), but some more recent work suggests that explanations of public opinion drawing on the public goods framework and multilateral policy approaches may not offer the most useful accounts of the mass politics of climate change (Aklin and Mildenberger, 2020; Mildenberger, 2019; Beiser-McGrath and Bernauer, 2019; Gampfer, Bernauer and Kachi, 2014; Tingley and Tomz, 2014). Instead, these studies suggest that public support for costly climate policies does not meaningfully depend on whether other countries are also contributing or not. We present evidence from two new experimental studies in four countries—France, Germany, the United Kingdom, and the United States—that suggests that the voters care about the policies of other countries and are more likely to support costly policies when other countries are also doing so. We present evidence that this interdependence is due to how multilateralism shapes the effectiveness of policies and its resonance with reciprocal fairness norms.

The Causal Effect of Multilateralism on Climate Policy Support

To assess whether multilateralism causes higher levels of policy support, we start by employing a vignette survey experiment in France, Germany, and the United Kingdom. The experiment was conducted as a module in original surveys we fielded in April 2019. For each country, the samples are representative of the adult population with 2,000 respondents in each. Appendix A provides a detailed description of the sampling frame. The survey instrument is part of the replication archive for this study. Appendix Table A.1 offers a comparison of the distribution of sociodemographic characteristics in the target population, the raw sample, and the weighted sample. All our results employ survey weights but the findings are very similar when analyzing the unweighted data.

To investigate the effect of multilateralism on support for climate policy, we focus on opinion regarding a hypothetical carbon tax. This policy instrument is relatively easy for respondents to understand and it is reasonable to expect it to reduce carbon emissions. Critically, it can be implemented by either a single country or multiple countries. The exact wording of the vignette experiment is:

"Suppose COUNTRY [**decides**, **and other major economies decide**] to implement a carbon tax, which is an additional tax on the CO2 content of fuels, to address climate change. Generally speaking, do you approve or disapprove of COUNTRY implementing such policies?"

We randomized whether a respondent saw a version of this question in which the carbon tax would be implemented unilaterally or whether it would be part of a multilateral setting in which other major economies also introduced a carbon tax. We recorded responses on a 1-10 (strongly approve-strongly disapprove) answer scale.

Higher levels of international participation in climate action may increase public support because of heightened expectations about these policy efforts being effective. We investigate the effectiveness mechanism by crossing the multilateralism experiment with

a second vignette experiment that provided information about expected policy effectiveness. This allows us to analyze the causal mechanism in an eliminated-effects-framework (Acharya, Blackwell and Sen, 2018). Taken together, the experiment consisted of one control group – which received no additional information – and two treatment groups (*Effectiveness: Low* and *Effectiveness: High*):

Effectiveness: Low: "Most experts think this will avoid a few of the economically and environmentally damaging consequences of climate change."
Effectiveness: High: "Most experts think this will avoid most of the economically and environmentally damaging consequences of climate change."

We analyze the proportion of individuals approving the introduction of a carbon tax (levels of support that exceed 5, the midpoint of the scale). Figure 1a reports carbon tax support by randomly assigned multilateralism condition along with 95% confidence intervals. In the control condition that did not provide any effectiveness information, we find that about 53% of all respondents support the introduction of a carbon tax if this policy is pursued unilaterally. It is noteworthy, that this is merely a slim majority that can be broken by relatively small shifts in public support. However, when other countries also decide to introduce a carbon tax, support is 60%, which is equivalent to a 7 percentage points increase over the unilateralism condition.

To explore the role of effectiveness in the eliminated effects framework, first recall that the estimate of the effect of the multilateralism condition for the control group that did not receive information about effectiveness is our estimate of the average treatment effect. The estimate of the effect of multilateralism for respondents exposed to the low or high effectiveness condition is our estimate of the average controlled direct effect which is that part of the total effect that is not due to mediation by or interaction with effectiveness. The average treatment effect minus the average controlled direct effect is the eliminated effect (Acharya, Blackwell and Sen, 2018). This quantity is the portion of the average treatment effect that can be explained by the effect of the treatment–multilateralism–through the mediator–effectiveness–and any interaction between multilateralism and effectiveness.

Figure 1a shows the results for the low and high effectiveness conditions in which we fix respondents' beliefs about policy effectiveness. We find that in the high effectiveness condition, a unilateral carbon tax approach is backed by about 56% and that proportion increases to 62% in the multilateralism treatment. In contrast, when policy effectiveness is low, the switch from a unilateral to a multilateral climate policy framework merely increases carbon tax approval from 53% to 54%.

Figure 1b shows that multilateralism causes a significant increase in carbon tax support in the control and in the high effectiveness condition but not in the low effectiveness condition. This means our two eliminated effect estimates provide contrasting evidence on how well effectiveness explains the impact of multilateralism on public support. For high effectiveness, the eliminated effect is very close to zero while for low effectiveness, it is positive at about 7 percentage points and close to being significant at the 5%-level. The latter estimate indicates that most of the effect of multilateralism is explained by effectiveness, but of course the caveat is that high effectiveness estimate is inconsistent with this interpretation.

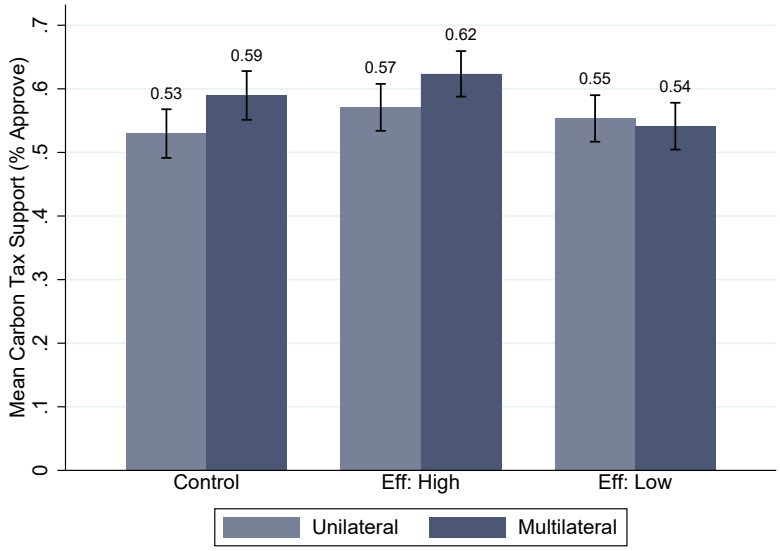
Exploring the Multilateralism Effect: Costs, Benefits, and Fairness

To further explore which impacts individuals expect from a multilateral as opposed to a unilateral climate policy framework, we added a question after the multilateralism vignette experiment that prompted respondents to indicate whether they thought specific statements about the environmental, economic, and fairness benefits and costs of climate action were true or false.[4]

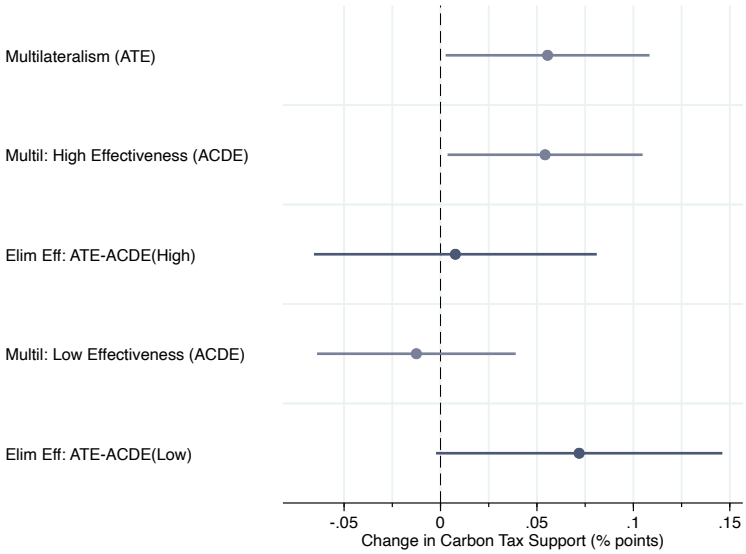
[4]The question wording was "In addition, if this policy is implemented by [**COUNTRY**, **COUNTRY and other major economies**], which of the following statements below do you think are true? Will this ... provide better life for children and grand children ... save many plant and animal species from extinction ... improve people's health ... lead to more government regulation ... cause energy prices to rise ... cost jobs and harm the economy ... help with distributing the costs of climate change more fairly." The value of the

Figure 1: The Effect of Multilateralism on Carbon Tax Support (N=6,000)

(a) Proportion Supporting a Carbon Tax by Multilateralism and Effectiveness Prime



(b) Causal and Eliminated Effects (EE) of Multilateralism by Effectiveness Prime



Note: (a) The figure shows the proportion of individuals supporting the introduction of a carbon tax by randomly assigned multilateralism and effectiveness conditions. (b) The figure reports the causal effects of multilateralism by randomly assigned effectiveness condition (control=no information, Eff: High=High Effectiveness, Eff: Low=Low Effectiveness) along with the eliminated effects (EE) estimated using a linear probability model with robust standard errors. Regressions control for gender, age, income, education, and employment status. Country fixed effects included. Error bars indicate 95% confidence intervals. N(France)=2,000, N(Germany)=2,000, N(United Kingdom)=2,000. Unweighted results are very similar, see Figure A.1.

randomly manipulated part of the question matched the assignment in the vignette experiment described above.

We estimate how multilateralism affects effectiveness beliefs by regressing whether a statement is selected as true on a multilateralism treatment indicator, a full set of sociodemographic control variables, and country fixed effects. The results in Figure 2 indicate that multilateralism matters: individuals are significantly more likely to expect multilateral climate action to offer greater environmental benefits, lower economic/governance costs, and fairer cost distributions than unilateral efforts. Regarding benefits, we find that multilateralism significantly improves beliefs about the potential for climate action to improve the lives of respondents' children and grand children. We find broadly similar effects when analyzing whether the policy will save endangered animals and plants and whether it will increase public health.

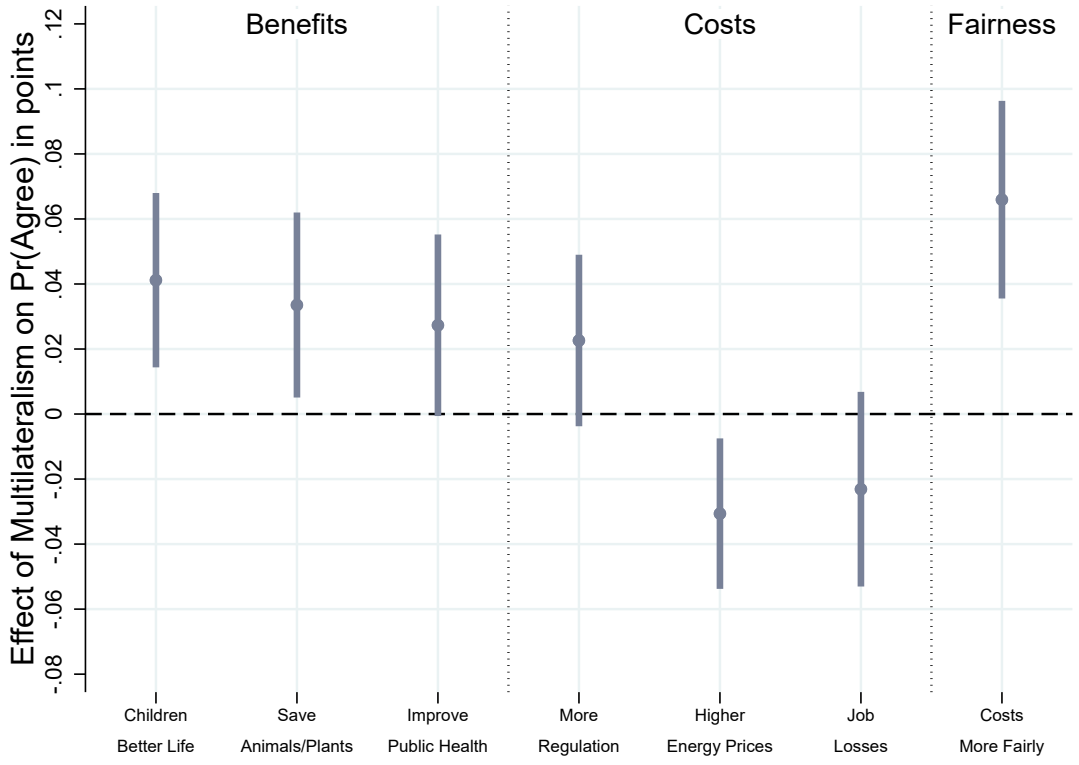
When assessing the impact of multilateralism on costs, we find that multilateralism does not systematically affect concerns related to increased regulation and potential job losses caused by progressive climate action. However, multilateral policy reduces concerns about energy price increases. Finally, multilateralism has a significant and strong impact on respondents' beliefs about whether the costs of climate action will be distributed more fairly.

Multilateral Policy Design and Climate Support

Our second study examines the effect of multilateralism on support for climate policies by investigating whether individuals have preferences over the policies in other countries and whether those policies influence the willingness of respondents to adopt costly policies in their own country. This study was conducted as a separate module in the French, German, and UK surveys described above and in an additional survey fielded in the United States in December 2018 (see Appendix Section A for further description).

To study these questions, we constructed a randomized conjoint experiment that presented respondents with two multilateral climate policy scenarios and asked them to in-

Figure 2: The Causal Effects of Multilateralism on Expectations about the Benefits, Costs, and Fairness of Climate Action in France, Germany, and the United Kingdom (N=6,000)



Note: This plot reports coefficients from linear regressions of statement approval on a binary indicator that is one if climate action is multilateral and is zero if climate action is unilateral. Error bars indicate 95% confidence intervals. All regressions control for gender, age, income, education, and employment status. Country fixed effects included. Survey weights applied. Results for the unweighted data are very similar, see Figure A.3. N(France)=2,000, N(Germany)=2,000, N(United Kingdom)=2,000.

dicate which of the two they prefer. Each scenario specified a multilateral climate policy setting: a combination of costly climate policy decisions for both a respondent's own country and other major economies (see Appendix Figure for more information on the conjoint instructions). The policy features included average costs to households, their temporal distribution, and whether revenues would be invested in adaptation or mitigation. Cost levels are important because they are indicative of how much an individual or country is willing to contribute to reducing greenhouse gas emissions by increasing the costs of carbon (the possible values employed were monthly household costs approximately equal to 0.5%, 1%, 2%, or 2.5% of GDP). The cost schedule denotes the sequencing

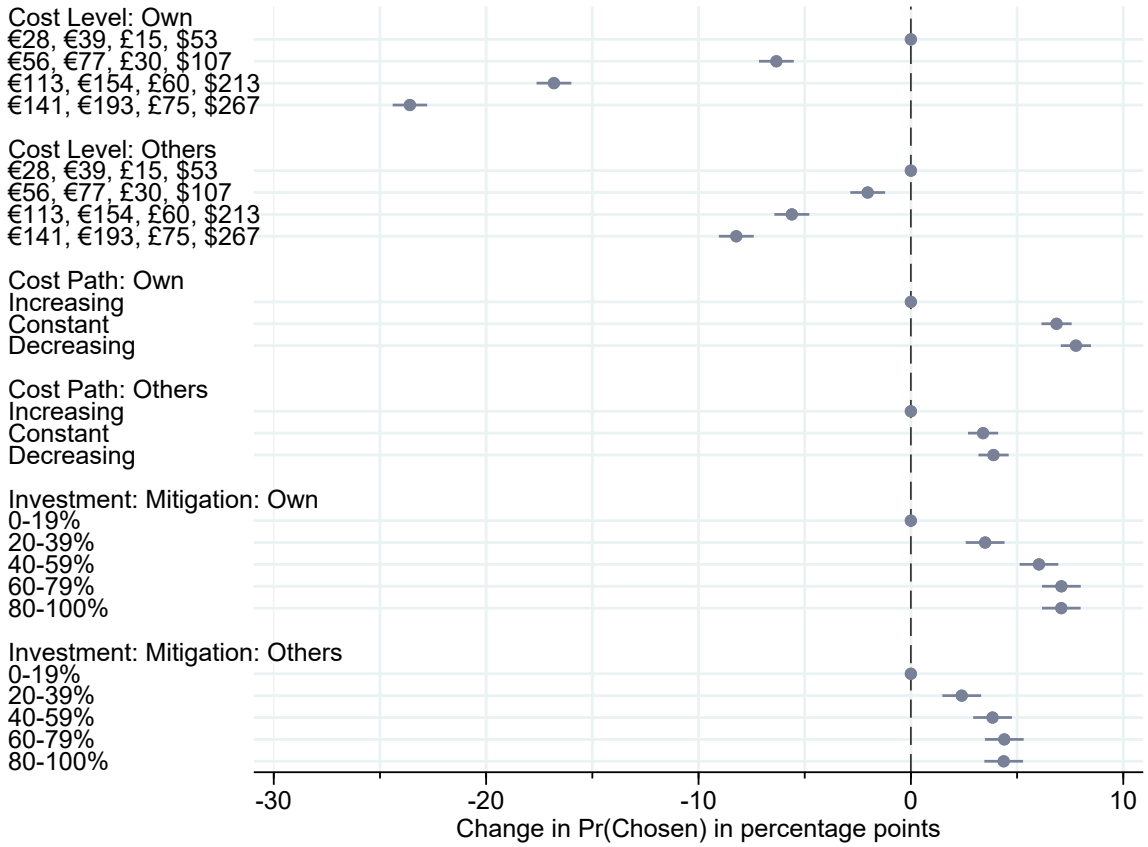
of carbon pricing over time, which we allowed to be held constant, increased over time, or decreased (Bechtel, van Lieshout and Scheve, 2020; Nordhaus, 2019). Investment mix refers to the share of resources spent on the two fundamental policy responses to climate change: adaptation and mitigation (Aldy et al., 2010). This distinction is theoretically important because previous studies have argued that adaptation efforts provide local benefits whereas mitigation contributes to the global public good of reducing greenhouse gas emissions which provides non-excludable and non-rival benefits (Dolšak and Prakash, 2018; Aldy et al., 2010). The key innovation of this conjoint for purposes of this paper is that for each policy dimension a value was specified for the respondent's own country and other major economies. This allows us to study the sensitivity of individuals to the policies of other countries. Each respondent completed eight conjoint choice tasks.

We estimate whether respondents care about the climate policy decisions made by other countries by regressing public support on indicators for each of the fully randomized attributes. Figure 3 reports the results. We find that increasing the costs of carbon domestically has a strong impact on support for climate action: public support drops by 6 percentage points if costs increase from low (€28 in France, €39 in Germany, £15 in the UK, and $53 in the US) to medium levels (€56, €77, £30, $107) and declines by 17 percentage points if domestic costs are high (€113, €154, £60, $213). We find a weaker, but significant aversion to climate costs in other countries with effects sizes about one third of those for domestic climate costs.

The sensitivity of respondent to choices to costs in other countries is consistent with the main claim of the paper that voters care about the policies in other countries. The aversion to carbon pricing in other countries is consistent with two potential explanations. First, costly climate action by other countries generates pressure on countries to reciprocate. Reciprocating, however, requires incurring costs and publics are averse to costs. A second explanation is that individuals hold other-regarding preferences such as altruism or inequality aversion. According to this view, publics dislike other countries

to increase climate costs because this may hurt the financial well-being of individuals in other countries.

Figure 3: The Causal Effects of Climate Policy Choices by Other Countries on Public Support in France, Germany, United Kingdom, and the United States (N=129,280)



Note: This plot reports coefficients from linear regressions of policy approval on randomly assigned climate policy choices made by other countries. Error bars indicate 95% confidence intervals; points without lines indicate reference categories. Results for the unweighted data are very similar (see A.6). Results for each country separately are shown in Figure A.7. N(France)=32,000, N(Germany)=32,000, N(United Kingdom)=32,000, N(United States)=33,280.

Turning to multilateral cost paths, publics generally prefer both their own and other countries to adopt constant or decreasing cost paths over the baseline of increasing cost schedules. Lastly, we also find that higher mitigation investments by other countries significantly increase support for multilateral climate policy. The effect is again somewhat smaller than the sensitivity to climate investment decisions in one's own country, but still

sizeable: policy support increases by about 5 percentage points if other countries invest at least 60% in adaptation efforts. This effect would be sufficient to offset the drop in public support due to increasing other cost levels from low to medium. A preference for mitigation investment versus adaptation in other countries is consistent with a concern about whether policy efforts will be effective as respondents in a given country are likely to benefit more from the mitigation efforts in other countries than adaptation investments in those countries.

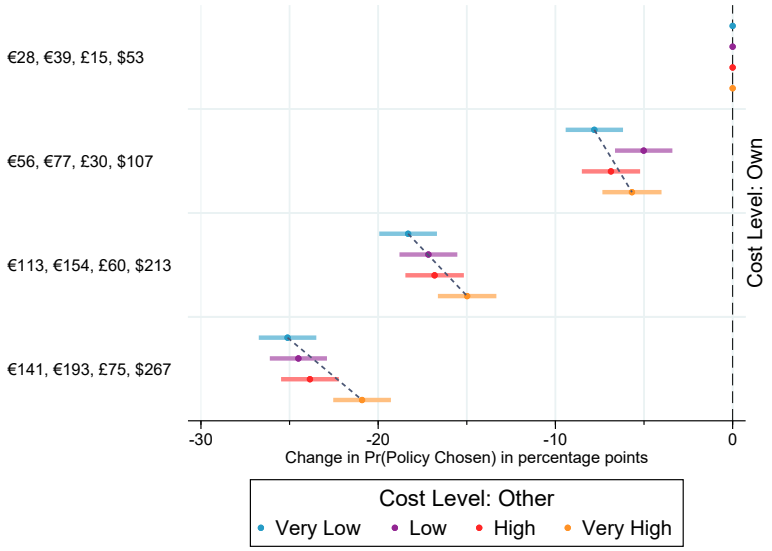
Our analysis so far has focused on providing direct evidence that individuals care about the climate policies of other countries. We now turn to the question of whether those policies influence the willingness of respondents to adopt costly policies in their own country. In addition to a concern about effectiveness, norms of reciprocity have been shown to support cooperation across diverse settings. One motivation for countries to seek multilateral agreements is to activate norms of reciprocity that would increase the willingness of citizens to adopt costly climate policies, to contribute to the global public good of reduced emissions.

We can use the conjoint to investigate if individuals aversion to domestic costs depends on the climate efforts made by other countries. Specifically, reciprocity norms suggest that more costly climate action by other countries should lessen the distaste for costs in one's own country. We evaluate this prediction by re-estimating the causal effects of own household costs on climate policy support for each of the four cost levels in other countries. Figure 4 shows the results.

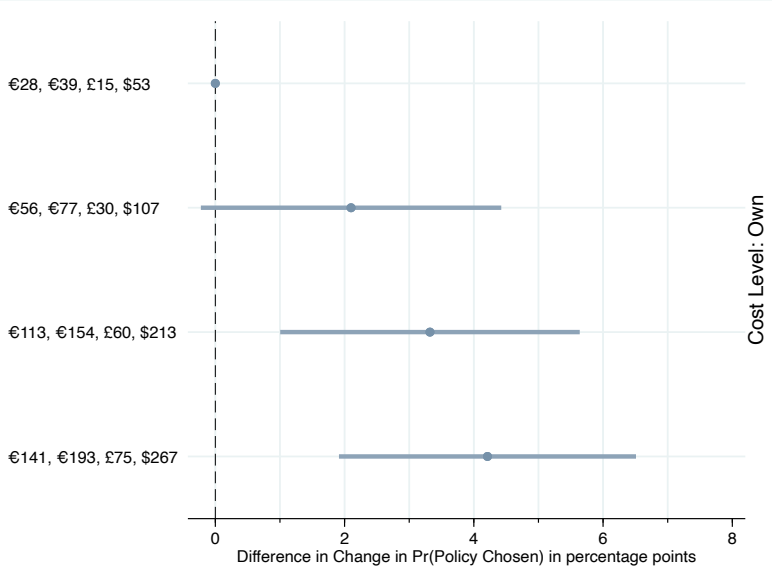
We find that when other costs are set very low, a domestic policy that increases costs to medium levels reduces support by about 7 percentage points. In contrast, this effect shrinks to about 5.5 percentage points when other costs are very high. This pattern of a decreasing aversion to own costs when other countries are willing to adopt progressive climate pricing policies becomes more pronounced and statistically significant when own costs are high or very high. In the latter scenario, the causal effect of very high own costs

Figure 4: The Causal Effects of Climate Policy Costs by Other Costs in France, Germany, United Kingdom, and the United States(N=129,280)

(a) Effects of Own Cost, Conditional on Other Costs



(b) Difference in Effect of Own Cost if Other Costs Very High and Own Costs if Other Costs Very Low



Note: This plot reports coefficients from linear regressions of policy approval on randomly assigned climate policy household costs introduced in other countries. Error bars indicate 95% confidence intervals. Results for the unweighted data are very similar (see Figure A.8). N(France)=32,000, N(Germany)=32,000, N(United Kingdom)=32,000, N(United States)=33,280.

drops from 25 to 21 percentage points on average. This finding is consistent with the reciprocity-based argument that individuals value the climate policy contributions made by other countries and this lowers their aversion to incurring high costs.[5]

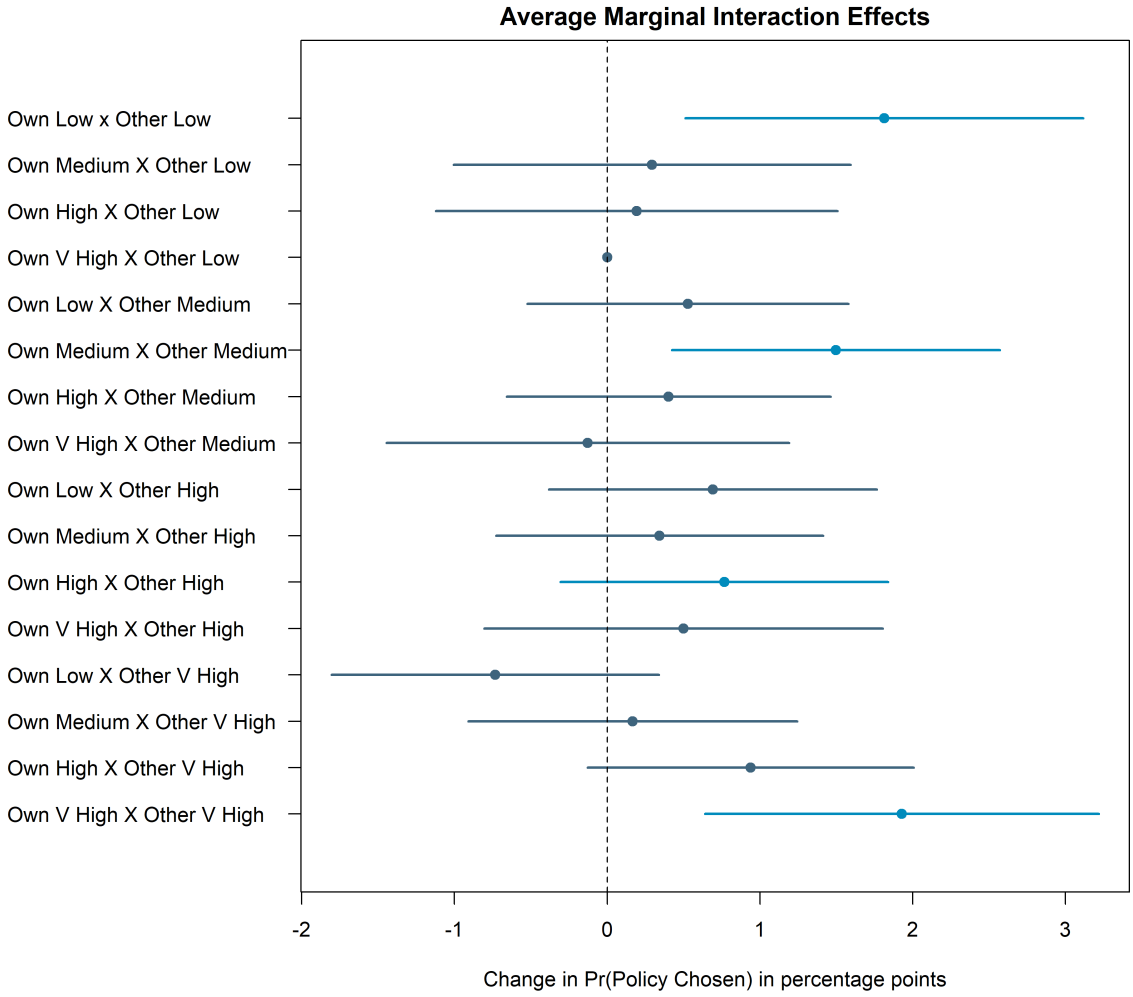
We can think of this analysis as showing evidence of qualitative reciprocity in that individuals appear to be more willing to incur costs to reduce emissions if other countries are making costly efforts. Our data also allow us to look for evidence of what might be called exact reciprocity in which individuals are more supportive of adopting climate policies that match the efforts of other countries. Exact matching is a natural focal point for reciprocal behavior.

We test this expectation by investigating whether scenarios in which other countries match the cost levels of one's own country increases support for climate action more strongly than non-matching contributions. We compute the average marginal interaction effects (AMIEs) as defined by Egami and Imai (2019). The AMIE quantity of interest captures the additional effect on the probability that a policy is chosen of two features co-occurring, above and beyond their individual effects.

Figure 5 reports the estimated AMIEs. The baseline category is a situation where own costs are at their highest while the costs for other countries are at their lowest. We find that the interaction effects are largest when a scenario is exactly reciprocal, namely when the other countries' average costs exactly matches the respondent's domestic climate contribution. When the own and other household costs differ, their relative size has little or no impact on respondents' likelihood of selecting a policy. This lends additional support to the importance of reciprocity in the context of multilateral climate action.

[5]The interdependence between domestic and foreign carbon pricing is all the more noteworthy since it has proven challenging to detect theoretically meaningful interactions between attribute features in conjoint data (Ratkovic and Tingley, 2017).

Figure 5: Average Marginal Interaction Effects of Own and Other Costs on Public Support in France, Germany, United Kingdom, and the United States(N=129,280)



Discussion

Tremendous resources have been invested in forging international cooperation to address climate change with limited success to this point. Across the world it is clear that there are major distributional and domestic political obstacles to reducing greenhouse gas emissions. In such an environment, it is a fair question to wonder whether the focus on international agreements and cooperation more generally is time well spent. In this paper, we have revisited one motivation for securing such an agreement—building a robust political coalition in support of costly climate policies.

Our findings that multilateralism is an important driver of public support for climate action have several implications. First, in terms of policymaking, our findings suggest that addressing climate change through international cooperation rather than exclusively unilaterally may be more important to increase public approval than previously thought. After all, effective climate action will require individuals to tolerate carbon pricing and multilateral efforts may generate the goodwill necessary to make costly climate action palatable. Second, given that mass preferences over climate action mirror international interdependence as well as factors related to domestic distributive conflict, our results suggest that theories of international interdependence that build on models of collective action can improve our understanding of public attitudes toward public policy. Third, the multilateral policy conjoint experiment developed here can be applied to study in more detail the relative importance of domestic and multilateral policy features for explaining mass support for policies meant to address important sustainability challenges such as biodiversity loss, deforestation, air pollution, renewable energy transitions, waste disposal, or ocean acidification.

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Online Appendix for "Improving Public Support for Climate Action Through Multilateralism"

A Description of Climate Policy Survey (France, Germany, United Kingdom, United States, N=10,081)

We fielded our survey in four major economies (France, Germany, the United Kingdom, and the United States). The survey was conducted online by YouGov on representative samples of the adult populations. YouGov employs matched sampling in which interviews are conducted from participants in YouGov's online panel. Matched sampling involves taking a stratified random sample of the target population and then matching available internet respondents to the target sample using propensity scores. The propensity score model included age, gender, years of education, and region for the European countries and gender, age, race/ethnicity, region, and education for the United States. The study was approved by the Internal Review Boards at Washington University in St. Louis (#201803178) and Stanford University (eProtocol 46325).

United States: The field period was December 18, 2018 to January 3, 2019. The sampling frame for the target population was constructed from the full 2016 American Community Survey. All matched respondents were then assigned weights stratified on 2016 presidential vote, age, sex, race, and education to correct for remaining imbalances. The final number of observations was 4,081.

France, Germany, United Kingdom: The field period was March 31, 2019 to April 04, 2019. The sampling frames for the target populations were constructed from the 2018 Eurobarometer survey with selection within strata by weighted sampling with replacements (using the person weights on the public use file). The final number of observations was 2,000 for France, 2,000 for Germany, and 2,000 for the United Kingdom.

Table A.1 reports the distributions of sociodemographic characteristics in the population, the raw samples, and the weighted samples by country.

B Appendix Tables

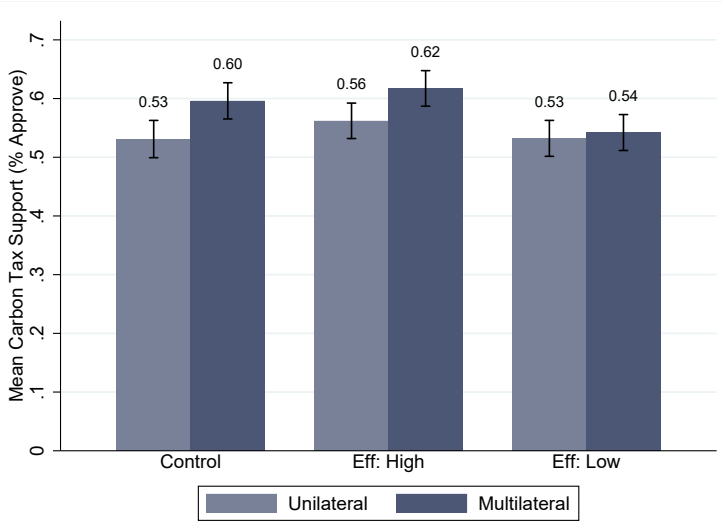
Table A.1: **Climate Policy Survey: Distribution of Socio-Demographics in the Target Population, the Raw Sample, and the Weighted Sample by Country (Total N=10,081)**

United States			
	Population	Raw Sample	Weighted Sample
Age: 18-34	30	27	30
Age: 35-49	25	23	25
Age: 50-64	25	30	25
Age: 65+	20	22	20
Education: Less than High School	12	7	12
Education: High School Degree	28	29	28
Education: Associate's Degree or Some College	31	32	31
Education: BA or higher	29	32	29
Gender: Male	48	47	49
Gender: Female	51	53	51
Germany			
	Population	Raw Sample	Weighted Sample
Age: 18-29	19	18	19
Age: 30-44	21	21	21
Age: 45-64	35	24	35
Age: 65+	24	25	25
Education: 16yrs or less	38	43	38
Education: 17-18	19	32	19
Education: 19+	43	25	43
Gender: Male	49	48	48
Gender: Female	51	51	51
France			
	Population	Raw Sample	Weighted Sample
Age: 18-29	20	17	20
Age: 30-44	23	25	23
Age: 45-64	32	36	32
Age: 65+	26	22	26
Education: 16yrs or less	26	12	26
Education: 17-18	25	48	26
Education: 19+	49	40	48
Gender: Male	47	46	47
Gender: Female	53	54	53
United Kingdom			
	Population	Raw Sample	Weighted Sample
Age: 18-29	22	19	22
Age: 30-44	26	27	26
Age: 45-64	30	32	30
Age: 65+	22	23	22
Education: 16yrs or less	41	32	41
Education: 17-18	28	21	20
Education: 19+	31	47	38
Gender: Male	50	46	50
Gender: Female	50	55	50

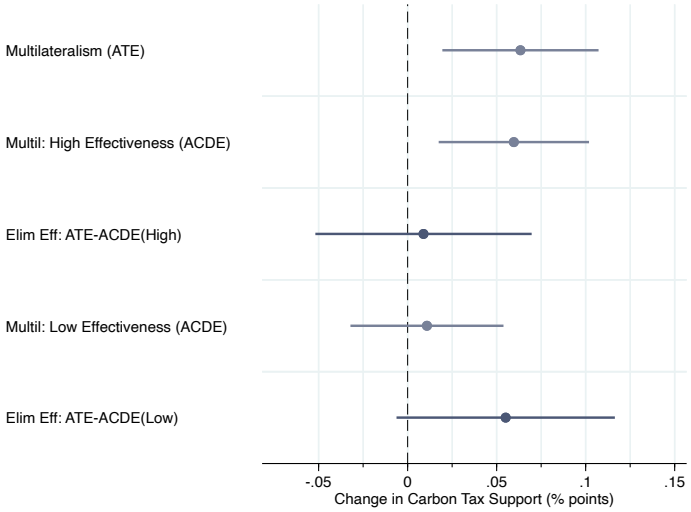
C Appendix Figures

Figure A.1: The Effect of Multilateralism on Carbon Tax Support (N=6,000), Unweighted

(a) Proportion Supporting a Carbon Tax by Multilateralism and Effectiveness Prime



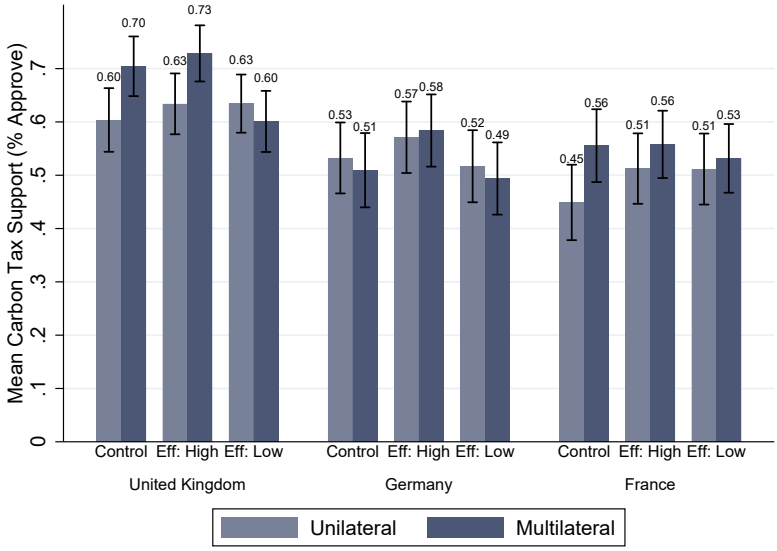
(b) Causal and Eliminated Effects (EE) of Multilateralism by Effectiveness Prime



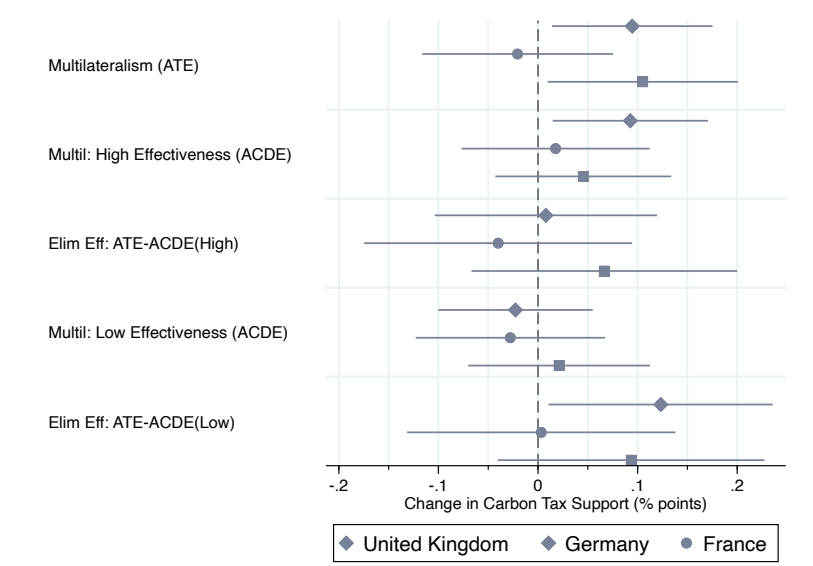
Note: (a) The figure shows the proportion of individuals supporting the introduction of a carbon tax by randomly assigned multilateralism and effectiveness conditions. (b) The figure reports the causal effects of multilateralism by randomly assigned effectiveness condition (control=no information, Eff: High=High Effectiveness, Eff: Low=Low Effectiveness) along with the eliminated effects (EE) estimated using a linear probability model with robust standard errors. Regressions control for gender, age, income, education, and employment status. Country fixed effects included. Error bars indicate 95% confidence intervals. N(France)=2,000, N(Germany)=2,000, N(United Kingdom)=2,000.

Figure A.2: The Effect of Multilateralism on Carbon Tax Support (N=6,000), by Country

(a) Proportion Supporting a Carbon Tax by Multilateralism and Effectivenss Prime

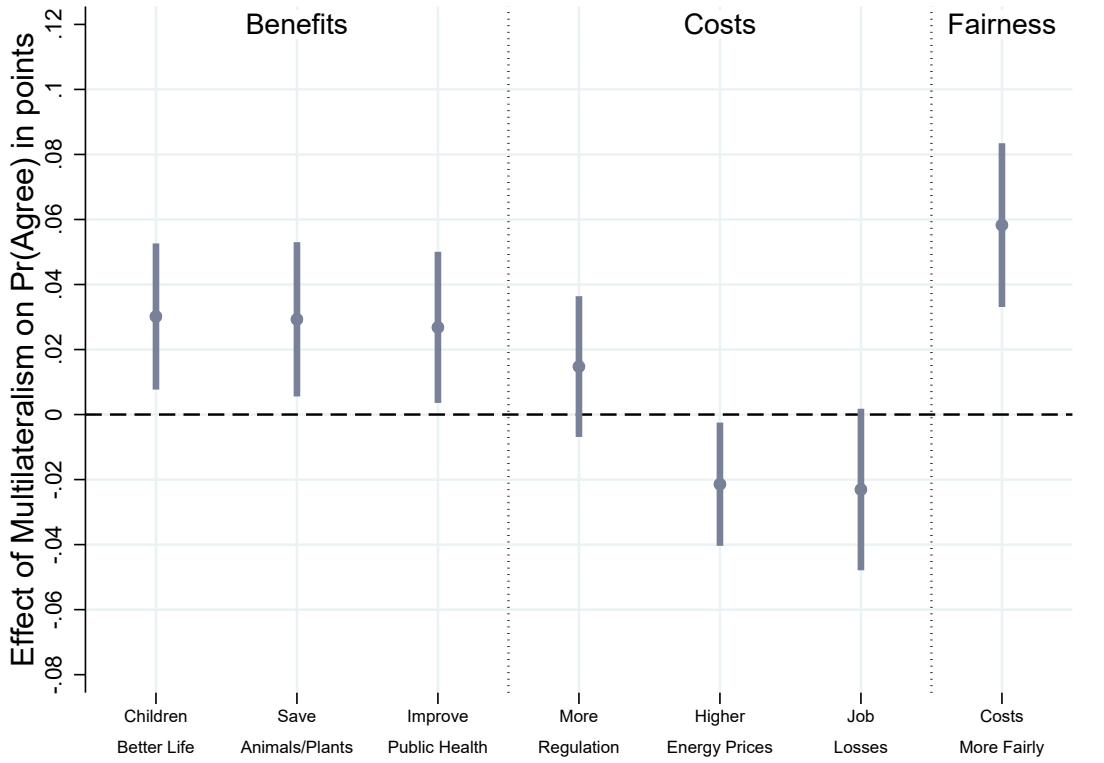


(b) Causal Effects of Multilateralism by Effectivness Prime



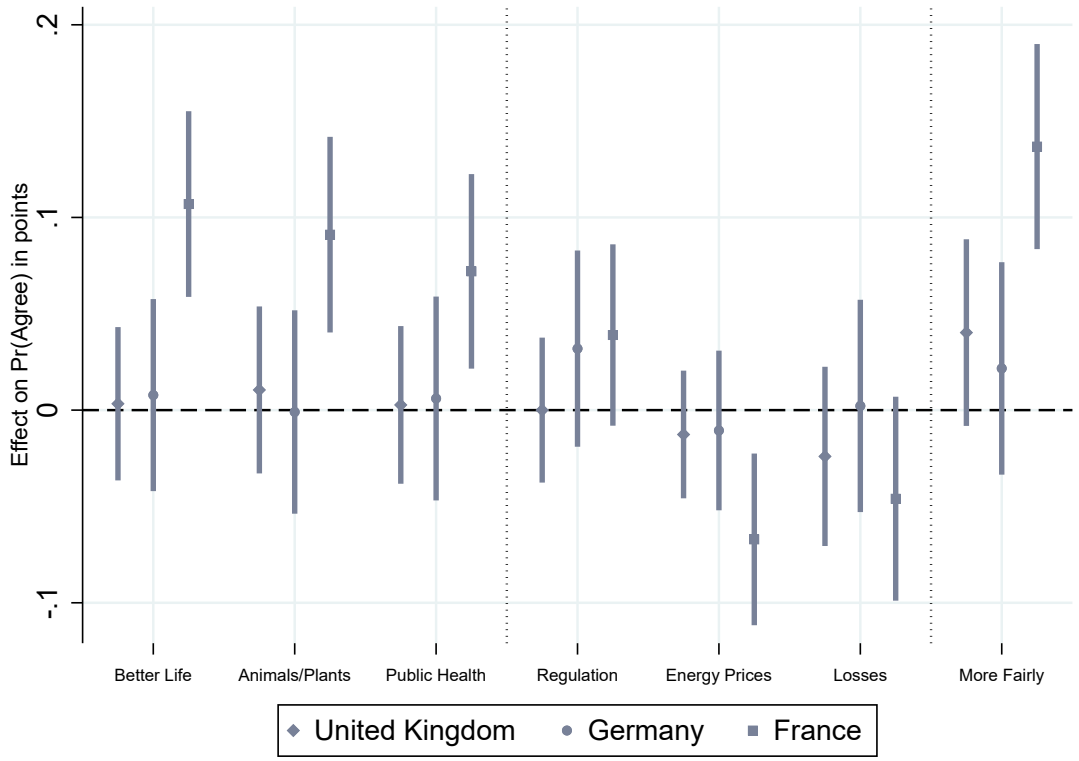
Note: (a) The figure shows the proportion of individuals supporting the introduction of a carbon tax by randomly assigned multilateralism and effectiveness conditions. (b) The figure reports the causal effects of multilateralism by randomly assigned effectiveness condition (control=no information, Eff: High=High Effectiveness, Eff: Low=Low Effectiveness) estimated using a linear probability model with robust standard errors. Error bars indicate 95% confidence intervals. Survey weights applied. N(France)=2,000, N(Germany)=2,000, N(United Kingdom)=2,000.

Figure A.3: The Causal Effects of Multilateralism on Expectations about the Benefits, Costs, and Fairness of Climate Action in France, Germany, and the United Kingdom (N=6,000), Unweighted



Note: This plot reports coefficients from linear regressions of statement approval on a binary indicator that is one if climate action is multilateral and is zero if climate action is unilateral. Error bars indicate 95% confidence intervals. Without use of survey weights. N(France)=2,000, N(Germany)=2,000, N(United Kingdom)=2,000.

Figure A.4: The Causal Effects of Multilateralism on Expectations about the Benefits, Costs, and Fairness of Climate Action in France, Germany, and the United Kingdom (N=6,000), by Country



Note: This plot reports coefficients from linear regressions of statement approval on a binary indicator that is one if climate action is multilateral and is zero if climate action is unilateral. Error bars indicate 95% confidence intervals. Survey weights applied. N(France)=2,000, N(Germany)=2,000, N(United Kingdom)=2,000.

Figure A.5: Instructions and example profile for the conjoint experiment

We will now provide you with several scenarios which describe a set of policies for the United States that will impact climate change and information about what other major economies are doing. The scenarios will vary in how costly they are to households, how those costs will change over time, whether investments will be made in mitigation efforts to reduce greenhouse gas emissions thus making global warming less likely or in adaptation efforts to adjust to environmental change to lessen the negative effects of global warming. These dimensions will vary both for the United States and in other major economies.

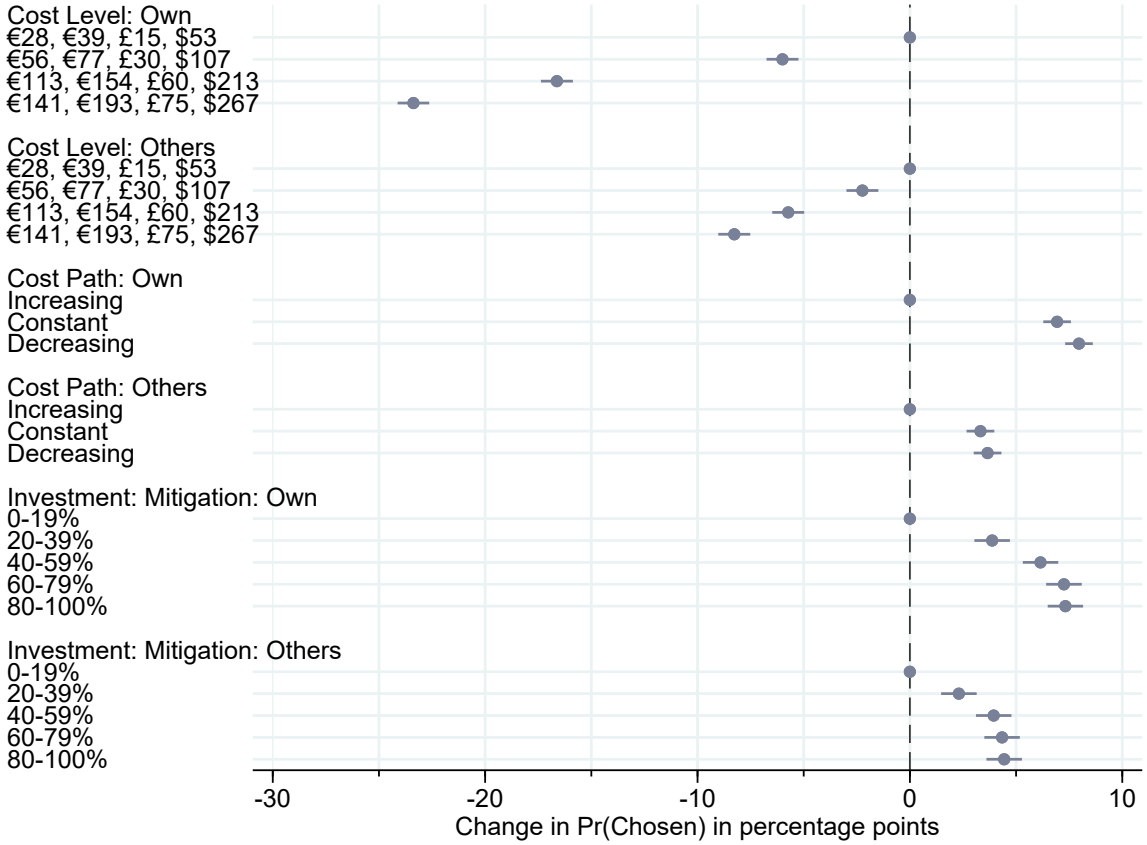
For each comparison we would like you to tell us which of the scenarios you prefer. You may like several alternatives similarly or may not like either of them at all. Regardless of your overall evaluation, please indicate which alternative you prefer.

In total, we will show you 8 comparisons. People have different opinions about this issue and there are no right or wrong answers. Please take your time when reading the potential scenarios.

	Scenario 1	**Scenario 2**
In the United States		
Average household costs per month	$107	$213
Distribution of costs over time	gradually decreasing	constant over time
Adaptation (new technology, building dams, ...)	88%	2%
Mitigation (reducing greenhouse gas emissions, removing greenhouse gases from the atmosphere)	12%	98%
In other major economies		
Average household costs per month	$53	$107
Distribution of costs over time	gradually decreasing	gradually decreasing
Adaptation (new technology, building dams, ...)	0%	62%
Mitigation (reducing greenhouse gas emissions, removing greenhouse gases from the atmosphere)	100%	38%
Which of these scenarios do you prefer?	o	o

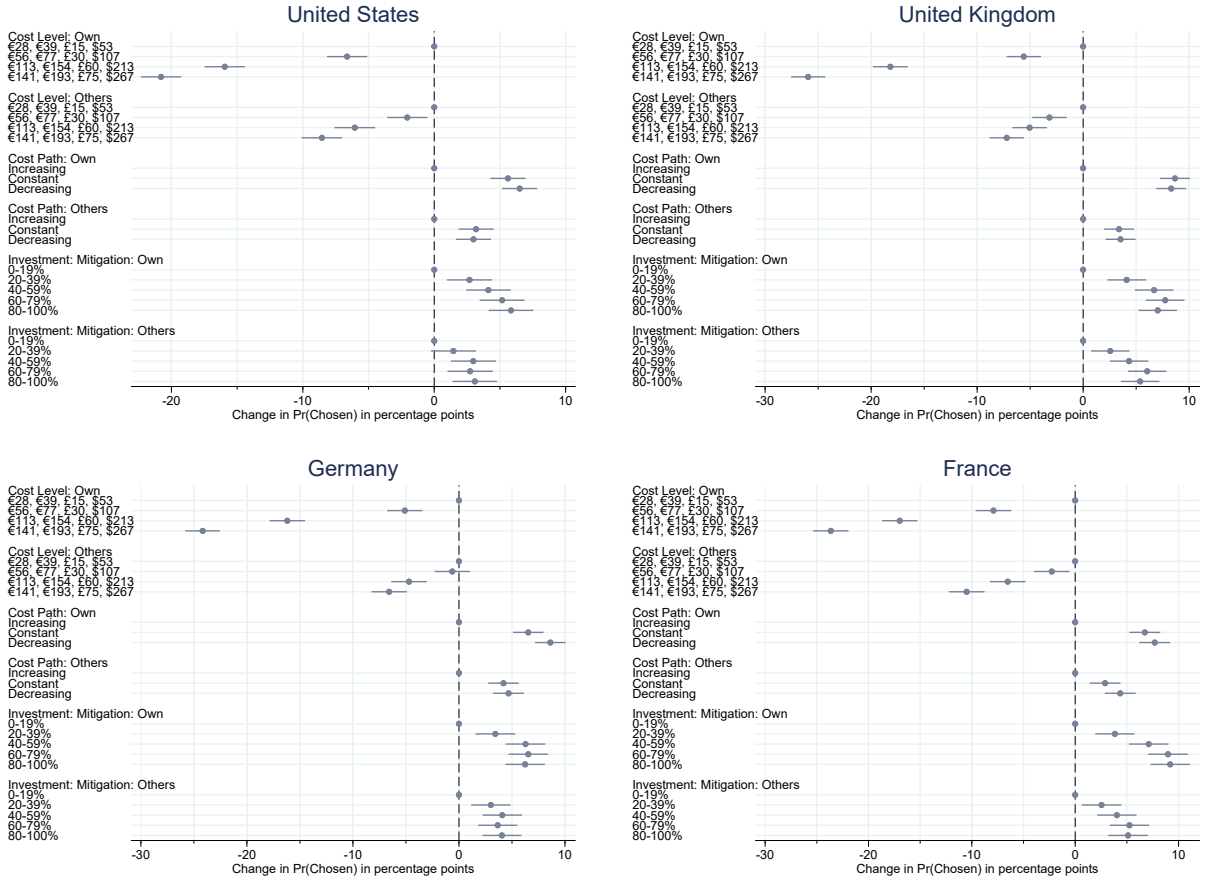
Note: This figure shows the instructions to respondents for the conjoint experiment and an example profile pair presented to respondents in the United States. Respondents assessed eight paired profiles. The experiment randomly varied whether the attributes for a respondent's own country or those for other major economies were listed first. For each respondent the order remained unchanged for all conjoint tasks. All attribute levels were fully and separately randomized.

Figure A.6: The Causal Effects of Climate Policy Choices by Other Countries on Public Support in France, Germany, United Kingdom, and the United States (N=129,280), Unweighted



Note: This plot reports coefficients from linear regressions of policy approval on randomly assigned climate policy choices made by other countries. Error bars indicate 95% confidence intervals. Without use of survey weights. N(France)=32,000, N(Germany)=32,000, N(United Kingdom)=32,000, N(United States)=33,280.

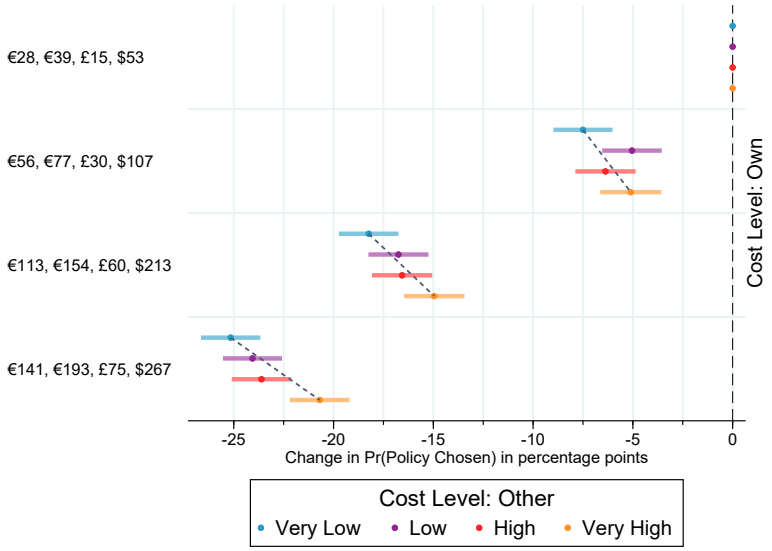
Figure A.7: The Causal Effects of Climate Policy Choices by Other Countries on Public Support in France, Germany, United Kingdom, and the United States (N=129,280), by country



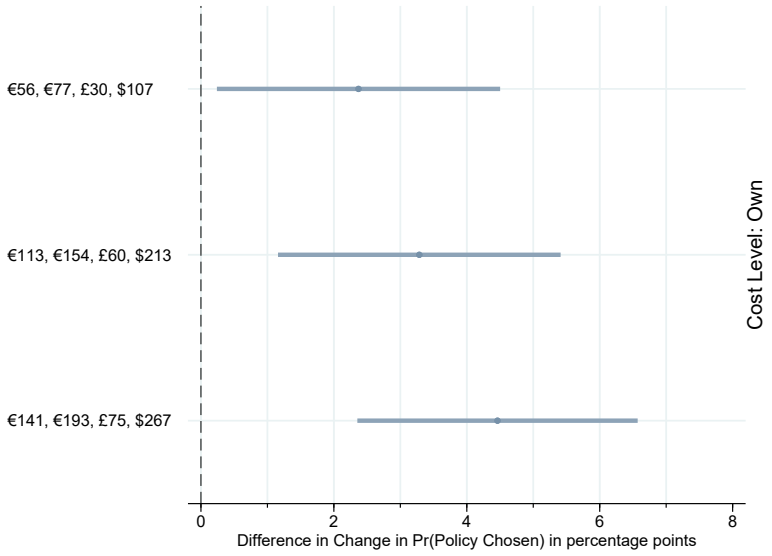
Note: This plot reports coefficients from linear regressions of policy approval on randomly assigned climate policy choices made by other countries. Error bars indicate 95% confidence intervals. Survey weights applied. N(France)=32,000, N(Germany)=32,000, N(United Kingdom)=32,000, N(United States)=33,280.

Figure A.8: The Causal Effects of Climate Policy Costs by Other Costs in France, Germany, United Kingdom, and the United States (N=129,280), Unweighted

(a) Effects of Own Cost, Conditional on Other Costs



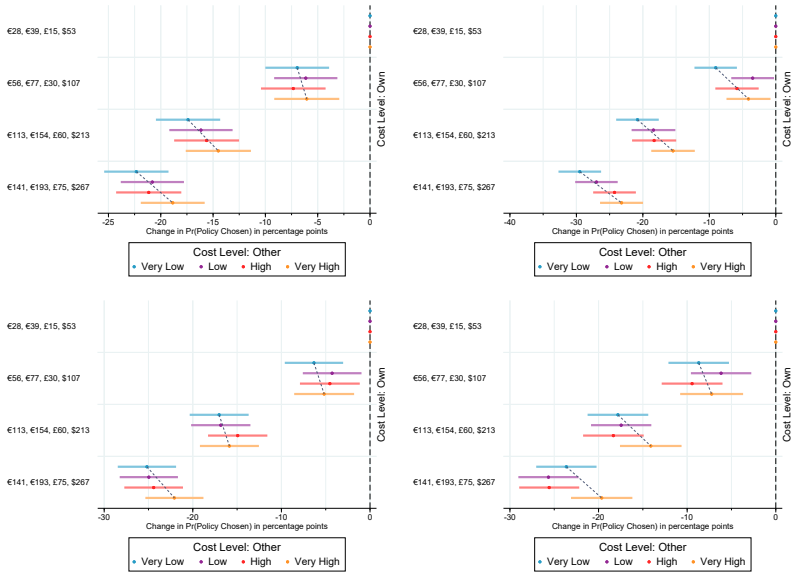
(b) Difference in Effect of Own Cost if Other Costs Very High and Own Cost if Other Costs Very Low



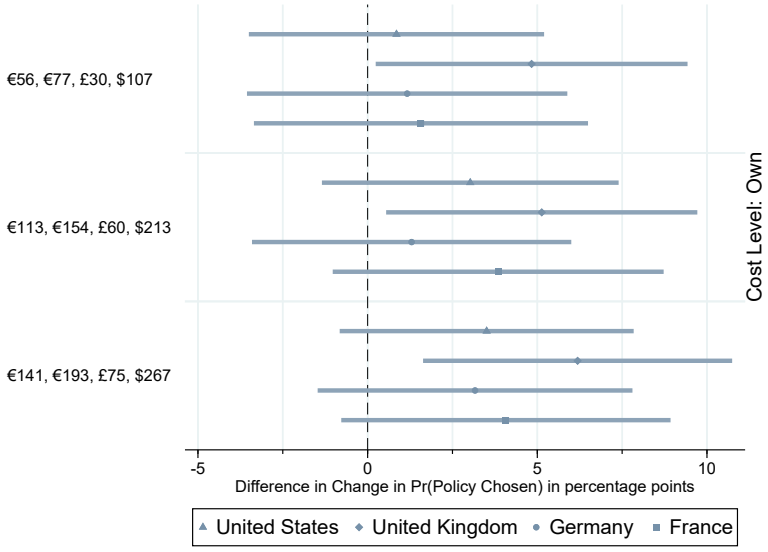
Note: This plot reports coefficients from linear regressions of policy approval on randomly assigned climate policy household costs introduced in other countries. Error bars indicate 95% confidence intervals. Without use of survey weights. N(France)=32,000, N(Germany)=32,000, N(United Kingdom)=32,000, N(United States)=33,280.

Figure A.9: The Causal Effects of Climate Policy Costs by Other Costs in France, Germany, United Kingdom, and the United States (N=129,280), by country

(a) Effects of Own Cost, Conditional on Other Costs



(b) Difference in Effect of Own Cost if Other Costs Very High and Own Costs if Other Costs Very Low



Note: This plot reports coefficients from linear regressions of policy approval on randomly assigned climate policy household costs introduced in other countries. Error bars indicate 95% confidence intervals. Without use of survey weights. N(France)=32,000, N(Germany)=32,000, N(United Kingdom)=32,000, N(United States)=33,280.

Figure A.10: Average Marginal Interaction Effects with Screening and Collapsing of Variables