

Climate Action from Abroad: Assessing Mass Support for Cross-Border Climate Compensation

Nikhar Gaikwad* Federica Genovese[†] Dustin Tingley^{‡§}

This draft: August 4, 2023

Abstract

Resource transfers from developed to developing countries to combat climate change are central to international climate policy efforts. Yet countries are grappling domestically with provisioning and accepting transfers. We ask what are the determinants of public support for cross-border climate transfers? We answer this question by laying out factors that might drive support for domestic audiences and providing evidence through paired survey experiments in the United States and India, critical climate donor and recipient countries. We show that several designs of climate finance can make international transfers more appealing. Policy control that prioritizes partnership opportunities between donor and recipient country agents and justice considerations that emphasize compensation for vulnerable communities markedly bolster approval. Voters also prioritize mitigation over adaptation spending and transfer schemes replicated in other nations. Incorporating political attributes in the design of transfers can therefore unlock, instead of undermine, public support for cross-border climate cooperation.

*Assistant Professor, Political Science, Columbia University, Email: nikhar.gaikwad@columbia.edu.

[†]Reader, Department of Government, University of Essex, Email: fgenov@essex.ac.uk.

[‡]Professor of Government, Harvard University, Email: dtingley@gov.harvard.edu.

[§]Research for this paper, and discussion at several research meetings, was made possible by generous funding from the Balzan Foundation under the terms of a prize awarded in 2017 to Professor Robert O. Keohane and administered by Princeton University and the Center for Advanced Study in the Behavioral Sciences under his supervision. Darrin Gilkerson, Diana Ding, Kylan Rutherford, Aura Gonzalez, Jenny Xiao, Samuel Housekeeper, and Simran Singh provided excellent research assistance. We thank Patrick Bayer, Liam Beiser-McGrath, Thomas Bernauer, Diego Gambetta, Amanda Kennard, Vally Koubi, Ertan Kurti, Jaya Nahar, Michael Ross, Sam Rowan, David Rueda, Lena Schaffer, Alice Zhang, audiences at the 2021 APSA conference, the 2022 UCLA Comparative Politics speaker series, the 2022 ETH Zurich Workshop on Carbon Taxes and Carbon Pricing, the 2022 Stanford Political Economy of Environmental Sustainability workshop, and seminars at Collegio Carlo Alberto, Stanford's Doerr School of Sustainability, King's College London and Nuffield College for helpful comments. The study was pre-registered and a pre-registration plan is available on the EGAP archives. We thank Allison Corbett and the Qualtrics team as well as CVoter News Pvt for helping field the surveys.

1 Introduction

Reducing fossil fuel emissions and fighting climate change necessitate international cooperation. Many developed countries have begun implementing policies to domestically tackle greenhouse gas (GHG) emissions, but still face significant social battles and implementation difficulties (Bergquist, Mildemberger and Stokes, 2020; Meckling and Nahm, 2022). International politics further complicate the reality of climate action in the industrialized world. Developed countries have disproportionately contributed to climate change through decades of fossil fuel-driven growth, but oppose emissions reductions based on the polluter pays principle and historical responsibilities (Colgan, Green and Hale, 2020).

The Global South faces its own political problems. Reliance on fossil fuels for energy production is ubiquitous, with developing countries currently releasing more GHGs per unit of economic activity than rich nations. Decarbonization and adaptation programs require structural reforms that will reorder society and generate vigorous political opposition (Gaikwad, Genovese and Tingley, 2022; Blankenship et al., 2022). Importantly, taming emissions does not just pose a tradeoff for domestic growth and development. Deepening trading relationships have facilitated rich countries' emissions declines, but have also shifted a large share of global emissions from the Global North to the South (Peters et al., 2011). Truly global attempts at fighting climate change require substantial action in developing countries, which in return demand support from industrialized nations to alleviate costs.

Against this background, scholars and policymakers argue that *financial transfers* from rich countries to Global South countries can decrease pressures to mitigate and adapt (Landis and Bernauer, 2012; Pickering and Skovgaard, 2017; Graham and Serdaru, 2020; Elhard, 2022). Transfers promise to play a central role in international climate efforts because they are cost-efficient for both the Global North and South. They can catalyze carbon pricing practices and nudge communities toward virtuous climate policy behavior. They can also address issues of climate justice (Mattoo and Subramanian, 2012). Nevertheless, it is not obvious whether donor countries are prepared to provide – and recipient countries are willing

to accept – international climate funding. Indeed, a pledge of 100 billion dollars a year to poor countries by 2020 at the Copenhagen climate meeting has not as yet been fulfilled. Policymakers need to buy into the conditions of international climate finance. In addition, international climate transfers must muster substantial public support in both donor and recipient countries to be viable in the long term. Whether such mass support exists or can be cultivated are important open questions that we address in this paper.

Recent evidence links low levels of international investments and aid on climate issues to insufficient public support (Yeo, 2019). While a large part of climate financing today occurs via multilateral lenders, from which public opinion may be more distant, bilateral transfers now correspond to more than 12 percent of global transfers (Timperley, 2021) and hence are more likely to be in the public eye. Furthermore, our intuition that public opinion would have preferences and positions on climate financing relies on the body of literature according to which citizens understand different designs of international financing (Heinrich and Bryant, 2016) and know how to weigh the benefits and costs of various types of international funding (Brutger and Clark, 2023). Against this background, we ask why cross-border climate transfers lack public support and remain under-committed, and under what circumstances public support for these transfers may increase.¹

We investigate how to increase support for transfers in *both* donor and recipient countries. We propose a theoretical framework of attitudes toward international climate finance that focuses on how the public evaluates transfers’ costs and benefits. Our goal is to uncover what politically appealing climate transfers look like in both giving and receiving nations, and what dimensions may generate plausible gains that activate approval.

We highlight two distinct benefits for the domestic public that could motivate popular interest in international climate transfers. First, we explore the impact of *involving domestic agents* in the implementation of climate transfers. Domestic agents can be national gov-

¹Public perceptions of international climate finance efforts may matter increasingly because demands for transfers are becoming larger and because the climate crisis is becoming universally more salient. Similarly, recipient countries like India and Indonesia have sought clarity on basic issues—such as what is even meant by climate finance—due to public pressure before or right after elections.

ernmental agencies or private actors such as firms. We propose that empowering domestic agents can augment public support for transfers in both donor and recipient countries. We speculate that the public may be especially supportive of entrust private actors to deploy climate projects, so to spread the economic and political burden of policy action (Milner and Tingley, 2013; Dietrich, 2021). Second, we investigate the role of *compensating communities* that are affected by climate policy or climate change itself. Compensation appeals to citizens in various material and normative ways. For example, compensating climate vulnerable communities elsewhere can induce a sense of self-protection from climate externalities such as migration (Bermeo and Leblang, 2015; Arias and Blair, 2022). Compensatory mechanisms also feature centrally in climate justice arguments and are predicted to muster popular support by appealing to individuals’ morality and other-regarding preferences (Dolsak and Prakash, 2022). In this formulation, compensation is key in the just transition policy toolkit to unlock public support for cross-border climate transfers.

Empirically, we probe the salience of these motivations alongside other factors with original survey experiments in the United States and India—the two largest GHG emitters and archetypal climate donor and recipient countries in the democratic world. Consistent with most previous work, citizens in a potential donor country prefer home investments. At the same time, we reveal that public opinion is malleable and design-based features of transfer agreements engender public support for international transfers. In line with our expectations, private agency and compensatory mechanisms embedded in climate transfers cultivate buy-in from various sections of society, including among those more skeptical of international climate action. In particular, transfers that feature a balance of home and foreign agents and significant compensation to climate vulnerable groups are preferred in both donor and recipient countries. We also find that both donor and recipient country citizens prefer transfers that target mitigation over adaptation, and transfers that are replicated around the world.

Our evidence illustrates how domestic political factors are key elements that can mobilize public interest in climate transfers. The results indicate that support can be expanded

by appealing to different voter coalitions and by calibrating features of transfers that the mass public in both donor and receiving countries prefer. Our findings also buttress recent research that suggests that solving the distributional issues at the core of each society’s position toward climate change is fundamentally crucial for activating the credibility of not only national climate policy, but also international climate agreements.

2 Control and Compensation in Crossborder Climate Transfers

Public opinion on climate transfers is likely to be sensitive to various factors, which we map in this section. We first address the economic efficiency arguments that are often raised as a central reason for international cooperation, and discuss why they are unlikely to activate public support in donor or recipient countries. We then contrast those arguments with our theoretical contentions about the role of domestic political economy factors and move to motivate the importance of concentrated and diffused benefits to activate mass preferences regarding climate transfers.

2.1 Economic Efficiency and Home Bias

Economic models suggest that international climate transfers are Pareto improving and transfers can achieve global efficiency gains (Landis and Bernauer, 2012). Efficiency here captures the idea that it will often be cheaper to mitigate emissions or compensate impacted communities in developing countries than in industrialized nations. However, efficient transfers do not necessarily account for the role of concentrated costs and benefits captured by domestic constituencies (Aklin and Mildenberger, 2020; Colgan, Green and Hale, 2020), suggesting that climate transfers designed around aggregate climate efficiency may be economically effective, but domestically undesirable and politically non-credible.

Tackling this problem in the Paris Agreement era requires investigating the ways that international climate finance could be structured in order to appeal to different domestic constituencies. Yet research on public attitudes toward international transfers indicates that

mobilizing public support for climate transfers is challenging because citizens in donor countries have home-centric preferences (Buntaine and Prather, 2018; Gampfer, Bernauer and Kachi, 2014).² For donor countries, climate investments can be made either abroad or at home; indeed, while the Paris Agreement encourages international climate commitments, it also recommends investments at home. Consequently, voters in rich countries may view international transfers as substitutes to domestic transfers, and prioritize the latter. Citizens in recipient countries might also possess home bias: Politically unpopular conditionalities typically accompany transfers. Additionally, prior climate transfers have largely been structured as loan-based investments requiring repayment, which developing countries have resisted (Timperley, 2021). Recipient country voters may thus privilege domestic climate action to interventions funded by foreigners.

Next we consider a set of ways to design climate transfers that may improve support by better capturing their more or less targeted domestic benefits. We follow this discussion up with survey evidence from the United States and India.

2.2 Domestic Political Determinants of Transfer Preferences

International agreements that feature properties deemed desirable by voters should muster greater public support, so we now theorize how domestic political considerations can be incorporated into the design of climate transfers. Our analysis draws on public policy discussions regarding bilateral cross-border climate transfers, engaging with arguments and claims made by key stakeholders in donor and recipient countries. While this is a subset of international climate financing mechanisms, it is the most straightforward one from a public opinion perspective. Bilateral climate transfers are also increasingly relevant in various national debates.³

We start from the assumption that voters privilege factors that reduce the costs of cli-

²Though see Diederich and Goeschl (2018).

³Appendix A contains an extended discussion of policy dimensions of the theoretical attributes introduced below in the US and India. Future work could consider the determinants of support for multilateral arrangements.

mate action and favor those that increase the benefits of climate finance. We emphasize that benefits can be diffused but also *focused*, and we start by investigating how distributional concerns generate support for transfers that provide focused benefits to particular groups. We first highlight the effect of domestic (versus foreign) economic *partners* in climate finance efforts. Second, we discuss how *compensation* to adversely impacted parties can stimulate support for climate transfers. We also consider other mechanisms that increase diffused benefits and soften the concentrated costs of international climate finance. We hereby highlight factors that have been deemed salient in the public opinion scholarship on other types of cross-border flows such as aid and foreign investment.

Partners The implementation of climate finance essentially implies resourcing actors that deploy projects for the purpose of decarbonization or, alternatively, climate change adaptation. For donor countries, climate finance programs require deciding whether the financing will involve organizations within the donor country and/or within the recipient country. That is, who will be the partners that receive funds to implement projects? We focus specifically on implementation via donor or recipient country *companies*, as well as the *governmental agencies* of donor – or, alternatively, recipient – countries.⁴

Projects done by donor actors might be seen as more favorable by donor country publics for a number of reasons. First, this may be due to perceived preference alignment and the latent home bias we discussed in the previous section. Additionally, indirect focused benefits may flow to stakeholders (e.g., employees of firms) in the donor country (Dietrich, 2021). For example, the domestic economic benefits to donor constituencies plays a role in maintaining political support to provide foreign aid (Milner and Tingley, 2015, 2013).⁵

Citizens in recipient countries, by contrast, might be expected to prefer recipient country firms and government agencies for similar reasons.⁶ The public might believe that organi-

⁴We bracket the implementation by other third parties, e.g. a third country, for now.

⁵Partnership is also closely tied to questions of political control over climate transfer arrangements. For example, the foreign aid literature notes that partnerships influence decisions to send aid bilaterally or through multilateral agencies (Hawkins et al., 2006; Milner and Tingley, 2013).

⁶See also Mildemberger et al. (2023).

zations in the recipient country are better suited to implement the transfers due to superior local contextual knowledge, for instance. They may also have strong preferences against interventions that can be viewed in neo-colonial terms. Conversely, if programs that involve donor agents have greater political support in the donor country, then these projects may be seen as more credible and likely to be continued (Gazmararian and Tingley, 2023). This could lead to a greater openness for the involvement of donor country actors.

To be sure, the choice of partners need not be a binary decision. Partnerships between donor and recipient actors could meld a range of expertise, increase accountability, and build domestic political support in both countries.⁷ We also consider the possibility that voters in both donor and recipient countries view collaboration between donor and recipient country firms positively.

Compensation Climate transfers have stark welfare implications. Specifically, they can target a country broadly or can prioritize compensation toward specific groups. Compensatory transfers can further be directed at adaptation or mitigation goals. Adaptation compensation is set around ecologically vulnerable communities, e.g., spending for coastal residents harmed by climate change. By contrast, mitigation compensation focuses on policy vulnerable communities, e.g., transfers to fossil fuel workers who will lose their livelihoods following decarbonization. Such compensation is a cornerstone of ‘just transition’ theories and is critical because countries face vigorous domestic political opposition in regions negatively impacted by emission-reduction policies.⁸

A growing literature explores how various national groups support compensating and

⁷Some developed countries have introduced initiatives to forge partnerships with private sector actors in recipient countries; for example, Canada’s \$5.3 billion climate finance commitment comprises grants and contributions (40 percent), and Unconditionally Repayable Contributions (60 percent), an instrument that is intended to mobilize private-sector investment. Similarly, the EU’s international climate investment strategy consists of a two-pronged approach based on providing grant financing directly to developing countries and utilizing grant financing to induce domestic private sector participation.

⁸Political challenges are particularly large in democratic developing countries, where voter coalitions influence policy outcomes. Pai and Zerriffi (2021) estimate that over 700,000 Indians are directly employed in coal mining, and millions more are employed in implicated sectors, which are geographically concentrated and politically pivotal.

investing in specific communities that will lose materially from climate change and decarbonization policies (Bergquist, Mildenberger and Stokes, 2020; Gaikwad, Genovese and Tingley, 2022; Gazmararian and Tingley, 2023; Blankenship et al., 2022). However, it is a priori unclear whether incorporating compensation mechanisms into the design of international transfers can increase support for these schemes. We investigate whether voters favor more transfers that allocate a proportion of funds to compensate groups directly impacted by the effects of climate change and by emission reduction policies.⁹

We expect the public in donor countries to be most inclined to compensate domestic vulnerable communities over international communities, precisely for the same reasons that home investments are preferred to international transfers. We expect a similar pattern in the recipient country’s public. However, we also theorize that voters in both donor and recipient nations will evince high levels of absolute support for international compensation, for both material and ideational reasons. On the material side, citizens may be inclined to give resources to communities abroad for the purpose of decreasing the likely externalities of foreign vulnerability. For example, voters in rich countries may support transfers that increase the welfare of communities that otherwise would migrate and become refugees (Arias and Blair, 2022). Meanwhile, voters in developing countries may consider transfers that include targeted compensation as an effective redistributive policy. On the ideational side, compensation activates other-regarding attitudes (Gaikwad, Genovese and Tingley, 2022). Transfers that redress the harms borne by vulnerable groups may generate in individuals a higher moral purpose and more trust in not only local but also global solidarity.

In addition to *partners* and *compensation*, we consider other factors that can generate diffused benefits and lower the (perceived) costs attached to international climate finances.

⁹While individual- and community-specific factors may determine which type of compensation goal voters support most, previous research indicates that on average the general public may be similarly inclined to help policy vulnerable and ecologically vulnerable communities (Gaikwad, Genovese and Tingley, 2022).

Reciprocity The proactive and cooperative role of other countries engaging in reciprocal behavior has long been heralded as an important driver of international public goods coordination. People’s sensitivity to burden-sharing is seen consistently in the broad public opinion literature on international economic cooperation (e.g., Chilton, Milner and Tingley, 2020; Milner and Tingley, 2013), and previous work suggests a role for reciprocity in climate institutional design and mitigation contexts (Tingley and Tomz, 2014; Bechtel, Scheve and van Lieshout, 2022). In the climate finance context, transfers are expected to elicit more support if they embody reciprocity principles, with other countries also participating in similar transfer schemes (Landis and Bernauer, 2012).

Donor country citizens might reject ‘lone wolf’ climate transfer proposals if they consider it unfair to have to shoulder the burden of overseas climate mitigation and adaptation efforts. As more countries contribute to climate financing, the perception of a shared global responsibility to fund transfers should motivate support. A parallel logic applies to public opinion in recipient countries. Given that transfer schemes typically entail conditionalities and real (or perceived) debts and obligations to donors, voters might be skeptical of climate funding that other developing countries have not welcomed. But as more countries accept transfers, the impression of an emerging global compact surrounding cross-border climate cooperation should galvanize approval. We therefore predict that support for transfers in both developed and developing countries should increase in the number of other countries pursuing similar policies.

Duration The public perception of commitments to international climate transfers may be affected by the time duration of transfer programs. Climate change requires immediate action. However, the products of climate policy in most societies will only be realized over an extended period of time. On the one hand, shorter-term transfers might be preferred by average citizens since they involve a lower commitment and a shorter period of time during which people will bear the costs of these transfers. On the other hand, voters might

prefer longer-term transfer programs that promise to be more durable and provide more meaningful solutions (Jacobs and Matthews, 2012). While a clear relationship between program duration and public attitudes towards climate transfers may not exist a priori, the literature emphasizes the implications of time (in)consistency of climate policy for public opinion in this area (Gazmararian and Tingley, 2023), so we seek to explore whether program duration has an impact of preferences for climate transfers.

Goal Climate spending can be funneled in two directions: for the purposes of *mitigation* and *adaptation*. While these goals are not mutually exclusive, de facto they constitute two separate areas of investments with different implications. Mitigation helps to reduce warming impacts in the future by minimizing global risks and transitioning local areas to a greener economy. The benefits of mitigation are diffuse and will accrue disproportionately to future generations. Adaptation helps build resilience to climate shocks. It provides relatively more concentrated benefits and can be targeted to particular communities that face climate vulnerability today. Hence, while mitigation and adaptation both have public good implications, they highlight different tradeoffs and involve different policy logistic.

Previous research suggests that voters should care about transfer programs that target both mitigation and adaptation efforts, as most areas are increasingly pressed to transition to decarbonization while maintaining resilience (Dechezlepretre et al., 2022). This research also indicates that mitigation efforts stand to directly benefit broad sections of society in the Global North and therefore are likely to elicit support in donor countries (Bergquist, Mildemberger and Stokes, 2020). Yet, prominent policy proposals discussing climate transfers, including the Loss and Damages Fund established in COP27 and other funding pledges, focus on adaptation efforts. Voters in developing countries also face competing pressures regarding the goal of transfers. They may recognize that international transfers allow their countries to meet long-term mitigation goals without imposing domestic costs. Vice versa, facing the reality of climate change and its effects on vulnerable human populations, voters in

receiving countries might prefer to focus efforts on adaptation (Dolsak and Prakash, 2022). We juxtapose these two goals in our empirical analyses.

Finally, we engage with a number of sources of support for climate transfers that are only relevant for donors and recipients, respectively.

Donor-specific factors Theories of economic self-interest predict that the public in donor countries should be concerned about the material costs of climate transfers. From the point of view of voters, monetary contributions to be transferred to developing countries constitute public money that could be put to alternate domestic uses. Transfers that entail higher *costs* to taxpayers should be less favored than those that entail lower costs (e.g., Ansolabehere and Konisky, 2014; Bechtel and Scheve, 2013).

Recipient-specific factors Many donor countries insist on making climate transfers conditional on recipient nations adjusting domestic policies or practices. Scholars have argued that conditional contributions matter, and that transfers that entail more *conditionalities* will be less favored than those that entail fewer conditions (Steckel and Edenhofer, 2017). On the one hand, voters in recipient nations might not support externally imposed conditionalities, considering them to be unnecessary interference and an infringement on sovereignty. If this is the case, the public is predicted to oppose all kinds of conditionalities across the board. On the other hand, different kinds of conditionalities might be supported or opposed to varying degrees. This would particularly be the case if voters welcome conditions they support as a means of spurring domestic political change.

As for the *monitoring* of transfers, this is a critically important source of public tension in developing countries, encompassing concerns of surveillance and trust. Congruently, one may expect the public in poorer countries to have strong preferences regarding regulation. They may welcome international climate resources as a function of how involved the foreign country is in tracing the money and potentially threatening withdrawal (Sabel and Victor,

2017). A home bias in developing countries would suggest domestically monitored transfers will be preferred to foreign monitoring. Conversely, especially in contexts where corruption could disrupt the appropriate use of funds, monitoring by external parties might be welcome.

3 Conjoint Experiments

To test our pre-registered predictions, we conducted a series of original survey experiments in the United States and India, the world’s second and third largest GHG emitters, democracies where public opinion drive foreign policy, and key donor and recipient nations, respectively, in discussions regarding climate transfers. The paired design of the experiments allow us to compare how the results vary across developed and developing countries, with implications for the scope of North-South climate finance agreements. We employ conjoint experiments to investigate the relative importance of the factors theorized above.¹⁰ We discuss the US and then India design and results in turn.

3.1 US Experimental Design

We fielded a conjoint survey experiment in August 2022 on a general population sample of 2,006 American respondents.¹¹ The conjoint design introduces respondents to pairs of policies that vary on key theoretical dimensions. After viewing a pair of policy profiles, respondents chose their preferred profile and then ranked each profile on 10-point scales. The first outcome, which is a forced choice, allows us to assess the effect of each attribute value in the evaluation of one profile relative to another. The second outcome, which is measured separately, allows us to evaluate each profile independently (Hainmueller, Hopkins and Yamamoto, 2014).

The experiment began with a short preamble;¹² it then described each dimension to

¹⁰In separate analyses, we experimentally probed the trade-off between economic efficiency and home bias. Results in Appendix B confirm that home bias systematically trumps efficiency logics in both US and India publics.

¹¹The respondent pool is the general population of the US based on gender, race, education and age quotas.

¹²“The US government has made an *international commitment to combat climate change*. It has pledged

ensure that respondents understood the underlying concepts.¹³ The policy options include seven attributes that were fully randomized. Table 1 reports the values of the attributes.¹⁴

The *Partners* dimension explores whether climate finance support can differ depending on the organizations funded. This lets us investigate, for example, whether support in donor countries increases when implementation involves donor country firms. We focused on the most likely options of transfer partners per the Paris Agreement (Timperley, 2021), i.e. government agencies, domestic firms, foreign firms, and a combination of foreign and domestic firms. The *Compensation* dimension, meanwhile, focuses on the amount of funding in the transfer agreement allocated to compensate individuals and communities harmed by climate change and decarbonization policy. We varied the earmarked amounts for compensation along three percentages of the full funds.

For the selection of the levels of *Reciprocity*, *Duration* and *Cost*, themes present in earlier research, we used the values employed in other published work (Bechtel, Genovese and Scheve, 2019; Tingley and Tomz, 2014). For example, for costs we present the equivalent amounts of monthly abatement costs to the average household for three different cost scenarios, ranging from 0.5 per cent to 2.5 per cent of the US GDP. We vary the *Goal* by distinguishing between climate change mitigation and adaptation. Finally, the *Target* is a Global North-specific dimension and could be either be domestic spending (a proxy for home bias) or spending in a developing country.

Each respondent reviewed 4 pairs of climate transfer policy profiles, hence selecting 4 preferred choices and providing 8 ratings. The following results pool the data from all selection rounds with standard errors clustered at the individual level.

to take action *domestically*. It has also pledged to take action abroad by *helping developing countries* meet their commitments in combating climate change. These policies can take many different forms and target different goals. We would like to get your opinions on different types of policies.”

¹³We also asked two comprehension check questions which the vast majority of respondents passed both. Subsetting the analysis to those that passed both did not change our results.

¹⁴Appendix A synthesizes contemporary policy discussions in the US and elsewhere that focus on these attributes.

Table 1: Donor Policy Conjoint: Attributes and Their Levels

Attribute	Possible Values
<i>Domestic political economy sources of support for transfers:</i>	
Partners	Grants to US companies Grants to foreign companies Grants split between US and foreign companies Grants to governmental agencies
Compensation	0% of funds for those harmed by climate change/climate policies 15% of funds for those harmed by climate change/climate policies 30% of funds for those harmed by climate change/climate policies
<i>Alternate sources of support for transfers:</i>	
Reciprocity	10% of rich countries are pursuing similar policies 50% of rich countries are pursuing similar policies 90% of rich countries are pursuing similar policies
Duration	2 years 6 years 10 years
Goal	Reducing emissions Adapting to effects of climate change
<i>Donor-specific sources of support for transfers:</i>	
Cost	\$16 \$64 \$256
Target	United States Developing country

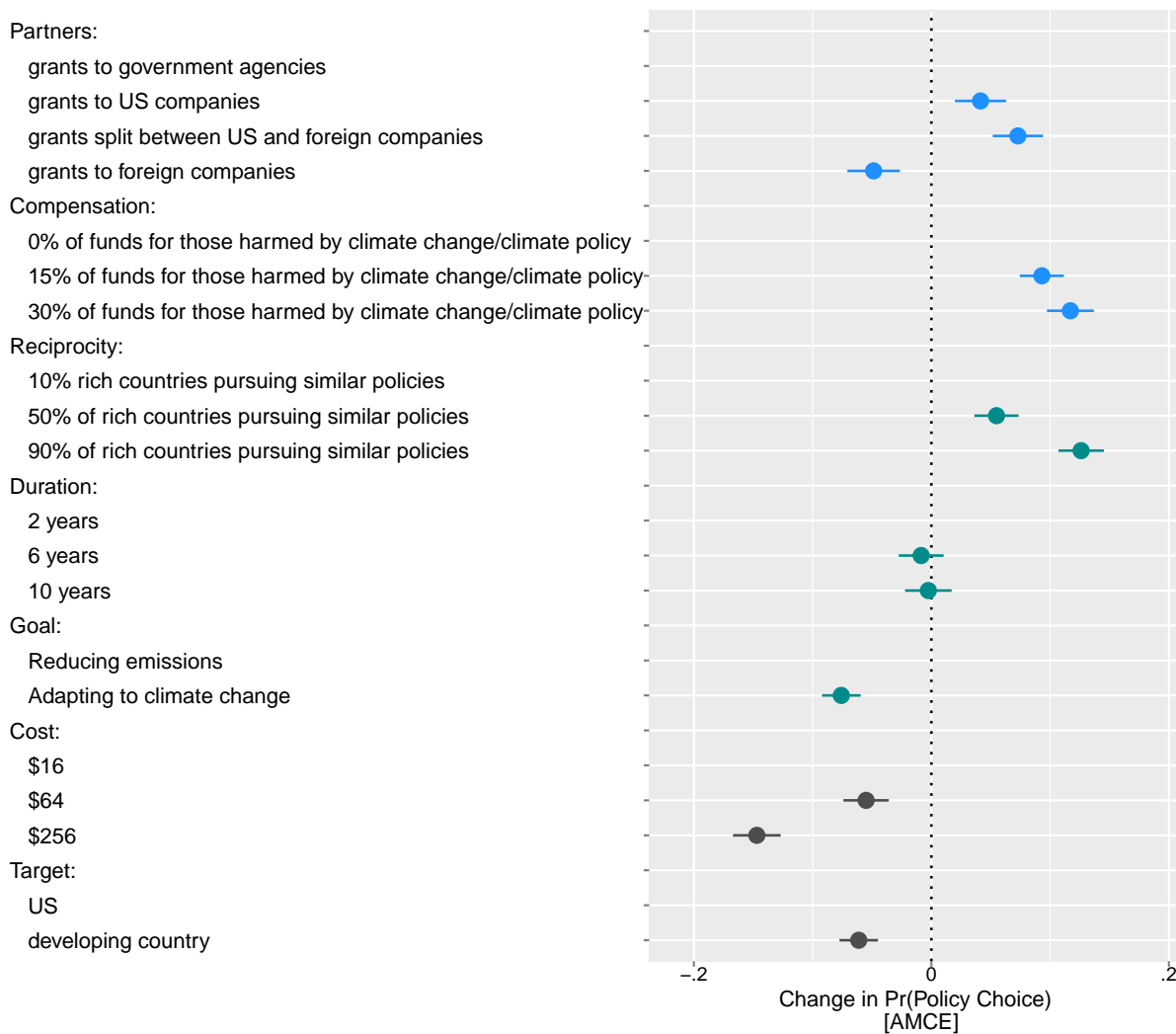
3.2 US Experimental Results

Figure 1 presents the estimated average component marginal effects based on a linear probability model with the outcome focusing on respondents' preferred policy.¹⁵ Recall that in

¹⁵The results are qualitatively identical when we run the models using the ratings as the outcome variable. See Appendix C.

this exercise respondents are confronted with proposals of climate transfers that can either be targeted domestically or at a developing country. The results remain consistent if we condition the variation of the other attributes to domestic or developing country programs only.

Figure 1: US Policy Conjoint Results



Average Marginal Component Effects (AMCE) calculated from the conjoint choice experiment for the different dimensions with 95% confidence intervals (respondent-level clustered standard errors). Individual choice based on preference towards a policy proposal is the dependent variable.

Figure 1 illustrates the importance of domestic control and welfare concessions in driving

public support for climate programs. With respect to *Partners*, compared to the option of giving grants to US government agencies, most Americans prefer grants to be given to US companies. Similar levels of support are detected for policies that involve grants split equally between US and foreign companies. By contrast, Americans seem to be less enthusiastic of climate policy that gives full responsibility to foreign companies: the coefficient of the ‘grants to foreign companies’ attribute is negative and also significant.

Earmarking a fraction of the financial allocations for purposes of *Compensation* also catalyzes policy support. A 15 percent of funds allocated to people harmed by climate change or decarbonization policy increases support by about 10 percentage points compared to the baseline case of no compensation.

We also find strong effects on the other dimensions. Regarding *Reciprocity*, 50 and 90 percent of rich countries pursuing similar transfer policies increases support for the policy proposal by 5 and 11 percentage points, respectively. While the *Duration* of the program does not appear to influence support, American respondents show less support for commitment *Goals* that focus resources on adaptation to climate change vis-à-vis mitigation. This is in contrast with older research that found little variation of public preferences regarding the goal of international climate action (Gampfer, Bernauer and Kachi, 2014).¹⁶

Additionally, we confirm that Americans are sensitive to the *Costs* of international climate transfers, corroborating other work on the material barriers to climate action. As the transfer costs increase by 1 per cent of the monthly American taxpayer’s budget, public support for a climate program decreases by about 8 percentage points. Finally, in line with the home bias hypothesis, we confirm that Americans on average prefer that the policy’s *Target* is domestic action instead of action aimed at a developing country.¹⁷

Overall, the results indicate that donor publics have clear preferences over climate fi-

¹⁶This preference for mitigation funding plausibly corresponds with the notion that mitigation produces globally diffuse benefits, whereas adaptation benefits are locally concentrated; quantifying and measuring the success of mitigation efforts is easier than assessing adaptation efforts; and adaptation solutions must be tailored to geographically-specific impacts, requiring local knowledge.

¹⁷This result further confirms findings from a vignette experiment reported in Appendix B.

nance, and that different features of climate-oriented transfers can mobilize but also deter public support. Citizens’ home bias, sensitivity to costs, and preferences for international reciprocal behavior align with findings of studies in other domains of climate policymaking. Importantly, however, the results indicate that a number of under-investigated political economy factors can determine whether the public is willing to support those endeavors—and these factors do not simply involve cost considerations, but also include issues of domestic agency and compensation embodying principles of climate justice.¹⁸

3.3 India Experimental Design

We now move to opinions about climate transfers in a recipient country. We use survey data collected in November 2022–April 2023 with 1,459 Indian respondents.¹⁹ Respondents chose policy profiles based on randomized policy pairs and also rated each policy independently. As before, respondents read a short preamble,²⁰ then received detailed explanations of each of the conjoint’s attributes. Similar to our US experimental design, the experiment included seven attributes.²¹

For the levels of *Partners*, *Compensation*, *Duration* and *Goal*, we use identical values to the US-based conjoint above (Table 2). For *Reciprocity*, we use the values of 10%, 50%, or 90% of other developing countries accepting such transfers, mirroring the level values for

¹⁸Appendix D reports analyses where we allow for interactions between several of the design dimensions. We find that, for example, when focusing on developing countries as the target of climate transfers, grants to US companies is strongly supported. Analyses that subset the data document similar results. Appendix E explores heterogeneous effects by pre-treatment covariates using recent advances in the application of machine learning tools to conjoint analyses. For example, we find that partisan ideology drives heterogeneity regarding support for grants involving US companies.

¹⁹The respondent pool is an internet-based population sample based on gender, education, age and household income quotas provided through Qualtrics. Online samples of respondents by default are more educated and wealthier than the median Indian citizen. That said, it is reasonable to expect such voters to be the most in tune with climate politics and most influential for foreign policymaking deliberations, and therefore the most relevant pool of voters to survey for our purposes.

²⁰“Along with governments around the world, the Indian government has made an international commitment to combat climate change. As part of this international commitment, developed countries have agreed to transfer funds to developing countries like India to help them reduce emissions and adapt to climate change. But in order to receive these funds, developing countries must pursue costly policies that will reduce fossil fuel emissions and invest in adapting to climate change. These transfer policies can take many different forms and target different goals. We would like to get your opinions on *different types of policies*.”

²¹Respondents went through an attention check and two comprehension checks.

Table 2: Recipient Policy Conjoint: Attributes and Their Levels

Attribute	Possible Values
<i>Domestic political economy sources of support for transfers:</i>	
Partners	Grants to donor country companies Grants to Indian companies Grants split between donor and Indian companies Grants to Indian governmental agencies
Compensation	0% of funds for those harmed by climate change/climate policies 15% of funds for those harmed by climate change/climate policies 30% of funds for those harmed by climate change/climate policies
<i>Alternate sources of support for transfers:</i>	
Reciprocity	10% of developing countries accepted such transfers from rich countries 50% of developing countries accepted such transfers from rich countries 90% of developing countries accepted such transfers from rich countries
Duration	2 years 6 years 10 years
Goal	Reducing emissions Adapting to effects of climate change
<i>Recipient-specific sources of support for transfers:</i>	
Conditionalities	increase gender equality in order to receive the funds increase religious minority rights in order to receive the funds increase trade with donor country in order to receive the funds no policy change in order to receive the funds
Monitoring	donor country government Indian government both donor and Indian governments the United Nations an international NGO no monitoring

donor reciprocity in the US-based conjoint. To the other dimensions, the India-based experiment focused on the scenario in which transfers are only coming from abroad, so instead of household costs (which are not directly incurred by Indian taxpayers), *Conditionalities* re-

flects the notion that in order to receive international transfers, recipient governments might be required to change domestic policies to meet certain conditions specified by the donor. Because international transfers in this context may have different principals, *Monitoring* captures the idea that the use of funds can be monitored by various domestic or international governmental organizations or NGOs.

Each respondent reviewed 4 pairs of climate transfer profiles, selecting 4 preferred choices and providing 8 ratings. We pool the data from all selection rounds and cluster standard errors at the individual level.

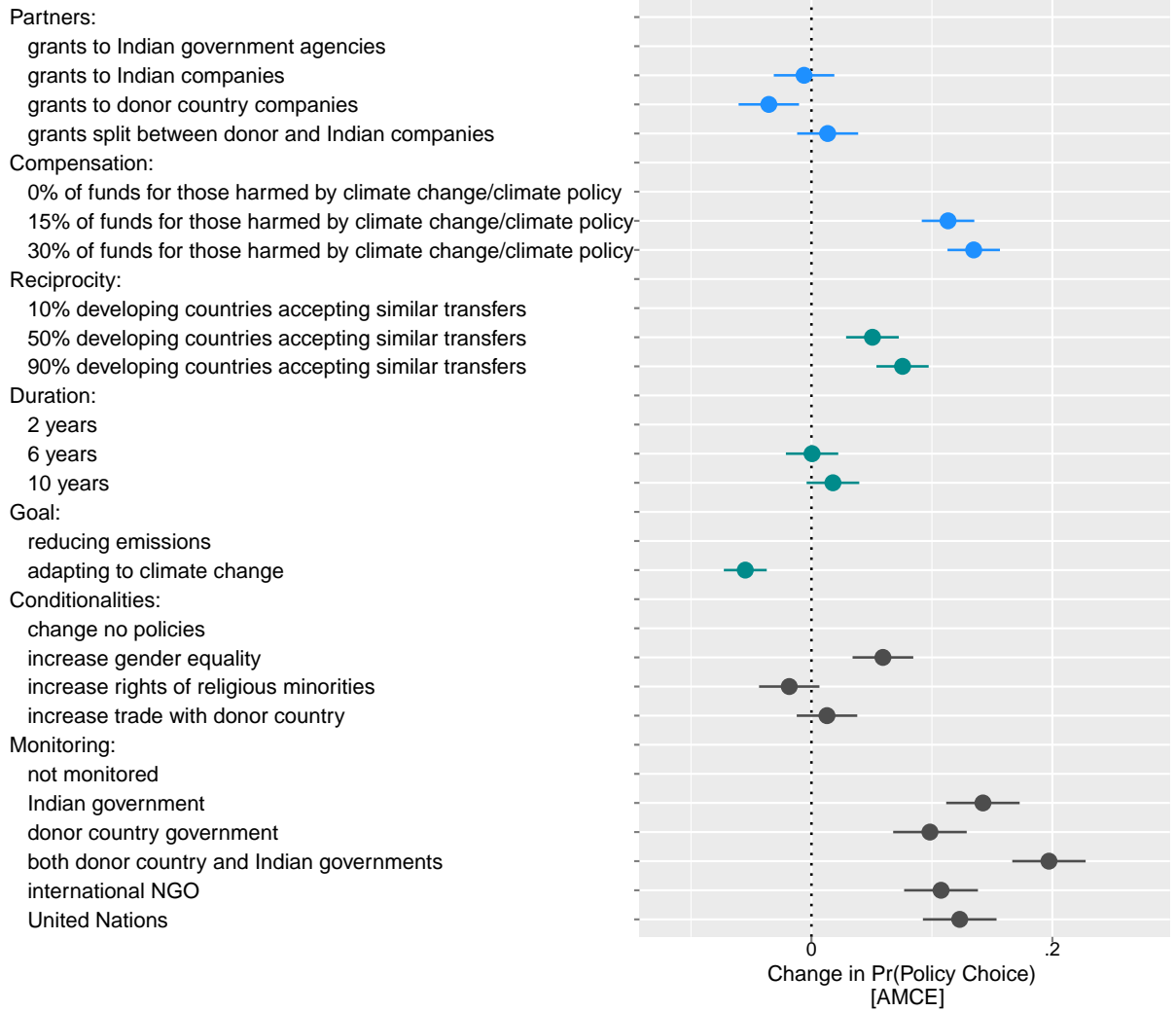
3.4 India Experimental Results

Figure 2 presents the estimated average component marginal effects and 95 per cent confidence intervals based on the Indian data. The headline finding is that we observe a remarkable congruence in the preferences of India and US voters, indicating that climate transfer agreements can be designed in ways that satisfy societal coalitions in both recipient and donor countries.

The results on the *Partners* attribute support this contention. Unsurprisingly, climate funding channeled only to donor country companies is the least preferred outcome. However, splitting grants between donor and Indian firms reverses this negative effect. Even more notably, partnering between donor and recipient firms is not statistically different than providing grants to the Indian government or solely to Indian firms. This suggests that there is room for citizen-backed compromise between recipient and donor governments. We previously showed that American respondents prefer involving US firms in international climate transfers; here we demonstrate that such corporate involvement does not decrease support among Indian respondents compared to other options.

Next, mirroring the US conjoint results in magnitude and qualitative significance, we uncover tremendous support for *Compensation* policies that redress communities harmed by climate change and decarbonization policy. This support points to the popularity of just

Figure 2: India Policy Conjoint Results



Average Marginal Component Effects (AMCE) calculated from the conjoint choice experiment for the different dimensions with 95% confidence intervals (respondent-level clustered standard errors). Individual choice based on preference towards a policy proposal is the dependent variable.

transition policies that protect the vulnerable through compensatory mechanisms (Gaikwad, Genovese and Tingley, 2022) and that find voice in climate advocacy efforts in the Global South (Mattoo and Subramanian, 2012). Our results show that incorporating compensation into the design of transfer agreements is one of the most effective ways by which policymakers can drum up public support for cross-border finance.

Like in our US-based experiment, we find strong evidence of a positive effect of *Reciprocity*: more developing countries accepting similar transfers leads to greater support for the transfers. One interpretation is that observing other similar countries accepting the same programs creates the impression of a shared sense of responsibility and an emerging global pact on cross-border climate cooperation, which voters value strongly.

Like in the US experiment, we find weak evidence for an effect of *Duration* on support. A 10-year program was marginally more popular than a 2 year program, perhaps highlighting that longer term commitments signal more credibility, however the magnitude of this effect is small; a 6-year program was viewed no differently than a 2-year scheme.

Remarkably, as in the US results on *Goals*, Indian respondents strongly favored mitigation over adaptation spending. Developing countries receiving transfers may be expected to prefer to spend those funds on adaptation projects narrowly targeting their own protection. Consistent with this logic, Indian government officials have recently advocated for increased prioritization of adaptation efforts and India was a major proponent of the Loss and Damages Fund at COP27. However, Indian respondents in our sample favor mitigation, which will have globally dispersed effects. This may be because they view transfers as a vehicle to allow their country to meet long-term mitigation goals without imposing domestic costs.

In terms of *Conditionalities*, the only policy adjustment that increases support for international transfers is mandated increases in gender equality—a salient policy issue in a highly patriarchal country. Interestingly, mandated increases in the rights of religious minorities decreases support for the plan, although this effect is statistically indistinguishable from the base case scenario of no conditionalities. Mandated increases in trade with the donor country have no effect.

Finally, we observe greater support for transfer plans with any kind of *Monitoring*. The most preferred type of monitoring involves both the Indian and donor governments, although we also find high support for monitoring by governments and international agencies.²² Given

²²This result diverges from previous research in rich countries that finds greatest support for monitoring by independent commissions rather than by governments themselves (Bechtel and Scheve, 2013).

that donor countries often prefer to be involved in monitoring, this also highlights an area of shared interests between the donor and recipient countries.²³ In sum, the India experiment shows several features of policy design that can win popular support consistent with donor (US) preferences.

4 Conclusion

Transfers from developed countries to developing countries are expected to play a major role in transitioning the global economy to a lower carbon future. Yet we know relatively little about the determinants of popular support for such transfers. Some work points to reluctance in developed countries to send money abroad that could be used for climate investments at home; resistance in developing countries to accept money from foreign donors could also be in place. However, much of the literature on climate transfers has centered on the idea of efficiency. Building on the observation that pure efficiency rationales are insignificant movers of public support, we propose a broader set of distributional considerations that may cultivate popular acceptance for climate transfers. In particular, we theorize that some design features of climate transfers are especially appealing because they generate specific benefits that are of interest to diverse coalitions of voters.

Using multiple waves of general population surveys in the US and India, we show that home country biases remain strong and are not attenuated by efficiency considerations, and that this is true of *both* developed and developing countries. But we also show that support for international transfers increases significantly in both donor and recipient countries when transfers explicitly address climate justice and distributional issues. Support increases in both countries by incorporating compensation to redress human vulnerability to climate change and decarbonization policy. Furthermore, transfers structured as grants split between donor and recipient country firms are also favored in both nations. Other factors such as

²³Appendix D reports results where we allowed interactions between several of the conjoint dimensions. We did not find substantial sub-group differences in this sample.

reciprocity similarly ignite popular support for cross-border climate financing; both donor and recipient publics also support pursuing mitigation over adaptation. We suggest that these attributes represent significant opportunities for cultivating mutual support and inclusively beneficial designs for cross-border climate transfers (Mohlakoana et al., 2023). Our key contribution, therefore, is to highlight the political dimensions of support for climate transfers, pointing a pathway forward for policymakers seeking to foster mass support for such cross-border arrangements.

With respect to partnerships, our findings are consistent with real-world policies of some donors, including Canada and the European Union, which have made commitments and established initiatives to provide financing to both public and private partners in developing countries. Regarding compensation, our results fit into a broader context of policy discourse for compensation toward climate-vulnerable countries that culminated in nearly 200 countries signing on to the COP27 U.N. agreement to establish a Loss and Damage Fund. Yet we note that the public’s preference for mitigation over adaptation uncovered in both countries is more in line with existing climate financing deals, which have allocated around three times as much funding to mitigation as adaptation (OECD, 2022).

One implication of these findings, then, is that mitigation-oriented transfers that incorporate compensatory arrangements for communities at risk from decarbonization are likely to muster greater support from mass publics. Provisioning funds for compensating transitioning workers may be best done alongside mitigation policies like green financing programs. Correspondingly, policymakers seeking to drum up support for transfers can portray mitigation and adaptation efforts not as mutually exclusive but as complementary. A broader definition of adaptation that encompasses adapting to future climate impacts complements mitigation efforts since mitigation reduces the need for longer-term adaptation.

A range of opportunities exist for additional work. The long-term support of transfers may be contingent on additional theoretical considerations, such as voters’ responses to the size and scope of prior transfers and perceptions that earlier funds have been effectively

spent. Voters may also be sensitive to additional factors in the allocation of climate financing, including regime type, alliance status, perceptions of recipient country institutions, state capacity, and levels of corruption and waste (Weiler, Klöck and Dornan, 2018); future work can examine support for varying the use of conditionalities in the disbursement of aid depending on the political and institutional features of potential recipient countries. Additionally, evidence suggests that voters prefer directing climate financing toward individuals with the least ability to pay. Ability to pay and vulnerability towards climate-related hazards may be two distinct considerations. We have already collected experimental data on a number of these additional dimensions but present them elsewhere given length constraints. Finally, future studies should further unpack the motivations behind the popularity of partnerships, e.g., whether private agents are perceived to be less corrupt than public agents, and the ideational versus material appeals behind compensation support.

References

- Aklin, Michaël and Matto Mildemberger. 2020. “Prisoners of the Wrong Dilemma: Why Distributive Conflict, Not Collective Action, Characterizes the Politics of Climate Change.” *Global Environmental Politics* 20(4):4–27.
- Ansolabehere, Stephen and David M Konisky. 2014. *Cheap and clean: how Americans think about energy in the age of global warming*. Mit Press.
- Arias, Sabrina B. and Christopher W. Blair. 2022. “Changing tides: public attitudes on climate migration.” *Journal of Politics* 84:560–567.
- Bechtel, Michael M, Federica Genovese and Kenneth F Scheve. 2019. “Interests, norms and support for the provision of global public goods: the case of climate co-operation.” *British journal of political science* 49(4):1333–1355.
- Bechtel, Michael M and Kenneth Scheve. 2013. “Mass Support for Climate Cooperation Depends on Institutional Design.” *Proceedings of the National Academy of Sciences of the United States of America (PNAS)* 110(34):13763–8.
- Bechtel, M.M., K.F. Scheve and E. van Lieshout. 2022. “Improving public support for climate action through multilateralism.” *Nature Communication* 13.
- Bergquist, Parrish, Matto Mildemberger and Leah Stokes. 2020. “Combining Climate, Economic, and Social Policy Builds Political Support for Climate Action in the US.” *Environmental Research Letters* 15(5).
- Bermeo, Sarah Blodgett and David Leblang. 2015. “Migration and foreign aid.” *International Organization* 69(3):627–657.
- Blankenship, Brian, Michael Aklin, Johannes Urpelainen and Vagisha Nandan. 2022. “Jobs for a just transition: Evidence on coal job preferences from India.” *Energy Policy* 165.
- Brutger, Ryan and Richard Clark. 2023. “At What Cost? Power, Payments, and Public Support of International Organizations.” *Review of International Organizations* 18(3).
- Buntaine, Mark T and Lauren Prather. 2018. “Preferences for domestic action over international transfers in global climate policy.” *Journal of Experimental Political Science* 5(02):73–87.
- Chilton, Adam S, Helen V Milner and Dustin Tingley. 2020. “Reciprocity and public opposition to foreign direct investment.” *British Journal of Political Science* 50(1):129–153.
- Colgan, Jeff, Jessica F Green and Thomas Hale. 2020. “Asset Revaluation and the Existential Politics of Climate Change.” *International Organization, Forthcoming* (2).
- Dechezlepretre, Antoine, Adrien Fabre, Tobias Kruse, Bluebery Planterose, Ana Sanchez Chico and Stefanie Stantcheva. 2022. “Fighting Climate Change: International Attitudes Toward Climate Policies.” *Harvard Working Paper* .

- Diederich, Johannes and Timo Goeschl. 2018. "Voluntary action for climate change mitigation does not exhibit locational preferences." *Journal of Environmental Economics and Management* 90:175–180.
- Dietrich, Simone. 2021. *States, Markets and Foreign Aid*.
- Dolsak, Nives and Aseem Prakash. 2022. "Three faces of climate justice." *Annual Review of Political Science* 25:283–301.
- Elhard, Diana. 2022. "Understanding Climate Finance: The Growth of the UNFCCC." *working paper* .
- Gaikwad, Nikhar, Federica Genovese and Dustin Tingley. 2022. "Creating Climate Coalitions: Mass Preferences for Compensating Vulnerability in the World's Two Largest Democracies." *American Political Science Review* .
- Gampfer, Robert, Thomas Bernauer and Aya Kachi. 2014. "Obtaining public support for North-South climate funding: Evidence from conjoint experiments in donor countries." *Global Environmental Change* 29:118–126.
- Gazmararian, Alexander and Dustin Tingley. 2023. *Uncertain Futures: How to Unlock the Climate Impasse*. Cambridge University Press.
- Graham, Erin R. and Alexandria Serdaru. 2020. "Power, control, and the logic of substitution in institutional design: The case of international climate finance." *International Organization* 74:671–706.
- Hainmueller, Jens, Daniel J. Hopkins and Teppei Yamamoto. 2014. "Causal inference in conjoint analysis." *Political Analysis* 22.
- Hawkins, Darren G, David A Lake, Daniel L Nielson and Michael J Tierney. 2006. *Delegation and agency in international organizations*. Cambridge University Press.
- Heinrich, T., Kobayashi Y. and K. Bryant. 2016. "Public opinion and foreign aid cuts in economic crises." *World Development* 77.
- Jacobs, A. M. and J. S. Matthews. 2012. "Why do citizens discount the future? public opinion and the timing of policy consequences." *British Journal of Political Science* 42.
- Landis, Florian and Thomas Bernauer. 2012. "Transfer payments in global climate policy." *Nature Climate Change* 2(8):628–633.
- Mattoo, Aaditya and Arvind Subramanian. 2012. "Equity in climate change: an analytical review." *World Development* 40(6):1083–1097.
- Meckling, Jonas and Jonas Nahm. 2022. "Strategic state capacity: how states counter opposition to climate policy." *Comparative Political Studies* .

- Mildenberger, Matto, Sara Constantino, Paasha Mahdavi et al. 2023. “Adaptation preferences and perceptions of responsibility in climate-vulnerable regions: Results from the first cross-national survey of small island states and territories.” *Working Paper* .
- Milner, Helen and Dustin Tingley. 2015. Sailing the water’s edge. In *Sailing the Water’s Edge*. Princeton University Press.
- Milner, Helen V and Dustin Tingley. 2013. “The choice for multilateralism: Foreign aid and American foreign policy.” *The Review of International Organizations* 8(3):313–341.
- Mohlakoana, N., Lokhat M., N. Dolsak and A. Prakash. 2023. “Varieties of just transition: Public support in South Africa’s Mpumalanga coal community for different policy options.” *PLOS Climate* 5.
- OECD. 2022. “Climate Finance and the USD 100 Billion Goal.” *OECD* .
- Pai, Sandeep and Hisham Zerrihi. 2021. “A novel dataset for analysing sub-national socioeconomic developments in the Indian coal industry.” *IOP SciNotes* 2(1):014001.
- Peters, Glen P, Jan C Minx, Christopher L Weber and Ottmar Edenhofer. 2011. “Growth in emission transfers via international trade from 1990 to 2008.” *Proceedings of the national academy of sciences* 108(21):8903–8908.
- Pickering, Jonathan, Carola Betzold and Jakob Skovgaard. 2017. “Special Issue: Managing Fragmentation and Complexity in the Emerging System of International Climate Finance.” *International Environmental Agreements* 17:1–16.
- Sabel, Charles F. and David G. Victor. 2017. “Governing global problems under uncertainty: making bottom-up climate policy work.” *Climatic Change* 144.
- Steckel, J. C., Jakob M. Flachsland C. Kornek U. Lessmann K. and O. Edenhofer. 2017. “From climate finance toward sustainable development finance.” *Wiley Interdisciplinary Reviews: Climate Change* 8.
- Timperley, J. 2021. “How to fix the broken promises of climate finance.” *Nature* 598:400–402.
- Tingley, Dustin and Michael Tomz. 2014. “Conditional cooperation and climate change.” *Comparative Political Studies* 47(3):344–368.
- Weiler, Florian, Carola Klöck and Matthew Dornan. 2018. “Vulnerability, good governance, or donor interests? The allocation of aid for climate change adaptation.” *World Development* 104:65–77.
- Yeo, Sophie. 2019. “Where climate cash is flowing and why it’s not enough.” *Nature* 573(7774):328–332.

Climate Action from Abroad: Assessing Mass Support for Cross-Border Climate Compensation

Appendices

A	Policy and Scholarly Discussion on Climate Transfers	1
B	Vignette Experiment	4
C	Conjoint Results for Policy Ratings	8
D	Conjoint Dimension Interactions	9
E	Heterogeneous Effects in Conjoint Experiments	12

A Policy and Scholarly Discussion on Climate Transfers

Select design feature of international climate finance are discussed below to highlight real-world policy debates and public discourse around climate transfers and public financing.

Partners Developed countries including Canada and the US have predominantly partnered with non-private bilateral and multilateral partners (i.e., developing country governments, non-governmental organizations, multilateral organizations, and dedicated climate funds and financial mechanisms, such as GCF and GEF). However, countries including Canada and members of the European Union have also developed initiatives aimed at the mobilization of private sector participation.

Compensation At COP27 in November 2022, nearly 200 countries signed on to a United Nations agreement to compensate developing countries for loss and damage resulting from climate change. In response to prior concerns expressed on behalf of developed countries (Harvey, Lakhani and Gayle, 2022), the agreement states that nations cannot be held legally liable for payments (Bearak and Gross, 2022). Many of the details around the implementation of this agreement are yet to be determined; over the course of 2023, representatives of 24 countries will align on the structure of the fund, contributors, and recipients. Recent scholarship has found that voters in developed countries have preferences towards funding on the basis of need (Kruse and Atkinson, 2022). However, existing evidence does not seem to suggest that developed countries are making financing decisions primarily on the basis of vulnerability to climate-change related hazards (Doshi and Garschagen, 2020). There is mixed evidence on the relationship between perceived vulnerability and public opinion.

Large developing nations like India and China have played an important role in international negotiations around climate compensation. For example, India was a major proponent of the Loss and Damage Fund at COP27. On one hand, the political stances of large developing countries on loss and damage are an important signal of solidarity with other countries that are similarly at risk due to climate disasters, in particular smaller states that may have less of an international platform from which to demand support from developed states. On the other hand, some developing countries including small island developing states (SIDS) have called for countries such as India and China to bear some responsibility, given the large share of global emissions for which they account, in financing the Loss and Damage fund and supporting adaptation and mitigation efforts in smaller countries (Goswami, 2022). China has suggested that it will not provide support to other developing countries given that it

sees itself as a developing country, and has argued that it is under no obligation to provide financial support under UNFCCC (Harvey, Lakhani and Gayle, 2022). Their refusal will likely have significant implications for the buy-in of other countries such as the US. The link drawn between climate-related reparations as a form of compensation aimed at benefiting those who are adversely impacted by historical systems like colonialism, and mitigating the influence of ‘neocolonial’ institutions (e.g., IMF, World Bank) is becoming increasingly prevalent in discourse as captured by news media (Harvey, Lakhani and Gayle, 2022).

Reciprocity Developed countries have publicly advocated for reciprocity on the basis of current emissions as opposed to national wealth or GDP or level of development, with the US in particular signalling that its funding would be contingent on China’s participation as well. Research suggests that public opinion towards the disbursement of climate finance is positively impacted by the involvement of other countries; specifically, if the share of total financing taken on by other countries is greater than the share of financing deployed by the country from which the respondent is from (Gampfer, Bernauer and Kachi, 2014).

Goal Policy discussions and government statements surrounding transfers have touched upon both adaptation and mitigation efforts. While mitigation financing efforts have commanded nearly three times more financing than adaptation efforts per OECD estimates, the goal to raise \$100 billion per year by 2020 specifically for mitigation purposes, which was initially set at COP15 in 2009, has yet to be met (OECD, 2022). However, developed countries and regions including the US, Canada, and the European Union have reaffirmed their commitment to this target in recent years. Mitigation financing may be preferred by developed states as there is a greater ability to measure of success through the quantification of avoided or captured emissions compared to assessing the effectiveness of adaptation efforts. Further, adaptation efforts require a deeper understanding of geographically-specific consequences of climate change. Adaptation actions are largely financed by grants instead of loans, as business models for these projects are not as developed in terms of revenue generation as for mitigation-related efforts. This can also partly explain the lower degree of uptake of projects with adaptation-related objectives. Finally, given that adaptation efforts are more likely to be required in countries characterized by developing markets, there is likely to be a higher risk-profile associated with these investments. Academic literature has suggested that public opinion in developed countries towards climate finance is impacted by the explicit objective of the financing, with funding targeted at both mitigation and adaptation more acceptable than funding for adaptation alone (Gampfer, Bernauer and Kachi, 2014).

Recently, policymakers in developing countries have been encouraging a prioritization of adaptation efforts over mitigation. At COP27, India and other developing countries successfully pushed for the agreement to establish a Loss and Damage Fund for countries that are particularly vulnerable to climate-related disasters. Given vastly different micro-climates as well across the Indian subcontinent, researchers and activists have highlighted the importance of local, region-specific adaptation efforts that also take into account variances in the socioeconomic and cultural realities faced by Indians. Indian government officials have also recently advocated for increased prioritization of adaptation efforts. Because the benefits of mitigation efforts are diffuse while the benefits of adaptation are predominantly national or regional, this may suggest that Indian policymakers are seeking to use mitigation efforts as leverage for receiving financial support for adaptation. For example, Indian government offi-

cials have stated that achieving the objectives of their previously communicated Nationally Determined Contributions would be conditional upon their receipt of a trillion dollars in climate finance from developed countries, and that funding for adaptation purposes specifically must be increased (Koshy, 2021).

Cost As with other policy issues, governments are limited in their capacity to disburse climate-related funding by domestic political constraints. Given that in the United States, attitudes around climate policy and the transition to net-zero are divided sharply along partisan lines, the degree of financing allocated towards the transition may be a secondary concern to the question of whether or not climate policy should be prioritized at all. Notably, the Republican Party has articulated a prioritization of domestic energy security over support for the transition in the US or elsewhere (Barasso, 2022). Similarly, Democrats have pinned the shortcomings of the Green Climate Fund on the Republican Party’s “refusal to engage on climate change in any meaningful way”(Friedman, 2022). The backdrop of very high inflation rates globally has only served to further politicize the issue, as has the energy crisis brought on by the Russia-Ukraine conflict. Recent scholarship suggests that within donor countries, the current share of emissions (e.g., the polluter pays principle) ought not to be the predominant determinant of the distribution of costs associated with adaptation finance, with a dimension rooted in the donor’s ‘ability to pay,’ (Kruse and Atkinson, 2022).

From the perspective of developing countries including India, cost is a major factor in policy discussions. With significant inflation and rising interest rates globally, there are concerns that higher cost of capital may have adverse effects on capital-intensive decarbonization investments, particularly in the context of emerging markets where investments are typically associated with a higher risk profile. However, climate economists suggest that this concern is mostly unfounded, with little to no impacts predicted (Bhat and Purohit, 2022). Given growing energy demand and the development of India's economy, Indian government officials and policymakers have emphasized the need for international cooperation and financing to take advantage of the low-carbon opportunities required to transition. While social and transaction costs are significant, the largest challenge is associated with capital costs. Indian government officials have emphasized the importance of developed countries fulfilling their prior financing commitments as these pose a dependency for developing countries; a government official from the Ministry of Environment, Forests and Climate Change, said in the lead up to COP27 that the “[the funding gap] needs to be met by international climate public financing to attract investors in the renewable energy domain,” (Arasu, 2022). Importantly, Indian government officials have positioned the decision to facilitate the transition as binary (i.e., to transition or not to transition) based upon reaching a critical threshold of financing, using this as a critical condition which, if not met, will preclude the nation from setting adaptation and mitigation targets (Koshy, 2021). Indian government officials from the Ministry of Environment, Forest and Climate Change have also publicly called for “enhanced climate finance that is largely public, grant based and concessional,” (Delhi, 2023).

Conditionalities Recent scholarship suggests that important differences between climate finance and traditional development finance may render typical “institutionalist turn” frameworks less applicable, which could offer a potential explanation as to why conditionalities around institutional development may be less pervasive in climate-related lending (Browne, 2022). However, some literature suggests that developed countries make financing decisions

not only on the basis of climate change vulnerability, but also with consideration of the institutions present in the recipient country as a proxy for how ‘well-governed’ these states are (Weiler, Klöck and Dornan, 2018), the extent to which corruption and waste are associated with existing regimes (Gampfer, Bernauer and Kachi, 2014), institutional capacity (Doshi and Garschagen, 2020) as well as the potential economic and political benefits for the home country. These factors are taken into consideration when states make funding decisions, but also impact public opinion for or against funding, suggesting that selection could be occurring in an earlier stage of the financing decision making process without the use of explicit conditionalities.

B Vignette Experiment

Our vignette experiments probe the role of efficiency considerations and home bias in cross-border compensation preferences. The experiments vary the cost of climate mitigation as a function of the climate policy target. For donor country respondents, mitigating at home is more expensive than mitigation abroad. For recipient country respondents, mitigation financed by foreign transfers is cheaper than mitigating at home. Compensation also varies according to whether it is funneled to policy vulnerable communities at home or abroad.²⁴ Thus, developing countries accepting transfers must be willing to implement *more* emissions reductions than donor countries.²⁵ The experiments test whether home bias can be attenuated by economic efficiency considerations and whether compensation (conditional on household costs) shifts preferences for international transfers among donor and recipient country publics²⁶

We deployed our vignette experiment on nationally representative samples in the US and India.²⁷

B.1 US Experimental Design and Results

American respondents choose between two hypothetical policies the government could enact to achieve the same reduction in global emissions (bold figures reflect experimental manipulations):

²⁴Specifically, we focus on compensating coal workers who risk losing jobs from decarbonization. Coal is the most polluting energy source and workers’ compensation is a pressing political priority in both the US and India. Appendix A reviews public discourse around these issues.

²⁵If poorer countries receive transfers to help transition fossil fuel workers to other sectors, then more emissions cuts—and more job losses in the recipient country as opposed to the donor country—would be required. Alternatively, costs for transitioning workers can be entirely borne by developing countries themselves, in which case emissions cuts would be lower and fewer individuals would lose jobs.

²⁶We held constant additional theoretical determinants. For example, mitigation is the sole goal of the transfers, and national governments are the only transfer agreement partners. This allows us to first ascertain how the general public evaluates the tradeoffs between efficiency-based transfers and transfers motivated by other considerations.

²⁷We also fielded the experiment on targeted samples in regions particularly vulnerable to decarbonization policy (“Coal Country” sample) and regions vulnerable both to the physical impacts of climate change and decarbonization policy (“Cross-Pressured” sample), following Gaikwad, Genovese and Tingley (2022). The findings, available upon request, were largely similar to the general population findings.

Suppose that in order to combat climate change, the US government can choose between two options, which would result in the same reduction of global fossil fuel emissions.

Option A. The US government attempts to reduce the use of fossil fuels at home. The average household energy cost in the US is increased by \$64. These funds are used to compensate American workers in the coal and oil industries who will lose jobs due to policies implemented in the US.

Option B. The US government attempts to help the government of a developing country like India reduce the use of fossil fuels. The average household energy cost in the US is increased by [**\$8 / \$32**]. These funds are used to compensate Indian workers in the coal and oil industries who will lose jobs due to policies implemented in India.

The cost of compensation is lower in the second option because wages are lower in developing countries, making it far cheaper to compensate workers who lose jobs there than in the US.

If you had to choose, which options would you pick?

		Option A: Support for High Home Costs [\$64] & Domestic Compensation	Option B: Support for Low Cost Transfers [\$8/32] & Foreign Compensation
Cost: \$8	(n=936)	66%	34%
Cost: \$32	(n=926)	74%	26%

Table 3: *US general population samples and preferences for Option A (higher costs, domestic compensation) and Option B (lower costs, foreign compensation).*

Table 3 reports the findings. Column 1 indicates the proportion of general population voters that supported the policy option targeting domestic emissions reductions, with average household energy costs rising in the US by \$64. Column 2 reports support for international transfers resulting in the same net reduction of emissions. The upper panel of Table 3 considers international transfers that would raise average household energy costs in the US by only \$8, while the lower panel focuses on international transfers that raise average US household costs by \$32.

Strikingly, across both the \$8 and \$32 international transfers choices, the majority of American respondents eschew international transfers. Voters disfavor foreign transfers, even if it means that they must incur significantly higher costs to fund domestic transfers. That said, our results do indicate some cost sensitivity among respondents. Support for high-cost domestic transfers falls from 74% at the \$32 international transfers option to 66% at the \$8 international transfers option.²⁸ This treatment effect is statistically significant, although the

²⁸In additional analyses (available upon request) we investigate the treatment effects by reporting the results of OLS regressions that adjust for pre-treatment covariates.

magnitude indicates that efficiency considerations are secondary. Even when international transfers are substantially cheaper than domestic action, only one third of Americans support international transfers; the majority would rather incur higher personal costs to direct action domestically, evidencing home bias over efficiency considerations.

B.2 India Experimental Design and Results

We introduced a congruent set of tradeoffs to the general population in India. The first option proposes an increase in monthly household energy costs in order to compensate coal workers, with domestic emissions reduction in India proportional to emissions reduction in the US. Energy costs increased be either ₹140 or ₹2,240. The second option entails no cost increase; compensation for Indian coal workers who lose jobs would come from the US, but India would be required to reduce a higher proportion of coal emissions relative to the US, with more Indian coal workers losing jobs. The increase in India’s emissions at the lower cost option parallels the structure of our US surveys. The question was worded as follows:

Suppose now that in order to combat climate change, the Indian government can choose between two options, which would result in the same reduction of global fossil fuel emissions.

Option A. Indians increase their average monthly household energy costs by [**Rs. 140 / Rs. 2,240**] to compensate Indian coal workers who lose jobs. However, India will have to reduce the same proportion of coal emissions as developed countries like the US.

Option B. Indians will not increase their household energy costs because the US will send money to compensate Indian coal workers who lose jobs. However, India will have to reduce a much greater proportion of coal emissions than the US and more Indian coal workers will lose jobs compared to Option A.

Q. If you had to choose, which option would you pick?

		Option A: Support for Home Costs [₹140/2,240] & Lower Compensation	Option B: Support for No-Cost Transfers & Greater Compensation
Cost: ₹140	(n=1005)	66%	34%
Cost: ₹2,240	(n=1034)	62%	38%

Table 4: *India general population samples and preferences for increased energy costs and reduction equity versus foreign aid, no energy cost increases and greater emission reductions.*

Table 4 presents our findings. Across both levels of cost increases, a majority of Indians chose to incur higher costs and have equitable emissions reductions across India and the US than to receive transfers on the condition that India reduce more emissions. Evidently, the home-country bias we documented among donor country voters extends to voters in recipient countries. Indian respondents indicate more support for the policy that results in higher personal material costs than cost-neutral international transfers that necessitate greater emission reductions.

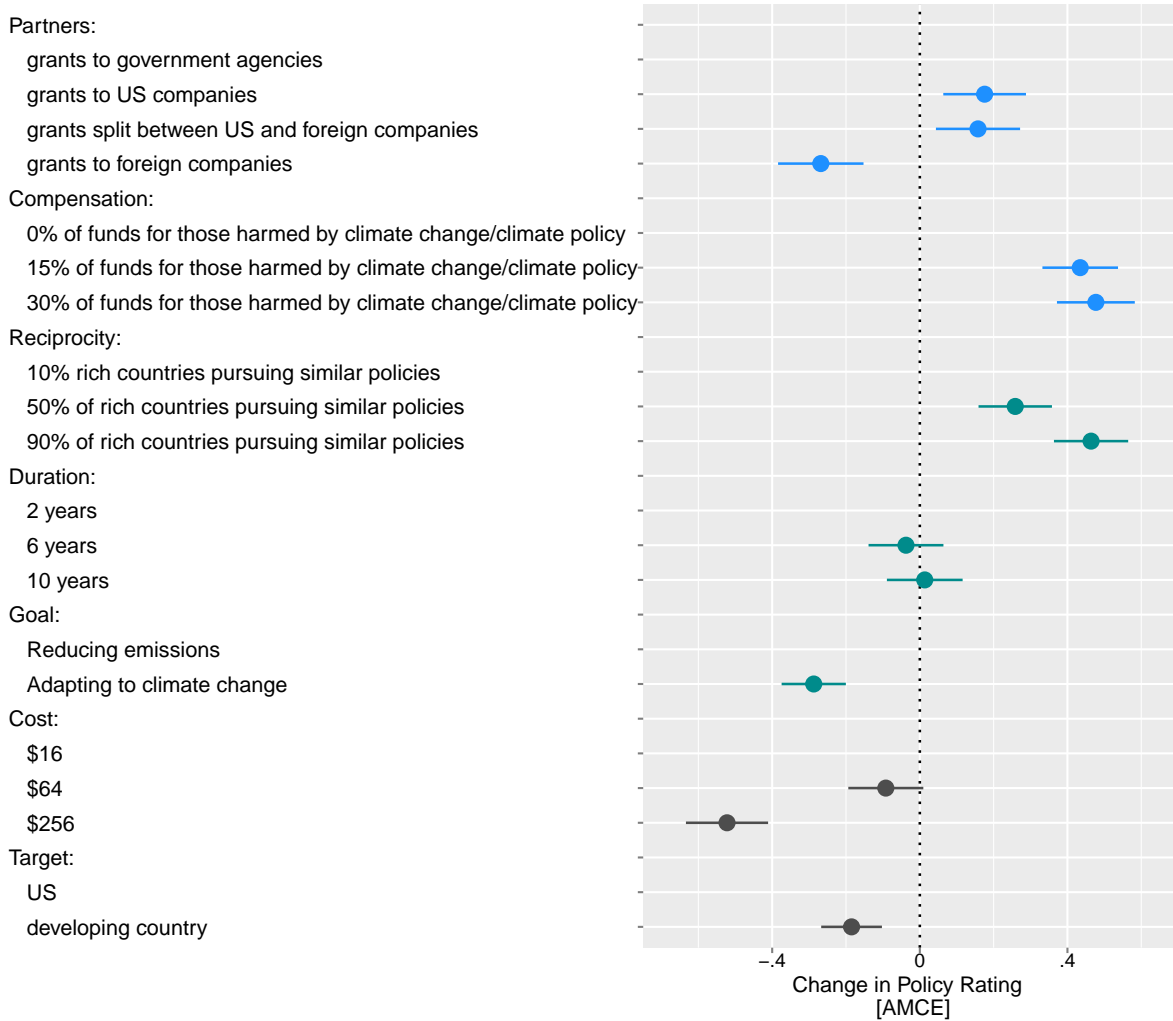
At the lower (₹140) cost level, 66% of respondents oppose international transfers; at the higher (₹2,240) cost level, 62% of respondents oppose such transfers. This treatment effect is small in magnitude and only marginally significant statistically. Increasing the monthly household energy costs associated with domestic action does not meaningfully lead voters to favor international transfers. Presumably, Indians would rather incur personal material costs and oppose financing from the US because they consider it unfair that the transfers will result in more Indian coal workers losing jobs than if the country pursued mitigation domestically.

The India results corroborate the US findings. Home bias prevails among a majority of the electorate, which prefers domestic spending to economically more efficient international transfers, in both donor and recipient countries. Sharpening the global efficiency gains associated with transfers in the minds of voters does not augment support. These findings are instructive, but they raise a fresh set of questions. While a critical contingent of voters (approximately one-third in both the US and India) support international transfers, we cannot disentangle whether this is because—or in spite—of the compensatory features in the transfers.

C Conjoint Results for Policy Ratings

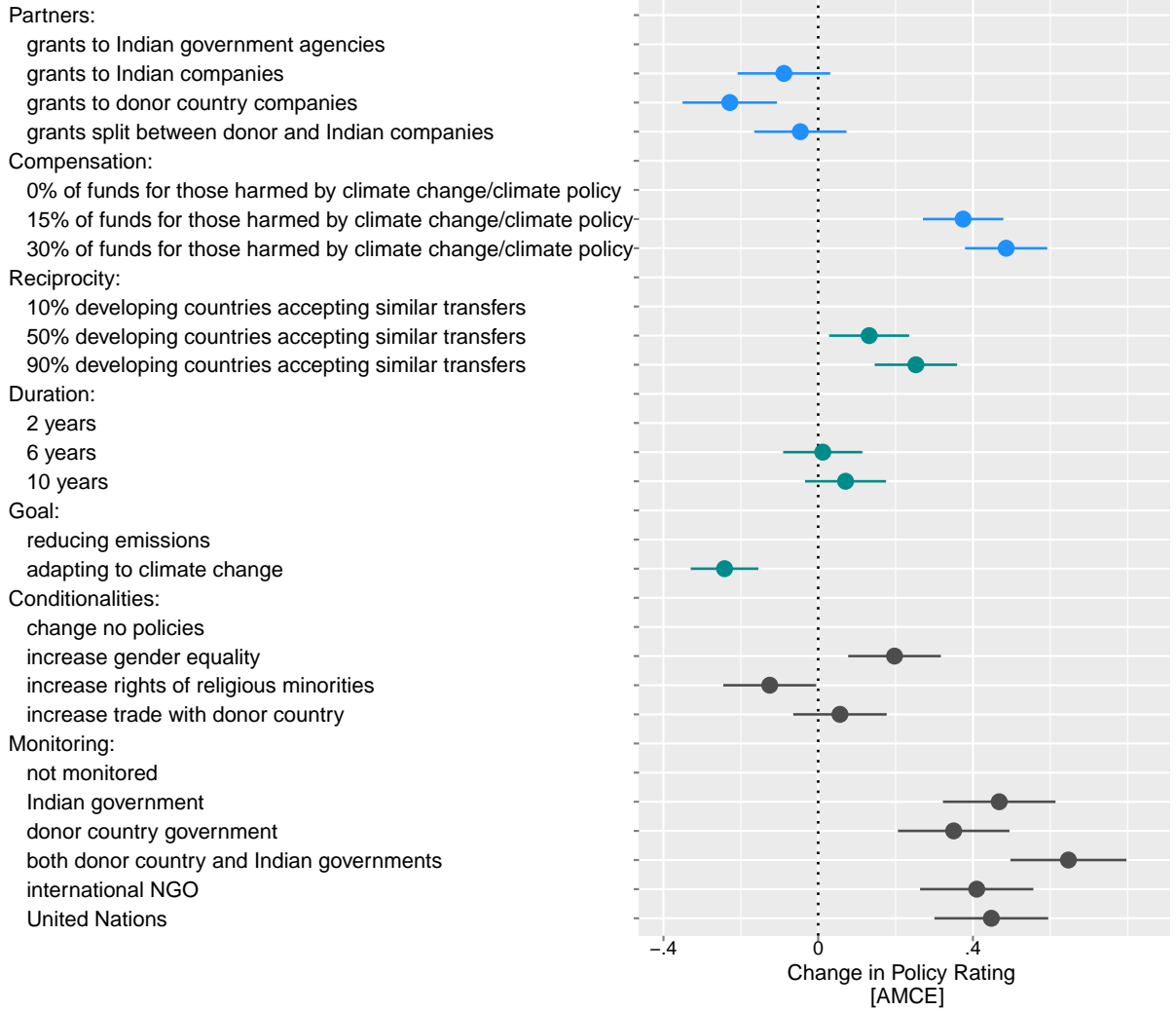
Figure 3 (US data) and Figure 4 (India data) report the conjoint results where the outcome variable is each policy's ratings (scale 1-10) instead of the choice between two policies. These results indicate that the main findings in the paper are not an artifact of the forced choice, and exist even in light of individuals with low tolerance for climate policies. On average the findings across attribute levels are consistent with the results reported in the main text.

Figure 3: US Policy Conjoint Results: Ratings



Average Marginal Component Effects (AMCE) calculated from the first conjoint rating experiment for the different dimensions with 95% confidence intervals (respondent-level clustered standard errors). Individual rating of each policy is the dependent variable. Points without bars indicate the reference category for a given dimension.

Figure 4: India Policy Conjoint Results: Ratings



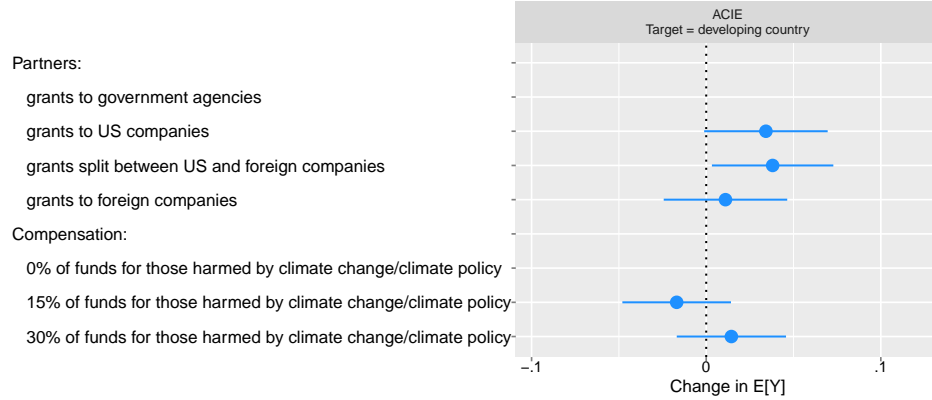
Average Marginal Component Effects (AMCE) calculated from the first conjoint rating experiment for the different dimensions with 95% confidence intervals (respondent-level clustered standard errors). Individual rating of each policy is the dependent variable. Points without bars indicate the reference category for a given dimension.

D Conjoint Dimension Interactions

This Appendix reports the coefficients of the *partners* and *compensation* attributes conditional on fixed values of other dimensions. For the US, we fix the *target* to ‘developing country’ and the *goal* to ‘adaptation’. For India, we fix the different levels of *monitoring* (see description in the main text) as well as the *goal* to ‘adaptation’. The figures below report the average component interaction effects (ACIE) of these models where the dependent variable is the binary choice outcome. (Note that, as reported in the main text, for the US we also

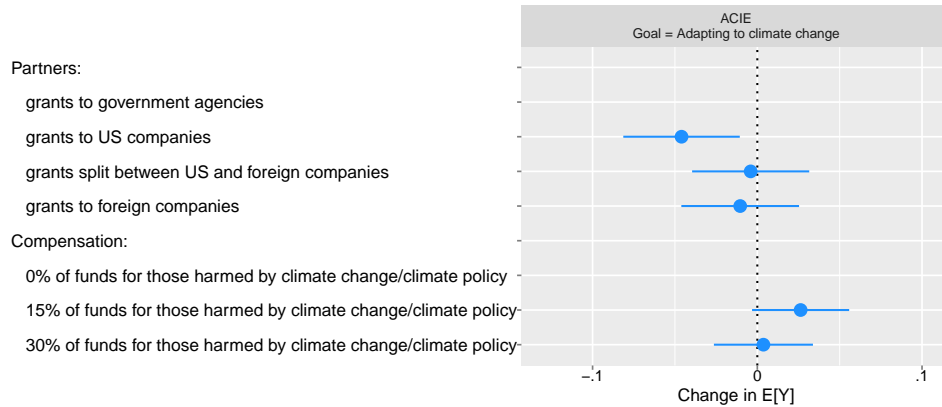
ran models where we subset the responses by the ‘developing country’ or ‘US’ levels of the *target* attribute, to find no major differences in the direction or significance of the other attributes).

Figure 5: US Policy Conjoint Results: Interactions with Developing Country as a Target



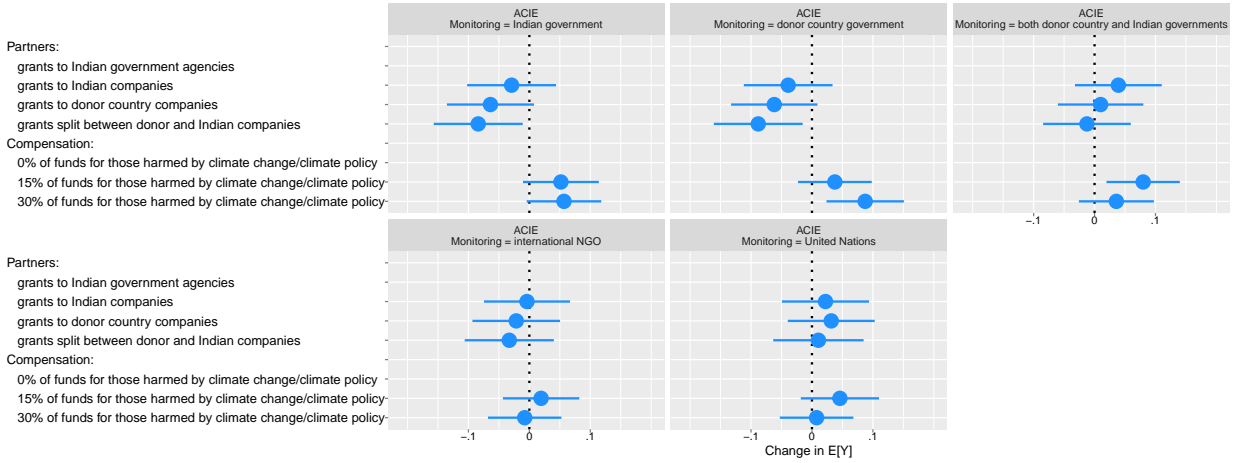
Average Component Interaction Effects (ACIE) calculated from the first conjoint choice experiment for the different dimensions with 90% confidence intervals (respondent-level clustered standard errors). Individual choice of each policy is the dependent variable. Points without bars indicate the reference category for a given dimension.

Figure 6: US Policy Conjoint Results: Interactions with Adaptation as the Goal



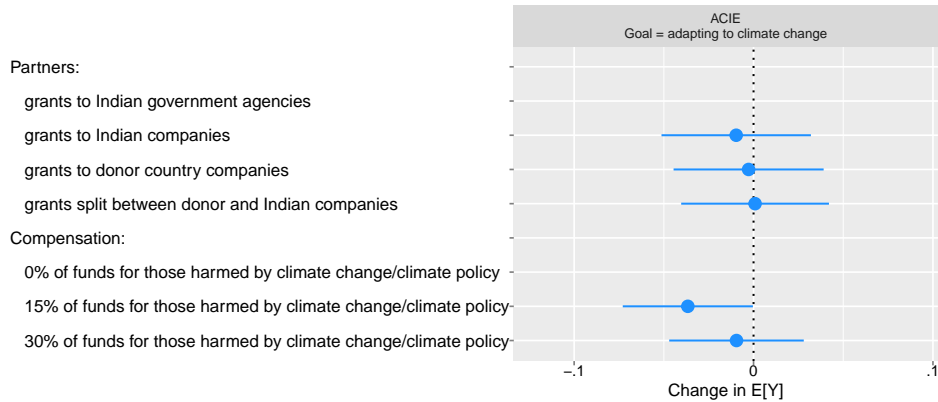
Average Component Interaction Effects (ACIE) calculated from the first conjoint choice experiment for the different dimensions with 90% confidence intervals (respondent-level clustered standard errors). Individual choice of each policy is the dependent variable. Points without bars indicate the reference category for a given dimension.

Figure 7: India Policy Conjoint Results: Interactions with Monitoring



Average Component Interaction Effects (ACIE) calculated from the conjoint choice experiment for the different dimensions with 90% confidence intervals (respondent-level clustered standard errors). Points without bars indicate the reference category for a given dimension.

Figure 8: India Policy Conjoint Results: Interactions with Adaptation as the Goal



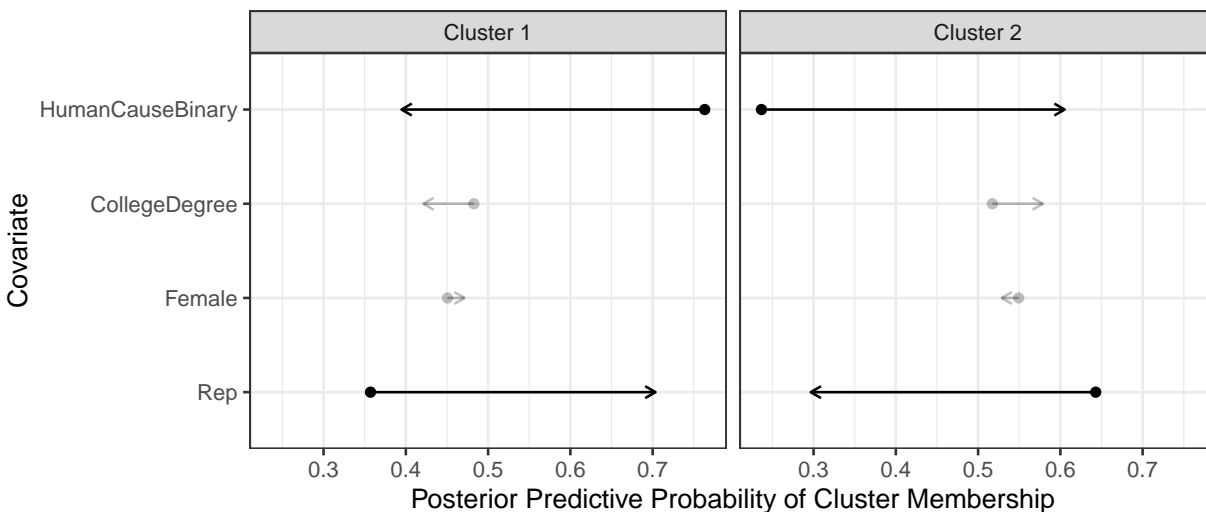
Average Component Interaction Effects (ACIE) calculated from the conjoint choice experiment for the different dimensions with 90% confidence intervals (respondent-level clustered standard errors). Points without bars indicate the reference category for a given dimension.

E Heterogeneous Effects in Conjoint Experiments

The effect of different conjoint dimensions can vary across pre-treatment variables that we observe. There are a variety of approaches to do this, including subsetting the data by covariate values or interacting treatment levels and pre-treatment covariates and utilizing sparse regression methodologies (e.g., Ratkovic and Tingley, 2017). Here we leverage new advances by Goplerud, Imai and Pashley (2022) that approaches the heterogeneous effect problem by identifying clusters, or groups of units, that correspond to different treatment effects. Methodologically, the approach uses mixtures of Bayesian logistic regression models with a sparse prior to prevent over fitting and the identification of covariate groups following (Goplerud, 2021). Additionally, unlike the traditional conjoint analysis approach that ignores the features of the “other” profile that respondents consider in their choice and rating exercise, this approach builds this information in using a differencing approach. That is, in choosing between A versus B, it is helpful to know not just the treatment profile of option A but also of option B. For more on this, see Egami and Imai (2018).

For each of our conjoints we use a relatively small set of covariates as potential moderators of the treatment effect, including the party ID, whether they identify as female, whether they have a college degree, or (in the US case) whether the respondent believes humans are causing global warming. We must also pre-specify the number of clusters to allow, which we set at 2. Similar results hold for 3 clusters. As in the body of the paper, we use the choice rather than rating outcome.

Figure 9: Effects of covariates on group membership for US conjoint



Probability of being in each group or cluster as a function of pre-treatment covariate values. Dark black lines indicate an effect with $p < .05$.

We see a salient effect of both being a Republican and believing the humans are causing climate change on cluster membership. Republicans are more likely to be in the first cluster

than in the second cluster. Believing that humans are causing climate change decreases the likelihood of belonging to the first cluster and increases the likelihood of belonging to the second cluster. The first cluster weighs the impact of cost very heavily whereas the second cluster considers compensation issues much more clearly. The role of partners across the two clusters is heterogeneous: While the first cluster negatively reacts to grants going to foreign countries, they significantly support grants to US companies. The effect of compensation also is heterogeneous: it activates more support in the second cluster. The calculated heterogeneity average marginal effects are available upon request.

For India we considered a range of factors including identification with the BJP party, education, income, gender, and several measures of trust to evaluate heterogeneous effects. Unlike in the United States we did not find strong evidence of heterogeneous responses to the conjoint dimensions.

References

- Arasu, Sibi. 2022. “At UN climate summit, India to flex its negotiating muscles.” *Associated Press* .
URL: <https://apnews.com/article/science-business-india-united-nations-climate-and-environment-0db74fbab76933591b4a7d6e241a208d>
- Barasso, United States Senator Wyoming. 2022. “Biden Budget is Another Pipe Dream of Climate Extremism.” *John Barasso, United States Senator - Wyoming* .
URL: <https://www.barrasso.senate.gov/public/index.cfm/2022/3/barrasso-biden-budget-is-another-pipe-dream-of-climate-extremism>
- Bearak, Max, Brad Plumer Lisa Friedman and Jenny Gross. 2022. “In a First, Rich Countries Agree to Pay for Climate Damages in Poor Nations.” *The New York Times* .
URL: <https://www.nytimes.com/2022/11/19/climate/un-climate-damage-cop27.html>
- Bhat, Perna, Nair Swathi and Milounée Purohit. 2022. “Rising interest rates only a mild snag in climate battle.” *Reuters* .
URL: <https://www.reuters.com/business/environment/rising-interest-rates-only-mild-snag-climate-battle-2022-09-28/>
- Browne, Katherine Elizabeth. 2022. “Rethinking governance in international climate finance: Structural change and alternative approaches.” *Wiley Interdisciplinary Reviews: Climate Change* 13(5):e795.
- Delhi, PIB. 2023. “India at COP27 highlighted the foundational principles of equity and common but differentiated responsibilities and respective capabilities (CBDR-RC).” *Ministry of Environment, Forest and Climate Change* .
URL: <https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1895858>
- Doshi, Deepal and Matthias Garschagen. 2020. “Understanding adaptation finance allocation: Which factors enable or constrain vulnerable countries to access funding?” *Sustainability* 12(10):4308.
- Egami, Naoki and Kosuke Imai. 2018. “Causal interaction in factorial experiments: Application to conjoint analysis.” *Journal of the American Statistical Association* .
- Friedman, Lisa. 2022. “Congress Offers \$1 Billion for Climate Aid, Falling Short of Biden’s Pledge.” *The New York Times* .
URL: <https://www.nytimes.com/2022/12/20/climate/congress-climate-finance-biden.html>
- Gaikwad, Nikhar, Federica Genovese and Dustin Tingley. 2022. “Creating Climate Coalitions: Mass Preferences for Compensating Vulnerability in the World’s Two Largest Democracies.” *American Political Science Review* .
- Gampfer, Robert, Thomas Bernauer and Aya Kachi. 2014. “Obtaining public support for North-South climate funding: Evidence from conjoint experiments in donor countries.” *Global Environmental Change* 29:118–126.

- Goplerud, Max. 2021. “Modelling Heterogeneity Using Bayesian Structured Sparsity.” *arXiv preprint arXiv:2103.15919* .
- Goplerud, Max, Kosuke Imai and Nicole E Pashley. 2022. “Estimating Heterogeneous Causal Effects of High-Dimensional Treatments: Application to Conjoint Analysis.” *arXiv preprint arXiv:2201.01357* .
- Goswami, Urmi. 2022. “Small island nations want India, China to contribute for climate fund - The Economic Times.” *The Economic Times* .
URL: <https://economictimes.indiatimes.com/news/international/world-news/small-island-nations-want-india-china-to-contribute-for-climate-fund/articleshow/95570048.cms>
- Harvey, Fiona, Nina Lakhani and Damien Gayle. 2022. “Cop27: is it right to talk of ‘reparations’?” *The Guardian* .
URL: <https://www.theguardian.com/environment/2022/nov/18/cop27-is-it-right-to-talk-of-reparations>
- Koshy, Jacob. 2021. “India demands \$1 trillion as ‘climate finance’.” *The Hindu* .
URL: <https://www.thehindu.com/news/national/india-demands-1-trillion-as-climate-finance/article37438973.ece>
- Kruse, Tobias and Giles Atkinson. 2022. “Understanding public support for international climate adaptation payments: Evidence from a choice experiment.” *Ecological Economics* 194:107321.
- OECD. 2022. “Climate Finance and the USD 100 Billion Goal.” *OECD* .
- Ratkovic, Marc and Dustin Tingley. 2017. “Sparse estimation and uncertainty with application to subgroup analysis.” *Political Analysis* 25(1):1–40.
- Weiler, Florian, Carola Klöck and Matthew Dornan. 2018. “Vulnerability, good governance, or donor interests? The allocation of aid for climate change adaptation.” *World Development* 104:65–77.