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FIGHTING CLIMATE CHANGE: INTERNATIONAL ATTITUDES TOWARD CLIMATE POLICIES

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ABSTRACT

This paper studies how people across the world perceive and understand climate change and climate policies, which factors determine their support for climate action, and what type of information shifts their policy views. We design and run new largescale surveys on more than 40,000 respondents in 20 countries, covering the major greenhouse gas emitters in developed and developing economies. We thus provide new, comprehensive, international microdata on people's perceptions, understanding, and policy views related to climate change, combined with detailed background information on their socioeconomic characteristics, energy use, and lifestyles. We show that, across countries, support for climate policies hinges on three key perceptions centered around the effectiveness of the policies in reducing emissions (effectiveness concerns), their distributional impacts on lower-income households (inequality concerns), and their impact on the respondents' household (self-interest). In the experimental part, we show randomly selected subsamples pedagogical videos on either the impacts of climate change in their country or how major climate policies work – their effectiveness in reducing emissions and their distributional implications. Explaining how policies work and who can benefit from them is critical to fostering policy support, whereas simply informing people about climate change's impacts is ineffective.

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A data appendix is available at http://www.nber.org/data-appendix/w30265

1 Introduction

Limiting the average temperature increase to less than 2°C above pre-industrial levels requires drastically reducing global emissions by 2050 (IPCC 2021). Judging by publicly announced long-term commitments and goals, policymakers appear to be taking this imperative seriously. Over 140 countries representing 90% of global greenhouse gas (GHG) emissions have so far adopted or announced climate neutrality targets (NPUC 2021) implying net-zero GHG emissions by mid-century. However, while climate mitigation ambitions are robust, bold policy measures to achieve them are strikingly lagging. Global energy-related and industrial process CO2 emissions (36.6 Gt in 2021) are only projected to slowly fall to 32 Gt by 2050 (IEA 2022), leading to a 2.7°C temperature rise by 2100, greatly increasing the likelihood of catastrophic impacts for societies and economies (Climate Action Tracker 2021; IPCC 2022).

Indeed, climate policies–particularly carbon pricing mechanisms, which economists see as key instruments to reduce emissions (Stiglitz et al. 2017)–have often been challenging to implement, even when the objective of limiting global warming is broadly accepted. As our new large-scale international survey across 20 countries reveals, at least three-quarters of respondents in each country agree that "climate change is an important problem" and that their country "should take measures to fight" it (see Figure 1), but this often does not translate into an agreement on which climate policies to support.

In this paper, we seek to understand what drives support for or opposition to important climate policies across the world. Our first contribution is to collect new large-scale survey data from 20 countries on people's perceptions of, understanding of, and attitudes toward climate change and climate policies. We currently lack comprehensive data on how people worldwide perceive and reason about these issues. However, climate change is a global problem with disparate impacts across countries and people (Carleton et al. 2022). It is thus necessary to study these questions internationally across major GHG emitters in both developed and developing economies.

The second contribution leverages our in-depth surveys to study which factors matter most for policy support. Does resistance to new climate policies stem from a lack of knowledge about the impacts of climate change? Are citizens worried about the effects of policies on their own budget and lifestyle? Do they hold broader concerns about the effects of climate policies on particular groups and the economy? Or do they question whether these policies will mitigate climate change? Our third contribution is to show what type of information is most important to shift views on climate policies.

To study these questions, we conduct large-scale international surveys on over 40,000 respondents in the twenty countries depicted in Figure 2. These countries span different income levels and social and economic contexts. They account for 72% of global 2017 CO_2 emissions (JRC 2018) and include 18 out of the 21 largest emitters of greenhouse gases.[1] We elicit respondents' knowledge and understanding of climate change and their views on a broad range of climate mitigation policies. Importantly, we do not just ask whether re-

[1]The three large emitters not included in our sample are Russia, Iran, and Saudi Arabia.

Figure 1: Share of respondents who agree (somewhat to strongly) that "Climate change is an important problem" or that their country "should take measures to fight climate change"

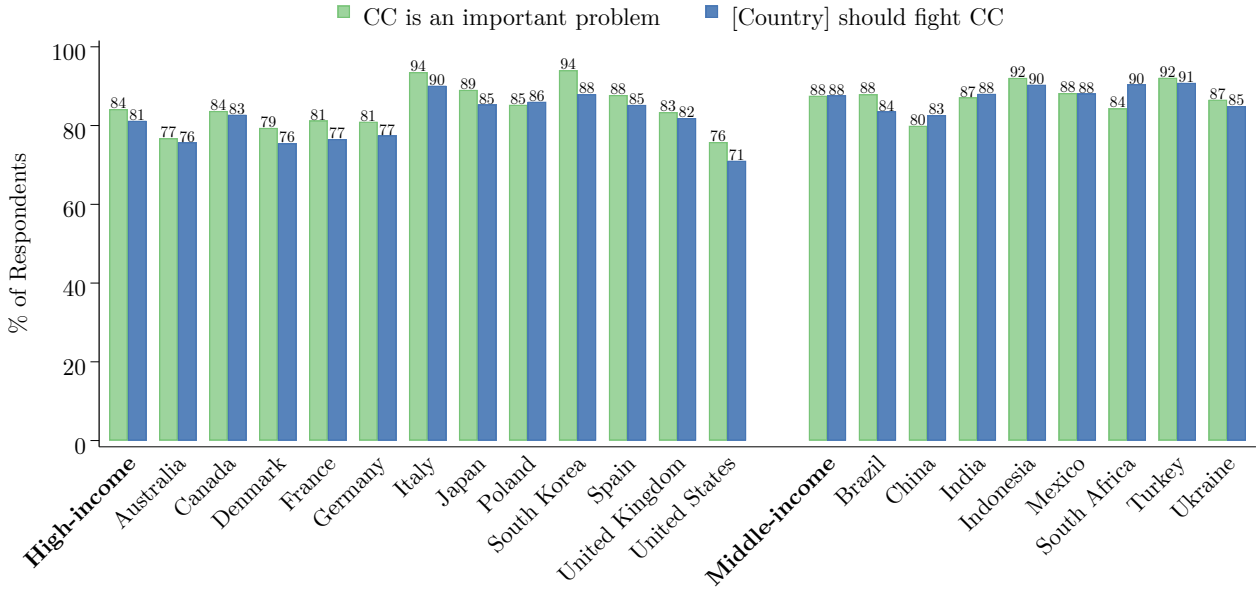
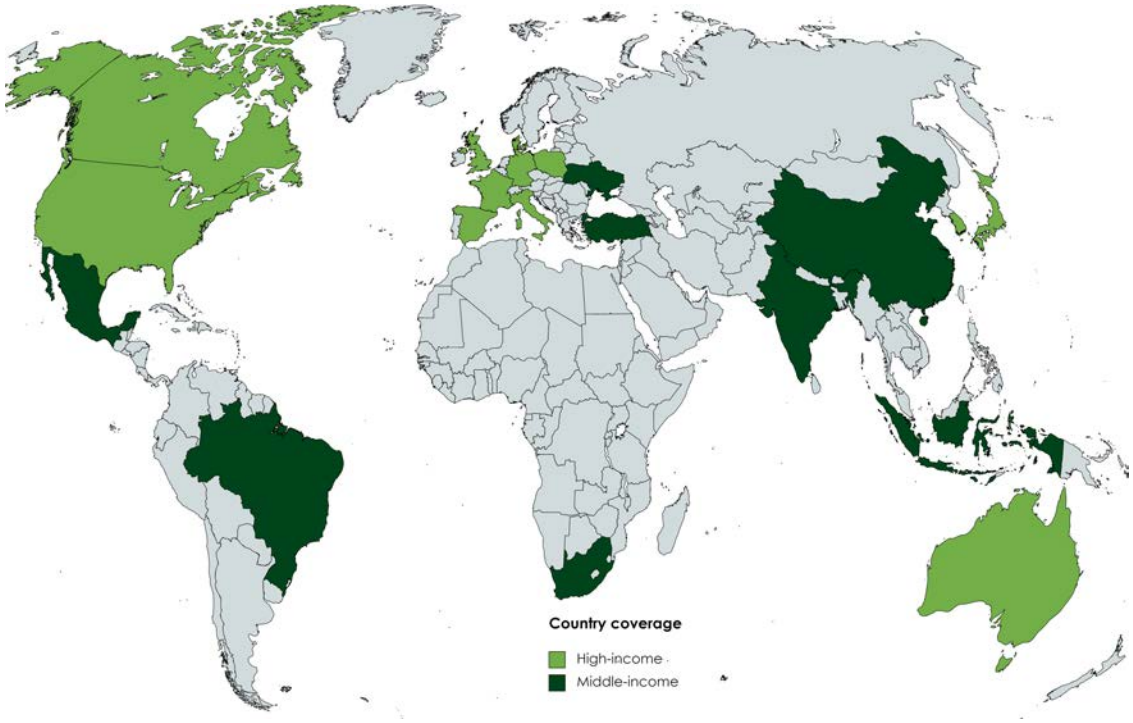


Figure 2: The 20 countries covered in the survey



spondents support or oppose a given policy. Instead, we include specific questions about their understanding and perceptions of how these policies work regarding their effectiveness,

economic impacts, distributional consequences, and effects on their household. In addition, we show random sub-samples of respondents pedagogical videos on the impacts of climate change in their country (the *Climate impacts* treatment) or on how three key climate policies – a ban on combustion-engine cars, a carbon tax with cash transfers, and a green infrastructure program – work (the *Climate policies* treatment), allowing us to measure the causal effect of specific information provision on policy views.

Our paper leverages advances in survey methodology, which is key for studying important but otherwise invisible things such as perceptions, attitudes, reasonings, and views (see, among others Stantcheva (2021) for reasoning about policies, Haaland, Roth and Wohlfart (2020) for information experiments, Johnston et al. (2017) for guidance on stated preferences studies, and Stantcheva (2022) for a review of survey methodology). Economists are somewhat weary of surveys. We often prefer revealed preference approaches, but these are not well-suited to uncovering the reasoning underlying people's policy preferences. While surveys permit measuring and analyzing people's thinking more directly, some worry that self-reported survey answers may not be accurate. However, a growing body of research shows that when possible to measure both, survey responses are correlated with real-world or real-stakes behaviors (see Fehr, Epper and Senn (2020), Tannenbaum et al. (2020), Funk (2016), and Hainmueller, Hangartner and Yamamoto (2015)). We show below (Figure 3) that self-reported preferences are positively correlated with "real stakes" behaviors, where we ask respondents to invest time or money to express their views. Furthermore, to ensure that the data is of high quality and the survey results are credible and robust, we employ many techniques described briefly in Section 2 and in-depth in Stantcheva (2022).

Our main findings are as follows. First, we shed light on the factors that foster people's support for more climate action. Three fundamental beliefs are major predictors of whether people support a given climate policy: (i) its perceived ability to reduce emissions (effectiveness), (ii) its perceived distributional impacts on lower-income households (inequality concerns), and (iii) its perceived economic impact on people's own household (self-interest). By contrast, concerns about climate change are not significant predictors of respondents' policy views – most respondents are already deeply concerned about climate impacts. Similarly, even though respondents exhibit varying degrees of knowledge about climate change's causes and consequences, this knowledge does not significantly correlate with their policy views.

Consequently, support for climate policies strongly depends on their specific modalities. There is more support for policy designs perceived to be more effective and progressive. These include targeted investment programs (e.g., in clean energy infrastructure and other low-carbon technologies) that are financed by progressive taxes or public debt and carbon taxes with strongly progressive use of revenues (such as cash transfers to the poorest or vulnerable households).[2] They also include regulations rather than corrective taxes in some settings (such as bans on polluting vehicles from city centers or dense areas and the mandatory insulation of buildings), highlighting the perceived inequity of the "pay to pollute" principles.

[2]Vulnerable households are defined as low-income or constrained, e.g., living in areas with little public transportation.

Second, we show what type of information increases support for climate action. Compared with a control group who saw no video, respondents who saw the video documenting the impacts of climate change in the viewer's country increased their willingness to take privately costly 'real-stakes' actions, including donating to a deforestation cause and signing a petition to support more climate action. However, they did not substantially alter their views on public policies to reduce climate change. On the contrary, respondents who saw a video explaining how the three central policies work - their likely effects on emissions and their distributional implications - exhibit stronger support for these and related climate policies. The same goes for respondents who see both videos. Thus, information and explanations can bolster support for public policies, but only if they address people's main concerns. Information on the dangers of climate change alone without a corresponding explanation of policies' effectiveness and distributional implications has only limited impacts on policy support. Hence, the experimental findings causally confirm the importance of the abovementioned factors, which are most predictive of policy views.

Third, we highlight how personal socioeconomic characteristics, lifestyle, and energy usage correlate with policy views and the underlying reasoning about climate change. More educated and left-leaning respondents are generally more supportive of climate policies. Higher household income is only associated with stronger climate action support in some countries.[3] There are mixed patterns across countries concerning respondents' age; it is thus not the case that young respondents are systematically more favorable to climate policies. Support for climate policies is stronger among respondents whose lifestyle is more amenable to adapting to them. Thus, opposition to climate policies is strongly correlated with lower availability of public transportation, greater reliance on cars, and, to a lesser extent, higher gas expenses.

Furthermore, these respondent characteristics are also significantly correlated with beliefs about climate policy effectiveness and distributional impacts, not just the perceived impacts on one's household (self-interest). Nevertheless, predicting beliefs or policy views based on socioeconomic and lifestyle characteristics is challenging. In other words, we are not easily able to infer people's policy views or beliefs based on their age, country, gender, education, income, political leanings, or how much they rely on polluting sources of energy.

Related Literature. Our paper contributes to the growing empirical literature which seeks to explore the drivers of support for climate policies among voters and citizens. Whitmarsh and Capstick (2018) provide an overview of work on public attitudes toward climate change, and Drews and van den Bergh (2016) summarize the research on what determines support for climate policies. Bernauer and Gampfer (2015), McEvoy and Cherry (2016) and McGrath and Bernauer (2017) study how support for climate policies depends on internationally coordinated action. Overall, people support even unilateral action by their country. We confirm these results in a larger set of countries.

The literature largely focuses on carbon taxes in a developed economies context. Klenert

[3]Brazil, India, Indonesia, Italy, Poland, and Ukraine.

et al. (2018), Maestre-Andrés, Drews and van den Bergh (2019) and Carattini, Carvalho and Fankhauser (2018) offer comprehensive reviews of work on attitudes towards carbon taxes, and offer suggestions to improve its acceptability. Umit and Schaffer (2020) leverage the European Social Survey to highlight a widespread aversion to carbon taxes, correlated with respondents' reliance on fossil fuel energy and low political trust. All these papers highlight the importance of distributional and effectiveness concerns to explain opposition to carbon pricing. They show that people often reject carbon pricing because they perceive it as ineffective (Sælen and Kallbekken (2011) for Norway), misunderstand its costs and benefits (e.g., Thalmann (2004) for Switzerland; Jagers and Hammar (2009) for Sweden), perceive it to be regressive and costly for them (Brannlund and Persson (2012) for Sweden), or care about its distributional impacts as much as about its effectiveness (Dietz and Atkinson (2010) for the U.K.; Sommer, Mattauch and Pahle (2022) for Germany). Douenne and Fabre (2022) show that opposition to carbon pricing in France during the Yellow Vest movement was driven by misperceptions about how the policy would impact people and its effectiveness. In Sweden, Ewald, Sterner and Sterner (2022) show that fuel tax protesters have similar motivations to the rest of the population. Bergquist, Mildenberger and Stokes (2020) find that, in the U.S., linking climate policy to other economic and social reforms can mitigate the concern for distributional impacts and increase the support for carbon pricing. D'Acunto et al. (2022) study support for alternative forms of financing of climate change policies in Germany. After being informed that the rich contribute more to climate change than the poor, respondents' support for carbon taxes increases.

Closely related to our paper is the work by Carattini et al. (2017) in Switzerland (see also Baranzini and Carattini (2017)). The authors study voting behavior in a large ballot on energy taxes and find (as we do) that concerns around distributional consequences and effectiveness are key determinants of voting. They also use a survey experiment to test the acceptability of alternative designs of the carbon tax. Similarly, Mildenberger et al. (2022) show (in Canada and Switzerland) that providing information on the rebate people can receive from carbon tax revenues increases support by correcting misperceptions, although attitudes are mostly determined by one's political identity.

In sum, several papers show that providing information can improve support for climate policies (mainly carbon taxes) but, contrary to our paper, they focus on a single knowledge gap in one specific country and do not study what type of information people lack most. Our finding that explaining policies' characteristics to respondents can shift their attitudes toward climate policies contributes to the ongoing discussions surrounding the importance of information in this area (e.g., Boon-Falleur et al. 2022; Kahan 2015; Sunstein et al. 2017).

In comparison to carbon taxes, the literature looking at other climate policies explored in our paper (e.g. bans, regulations, standards) that are much more prevalent in practice is limited. An example is Tarduno (2020) who studies Nevada's renewable portfolio standard and leverages an information experiment around a real-world vote. He finds that voting is relatively responsive to perceived policy effectiveness.

There have been several recent data collection initiatives across multiple countries by national or international organizations (the United Nations (UNDP 2021), Electricite de

France (EDF) and Ipsos (Ipsos 2020), the Pew Research center Stokes, Wike and Carle (2015)), and by researchers surveying Facebook users in 30 countries (Leiserowitz et al. 2021), but they do not focus on policies, contrary to our paper.

While our paper does not carry out a contingent valuation study, we also analyse willingness to adopt climate-friendly behaviors (at the individual level), which is conceptually distinct from supporting public climate policies. Related work by Bernard, Tzamourani and Weber (2022) shows that receiving information about ways to reduce CO_2 emissions increases individuals' willingness to pay for voluntary CO_2 offsetting. Andre et al. (2021) study the behavioral determinants of the willingness to fight climate change – as measured through an incentivized donation decision – in a large representative sample of U.S. adults. Predictors of climate change behavior include beliefs about social norms, patience and altruism, and universal moral values. An experiment shows that correcting the underestimation that many respondents have about the extent to which fellow citizens exhibit climate-friendly behaviors and norms improves their willingness to adopt climate-friendly behaviors. The importance of higher-order beliefs (beliefs about others' beliefs) and social norms is also emphasized in Mildenberger and Tingley (2019), Carattini, Levin and Tavoni (2019) and Bolsen, Leeper and Shapiro (2014). We do not study norms directly, but similarly find that citizens are more willing to adopt climate-friendly behaviors if others – particularly the rich – adopt them. However, across all countries, respondents also flag financial constraints as a major hurdle to the adoption of more climate-friendly behaviors.

The rest of the paper is organized as follows. Section 2 describes the data collection, the sample, and the questionnaires. The subsequent sections present our main results: Section 3 focuses on knowledge about and attitudes toward climate change; Section 4 describes the support for policies across respondents and countries; Section 5 analyzes the beliefs and reasoning about the main climate policies covered and studies the factors that shape support for climate change action; and Section 6 presents the experimental results and the causal effect of information on policy views and attitudes. The Online Appendix provides additional information on the survey and analyses, as well as country-by-country results.

2 The survey

2.1 Survey data collection and sample

Data collection. We collected our survey data between March 2021 and March 2022 using the survey companies *Dynata* and *Respondi*. The survey companies maintain panels of respondents and send survey links to panelists with targeted socioeconomic characteristics. The companies also reward the respondents who fully complete the survey with compensation of varying amounts and forms, including cash, donations to charities, and loyalty programs points at partner companies. Excluding inattentive respondents that failed our attention check questions or who completed the survey too fast (as explained below), our main analysis sample has 40,680 respondents (between 1,465 and 2,488 respondents per country).

We first channel respondents through screening questions that ensure that the final sample is nationally representative along the dimensions of gender, age, income, region, and area of residence (urban versus rural). Appendix A-2.1 provides more details on our sampling procedure. For more information on online surveys, including recruitment, rewarding, and comparisons of online samples to other types of samples, see Stantcheva (2022).

Sample. Tables 1-5 show that our sample is relatively representative in high-income countries. One dimension in which our sample differs from the population in some countries is education: In Italy, Japan, South Korea, and Spain, the share of college-educated respondents in our sample is 15 to 25 percentage points higher than in the population. This is common in online survey samples (see Alsan et al. (2021), Stantcheva (2021), and Stantcheva (2022)).

In middle-income countries (Brazil, China, India, Indonesia, Mexico, South Africa, Turkey, and Ukraine), we faced constraints due to the online nature of the survey and the pandemic-related restrictions on door-to-door surveys. College-educated people are overrepresented, and respondents aged 50 and older or living in rural areas tend to be underrepresented. Indeed, these types of respondents are always hard to reach in countries with similar characteristics. For these countries, the results should therefore be interpreted with caution, as they do not accurately reflect the attitudes of the population at large but rather those of the "online population," which tends to be skewed toward the middle and upper classes, residing mainly in urban areas.

Throughout the paper, we re-weighted the samples within each country along the dimensions of gender, age, income, region, urbanity, education, and employment.[4]

Data quality. We took several steps to ensure the best possible data quality. Native speakers translated and reviewed the survey into the main national languages of each country and ensured that it was in line with local context and understanding.

On the introductory consent page, we appeal to people's social responsibility by asking them to answer carefully and honestly. We also warn them that we would withhold monetary compensation if their answers did not pass our quality checks, which is reinforced by the quality checks of the survey companies (of which respondents are aware). We record the time spent on different blocks and the survey overall. The median completion time is 28 minutes (see Appendix A-2 for the entire distribution of survey times).

We also added a question to screen out inattentive respondents. The representative samples (as shown in Tables 1-5) are obtained after excluding inattentive respondents who failed the attention check question (N=9,858, i.e. 18% of respondents) and those who rushed to complete the survey in less than 11 minutes (N=8,642, 16% of respondents). In total, because there is an overlap between those who rushed and those who failed the attention question, we end up excluding 25% of all respondents (N=13,632) who started the survey. We show in Appendix A-6.2 that our results are robust to the inclusion of these 25% of

[4]We trim weights so that no respondent receives a weight below 0.25 or above 4. Overall, trimming changes the weights for 3% of the respondents in high-income countries and 19% in middle-income countries.

respondents and robust to dropping respondents who took less than 20 minutes to complete the survey (a more stringent cutoff).

In Appendix A-6.3, we detail attrition at each step, and we test for differential attrition in Table A21. 12% of respondents (N = 8,689) drop out during the socioeconomic background questions, i.e., very early on, before they know anything about the topic of the survey. Hence, they are not dropping out differentially based on their interest in and views on climate change. 11% of respondents (N = 7,123) drop out at some point during the actual survey. Women, younger, lower-income, and less educated respondents are more likely to drop out, but the differences in attrition rates are not large.

Ex post, we checked that there were only a few careless response patterns (such as choosing the same answer for all items in a matrix of questions; see Appendix A-2.2). At the end of the survey, we ask whether respondents thought that our survey was politically biased and provide some feedback. 74% of the respondents found the survey unbiased. 15% found it left-wing biased, and 11% found it right-wing biased.

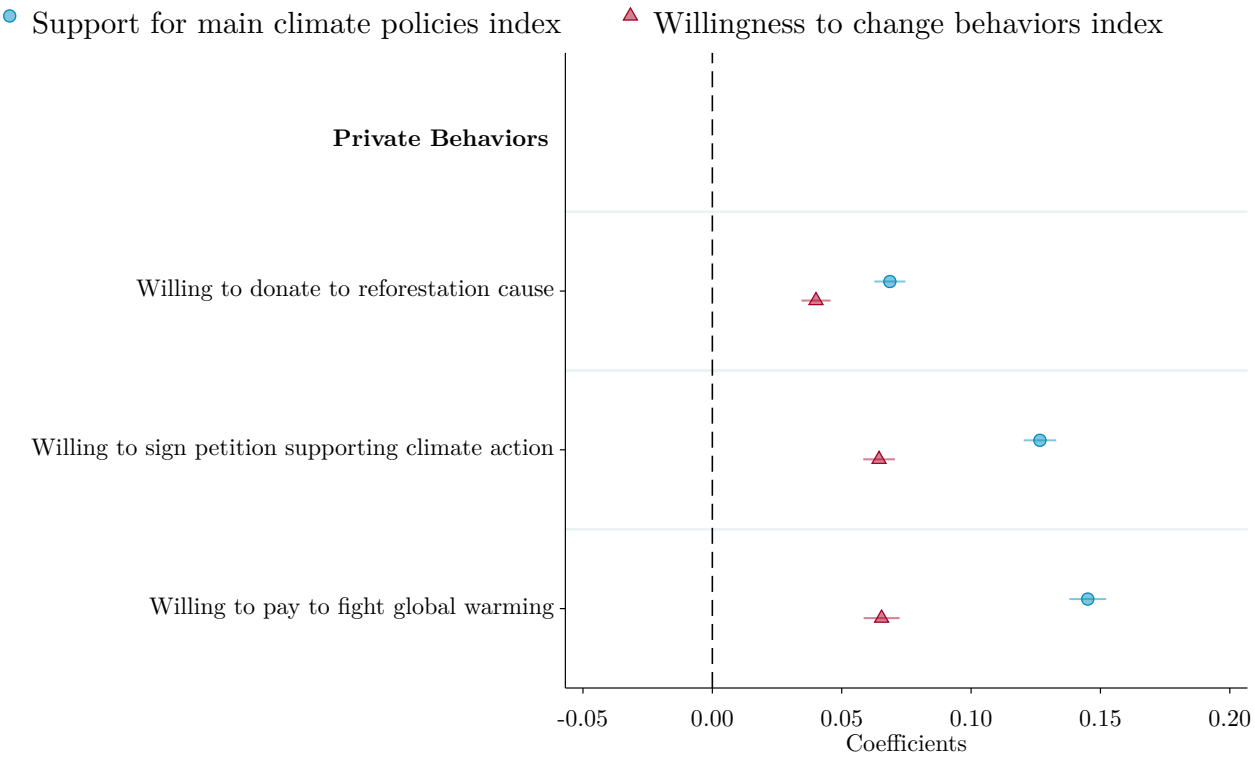
Do Survey Responses Reflect Actual Behaviors? An important question is whether (self-reported) survey responses reflect respondents' true attitudes and behaviors. To check this, our survey contained two real-stakes questions which asked respondents to invest time and money to express their views: a donation and a petition question.

In the donation question, we inform respondents that they are automatically entered into a lottery to win $100 (or the equivalent in their local currency). Before they know whether they have won the lottery, they have to decide which share of their potential win, if any, to donate to the non-profit *Gold Standard*, which fights deforestation.

The second question asks the respondents whether they are willing to sign a petition for climate action (expressing the view that *"immediate action for climate change is critical"*) and is told that we will share information about the share of respondents who signed this petition with the government of their country. We also ask respondents for their willingness to pay a randomized amount (ranging between $10 to $1,000 in local currency equivalent) to fight global warming. While not a real-stakes question per se, this question elicits a money-metric measure of respondents' willingness to invest own resources to fight climate change.

Figure 3 shows that self-reported preferences are positively correlated with real-stakes behaviors. The figure shows the correlation between the real-stakes behaviors and two indices, measuring respectively, support for climate policies (defined in Section 6) and willingness to change one's own behaviors (defined in Section 3), conditional on individual socioeconomic characteristics and country fixed effects. While the specific components, behaviors, and attitudes will be covered in detail below, the main takeaway is that respondents who express stronger support for climate policies and a higher willingness to adopt climate-friendly behaviors are significantly more likely to donate to the reforestation cause, to sign a petition supporting climate action, to be willing to pay to fight global warming.

Figure 3: Do Survey Responses Reflect Actual Behaviors? Correlation between self-reported support and actual behaviors



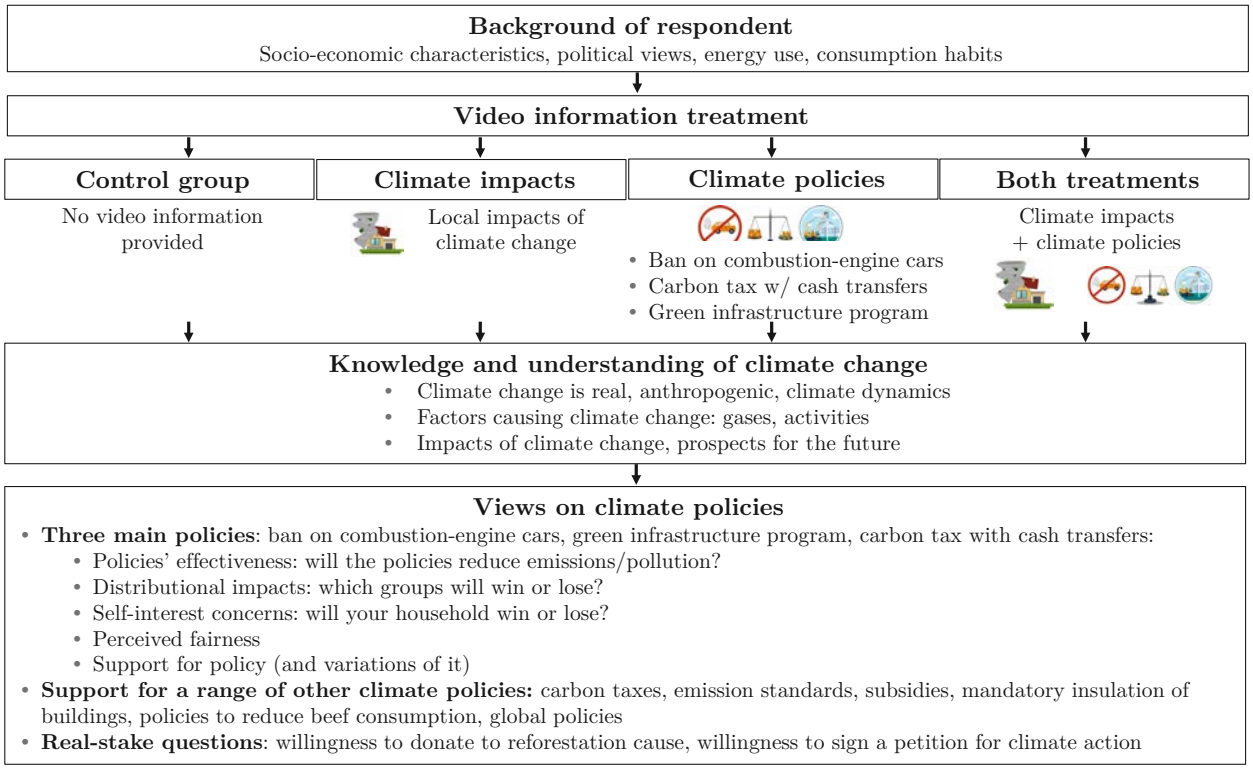
Note: The figure shows the correlation between the indicator variables listed in each row and the "Support for main policies" index and "Willingness to change behaviors" index, controlling for country fixed effects and socioeconomic characteristics. *Willing to donate to reforestation cause* equals 1 if the respondent is willing to donate a share of the money prize to deforestation. *Willing to sign petition supporting climate action* equals 1 if the respondent is willing to sign a petition supporting climate action *Willing to pay to fight global warming* is equal to 1 if the respondent is willing to contribute annually a given amount to limit global warming to safe levels. This amount displayed to each respondent is randomly drawn from the following options (with conversion in local currency): \$10 / \$30 / \$50 / \$100 / \$300 / \$500 / \$1,000. We control for the amount displayed. See Appendix A-1 for variable definitions.

2.2 The questionnaire

As shown in Figure 4, the questionnaire is structured in four parts, described below: questions on household characteristics, pedagogical video treatments, questions on climate change, and questions about views on climate policies. We kept the questionnaires as similar as possible across countries while allowing for some appropriate variations. For example, in some countries, we added questions about specific policies of relevance (e.g., a ban on deforestation in Brazil and Indonesia). We omit some inappropriate questions (e.g., heating expenses in tropical countries or cattle-related policies in India). Finally, necessary adjust-

ments were made to country-specific figures and examples (e.g., the gasoline price increase implied by a carbon tax). Appendix A-5 provides the full questionnaire as well as links to each country's questionnaire in the original language.

Figure 4: Survey outline



Household characteristics. We ask the respondents about their basic socioeconomic and demographic information, including their age, income, gender, zip code, type of area of residence (i.e., size of their city), household composition, the highest level of education achieved, occupation, wealth, and whether they are homeowners. We measure political leanings through several questions: voting behavior in the latest national election, general interest in politics, leaning on economic policy issues, and interest and participation in environmental causes.

An important set of questions centers around energy usage and lifestyle as related to climate change. The answers to these questions allow us to assess how respondents may personally be affected by climate policies. We ask households about their housing characteristics (heating source and expenses and the quality of their home insulation), transportation (fuel expenditures, modes of transport used, availability of public transportation, frequency of flying), and beef consumption.

Information and Pedagogical Video Experiments. In the experimental part of the paper, we show respondents in randomly selected subsamples one or both of two videos. The "control group" sees no video. These treatments and the experimental results are described in Section 6.

Knowledge of and attitudes toward climate change. We measure the respondent's knowledge and understanding of climate change by asking a series of general and more technical questions. These include whether climate change is human-caused, which greenhouse gases (GHGs) contribute to it, and its possible impacts. We also ask respondents to rank different activities, modes of transportation, types of food, and world regions regarding GHG emissions.

Furthermore, we elicit respondents' attitudes on private climate action by asking how climate change affects their lifestyle, the extent to which they are willing to adopt different climate-friendly behaviors, and what factors would facilitate this adoption.

Views on climate policies. One of our core contributions is to elicit detailed reasoning about climate change policies. In the final block of the survey, we explore how respondents think about the three main climate policies explained in the videos (a ban on combustion-engine cars, an investment program in green infrastructure, and a carbon tax with cash transfers) and a range of other climate policies.

Importantly, rather than only asking respondents about their support for the main policies, we also elicit their perceptions about the policy's effectiveness in reducing emissions and changing behaviors, effects on the economy and employment, distributional impacts (which groups will lose or win?), impacts on their household (will they lose or win?), and fairness. We further ask them about variations related to the sources of funding (in the case of the green infrastructure program), how the revenue is spent (in the case of the carbon tax), and policy bundles (e.g., a ban on combustion-engine cars combined with public provision of alternative modes of transportation).

The set of policies we test is informed by the literature and the policy discussions. We intentionally do not limit the policies to only cover first-best instruments because of potential trade-offs between efficiency and social acceptability or political economy. In addition to the three main policies described above, we test several other policies.

First, we assess support for several variants of carbon taxes, which differ in how the revenues are earmarked. Second, we include several variants of bans on polluting cars, motivated by existing bans or restrictions for combustion-engine cars, for example, in Mexico City (Davis 2008), or cities across Germany (Wolff 2014). The third group of policies includes support for investments in low-carbon technologies and green infrastructures. Fourth, we elicit support for policies to reduce emissions from residential energy use.[5] Fifth, we test support for policies to reduce emissions from the agricultural sector, particularly cattle

[5]In the U.S. (Goldstein, Gounaridis and Newell 2020) and the E.U. (Eurostat 2020), households account for about 20% of total greenhouse gas emissions.

farming.[6] Furthermore, we also assess support for a tax on flights (increasing ticket prices by 20%).

In addition to self-reported policy support, we also ask two "real-stakes" questions requiring the respondent to incur a cost to express their support for climate action: a donation and a petition question, described in Section 2.1 and shown in Figure 3.

2.3 Outline of the analysis

We define all variables used and constructed in Appendix A-1. The descriptive statistics shown in Sections 3, 4, 5, and appendices are based on the control group sample only, i.e., respondents who see no pedagogical video. In the analysis, we usually correlate individual views and reasoning with two sets of individual covariates: i) individual socioeconomic characteristics (e.g., age, gender, or income) and ii) lifestyle and energy usage characteristics (e.g., car usage or heating source), "energy usage" for short. Whenever the effects of these covariates are relatively homogeneous across countries, we show only the coefficient on the pooled country sample (always including country fixed effects) and discuss possible heterogeneities. If patterns are heterogeneous, we directly show the coefficients in different countries. Our main results are shown separately for each country in Appendix A-4. Furthermore, we repeat the entire analysis for each country in the country-specific Online Appendices.

3 Knowledge and attitudes on climate change

This section describes respondents' knowledge and understanding of climate change.

3.1 Knowledge across countries

Few people outright deny the existence of climate change: the share is below 10% in most countries and around 12 or 13% in Australia, France, and the U.S. Most people believe that climate change is anthropogenic: one-third know that "most" (if not all) of it is due to human activity, and, depending on the country, 60% to 90% of respondents believe that human activity causes "a lot" or "most" of climate change.

Consequences of climate change. Most respondents (75-94%) correctly foresee some of the consequences of unabated climate change, such as severe sea-level rise or droughts and heatwaves (see Figure 5). At the same time, people do not seem to make a sufficient distinction between different types of disasters. For instance, most also believe that climate change will entail more frequent volcanic eruptions.

[6] Globally, livestock accounts for nearly 15% of greenhouse gas emissions, with beef and cattle milk production accounting for the majority of livestock emissions, contributing 41% and 20% respectively (Gerber et al. 2013).

Greenhouse gas emissions. Respondents are generally too optimistic about the level of decarbonization needed. One-half of respondents in high-income countries and more than two-thirds of respondents in middle-income countries incorrectly believe that cutting GHG emissions by half would suffice to stop global warming. Respondents are relatively well aware of the factors that cause climate change, especially in high-income countries. 80% correctly recognize that CO_2 is a greenhouse gas, 56% that methane is one, and 67% that particulate matter is not. Most of the classifications for different types of food and power generation in terms of GHG footprint are also correct. However, a non-trivial share of respondents, especially in middle-income countries, believe that nuclear power has a higher footprint than gas or coal.

The answers about transportation modes are less accurate, especially in countries where the difference in emissions between trains and cars is smaller because of the lack of electrified railways. We ask respondents to imagine a family journey between two large cities in their country and rank the possible modes of transportation according to their greenhouse gas emissions. The options are *Plane*, *Car*, and *Train* (or *Bus*, depending on whether bus or train is the most commonly used option for such journeys).[7] Respondents rank options more accurately in countries like Denmark or Germany, where trains are very low-carbon. They are less accurate in countries such as Indonesia or India, where trains are not unambiguously less carbon-intensive than the other options.

Ranking regions of the world by emissions. We also ask respondents to rank China, the U.S., the E.U., and India by total and per capita emissions.[8] Respondents rank regions and countries quite accurately in terms of total emissions. However, many overestimate the footprint of the average Chinese resident and underestimate that of the average European.[9]

3.2 Who has better knowledge?

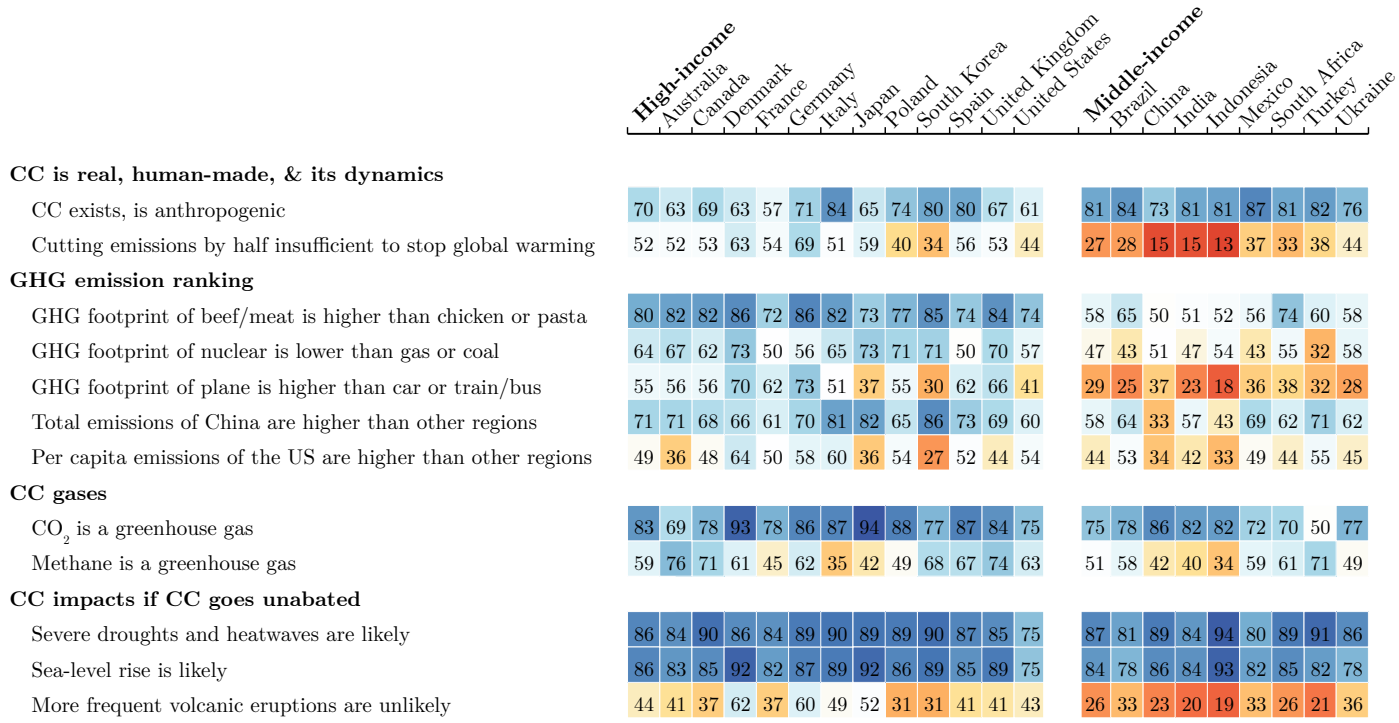
To summarize a respondent's knowledge about climate change, we construct a *Knowledge index* that summarizes the variables mentioned above and increases the more accurate a respondent's answers are (see Appendix A-1). We construct all indices in the paper in the following three steps. First, we transform each underlying variable into a z-score (subtracting the control group mean and dividing by the control group standard deviation). Second, we take the average of the z-scores. Third, we standardize that average again by dividing it by its standard deviation. In Figure 6, we regress the *Knowledge index* on respondents' socioeconomic characteristics and variables that proxy for their energy usage.

[7] In countries such as Indonesia, where trains rely on coal, the environmental advantage of trains over cars is less clear. Respondents are thus asked about a family of two traveling 800 km from Surabaya to Jakarta instead of a family of four since a fully occupied car would be more efficient than the train. Featuring two passengers instead of four also blurs the comparison between the GHG footprint per passenger of a plane versus a car, as the two are comparable when there is only one passenger in the car.

[8] The respondent's country was also added for the GHG footprint, except for E.U. countries.

[9] The actual ranking for total emissions is China, the U.S., the E.U., and India. The true ranking for the per capita GHG footprint is as follows: U.S., E.U., China, and India. To avoid any systematic priming, we randomized the order in which countries/regions were displayed.

Figure 5: Knowledge about climate change across countries:
Share of correct answers



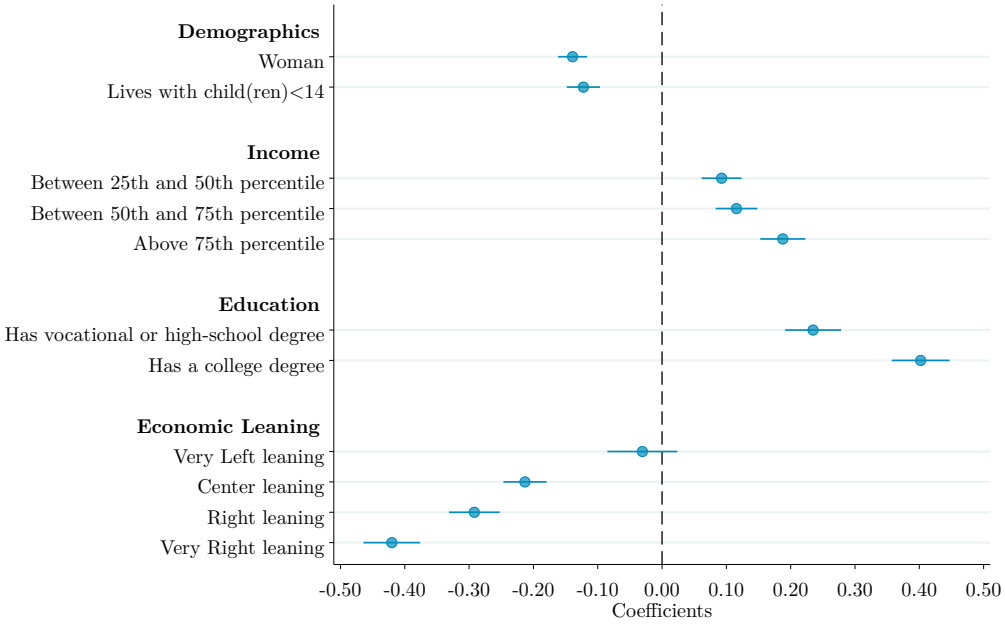
Note: Share of respondents who agree with the statements listed on the left. The statements represent the correct answer, according to the current scientific literature (see the sources in Appendix A-7). This figure only includes respondents in the control group only (who did not see any pedagogical videos). For the exact phrasing of each question, see Appendix A-5.

Across most countries, having a college degree is significantly associated with more accurate knowledge. Also consistent across many countries is that respondents with left-leaning economic views have more accurate perceptions than those with right-leaning views. On the other hand, women are generally less accurate, except in Australia, South Korea, Turkey, the U.K., Ukraine, and the U.S. (where there are no apparent differences by gender), in particular, because they tend to perceive more negative potential impacts of climate change (which are not always accurate, such as more frequent volcanic eruptions). The association between income and knowledge, conditional on education, is either significantly positive or insignificant, except in China (see Table A1).

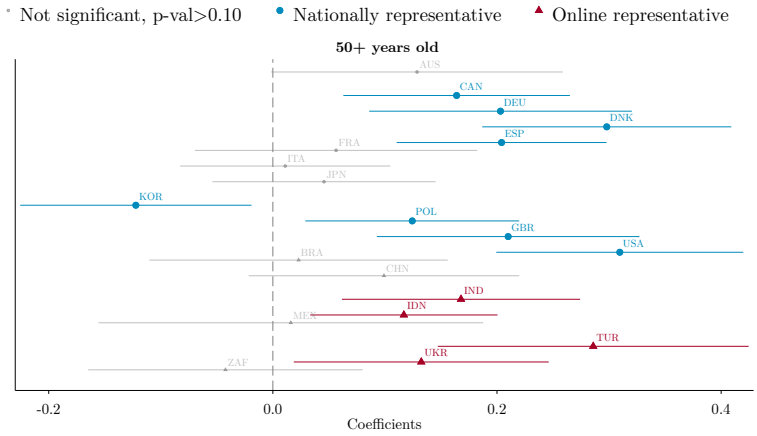
The effect of age varies across countries (see Figure 6): age is positively correlated with knowledge in most countries (Australia, Canada, Denmark, Germany, Spain, Poland, India, Turkey, Ukraine, the U.K., and the U.S.), but the correlation is negative in South Korea, and insignificant in the remaining countries. Finally, respondents living with young children are somewhat less accurate too.

Figure 6: Who has better knowledge about climate change?

(A) Correlation between knowledge (*Knowledge index*) and socioeconomic characteristics



(B) Heterogeneous effects of age across countries



Note: Panel A shows the coefficients from an OLS regression of the *Knowledge index* on indicators for individual socioeconomic characteristics. Country fixed effects, treatment indicators, and age are included. The coefficients on age are displayed separately in Panel B for each country to highlight the heterogeneity. The omitted categories in Panel A are "man" for *gender* (*gender:* "other" is not displayed), lowest income quartile for *income*, "no schooling, or highest level achieved is primary or lower secondary education" for *education*; "left-leaning" for *economic leaning*. In Panel B, the omitted category is "18-34 years old" for *age*. The R^2 is 0.16. See Appendix A-1 for variable definitions.

3.3 Expectations about climate change

Overall, expectations about the future are relatively bleak in high-income countries (see Panel A of Figure A3). Typically, less than 40% of respondents think that it is technically feasible to stop GHG emissions by the end of the century while maintaining satisfactory living standards or that it is likely that humans will halt climate change by the end of the century. Less than one-fifth of respondents in high-income countries think the world will be more prosperous than today in a hundred years. A substantial share of respondents feels that climate change, if nothing is done to limit it, could cause the extinction of humankind. Respondents in middle-income countries are more worried about the effects of unfettered climate change overall and on themselves; however, they are also more optimistic about humans' ability to halt climate change and the technical skills to do so while sustaining reasonable living standards.

The share of people who think climate change will affect their own life and humankind, in general, is systematically higher in countries that are more vulnerable to climate change, e.g., 72% in India compared to 16% in Denmark. Both these perceptions are positively correlated (conditional on a high-income country dummy variable) with the University of Notre Dame index of vulnerability to climate change (Chen et al. 2015). Thus, subjective beliefs about the impacts of climate change are related to the country's actual vulnerability (see Figure A2).

Within countries, certain groups tend to be more worried about unabated climate change: women, younger, more educated, and left-leaning respondents (see Panel B of Figure A3). Higher-income, college-educated, older, or left-leaning respondents are significantly more optimistic about humans' technical ability to halt climate change.

3.4 Willingness to adopt climate-friendly behaviors

Our paper focuses on people's understanding of and support for climate policies. However, climate action can also take the form of individual behavior changes, which are conceptually different. It is thus interesting to compare and contrast respondents' willingness to adopt climate-friendly behaviors with their support of public policies.[10]

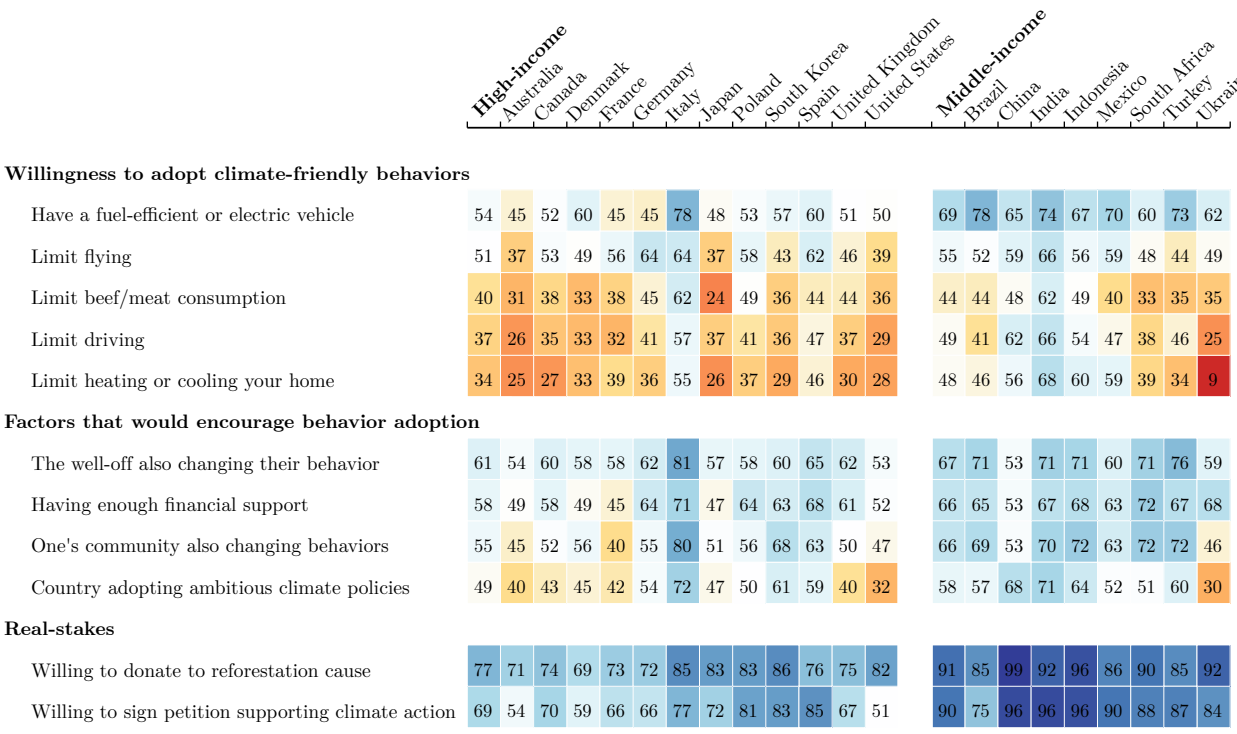
Around half of the respondents say they are willing to purchase a fuel-efficient or electric vehicle and to limit flying, given current incentives (see Figure 7). Furthermore, except in Italy and India, respondents are generally unwilling to significantly limit their beef or meat consumption. Few are willing to limit driving or heating or cooling their homes by a lot.

We also asked people about their willingness to adopt these behaviors under different circumstances. The most important factors that would encourage people to adopt more climate-friendly behaviors are that they receive enough financial support to make these changes and that others, especially the most well-off, also change their behaviors.

[10]The indices "*Willingness to change behaviors*" (which aggregates all the variables depicted in Figure 7) and "*Support for climate policies*" (described in Section 6) are positively but not perfectly correlated (the correlation is 0.6), confirming that, while positively associated, support for public policies and willingness to take more private action given current policies and incentives are different.

Importantly, recall that Figure 3 showed that self-reported willingness to adopt climate-friendly behaviors is significantly positively correlated with being willing to take costly actions such as donating to a reforestation cause and signing a petition pushing for more climate action.

Figure 7: Share of respondents willing to adopt climate-friendly behaviors



Note: *Willingness to adopt climate-friendly behaviors* are answers to the question "*To what extent would you be willing to adopt the following behaviors?*" and *Factors that would encourage behavior adoption* correspond to answers to the question "*How important are the factors below in order for you to adopt a sustainable lifestyle (i.e. limit driving, flying, and consumption, cycle more, etc.)?*". Both questions use a 5-point scale: "*Not at all*", "*A little*", "*Moderately*", "*A lot*", and "*A great deal*". Depicted are the shares of respondents who answer "A lot" or "A great deal." Real-stakes questions include the signature of a petition to "stand up for real action" and an indicator equal to one if the respondents forfeit a share of their survey lottery prize of $100 in case they win the lottery. The shares represented are based only on respondents in the control group (who did not see any pedagogical videos).

4 Support for climate action across and within countries

This section describes support for climate policies across countries and respondents. One aspect that complicates such an analysis is that a given policy (e.g., a carbon tax) may generate different levels of support based on the bundle it is part of (e.g., a carbon tax with revenues used to fund low-carbon technologies). While it would be convenient to consider the tax side as separate from the revenue side, respondents' views on tax-based policies depend on the use of the revenue: Vice-versa, the source of revenues matters for policies requiring funding. Policy bundles are complicated to study because there are many different combinations. Our approach is, therefore, as follows. First, we provide evidence on several key policies. Second, we shed light on the possible uses of revenue in the case of carbon taxes, the sources of funding for the green infrastructure program, and policy bundles in the case of combustion-engine car bans. Third, in Sections 5 and 6, we analyze the fundamental factors shaping support for policies. This analysis can guide the evaluation and predict support for other combinations and types of policies.

Before diving into these results, it is worth remembering that Figure 3 showed that self-reported policy support is significantly correlated with willingness to engage in real-stakes behaviors such as donating to an environmental cause and signing a petition in support for climate change. This link bolsters confidence that the results presented next are informative about respondents' true attitudes toward climate policies.

4.1 Support for different types of policies

Support for subsidies to low-carbon technology adoption and infrastructure policies. Figure 8 shows marked differences in the support for distinct policies. Subsidies for low-carbon technologies and public investments in green technologies and infrastructures (financed by public debt) receive more than 55% support in high-income countries and more than 65% support in middle-income countries. There is equally high support for the mandatory and subsidized insulation of residential buildings across countries.

The source of funding clearly matters. Figure A6 shows the answers to the question about which sources of funding respondents would consider appropriate for public investments in green infrastructures. Respondents tend to agree that appropriate funding sources are higher taxes on the wealthiest and a carbon tax. They are much less likely to support additional public debt, reductions in social spending, reductions in military spending, or increases in sales taxes as appropriate sources of funding. These views are consistent with our results below that people care about policies' progressivity and effectiveness.

Bans on polluting vehicles. Many respondents also support banning polluting vehicles in city centers or dense areas (60% in high-income countries and 71% in middle-income ones). In high-income countries, support is 20% lower (12 percentage points) for a ban on the sale of combustion-engine cars (even if alternatives such as public transportation would

be made available) and 28% lower for an outright ban on combustion-engine cars (with no improvement in alternatives specified). We highlight the importance of respondents' alternative transportation modes for supporting climate policies in Section 6. Furthermore, in EU countries, we also asked about an alternative policy, namely support for a monetary penalty (of either €10,000 or €100,000) for the purchase of combustion-engine cars.[11] Generalized bans generate consistently higher support than penalties (see Figure A5). Preference for bans and regulation over price mechanisms highlights some of the limits of the "polluters pay" principle, which people may deem unfair, as the richest can pay their way out of it. Bans, on the contrary, affect everyone.

Carbon taxes. At first glance, carbon taxes and especially taxes on fossil fuels appear to be among the least popular policies. Taxes on fossil fuels and carbon taxes with revenues used to fund equal transfers to everyone only generate 36-38% support in high-income countries and 48-61% support in middle-income ones. However, the use of revenue matters substantially. Carbon taxes with revenues used to fund environmental infrastructures, subsidize low-carbon technologies, or reduce income taxes benefit from around 70% higher support in high-income countries (for a level of support of around 55%) and 25% higher support in middle-income countries (70%), compared with a carbon tax with equal cash transfers. Similarly, we observe majority support for carbon taxes with transfers to the poorest or the most constrained households. On the contrary, carbon taxes used to reduce corporate taxes generate similarly low support as carbon taxes with equal transfers or as taxes on fossil fuels (for which the use of revenues is not specified).

Agriculture-targeted policies. Finally, policies that reduce cattle farming are ranked among the least popular in all countries. Bans on intensive cattle farming enjoy somewhat higher support than either the removal of subsidies for cattle farming or a high tax on cattle products overall (so that the price of beef doubles).

Support and opposition versus indifference. An important point when trying to map these survey findings to real-world support for a policy is that across the range of policies we test, around one-third of respondents state that they neither support nor oppose it. Figure A4 shows the share of respondents who support a policy out of all respondents who express either support or opposition (but not indifference). Although the ranking of policies and the relative cross-country patterns are unchanged, among non-indifferent respondents, a majority is in favor rather than against most policies. Figure A10 shows that women, respondents who are lower-income, with a lower degree of education completed, or politically center-leaning are more likely to be indifferent.

These patterns suggest that indifference to climate policies may be a critical aspect to consider. It is important to recognize that many citizens express a lack of opinion on these issues. This expression may reflect a lack of interest in the topic, lack of knowledge, or actual ambiguity and hesitation about climate action. In that sense, indifferent respondents may be

[11] The €10,000 penalty is in line with the current EU levels. We did not ask these questions in Denmark and France, where the survey was completed slightly earlier.

akin to "swing voters" and those whose views are most malleable. Their views could change if a policy is actually proposed or discussed, and they are asked to vote on it. Section 6 highlights the factors shaping people's support for various policies, which can be informative about what pieces of information are needed to sway people's views on average.

4.2 Cross-country comparisons

We have to be cautious about comparing *absolute* levels of support between high-income and middle-income countries, given the differences in sampling highlighted before.[12]

Overall, support for the three central policies considered is lowest in Germany, France, and Australia, followed by Denmark, Japan, the U.S., and, to some extent, the U.K and Poland. Italy, South Korea, Spain, and Canada stand out as having overall higher support and are on par with Brazil, South Africa, Turkey, and Ukraine (with the lowest support among middle-income countries). Mexico and Indonesia have higher levels of support, and support is almost consistently highest in India and China.

Support for the carbon tax (and its variations) is particularly low in Australia, Poland, Denmark, Germany, the U.K., and the U.S. Bans on combustion-engine cars see their lowest support in Denmark, France, Germany, and the U.S., and their highest support in India and China.

Cattle-related policies are unpopular in Japan, Turkey, Ukraine, South Africa, Australia, and Denmark. Support for green infrastructure programs, and carbon taxes used to fund environmental infrastructures or low-carbon technologies, are highest in Italy and middle-income countries, especially in Brazil, China, Indonesia, Mexico, and South Africa. In Brazil and Indonesia, 75 to 79% of respondents support a complete ban on deforestation enforced by strong sanctions.

Furthermore, although we focus on climate policies at the national level, when asked about the level at which climate policies should ideally be put in place, 73% to 93% of people choose the global level. Less than half of all respondents think that policies should be enacted mainly at the federal (or European), national (or state), or local levels.

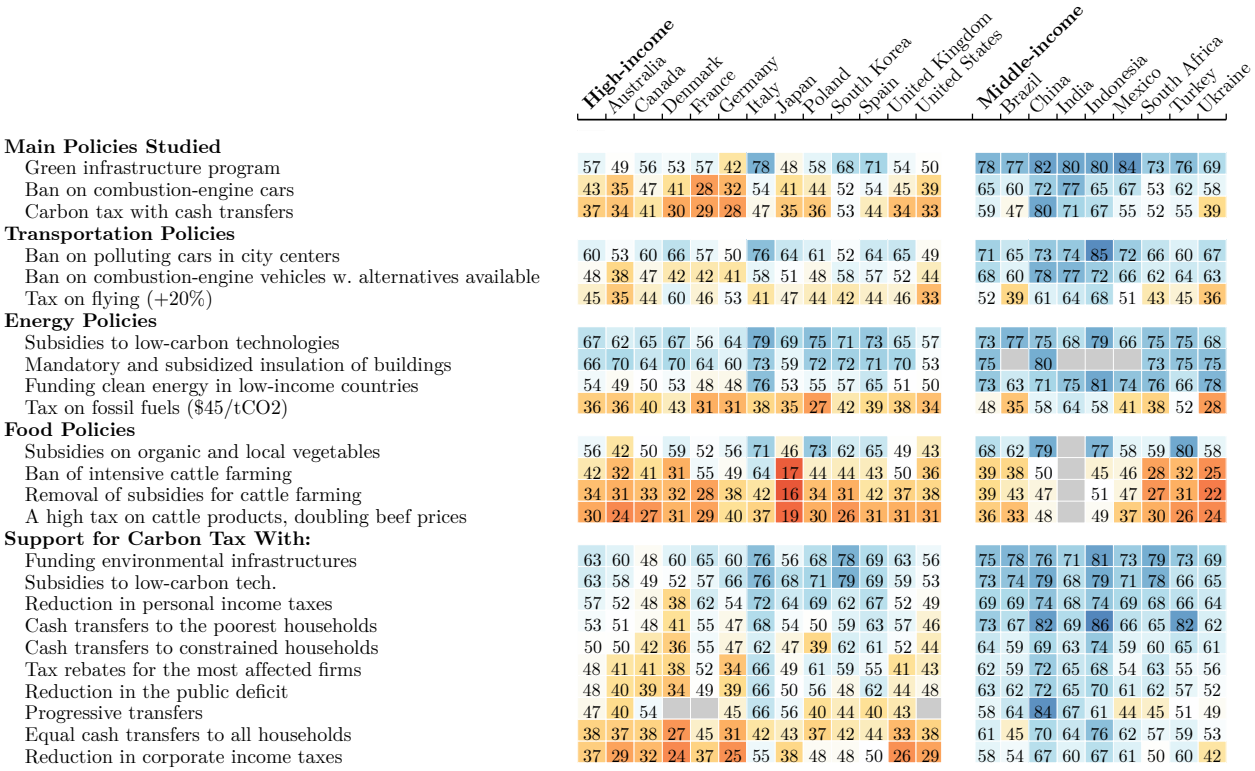
4.3 Individual characteristics correlated with support for climate policies

To summarize support for climate policies, we construct a *Support for Main Climate Policies index* based on the three main policies studied (see Appendix A-1 for details).[13] In Figure 9, we regress the *Support for Main Climate Policies index* on the sets of individual socioeconomic and energy usage characteristics and country fixed effects (results for each of the three main policies separately are in Figure A7). Whenever the average effects are

[12] Although we control for country fixed effects, differences in context and other policies already in place may influence views heterogeneously among different groups of people. For instance, the *status quo* level of taxes may heterogeneously influence how much appetite there is for more taxation across different groups.

[13] In brief, the index is an equally-weighted average of the standardized variables measuring support for each of the three main policies, each coded from -2 ("Strongly oppose") to +2 ("Strongly support").

Figure 8: Share of respondents who support climate change policies (somewhat to strongly)



Note: Policy views are elicited on a 5-point scale "Strongly oppose," "Somewhat oppose," "Neither support nor oppose," "Somewhat support," and "Strongly support." The figure shows the share of respondents to answer "Somewhat support" or "Strongly support" (see Figure A4 for support conditional on excluding indifferent respondents who "Neither support nor oppose"). The shares represented are based on respondents in the control group only (who did not see any pedagogical videos). For the exact phrasing of each question, see Appendix A-5.

relatively homogeneous across countries, we do not discuss country heterogeneity specifically (all results are in Tables A5-A6). For unconditional shares of support for the three main policies broken down by respondent characteristics, see Figures A8 and A9.

Individual characteristics. Figure 9 shows that political leaning is one of the strongest predictors of views on climate action: in most countries, left-leaning respondents are more supportive of climate action. The exceptions are China, Indonesia, Mexico, and Ukraine.

In most countries, college-educated respondents are more likely to support climate action (Australia, Brazil, China, Denmark, Indonesia, India, Italy, Mexico, Spain, Turkey, the U.K., and the U.S.). Income has mixed effects, as illustrated in Panel B. Higher-income respondents are more supportive of climate action in Brazil, India, Indonesia, Italy, Poland, and Ukraine. There are no clear patterns by income for the other countries. Age also has mixed effects. Older respondents in China, India, Indonesia, Japan, Mexico, Poland, South Korea, and

Turkey are more supportive of climate action. However, in the online-representative samples, older respondents (especially those above 65 years old) represent only a small and possibly selected share of the population. Younger respondents are more likely to support climate policies in some high-income countries such as Australia, France, and the U.S. There is no significant heterogeneity by age in other E.U. countries or the U.K. In addition, respondents who live with children below the age of 14 are more supportive of climate policies.

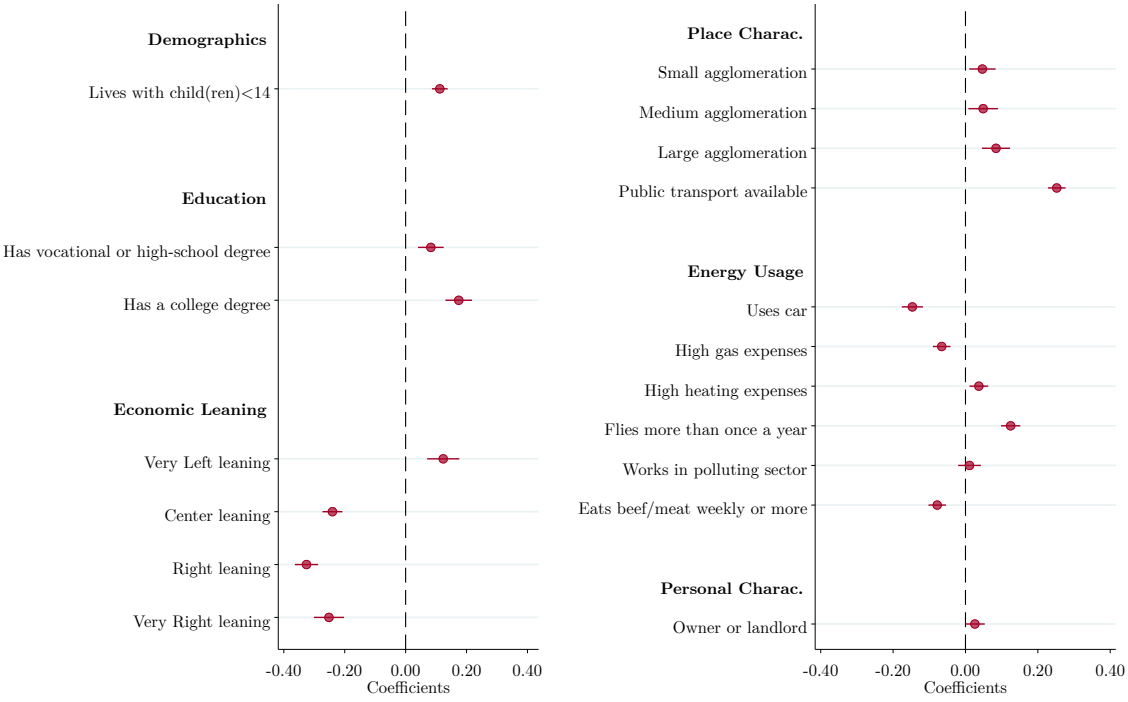
Lifestyle and energy usage factors. Access to public transportation exhibits one of the strongest correlations with support for climate policy; the correlation is insignificant only in China, Japan, Mexico, and Ukraine. Conditional on access to public transportation, those who live in a large urban area have higher policy support only in Denmark, the U.K., and the U.S., but not in most countries. Thus, the availability of public transport seems to be the first-order concern related to the area of residence. For all high-income countries except the U.S., using a car regularly is associated with lower support for climate action. However, in China, India, and Indonesia, car usage is positively associated with policy support, conditional on income (see Figure A7 for detailed cross-country heterogeneity in the effect of car usage). Conditional on car usage, high gas expenses matter only marginally in Canada, Denmark, Germany, Italy, and Mexico. Frequent flyers tend to support more climate action overall, except for a tax on flying (see Figure A11). Respondents who consume beef at least weekly are less likely to support climate policies in Australia, Canada, Denmark, France, Germany, and Spain.

Figure A11 shows the correlations between support for a range of other climate policies and individual characteristics. They are overall similar to the ones described for the main policies. Car-dependent respondents are less supportive of bans on polluting cars (whether those are overall bans, with enhanced alternatives, or limited to densely populated areas). They also exhibit lower support for taxes on fossil fuels and carbon taxes with cash transfers (only in Australia, France, Japan, Poland, and the U.K., see Figure A7). They do not have different views on taxes on flying, green infrastructure programs, subsidies for low-carbon technologies, or mandatory and subsidized insulation of buildings. Homeowners and landlords are less supportive of mandatory insulation but not less supportive of other climate change actions.

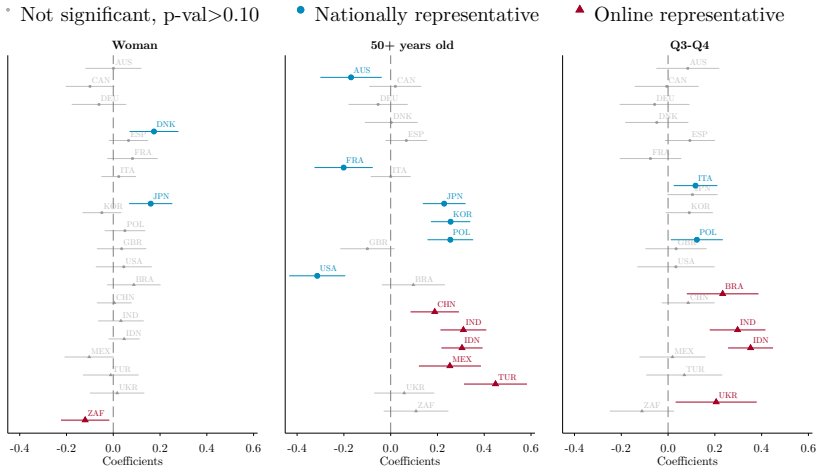
Can policy views be explained by socioeconomic and lifestyle characteristics? An important question is how much of the variation in policy views we can predict using these observable socioeconomic and energy usage characteristics. The R^2 from the regression in Figure 9 is 0.18, and would be 0.09 omitting country fixed effects. It increases to 0.24 if we add a large set of interactions between the covariates (0.12 without country fixed effects). Thus, while there are meaningful differences within countries, it is difficult to predict policy views from observable socioeconomic and energy usage characteristics only. Put differently, based on observables, it is difficult to delineate specific groups for or against climate policies. We next turn to the beliefs that shape views on climate action.

Figure 9: Which respondents support climate action?

(A) Correlation between *"Support for main climate policies index"* and socioeconomic and energy usage characteristics



(B) Heterogeneous effects of gender, age, and income across countries



Note: Panel A shows the coefficients from a regression of the *Support for main climate policies* index on socioeconomic indicators (left panel) and energy usage indicators (right panel). In the right panel, we control for but do not display the coefficients on socioeconomic indicators. Country fixed effects, age, gender, income, and treatment indicators are included but not displayed. The R^2 is 0.18. The omitted category for *Place characteristics* is "Rural or very small agglomeration." See the notes in Figure 6 for a list of all omitted categories. Panel B reports the coefficients on being 50 years and older (relative to being aged between 18 and 34 years), being a woman (relative to being a man), and being in the top two quartiles of the income distribution (relative to being in the first quartile). See Appendix A-1 for more precise definitions of the variables.

5 Which factors shape support for climate policies?

In this section, we study respondents' understanding of climate policies, in particular, how they perceive the policies' effectiveness, economic effects, distributional consequences, and impacts on themselves. We then analyze to what extent these beliefs can predict policy support.

5.1 Perceived distributional and efficiency impacts across countries

Figure 10 summarizes how respondents think about the effects of the three main policies. We distinguish between high-income countries and middle-income countries and also consider China, India, and Indonesia separately because they exhibit significantly different patterns (for a country-by-country plot, see Figures A12 - A14).

Perceived environmental benefits. The environmental benefits of climate policies are largely acknowledged: in both high-income and middle-income countries, a majority of respondents agree that the three policies would reduce air pollution and GHG emissions. France ranks as the most pessimistic country regarding perceived effectiveness, followed closely by Germany and the U.S., and Denmark to a lesser extent. Most optimistic about effectiveness are respondents in India, Indonesia, Japan, and South Africa.

Respondents in high-income countries are somewhat divided about the behavioral effects of the policies, such as encouraging people to drive less or making greater use of public transportation. For instance, in Poland, South Korea, and Spain, more than 55% of respondents believe that a carbon tax would encourage people to drive less, but this share is only around 40% in France or Germany. By contrast, respondents in middle-income countries tend to believe in these behavioral effects.

Perceived economic effects. Few respondents think that climate policies will have positive impacts on the economy and employment, although this share is somewhat higher in middle-income countries. When asked about whether each of the policies is a cost-effective versus costly way to fight climate change, respondents rank a carbon tax as the most costly, followed by the green infrastructure program and the ban on combustion-engine cars. Perceived costs and negative economic impacts of the carbon tax are particularly high in the U.S., France, Denmark, the U.K., and Germany (in this order).

Perceived distributional impacts. In most countries, the three main policies are often considered regressive. In high-income countries, at most one-quarter of respondents believe that low-income earners, the middle class, and those living in rural areas would gain from a green infrastructure program or from a carbon tax with transfers. In contrast, around 40% of respondents believe that high-income earners will experience a net positive gain from these three policies. Note that we do not attribute too much importance to the absolute share of respondents who believe that a given group will benefit from climate policies but rather to the relative shares who think poorer versus richer people will gain.

In middle-income countries (other than China, India, and Indonesia), respondents perceive the distributional impacts of the green infrastructure program more positively, but they are still wary of the possible effects of a carbon tax and combustion-engine bans on low-income, rural, and middle-class households. In India, Indonesia, and China, these patterns are quite different, and respondents are substantially less likely to consider the three main policies as regressive. The share of respondents who think that policies will benefit high-income households is generally smaller than the share who think they will benefit lower-income households, especially for the carbon tax with transfers.

Perceived impacts on one's household. Overall, respondents are similarly pessimistic about the financial effects of the three policies on their households as they are about their impact on middle-class or rural families. Less than one-fifth of respondents in high-income countries think their household would financially gain from these policies. Respondents in middle-income countries are somewhat more optimistic about the effects on their households, and respondents in China, India, and Indonesia are significantly more optimistic.

In summary, many respondents see these three key policies as environmentally effective but regressive and against their financial interests.

5.2 How do different groups of respondents reason about climate policies?

Figure 11 regresses the perceived effectiveness, distributional impacts, and own impacts of the main policies on individual socioeconomic and lifestyle indicators and country fixed effects.[14]

Higher-income respondents are more optimistic about the policies' effectiveness in reducing emissions. Respondents with young children are less likely to think that they will personally lose from these policies or that the policies are regressive.

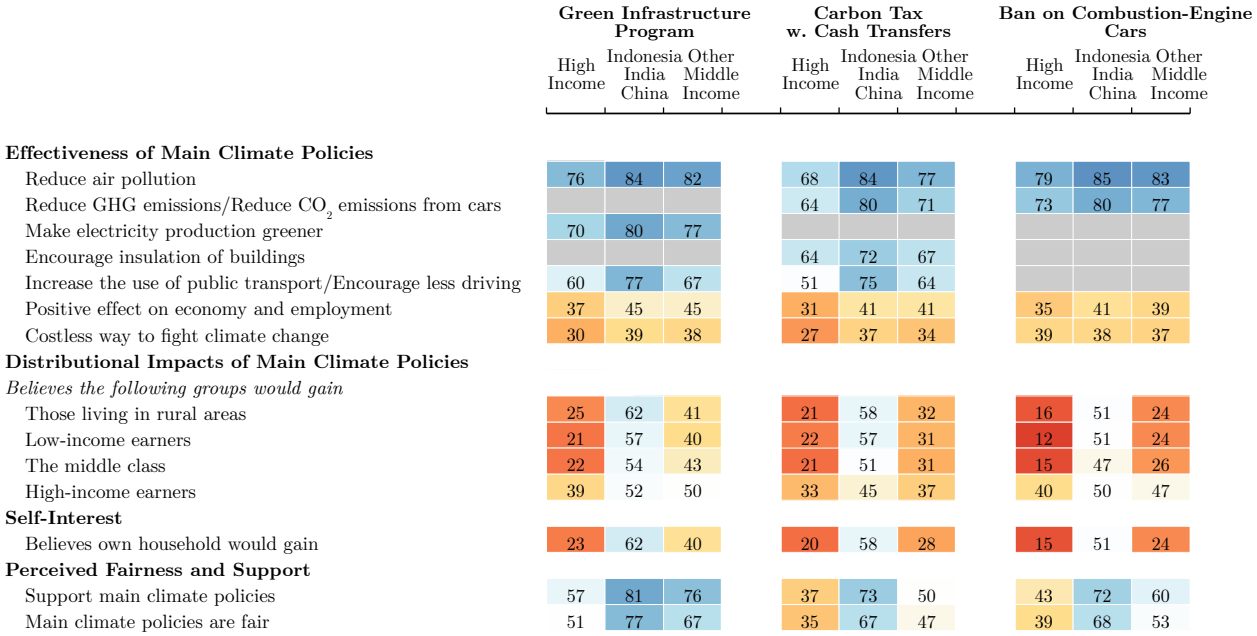
Age has mixed effects. In middle-income countries, older respondents tend to be more likely to believe that policies reduce emissions and less likely to think that they or low-income earners will lose. In some high-income countries (Australia, Canada, Denmark, France, Germany, the U.K., and the U.S.), older respondents are more likely to think they or low-income earners will lose. Gender typically has small and insignificant effects.

Although not consistently significant, having a college degree is associated with more optimism about the effectiveness of policies in reducing emissions and less pessimism about the impact on oneself and lower-income households.

In high-income countries, there is a clear political gradient for most perceptions: Left-leaning respondents are likelier to believe that policies will have positive economic impacts and reduce emissions and less likely to believe that high-income or low-income earners would lose. Differences by political leaning are usually not significant in middle-income countries.

[14]For unconditional average perceptions by socioeconomic group, see Figures A15-A16.

Figure 10: Perceived characteristics of the main policies



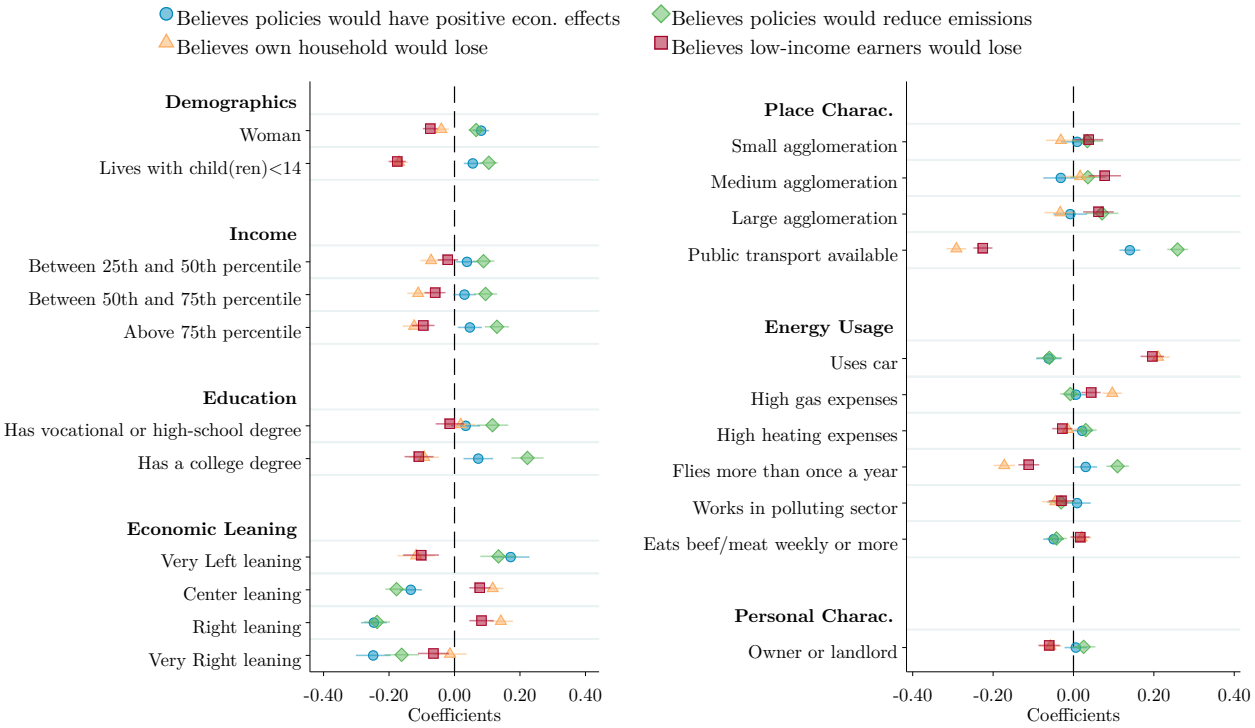
Note: The questions on effectiveness and fairness have answer options *Strongly disagree/Somewhat disagree/Neither agree nor disagree/Somewhat agree/Strongly agree*. We report the share of respondents who answer "Somewhat agree" or "Strongly agree." Questions on the distributional impacts and self-interest have answer options *Lose a lot/Mostly lose/Neither win nor lose/Mostly win/Win a lot*. Depicted is the share of respondents who say "Mostly win" or "Win a lot." "Support main climate policies" has answer options *Strongly oppose/Somewhat oppose/Neither support nor oppose/Somewhat support/Strongly support*. We show the share of respondents who "Somewhat support" or "Strongly support." The shares represented are based only on respondents in the control group (who did not see any pedagogical videos). For the exact phrasing of each question, see the Questionnaire in Appendix A-5.

Some lifestyle and energy usage characteristics are strongly correlated with a more positive outlook on the policies' effectiveness, progressivity, and own financial impacts. These include having public transportation available, being a frequent flyer, not being car-dependent, and not having high gas expenses (conditional on car usage).[15]

As was the case for policy views, the set of socioeconomic and energy usage characteristics and country fixed effects (including a large set of interactions of these variables) can only explain around 16% of the variation in perceptions about policies' effectiveness, 26% of perceived impact on low-income households, and 25% of the own perceived impact, with country fixed effects accounting for about half of all the variation explained. Therefore, these individual characteristics are important in shaping reasoning but are not the whole story.

[15]We define having high gas expenses as expenses above the median of the respondent's income group. However, the results are not sensitive to this definition.

Figure 11: How different groups perceive the effectiveness and distributional effects of the three main climate policies



Note: The figure shows the coefficients from two regressions. In the left panel, the indices listed along the vertical axis are regressed on indicator variables for socioeconomic characteristics and country fixed effects and treatment indicators (not shown). In the right panel, the same indices are regressed on energy usage indicators, country fixed effects, treatment indicators, and socioeconomic characteristics (not shown). Each index is constructed by averaging the z-scores of the answers to a given question (e.g., "believes policies would have economic effects") across all three main policies and standardizing again. See Appendix A-1 for more detailed variable definitions. See the notes to Figure 9 for a list of the omitted categories.

Interestingly, respondents' perceptions of their own gains and losses are significantly correlated with and predicted by socioeconomic and energy usage characteristics, but the prediction is imperfect. Thus, respondents' perceived threat from climate policies depends on more than just these factors.

5.3 Factors predicting policy support

To determine which beliefs are correlated with support for climate policy, we regress support for each of the three main climate policies on the respondents' socioeconomic characteristics and on a set of standardized variables and indices measuring beliefs about climate change and climate policies. The results are shown in Panel A of Figure 12.[16] Panel B

[16]For country-by-country results, see Tables A8 and A9.

reports the share of the variance in support for the three policies (as summarized by the *Support for Climate Policies index*) that is explained by each variable.[17] Overall, 70% of policy views are explained by these beliefs and socioeconomic and lifestyle characteristics, compared to 24% explained by individual characteristics only.

First, the perceived distributional impacts of climate policies are strongly correlated with policy support. Most important (in terms of the share of variation explained) is the perceived effectiveness of a policy, as measured by the belief that it will reduce emissions and the belief that it will reduce pollution. Beliefs in the effectiveness of policies to reduce emissions and pollution together account for 24% of differences in policy support.

Second, self-interest is also important: those who think they will themselves lose from a given policy are much less likely to support it. This belief alone explains 15% of the variation in policy views. Related to self-interest, the belief that one will suffer from climate change accounts for 4% of differences in policy support.

Third, the perceived progressivity of a policy also matters substantially: respondents who believe that low-income earners will lose are less supportive of the policy. In a few countries (France, India, Indonesia, Spain, Turkey, and Ukraine) the belief that the high-income earners will lose is even positively associated with support for it (see Tables A8-A9). Across countries, the belief that poor people will lose from climate policies accounts for 8% of the variation in policy views. Furthermore, there is a close connection between the respondent believing that a policy is "fair" and supporting it (the raw correlation between these variables is 0.89).

Broader perceived economic effects or concerns about the impacts of climate change overall are not as strongly correlated with policy support. Believing that a policy will positively impact the economy is associated with slightly higher policy support. Similarly, knowledge about climate change is a weak predictor of support for climate policies, although there is a small significant effect of the belief that climate change is human-made.[18]

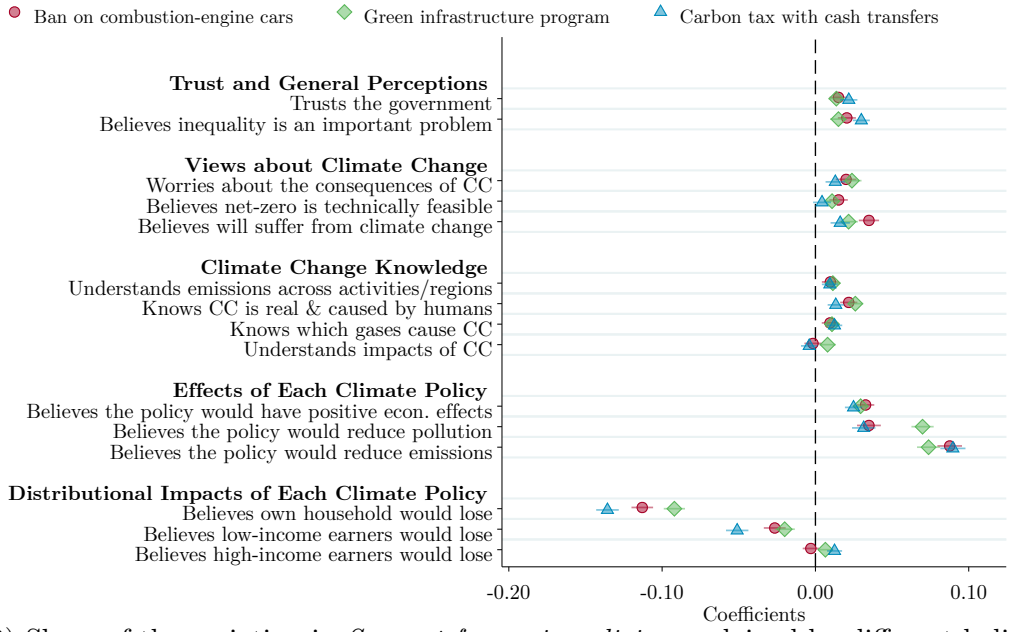
Support for climate policies and individual willingness to change behavior are not driven by the same beliefs. Compared to support for public policy action, respondents' willingness to privately adopt climate-friendly behaviors is much more driven by concerns about the consequences of climate change and that they would suffer from the main climate policies (see Figure A17). It is less correlated with perceptions of the efficiency or distributional impacts of those policies.

[17] We follow Grömping (2007) and Lindeman, Merenda and Gold (1980). To overcome the dependency of a simple ANOVA on the order of the covariates in the regression, this method averages ANOVAs over all permutations of the covariates.

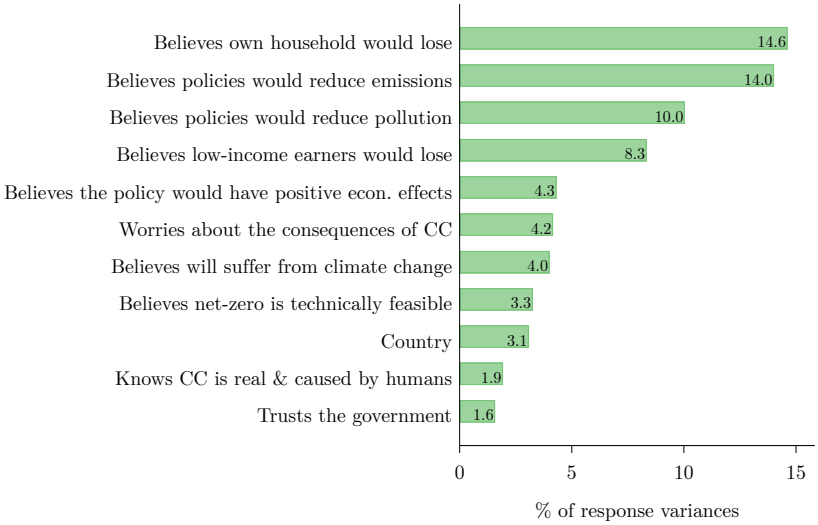
[18] Overall, our results across 20 countries confirm some of the patterns observed for specific countries, as discussed in the introduction, where the importance of perceived fairness, effectiveness, and self-interest has been highlighted (Carattini, Carvalho and Fankhauser 2018; Douenne and Fabre 2022; Klenert et al. 2018).

Figure 12: Beliefs underlying support for the main climate policies

(A) Correlation between support for the three main policies and beliefs



(B) Share of the variation in *Support for main policies* explained by different beliefs



Note: Panel A shows the coefficients from a regression of support for each policy (indicator variable equal to 1 if the respondent supports the policy somewhat or strongly) on standardized variables measuring respondents' beliefs and perceptions. Country fixed effects, treatment indicators, and individual socioeconomic characteristics are included but not displayed. The R^2 is 0.7. Panel B depicts the share of the variance in the *Support for main policies* index that is explained by each belief and perception, conditional on country fixed effects. We use the LMG method (see Grömping 2007) for the variance decomposition. See Appendix A-1 for detailed variable definitions.

6 Experimental results: the causal effects of information

This section presents the results from the experimental part of the paper, which showed respondents information about climate change and climate policies using videos. This experimental variation allows us to establish the causal effects of specific types of information. It also serves to causally confirm the importance of the factors which were shown to be most predictive of policy views in Section 5.

6.1 The information treatments

We show respondents in randomly selected subsamples one or both of two pedagogical videos (see the survey flow in Figure 4). The "control group" sees no video. The *Climate impacts* video, which is 2-3 minutes long, centers on the impacts of climate change, with information that is tailored to the country of the respondent. The *Climate policies* video (5 minutes long) focuses on three major climate policies and is also adapted to each country's specifics.[19] The objective of these treatments is to understand how perceptions change after receiving salient information on the effects of climate change or climate policies and how these perceptions and beliefs causally translate into policy support. Appendix A-5 contains the scripts and links to the videos; Appendix A-7 contains the data sources used. Table A22 shows that our treatment assignment is balanced across socioeconomic and energy usage characteristics.

The video on *Climate impacts* starts by explaining that climate change is anthropogenic and is likely to have adverse impacts on the respondent's country if nothing is done to reduce it. Some of the impacts presented include more severe heatwaves, frequent forest fires, and a growing number of areas at risk of being permanently flooded due to sea-level rise (see Panel A in Figure 13).[20] The video concludes that reducing greenhouse gas (GHG) emissions is necessary to tackle climate change.

The video on *Climate policies* focuses on the three significant climate policies studied in-depth in the survey and describes some of their advantages and drawbacks. Importantly, the policies covered are not first-best policies but rather realistic alternatives already adopted in some shape or under discussion in many countries. We also do not only highlight the positive aspects of these policies. Instead, we describe their costs as well as their benefits.

First, the video presents a ban on the production and sale of new combustion-engine cars that emit more than a given (time-varying) threshold of CO_2 per kilometer.[21] The threshold is progressively lowered so that only electric (or hydrogen) vehicles can be sold by 2030.

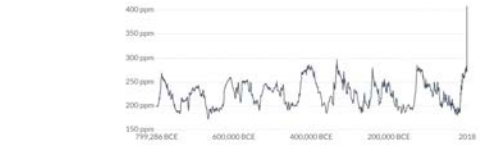
[19] Because we compute all descriptive statistics using the control group, we made it 25% larger than the other groups. It contains 29.4% of the sample, while the three treatment branches each contain 23.5% of the sample.

[20] In Canada and Denmark, we also mention potential positive effects on crop production.

[21] This policy is similar to fuel economy standards that have been implemented in many countries, including the U.S., the European Union, China, and India (Anderson and Sallee 2016)

Figure 13: Select Screenshots from the pedagogical videos

(A) Climate impacts video



Today, the concentration of CO2 in the atmosphere is higher than any time over the last 800,000 years.

Air pollution caused by the burning of fossil fuels is already responsible for 6 million annual deaths worldwide.

In the North-East, the risk of heavy rain has already increased by 55%.

(B) Climate policies video

For example, the price of gasoline would increase by 40 cents per gallon.

To compensate people for the higher prices, the revenues of the carbon tax would be redistributed to all households, regardless of their income.

Does this policy work? Yes! The Canadian province of British Columbia has a carbon tax with cash transfers since 2008.

The video also alerts respondents that electric vehicles may have a lower range and be more expensive.

Second, the video describes a carbon tax with cash transfers. We directly tell the respondents about the increase in the implied price of gasoline in local currency (e.g., \$0.40 per gallon in the U.S. and €0.10 per liter in France).[22] The video explains that the tax makes fossil fuels more expensive. Hence, companies and individuals are likely to reduce their fossil fuel consumption and, thus, CO_2 emissions. It also informs the respondents about the cash transfer per adult that the tax revenues can finance (see Appendix A-7.1.1 for the computations). Furthermore, the video explains that equally redistributing the revenues across all people means that low-income earners will, on average, receive more cash transfers than they pay in taxes. The reverse holds for high-income earners (see Panel B in Figure 13). Therefore, the video clarifies the progressivity of such a scheme, which, as we showed in Section 5, needs to be better understood.

Third, the video discusses the effects of an extensive public investment program in green infrastructure in transportation, energy, building insulation, and agriculture financed by additional public debt. It estimates the number of jobs created in non-polluting sectors and jobs lost in polluting sectors.[23] Finally, the video reminds respondents that, although it focuses on three essential policies, many others could be useful and needed to combat climate change.

6.2 Treatment effects on support for climate policies

Figure 14 depicts the effects of the video treatments on the pooled (all countries) sample.[24] These treatment effects largely confirm the correlations outlined in Section 5 about which factors matter most for policy support.

In the cross-country pooled data, the *Climate impacts* treatment has the smallest effects on support for each of the policies. It is statistically significant in very few individual countries. The effects of the *Climate policies* treatment are much stronger, especially on support for the carbon tax with cash transfers and, to a lesser extent, for the ban on combustion-engine cars. The strongest impacts are found for the combination of the *Climate impacts* and *Climate policies* treatments, which are roughly equal to the sum of the two treatments' impacts. The treatment effects are largest for the carbon tax with cash transfers, followed by the ban on combustion-engine cars and the green infrastructure program. All three treatments have significant and large effects on the perceived fairness of the three policies.

[22] Implicitly, we use a price of carbon \$45 per ton of CO_2, close to estimates of the social cost of carbon in Marron and Maag (2018), as explained in Appendix A-7.1.1

[23] Economists have advocated for green infrastructure investment programs for many years to accelerate the transition towards a low-carbon economy (Hepburn et al. 2020; High Level Commission on Carbon Prices 2017). Over the past years, many governments have started to launch such programs, including the E.U.'s Green Deal (EC 2019) and programs adopted in the aftermath of the COVID-19 pandemic, such as the Next Generation E.U. fund (EC 2020) and the U.S. Infrastructure Investment and Jobs Act (US Congress 2021).

[24] For treatment effects by country, see Tables A11-A12. For the shares of support for all policies by treatment group, see Figure A18.

Support for the green infrastructure program has the highest baseline level and sees the smallest treatment effects among the three policies. The combination of the *Climate impacts* and *Climate policies* treatments increases support for it in Australia, Canada, China, Denmark, Indonesia, South Africa, Spain, and the U.K., and the treatment effect represents on average 13% of the control group's support in these countries. However, because baseline support is high, the apparently small treatment effect is equivalent to 53% of the share of those who oppose the program in the control group for the high-income countries listed.

Turning to the ban on combustion-engine cars, the *Climate policies* treatment alone is significant only in a few countries (Australia, France, Indonesia, Italy, Japan, and South Africa). The combined treatment has significant effects in the pooled sample of all countries and in Australia, Brazil, China, Denmark, France, Indonesia, Italy, Japan, Mexico, South Africa, Spain, Turkey, and the U.K. In those countries, the effect of the combined treatment is equivalent to 21% of the control group mean on average, ranging from 7% in Indonesia (which starts with a high level of baseline support) to 43% in Australia. The treatment effect size is also equivalent to 55% of the share who oppose the policy in the control group and to 36% of the gap in support between left- and right-wing respondents in the above-listed countries.

Finally, regarding the carbon tax with transfers, the *Climate policies* treatment increases support significantly in all countries except Mexico. The magnitudes correspond to 26% of the control group mean (ranging from 10% in China to 49% in Germany), 59% of the share who oppose this program, and on average to 58% of the gap between left- and right-wing respondents in countries where it is significant. The combination of the *Climate impacts* and *Climate policies* treatments have even stronger effects in all countries (except Canada, Germany, India and Poland). The effects are equivalent to 35% of the control group mean (ranging from 8% in India to 65% in Denmark) and to 61% of the opposition in countries where the effect is significant.

Heterogeneity in treatment effects. We systematically explored potential heterogeneous treatment effects by socioeconomic and lifestyle characteristics and did not find significant or systematic heterogeneity in treatment effects along these dimensions. Overall, the video treatments have a larger effect on policies that start with lower support and that have more room for improvement. They sway sizable shares of respondents as benchmarked against the share who oppose each policy in the control group. The effects of the combined treatment are the strongest.

Treatment effects on support for other policies. There are significant treatment effects on support for policies other than our main ones as well, especially those that are the most closely related. The *Climate policies* and the combined treatment both significantly increase support for carbon taxes under all revenue usage scenarios (see Figure A19). These two treatments also significantly increase support for the simple tax on fossil fuels without transfers (with an effect size equal to around 30% of the control group mean) and a tax on flying, presumably because it is also associated with reducing fuel usage (see Figure 14).

There are significant treatment effects on a ban on combustion-engine cars with alterna-

tives made available and on a ban on polluting cars in city centers, which are more popular than the simple ban on combustion engine cars, even after adjusting the p-values for multiple testing.[25] However, policies that are not closely related to the ones presented in the video, such as mandatory building insulation, do not have significantly higher levels of support in the treatment group compared to the control group.[26]

Private action versus public policy. The treatment effects on private behaviors, including on the real-stakes behaviors (donating to the reforestation cause and signing a petition supporting climate action) are substantially different from those on policy support. For these private behaviors, the *Climate impacts* video and the combined video have the strongest effects. These treatments significantly increase (at the 5% significance levels) the willingness to sign a petition, to adopt climate-friendly behaviors, and to donate a higher share of the prize money to the reforestation cause. Therefore, stronger concerns about the consequences of climate change can push respondents to take more (costly) private actions, including incurring time and financial costs during the survey. On the contrary, the *Climate policies* treatment generates demand for public policies, but not private action. These distinct patterns highlight, once again, that private behaviors and public policy support have different determinants. Furthermore, they suggest that the effects of the treatment videos are due to their specific information content rather than to simple priming about climate change.

6.3 Interpretation of the treatment effects

To interpret these treatment effects, consider Figure 15, which shows the treatment effects on a range of underlying beliefs.[27] The *Climate impacts* treatment increases concerns about climate change and improves understanding of it (e.g., that it is real and caused by humans and which GHGs and activities contribute to it). However, these beliefs were shown not to be strong predictors of support for new climate policies (as described above). This treatment does not shift the key mechanisms that matter for policy support, namely their perceived effectiveness, distributional impacts, and impacts on one's household. The *Climate policies* and the combined treatment shift exactly the beliefs that are most predictive of policy support, namely, the perceived impacts on others and oneself and the effectiveness of the policies. In particular, the share of respondents that believes low-income people will on net gain from a carbon tax with cash transfers jumps from 30% in the control group to 47% among those who saw the *Climate policies* video.

[25] We use the method by Benjamini and Hochberg (1995) to adjust the p-values on the coefficients of the treatment indicators for the ten policy support outcome variables.

[26] These patterns provide some reassurance that the treatment effects are not due to experimenter demand effect, whereby respondents infer that we (the experimenters) want them to express support for climate action; instead they suggest that only the specific aspects about which information has been provided are shifted by the treatments. This is further bolstered by the 'first-stage' effects on underlying beliefs in Figure 15.

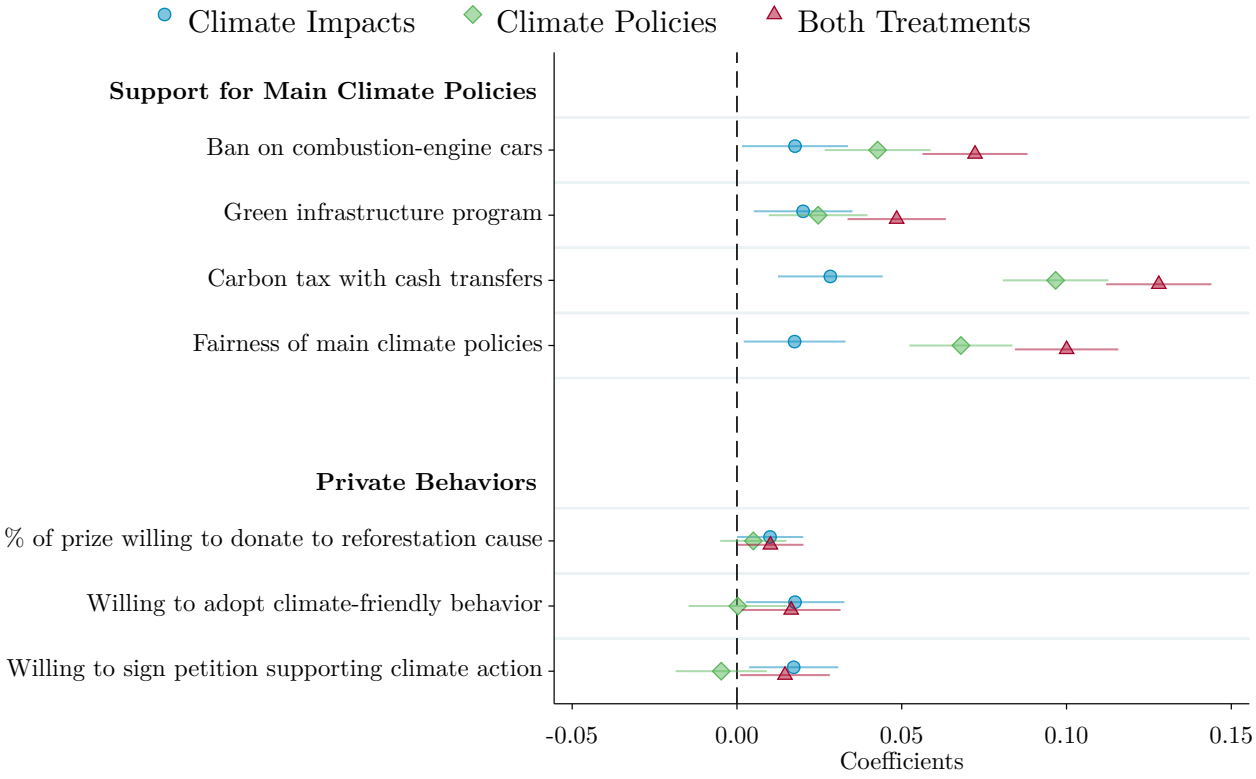
[27] Although we do not use the treatment assignment as an instrumental variable, it can be helpful intuitively to think of these underlying perceptions and beliefs as "first-stage" variables and of the policy views as "second-stage" outcomes.

Thus, explaining how policies work and who can benefit from them (or how losers can be compensated) is critical to fostering policy support. Simply making people more concerned about climate change does not appear to be an effective strategy.

Furthermore, as shown in Figure 15 and Table A13, providing information significantly increases (by 2 to 7 p.p.) the belief that a goal of net-zero emission is achievable and that humankind will succeed in halting climate change by the end of the century. This suggests that the grim views about the future (documented in Section 3) may be driven by a lack of awareness of possible solutions, which can be addressed with the type of information provided in the videos.

In addition, as can be seen from the weaker effects on support for policies other than the ones covered in the videos, it is important to provide information about and explain the workings of a specific or closely related policy. Respondents do not immediately extrapolate one policy's effect to another.

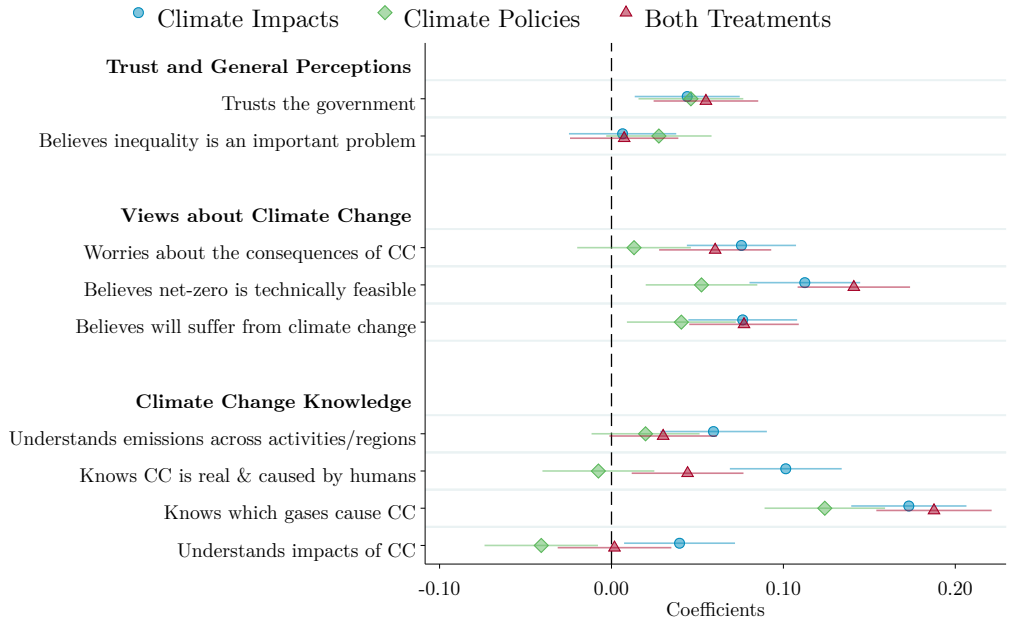
Figure 14: Effects of the treatments on support for climate action



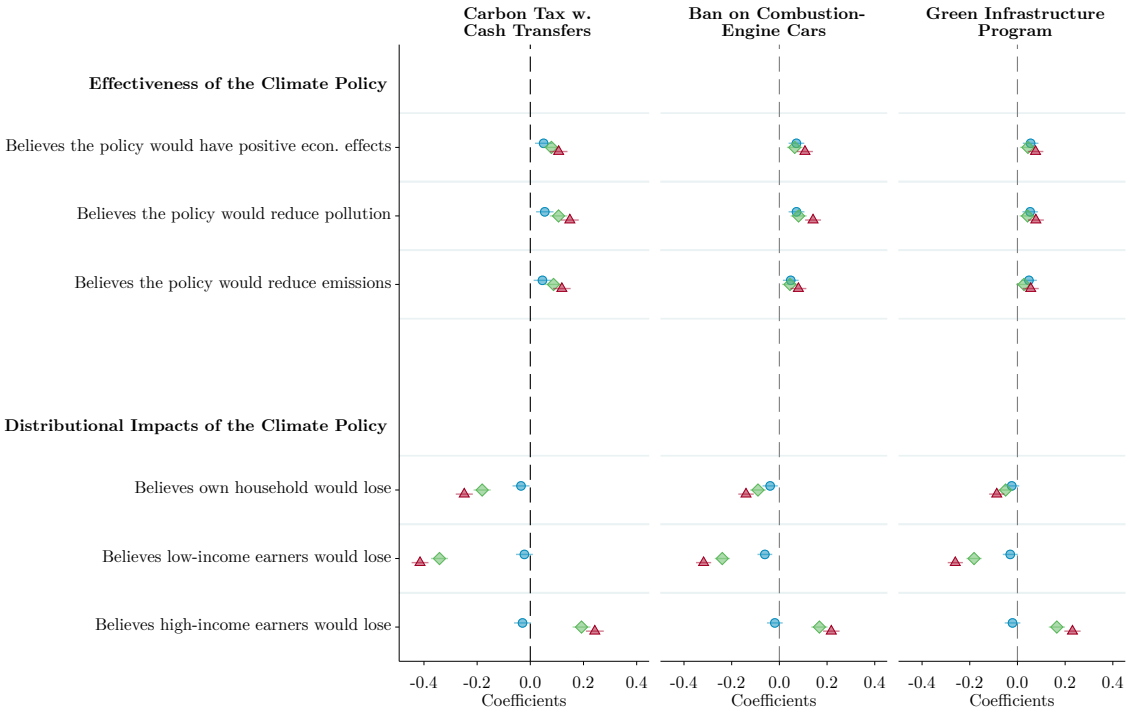
Note: The figure shows the coefficients from a regression of indicator variables and one continuous variable listed on the left, capturing support for various policies and willingness to change behaviors on indicators for each treatment, controlling for country fixed effects and socioeconomic characteristics (not shown). The exception is *% of prize willing to donate to reforestation cause*, which is a continuous variable from 0 to 1 equal to the share of the lottery prize the respondent is willing to donate. See Appendix A-1 for variable definitions.

Figure 15: Effects of the treatments on underlying beliefs

(A) Effects of the treatments on trust, views about climate change, and knowledge



(B) Effects of the treatments on beliefs about properties of the main climate policies



Note: The figure depicts the 'first stage' effects of the treatments, i.e., on beliefs about climate change and climate policies (we do not use the treatments as instrumental variables but it is helpful intuitively to think of beliefs as first-stage variables and policy views as second-stage outcomes). It shows the coefficients from a regression of indices listed on the left, capturing respondents' beliefs and perceptions on indicators for each treatment, controlling for country fixed effects and socioeconomic characteristics (not shown). Panel A displays the coefficients from the regressions for reasoning, while panel B displays the coefficients from regressions of beliefs about the properties of each of the three policies. See Appendix A-1 for variable detailed definitions.

7 Conclusion

Our new large-scale international survey of 40,000 respondents across twenty high-emitting countries shows that a majority of people understand that climate change is real and human-caused. However, respondents disagree about which measures should be taken to fight it. Our paper contributes new and comprehensive data on people's perceptions and reasoning about climate change and climate policies across many countries. We also study which factors matter most for policy support and what type of information is most important to shift views on climate policies.

We show that people's support for a given climate policy depends on three fundamental beliefs, namely that the policy is helpful in reducing emissions (effectiveness); ii) does not have adverse distributional impacts by hurting lower-income households (inequality concerns); and iii) does not financially hurt the respondents' household (self-interest). Stronger concerns or better knowledge about climate change are not strong predictors of support for climate action.

Accordingly, in many countries, there is strong majority support for policies perceived to be effective, progressive, or both, namely green infrastructure programs, subsidies for low-carbon technologies, carbon taxes with strongly progressive use of revenues (such as cash transfers to the poorest or most impacted households), and policies centered around regulations such as bans on polluting vehicles from city centers or dense areas, and the mandatory insulation of buildings.

These findings are confirmed experimentally. Respondents who see a video explaining the effectiveness and distributional implications of a policy (e.g. that it will not hurt poorer households) significantly increase their support for climate policies. Respondents who see a video on the impacts of climate change instead do not change their views by as much, and the effect is only significant in a few countries. The treatment effects for the three main policies covered in the information treatments – a green infrastructure program, a ban on combustion-engine cars, and a carbon tax with cash transfers – differ in magnitude. But for all three policies, a significant share of the baseline opposition can be swayed by explanations of how the policies work and who they impact.

Left-wing and college-educated respondents, as well as those with public transport availability, low car usage, and gas expenses, are more supportive of climate action. The differences between groups that support more climate change action and those that support less can also be traced back to the three core beliefs outlined. For instance, college-educated respondents are generally more supportive of climate action because they believe that it will be effective in reducing emissions and that they or lower-income households will not lose out as much. Nevertheless, socioeconomic and lifestyle characteristics alone do not explain a large share of the variation in policy views across respondents.

The policy lessons emerging from these international surveys and experiments are, first, that the specific policies proposed need to be distributionally progressive and that citizens need to be made aware of this. A corollary is that carbon pricing can be widely supported, as long as it is accompanied by transfers to vulnerable households and low-carbon investments. In other words, effectiveness and progressivity can go hand in hand. Second,

explanations and information are needed to improve support for climate policies. They can be very effective in improving climate policies' support if they address the three key concerns outlined. Information on the dangers of climate change alone without a corresponding explanation of the policies has only limited impacts on policy support. Third, people have key concerns about their own potential losses from implementing climate action. Their own experience shapes their broader perceptions and beliefs about climate change and policies. This highlights the importance of making environmentally friendly alternatives, e.g., public transportation, more widely available before increasing environmental taxes.

Future research could continue shedding light on the best way to convey information on how climate policies work. In addition, while our sample includes a substantial number of countries, many more are missing and would be valuable to survey in an expanded analysis. Our survey has focused on mitigation rather than adaptation policies (Barreca et al. 2016), which would be valuable to explore in future work.

Table 1: Sample representativeness – High-income countries 1

	Australia		Canada		Denmark		France	
	Population	Sample	Population	Sample	Population	Sample	Population	Sample
Sample size	NA	1,978	NA	2,022	NA	2,013	NA	2,006
Man	0.49	0.56	0.49	0.45	0.50	0.50	0.48	0.44
18-24 years old	0.11	0.10	0.10	0.09	0.11	0.09	0.12	0.10
25-34 years old	0.19	0.19	0.17	0.14	0.16	0.12	0.15	0.15
35-49 years old	0.26	0.27	0.24	0.25	0.23	0.25	0.24	0.25
More than 50 years old	0.44	0.44	0.48	0.52	0.50	0.54	0.49	0.50
Income Q1	0.25	0.45	0.25	0.25	0.26	0.29	0.25	0.31
Income Q2	0.25	0.31	0.25	0.28	0.23	0.25	0.25	0.31
Income Q3	0.25	0.17	0.25	0.28	0.28	0.26	0.25	0.23
Income Q4	0.25	0.07	0.25	0.20	0.22	0.19	0.25	0.14
Region 1	0.33	0.30	0.07	0.06	0.32	0.30	0.19	0.19
Region 2	0.20	0.23	0.06	0.07	0.23	0.23	0.22	0.24
Region 3	0.07	0.10	0.26	0.23	0.10	0.10	0.20	0.22
Region 4	0.28	0.28	0.39	0.39	0.14	0.16	0.25	0.20
Region 5	0.11	0.09	0.23	0.24	0.21	0.21	NA	NA
Urban	0.72	0.76	0.83	0.89	0.53	0.53	0.60	0.59
College education (25-64)	0.49	0.46	0.60	0.56	0.36	0.44	0.40	0.42
Share of voters	0.72	0.86	0.56	0.83	0.76	0.89	0.70	0.78
Voters: Left	0.44	0.44	0.60	0.65	0.44	0.48	0.28	0.24
Voters: Center	NA	NA	NA	NA	0.09	0.06	0.24	0.12
Voters: Right	0.41	0.41	0.39	0.30	0.43	0.37	0.47	0.53
Voters: Other	0.15	0.08	0.01	0.00	0.04	0.03	0.01	0.02
Voters: Not reported	NA	0.06	NA	0.05	NA	0.06	NA	0.08
Inactivity rate (15-64)	0.22	0.22	0.23	0.29	0.21	0.28	0.29	0.25
Unemployment rate (15-64)	0.07	0.12	0.10	0.12	0.06	0.12	0.08	0.10
Employment rate (15-64)	0.73	0.69	0.70	0.63	0.74	0.63	0.65	0.67

Note: This table displays summary statistics of the samples alongside nationally representative statistics. For *College education (25-64)*, the sample statistics are provided for respondents aged between 25 and 64 years old. For the *Share of voters*, the sample statistics include the share of people who indicated having voted. For the *Voters* variables, the sample statistics include the share of respondents who indicated voted for a party/candidate classified in each category, among respondents who indicated having voted. The *Voters: Not reported* category includes people who indicated having voted but did not report the candidate/party they voted for. For *Inactivity rate (15-64)*, the sample statistics include the share of respondents aged between 15 and 64 years old who indicated being either "*Inactive (not searching for a job)*," a "*Student*," or "*Retired*." For *Unemployment rate (15-64)*, the sample statistics include the share of respondents aged between 15 and 64 years old who indicated being "*Unemployed (searching for a job)*", ('*Unemployed (searching for a job)*," "*Full-time employed*," "*Part-time employed*," or "*Self-employed*"). For *Employment rate (15-64)*, the sample statistics include the share of respondents aged between 15 and 64 years old who indicated being either "*Full-time employed*," "*Part-time employed*," or "*Self-employed*." Detailed sources for each variable and country, as well as the definitions of regions, college education, urban, and voting categories are available in Appendix A-7.

Table 2: Sample representativeness – High-income countries 2

	Germany		Italy		Japan		Poland	
	Population	Sample	Population	Sample	Population	Sample	Population	Sample
Sample size	NA	2,006	NA	2,088	NA	1,990	NA	2,053
Man	0.49	0.48	0.48	0.49	0.48	0.54	0.48	0.44
18-24 years old	0.09	0.06	0.08	0.09	0.08	0.08	0.09	0.09
25-34 years old	0.15	0.16	0.12	0.13	0.12	0.13	0.17	0.18
35-49 years old	0.22	0.22	0.24	0.26	0.24	0.27	0.28	0.30
More than 50 years old	0.54	0.56	0.56	0.52	0.56	0.53	0.46	0.42
Income Q1	0.25	0.25	0.25	0.28	0.25	0.27	0.25	0.22
Income Q2	0.25	0.25	0.25	0.28	0.25	0.27	0.25	0.27
Income Q3	0.25	0.23	0.25	0.23	0.25	0.27	0.25	0.27
Income Q4	0.25	0.27	0.25	0.21	0.25	0.19	0.25	0.25
Region 1	0.10	0.10	0.20	0.20	0.17	0.18	0.12	0.10
Region 2	0.15	0.16	0.11	0.12	0.18	0.19	0.14	0.13
Region 3	0.18	0.16	0.19	0.17	0.35	0.38	0.23	0.21
Region 4	0.29	0.27	0.27	0.30	0.11	0.10	0.29	0.33
Region 5	0.28	0.31	0.23	0.21	0.20	0.16	0.22	0.23
Urban	0.80	0.76	0.83	0.89	0.70	0.76	0.57	0.66
College education (25-64)	0.31	0.32	0.20	0.38	0.53	0.72	0.33	0.46
Share of voters	0.67	0.86	0.59	0.87	0.54	0.79	0.63	0.87
Voters: Left	0.41	0.42	0.24	0.31	0.29	0.22	0.02	0.06
Voters: Center	0.07	0.07	0.36	0.20	0.31	0.15	0.16	0.13
Voters: Right	0.49	0.40	0.39	0.32	0.35	0.44	0.81	0.76
Voters: Other	0.03	0.04	0.02	0.07	0.05	0.05	0.00	NA
Voters: Not reported	NA	0.06	NA	0.10	NA	0.14	NA	0.05
Inactivity rate (15-64)	0.21	0.23	0.36	0.19	0.20	0.22	0.29	0.18
Unemployment rate (15-64)	0.04	0.07	0.09	0.17	0.03	0.05	0.03	0.09
Employment rate (15-64)	0.76	0.72	0.58	0.67	0.77	0.74	0.69	0.75

Note: This table displays summary statistics of the samples alongside nationally representative statistics. See notes to Table 1. Detailed sources for each variable and country, as well as the definitions of regions, college education, urban, and voting categories are available in Appendix A-7.

Table 3: Sample representativeness – High-income countries 3

	South Korea		Spain		U.K.		U.S.	
	Population	Sample	Population	Sample	Population	Sample	Population	Sample
Sample size	NA	1,932	NA	2,268	NA	2,025	NA	2,218
Man	0.50	0.56	0.49	0.49	0.50	0.52	0.50	0.47
18-24 years old	0.10	0.09	0.08	0.10	0.10	0.09	0.12	0.12
25-34 years old	0.16	0.19	0.12	0.14	0.17	0.19	0.18	0.18
35-49 years old	0.27	0.31	0.28	0.29	0.24	0.24	0.24	0.25
More than 50 years old	0.47	0.40	0.51	0.48	0.49	0.48	0.46	0.45
Income Q1	0.25	0.27	0.25	0.25	0.25	0.27	0.20	0.26
Income Q2	0.25	0.28	0.25	0.27	0.25	0.25	0.24	0.28
Income Q3	0.25	0.32	0.25	0.23	0.25	0.21	0.24	0.26
Income Q4	0.25	0.13	0.25	0.25	0.25	0.27	0.31	0.20
Region 1	0.25	0.24	0.19	0.21	0.21	0.21	0.21	0.20
Region 2	0.34	0.37	0.30	0.28	0.13	0.13	0.17	0.18
Region 3	0.19	0.23	0.11	0.10	0.24	0.23	0.38	0.39
Region 4	0.22	0.17	0.13	0.15	0.11	0.10	0.24	0.23
Region 5	NA	NA	0.28	0.26	0.31	0.33	NA	NA
Urban	0.92	0.95	0.70	0.75	0.82	0.84	0.73	0.72
College education (25-64)	0.51	0.74	0.40	0.57	0.49	0.62	0.61	0.60
Share of voters	0.75	0.87	0.63	0.85	0.60	0.82	0.62	0.82
Voters: Left	0.47	0.63	0.41	0.45	0.39	0.37	0.51	0.57
Voters: Center	0.21	0.11	0.07	0.09	0.12	0.11	NA	NA
Voters: Right	0.31	0.17	0.36	0.25	0.46	0.47	0.47	0.36
Voters: Other	0.01	NA	0.16	0.14	0.04	0.02	0.02	0.02
Voters: Not reported	NA	0.09	NA	0.07	NA	0.03	NA	0.05
Inactivity rate (15-64)	0.31	0.17	0.28	0.18	0.21	0.24	0.27	0.26
Unemployment rate (15-64)	0.04	0.08	0.16	0.14	0.05	0.09	0.08	0.13
Employment rate (15-64)	0.66	0.76	0.62	0.71	0.75	0.69	0.67	0.64

Note: This table displays summary statistics of the samples alongside nationally representative statistics. See notes to Table 1. For *College education (25-64)* in the U.S., the sample statistics is provided for all respondents and not only respondents aged between 25 and 64 years old. Detailed sources for each variable and country, as well as the definitions of regions, college education, urban, and voting categories are available in Appendix A-7.

Table 4: Sample representativeness – Middle-income countries 1

	Brazil		China		India		Indonesia	
	Population	Sample	Population	Sample	Population	Sample	Population	Sample
Sample size	NA	1,860	NA	1,717	NA	2,472	NA	2,488
Man	0.49	0.45	0.51	0.54	0.51	0.58	0.50	0.52
18-24 years old	0.15	0.16	0.10	0.12	0.18	0.23	0.17	0.19
25-34 years old	0.22	0.23	0.20	0.26	0.24	0.27	0.23	0.26
35-49 years old	0.30	0.32	0.28	0.35	0.29	0.24	0.31	0.31
More than 50 years old	0.34	0.29	0.42	0.27	0.28	0.26	0.29	0.24
Income Q1	0.25	0.24	0.25	0.13	0.25	0.27	0.25	0.28
Income Q2	0.25	0.30	0.25	0.25	0.25	0.24	0.25	0.24
Income Q3	0.25	0.24	0.25	0.29	0.25	0.25	0.25	0.23
Income Q4	0.25	0.22	0.25	0.32	0.25	0.24	0.25	0.25
Region 1	0.08	0.07	0.29	0.31	0.27	0.20	0.08	0.07
Region 2	0.09	0.04	0.12	0.17	0.26	0.25	0.30	0.31
Region 3	0.27	0.28	0.08	0.05	0.13	0.15	0.13	0.11
Region 4	0.14	0.15	0.29	0.23	0.20	0.24	0.21	0.20
Region 5	0.42	0.45	0.22	0.24	0.14	0.17	0.27	0.31
Urban	0.69	0.77	0.63	0.53	0.36	0.46	0.57	0.62
College education (25-64)	0.20	0.64	0.10	0.59	0.09	0.72	0.13	0.45
Share of voters	0.67	0.92	NA	NA	0.65	0.79	0.74	0.90
Voters: Left	0.30	0.24	NA	NA	0.39	0.27	0.19	0.42
Voters: Center	0.19	0.10	NA	NA	NA	NA	0.17	0.06
Voters: Right	0.50	0.52	NA	NA	0.46	0.61	0.54	0.39
Voters: Other	0.01	0.06	NA	NA	0.16	0.03	0.10	NA
Voters: Not reported	NA	0.08	NA	NA	NA	0.08	NA	0.13
Inactivity rate (15-64)	0.34	0.12	0.23	0.10	0.46	0.20	0.30	0.20
Unemployment rate (15-64)	0.14	0.11	0.03	0.01	0.09	0.04	0.06	0.05
Employment rate (15-64)	0.57	0.79	0.75	0.89	0.49	0.76	0.66	0.76

Note: This table displays summary statistics of the samples alongside nationally representative statistics. See notes to Table 1. Detailed sources for each variable and country, as well as the definitions of regions, college education, urban, and voting categories are available in Appendix A-7.

Table 5: Sample representativeness – Middle-income countries 2

	Mexico		Turkey		South Africa		Ukraine	
	Population	Sample	Population	Sample	Population	Sample	Population	Sample
Sample size	NA	2,045	NA	1,932	NA	2,003	NA	1,564
Man	0.48	0.49	0.49	0.43	0.49	0.46	0.45	0.61
18-24 years old	0.18	0.18	0.16	0.18	0.21	0.21	0.08	0.12
25-34 years old	0.23	0.24	0.21	0.24	0.28	0.29	0.18	0.25
35-49 years old	0.30	0.31	0.30	0.34	0.28	0.28	0.28	0.40
More than 50 years old	0.29	0.27	0.33	0.24	0.22	0.22	0.46	0.24
Income Q1	0.25	0.26	0.25	0.14	0.25	0.16	0.25	0.17
Income Q2	0.25	0.27	0.25	0.28	0.25	0.24	0.25	0.24
Income Q3	0.25	0.24	0.25	0.28	0.25	0.32	0.25	0.24
Income Q4	0.25	0.22	0.25	0.30	0.25	0.27	0.25	0.36
Region 1	0.33	0.38	0.25	0.28	0.12	0.09	0.31	0.37
Region 2	0.22	0.18	0.18	0.12	0.24	0.29	0.21	0.17
Region 3	0.10	0.10	0.30	0.34	0.18	0.17	0.22	0.26
Region 4	0.13	0.12	0.26	0.26	0.33	0.26	0.25	0.20
Region 5	0.23	0.22	NA	NA	0.13	0.18	NA	NA
Urban	0.64	0.81	0.87	0.96	0.49	0.63	0.70	0.88
College education (25-64)	0.19	0.66	0.16	0.65	0.16	0.49	NA	0.67
Share of voters	0.53	0.86	0.83	0.88	0.44	0.67	0.53	0.76
Voters: Left	0.56	0.54	0.35	0.30	0.68	0.45	0.16	0.19
Voters: Center	0.18	0.10	0.10	0.07	0.21	0.32	0.67	0.69
Voters: Right	0.19	0.20	0.55	0.50	0.06	0.04	0.13	0.03
Voters: Other	0.07	0.02	0.00	NA	0.05	0.04	0.03	NA
Voters: Not reported	NA	0.14	NA	0.14	NA	0.15	NA	0.10
Inactivity rate (15-64)	0.35	0.12	0.45	0.21	0.45	0.16	0.38	0.15
Unemployment rate (15-64)	0.04	0.07	0.13	0.12	0.29	0.16	0.10	0.10
Employment rate (15-64)	0.59	0.81	0.48	0.69	0.38	0.71	0.56	0.76

Note: This table displays summary statistics of the samples alongside nationally representative statistics. See notes to Table 1. Detailed sources for each variable and country, as well as the definitions of regions, college education, urban, and voting categories are available in Appendix A-7.

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