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Allen Blackman
Marc Jeuland
Emilio Leguizamo

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Emilio Leguizamo

Inter-American Development Bank
Sanford School of Public Policy, Duke University
School of Public and International Affairs, Columbia University

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WILLINGNESS TO PAY FOR CLIMATE MITIGATION: EVIDENCE FROM LATIN AMERICA

Allen Blackman^{a*}, Marc Jeuland^b, and Emilio Leguizamo^c

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^aClimate Change and Sustainable Development Sector, Inter-American Development Bank
allenb@iadb.org

^bSanford School of Public Policy, Duke University, marc.jeuland@duke.edu

^cSchool of Public and International Affairs, Columbia University, esl2185@columbia.edu

*Corresponding author: Inter-American Development Bank, 1301 New York Avenue NW,
Washington, DC 20577, 202-523-7423, allenb@iadb.org

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WILLINGNESS TO PAY FOR CLIMATE MITIGATION: EVIDENCE FROM LATIN AMERICA

Abstract. The ability of countries in Latin America to achieve net zero greenhouse gas (GHG) emissions by mid-century, the target set by the Paris Agreement, will depend critically on citizen support. To gauge this support, we administered a contingent valuation survey to representative samples in seven of the region's leading GHG emitting countries and in the United States, which is used as a comparator. The survey elicits respondents' willingness to pay (WTP) for achieving net zero by 2050 and uses a split sample design to test whether WTP is affected by the distribution of decarbonization costs across households. Our estimates of mean WTP in the Latin American study countries are on par both with our estimate for the United States, and with estimates from a recent CV study for China, Sweden, and the United States. However, among the Latin American study countries, mean WTPs for Argentina and Brazil are relatively low. We also find that the distribution of the costs of decarbonization across households does not have a clear effect on WTP and that the drivers of WTP for our Latin American study countries are similar to those the literature has identified in other regions.

Keywords. contingent valuation, stated preference, net zero, Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, Peru

JEL codes. Q51, Q54

1. INTRODUCTION

All 33 countries in Latin America signed the 2005 Paris Agreement, which aims to achieve global net zero greenhouse gas (GHG) emissions by mid-century. Moreover, all 33 countries have submitted Nationally Determined Contributions setting country-level mitigation targets (WRI 2025). But their ability to meet these goals will depend critically on citizen support: where it is lacking, local policymakers will have limited latitude and incentives to act (Gabrielli and Hoffmann 2025).

How strong is that support? The literature on the drivers of climate attitudes provides some reasons to expect it to be robust and others to expect the opposite (Dechezleprêtre et al. 2025; Dabla-Norris et al. 2023; Bergquist et al. 2022; Bumann 2021; Drews et al. 2016). On the one hand, considerable evidence indicates that perceived climate risk drives citizen support for climate action. In Latin America, this risk has likely been heightened by the dramatic increase in the frequency and intensity of climate-related disasters over the past 50 years (Howe et al. 2019). Storms, floods, and droughts in the region have all increased five- to six-fold since 1970 (Blackman et al. 2025). And these disasters have been costly: storms alone are estimated to have depressed economic growth in the region by one to two percentage points (Cavallo et al. 2022).

But on the other hand, in some Latin American countries, poverty, political instability and other pressing problems make climate change less salient (Roberts and Parks 2006). In addition, considerable evidence has established that support for climate action depends critically on citizens' views about whether climate governance is fair, trustworthy, and effective—perceptions that are likely to be mixed. As for fairness, at least some Latin American citizens may question whether their region, which collectively contributes less than eight percent of global GHG emissions, should be saddled with funding and implementing efforts to address a problem largely created by countries in other regions (Roberts and Parks 2006). They may also be concerned that climate mitigation policies like carbon pricing can disproportionately burden poor households (Feng et al. 2018). Finally, measures of perceived governmental efficiency and trustworthiness in Latin America lag well behind those in the rest of the world (Keefer and Scartascini 2022).

Given these countervailing factors, it is unclear whether we should expect domestic public support for climate mitigation in Latin America to be relatively strong or weak. A useful measure

of such support is household willingness to pay (WTP) for climate mitigation. The contingent valuation (CV) method has been used to estimate this WTP and to compare it across countries (Carlsson et al. 2021 and 2012; Winden et al. 2018). However, to our knowledge, that has not been done for any Latin American countries.

Here, we report results from a CV survey administered to representative samples in seven Latin American countries that collectively emit more than 80 percent of the region's GHGs—Argentina, Brazil, Chile, Colombia, Ecuador, Mexico, and Peru—and in the United States, which is used as a comparator. The survey elicited respondents' WTP for a hypothetical national program that would achieve net zero carbon emissions by 2050. It used a split sample design to test whether WTP is affected by the distribution of the program's costs across households.

We have three main findings. First, mean WTPs in the seven Latin American study countries are on par with those in industrialized countries, both when expressed in terms of levels (US\$ adjusted for purchasing power parity) and as a percentage of household income or GHG emissions. However, among these seven study countries, WTP is relatively low in Argentina and Brazil. Second, and somewhat surprisingly, the distribution of the costs of decarbonization policies across households does not have a clear effect on WTP. Finally, many of the determinants of WTP in the Latin American study countries, including respondents' socioeconomic levels and their beliefs about the benefits and fairness of decarbonization policy, are similar to those the literature has identified in other regions.

Our study makes three contributions to the literature. First, as noted above, to our knowledge, it is the first CV study of WTP for climate mitigation in Latin America. Second, it is among the first to use the same CV study to estimate mean WTPs for climate mitigation in multiple countries. As discussed in the next section, to our knowledge, only Carlsson et al. (2012 and 2021) and Winden et al. (2018) have done that. Finally, it contributes to the substantial literature on the determinants of climate attitudes, which has mostly focused on the Global North (see Bergquist et al. 2022 for a review).

The remainder of the paper is organized as follows. The second section briefly reviews the relevant literature. The third section describes our CV survey. The fourth section summarizes our results. And the last section considers policy implications.

2. LITERATURE

As noted above, our study contributes both to the CV literature on WTP for climate mitigation and to the broader literature on the determinants of climate attitudes. Regarding the former, to our knowledge, only three studies have applied the same CV survey in more than one country (Table 1). Carlsson et al. (2012) elicit WTP for specified reductions in global GHG emissions in China, Sweden, and the United States in 2009. Carlsson et al. (2021)—the study most closely related to ours—reports results from administering the same survey in the same three countries a decade later. They find that on average, representative households in China, Sweden and the United States are willing to pay US \$75, \$71 and \$78 per month for an 85 percent reduction in global GHG emissions (which would be more than sufficient to achieve net zero by 2050).¹ Winden et al. (2018) find that households in China and the United states are willing to pay US \$29 and \$47 per month for (less precisely defined) global climate mitigation.

[Insert Table 1 here]

Several other studies have estimated WTP for climate mitigation in single countries. Berrens et al. (2004) find that US citizens are willing to pay US \$17 per month for costs associated with accession to the Kyoto Protocol, while Li et al. (2005) put these costs at just \$4 per month. Kotchen et al. (2013) find that US citizens are willing to pay US \$79–89 per month for a 17 percent reduction in US GHG emissions. Finally, Hanneman et al. (2011) and Longo et al. (2012) find that Spanish citizens are willing to pay €11 per month to decarbonize national electricity generation and that Basque country residents are willing to pay €11 per month for a climate mitigation plan.

Our study also contributes to the broader literature on the determinants of climate attitudes (Dechezleprêtre et al. 2025; Dabla-Norris et al. 2023; Bergquist et al. 2022; Bauman 2021; Drews et al. 2016). A recent quantitative metanalysis, Bergquist et al. (2022), groups these determinants into four categories and characterizes the magnitude of their effects. The largest effects are from ‘policy specific beliefs’ including those about the fairness and effectiveness of climate mitigation policies. Second most impactful are ‘climate change evaluations’ including beliefs about whether climate change is happening, the severity of its effects, and general knowledge about climate

¹ IPCC (2023).

change. Third, are ‘psychological factors’ including trust and political ideology. Last, are demographic factors including education, income, gender, and age.

3. CV SURVEY

3.1. Design

To design our CV survey, we conducted four focus groups in June and July 2023 followed by pilot surveys ($n = 50$) in each of our eight study countries in September 2023. These activities helped us refine key elements of our survey including the CV scenario, the bid vector, and the debriefing and attitudinal question. They also helped us strike a balance between keeping the survey short in order to minimize inattention, and ensuring it provided enough information to be clear and informative.

The final survey contained 24 questions and was organized into six sections (see Supplemental Material). *Section 1* elicited respondents’ views on climate change. *Section 2* briefly summarized the scientific consensus on the main causes and effects of climate change and on the economic transformations needed to achieve net zero GHG emissions.

Section 3 presented the CV scenario: a program that would achieve net zero in the respondent’s country by 2050. This section had three parts. The first part described the Net Zero Program’s purpose and payment vehicle and asked respondents to make a number of assumptions. It stated that the purpose of the program was to avert the worst effects of climate change and that households would pay for the program via higher taxes and energy costs through the year 2050, the payment vehicle typically used in CV studies of climate mitigation (e.g., Carlsson et al. 2012 and 2021; Winden et al. 2018; Kotchen et al. 2013). For simplicity, respondents were told that after adjusting for inflation, the cost of the program to their household would be the same every month. Finally, respondents were asked to assume that: their households would not have to make any changes other than paying the higher taxes and energy costs; there was no risk that the program would fail to achieve its goal of reaching net zero by 2050; and all other countries would implement a similar Net Zero Program. These assumptions were meant to enable the survey to elicit respondents’ total WTP for the stated goal of the Net Zero Program, unaffected by concerns about ancillary costs and uncertainty.

The second part of the CV scenario presented a split sample experimental treatment aimed at testing whether the distribution of the costs of the Net Zero program across households affects

WTP. A randomly selected half of respondents were told that the cost of the Net Zero Program in their country would be proportional to household income; that is, richer households would pay more than poorer households. The other half were told that the cost of the program would be the same for all households.

The third and final part of the CV scenario was the CV question, which was framed as a yes-or-no referendum about whether the national government in the respondent's country would launch the Net Zero Program. The scenario specified that the program would only be implemented if at least 51 percent of the people in the country voted for it. Furthermore, it stated that if the program were approved, all households in the country would pay higher taxes and energy prices, but if it were not approved, taxes and energy prices would stay the same. The CV scenario made clear that the referendum was hypothetical—that is, it had not actually been proposed—but that survey responses would help inform future net zero policy making.

The CV question itself read as follows:

Now imagine that the Net Zero Program in [your country] would cost your household [randomly assigned bid] per month up to the year 2050. Note that the cost of [randomly assigned bid] per month means that you would pay ([randomly assigned bid]×12) per year in current money terms, until the year 2050 to reach net-zero GHG emissions by that time. Would you vote for the program and be willing to pay this amount for it?

We used a standard double-bounded design, so that respondents who accepted the initial bid were asked if they would be willing to pay a bid twice as high and those who rejected it were asked if they would be willing to pay a bid half as high (Hannemann 1991). To maintain consistency with prior similar studies (namely Carlsson et al. 2012 and Carlsson et al. 2021), we included a cheap talk script that aims to reduce hypothetical bias.²

We used a common bid vector for all eight countries to facilitate pooling the data from the Latin American study countries and comparing estimated WTPs across all countries. Denominated in US dollars, the eight bids that comprised this vector were \$5, \$10, \$20, \$30, \$50, \$75, and \$150.

² We recognize that cheap talk scripts have disadvantages that are by now well-known: their effects on perceived consequentiality and incentives are unclear and they do not always reduce estimated WTP (Johnston et al. 2017).

For six of the seven LAC countries—all except Argentina—we converted these bids to the local currency using the average 2022 exchange rate and we adjusted for purchasing power parity. In Argentina, where macroeconomic instability complicated this conversion, bids were denominated in US dollars. Focus groups and a pilot survey confirmed that the economy is partially dollarized and that respondents could easily understand bids denominated in US dollars.

Following the CV section, *Section 4* asked questions about climate policy action, such as whether rich households ought to pay more for the Net Zero Program, and *Section 5* asked about respondents' political views. Finally, *Section 6* collected information about respondents' sociodemographic characteristics.

To minimize inattention, in Sections 2 (CV Scenario) and 3 (CV question), respondents were asked six comprehension questions. Respondents who answered a comprehension question incorrectly received a pop-up message with the correct answer along with a request to pay close attention to the survey. In addition, for the one comprehension question asked just after the CV question (which requested that respondents report their randomly assigned bid), those who answered incorrectly were directed to answer the CV question a second time.

3.2. Administration and samples

The survey was administered online by a market research firm that maintains internet panels in each of our eight study countries. Data were collected between November 21, 2023 and February 14, 2024. In all countries except Ecuador, sample sizes ranged from 1551–1631. In Ecuador, the market research firm's internet panel was smaller and the sample size was 443. A total of 11,408 respondents in all eight study completed the survey.

In each of the seven Latin American study countries, we used stratified random sampling to generate a sample that is nationally representative in terms of age, sex, and socioeconomic status (the latter based on a composite measure). For the United States, however, stratification in terms of age was not possible. Therefore, for the United States only, we used bootstrap resampling to recover a nationally representative sample.

To filter out respondents who answered questions without reading them carefully, we dropped all 1,071 respondents who completed the survey in under less than half the median completion time (7 minutes), leaving a pooled sample of 9,060 respondents for all seven Latin

American study countries and 1,500 for the United States. We address the effect of this filter on our samples and results in the next section.

4. RESULTS

4.1 Respondent sociodemographic characteristics, beliefs, and attitudes

In general, Latin American survey respondents believed that climate change is a serious problem (Table 2). Moreover, average measures of concern exceed those for the United States. Among all Latin American respondents, 97 percent reported that climate change is happening (versus 88 percent in the US), 84 percent said they believe it is caused by human activity (versus 54 percent in the US), and 89 percent stated that it will have significant harmful effects on either their household or other households in the next 20 years (versus 52 percent in the United States). Finally, 44 percent of respondents ranked climate change as the first or second most important among four significant problems facing their country (versus 36 percent in the United States).³

[Insert Table 2 here]

A large majority of Latin American respondents were concerned about the domestic distribution of the costs of the Net Zero Program: 67 percent said that high-income households in their country should pay more than poor households for a Net Zero Program. By contrast, only 61 percent of United States respondents said that.

Latin American respondents did not seem strongly concerned about the international distribution of the costs of global decarbonization: only 45 percent agreed that high-income countries should pay more than low-income ones to reach global net zero. Perhaps not surprisingly, a smaller percentage of respondents in the United States said that: just over a quarter.

As for economic implications of climate action, 77 percent of Latin American respondents said that achieving net zero would generate significant co-benefits such as creating new ‘green’ jobs and reducing traffic congestion and accidents. By contrast, only 59 percent of US respondents shared this view.

Finally, Latin America respondents generally had both limited information about their country’s climate policy and reservations about its ability to effectively implement such policy.

³The other three problems were: high inflation; political instability; and poverty and inequality.

Both features were more pronounced than in the United States. Despite the fact that all seven of the Latin American countries in our sample signed the Paris Agreement and committed to specific GHG reductions, slightly less than one-quarter of Latin American respondents reported being aware of any such commitments (versus 37 percent in the US). Thirty-one percent of Latin American respondents said they generally trust their country to do the right thing (versus 34 percent in the United States), and 46 percent indicated that when implementing a new policy, their government is generally effective in achieving its stated goals within a reasonable time frame (versus 57 percent in the United States). Finally, 56 percent of Latin American respondents said that their taxes are too high and should be reduced (versus 60 percent in the United States).

4.2. Understanding and acceptance of contingent valuation question

Responses to the CV question, follow up questions, and comprehension questions indicate that interviewees understood the CV question and found it plausible. As for responses to the CV question, as expected, the bid that respondents received is negatively correlated with the probability of accepting it (Table 3 and Figure 1). For both the United States and the pooled sample of Latin American countries, the percentage of respondents who accepted their bid is strictly decreasing in the level of the bid. For each Latin American country sample, the same holds true except for one bid, which varies across countries. This nonmonotonicity is likely due to a combination of statistical chance arising from the relatively small subsamples in each country that were assigned to each bid, and the relatively flat slope of certain portions of the demand curve for achieving net zero.

[Insert Table 3 and Figure 1 here]

Responses to follow up questions also indicate that respondents understood the CV question (Table 4). Forty-four percent of all Latin American respondents reported they “definitely” believed the information about climate change in the CV scenario and 40 percent said they “mostly” believed it. More than three-quarters of respondents said they were either very certain or somewhat certain of the responses to their CV questions. Of the respondents who rejected their first bid, only 8 percent said that the reason was that the question was not realistic, and as a result, they just gave an arbitrary answer. The remainder gave reasons that one would expect, including

that they could not afford the bid (54 percent), and that the distribution of Net Zero Program costs across households was unfair (21 percent).

[Insert Table 4 here]

Finally, responses to the six comprehension questions in Sections 2 (CV Scenario) and 3 (CV question) of the survey also reflect reasonable understanding. The median respondent answered four of six questions correctly (Supplemental Material Tables S1 and S2).

4.3. Willingness to pay

Although our survey used a double-bounded dichotomous choice design, we focus on single-bounded dichotomous choice estimates—that is, those using information from the first bid only—for several reasons. First, double-bounded estimators can be biased downward for reasons having to do with incentive compatibility and anchoring (Johnson et al. 2017; Chien et al. 2005). In addition, single-bounded designs are simpler and enhance comparability to other CV studies of WTP for climate mitigation, most of which have used a single-bounded dichotomous choice design (Table 1). We report double-bounded results in the Supplemental Information (Table S3) and discuss them in the next subsection.

For robustness, we estimate three models: a univariate model in which the bid is the sole regressor (Model A); a multivariate model that includes the bid and the sociodemographic characteristics listed in Table 1 as regressors (Model B); and a multivariate model in which the bid and all but one of the covariates listed in Table 1 are included as regressors, including both sociodemographic and attitudinal variables (Model C).⁴ We fit all three models as probits and use the delta method to calculate standard errors of WTP estimates.^{5,6}

⁴ Model C omits one attitudinal covariate, *cc 1st or 2nd most important natl. problem*, because Stata's nlcom command fail to converge otherwise.

⁵ Specifically, we use Stata 17.0's nonlinear combinations of estimators ('nlcom') command to generate WTP point estimates and standard errors.

⁶ For Model A, mean WTP is calculated as $-\beta/\lambda_1$ where β is the intercept and λ_1 is the coefficient of the bid. For Models B and C, mean WTP is calculated as $-\beta'\bar{X}/\lambda_1$ where β is a vector of all regression coefficients except the bid, $\bar{X}$ is a vector of the sample means of those regressors, and λ_1 is the coefficient of the bid.

4.3.1. Average monthly willingness to pay

Using pooled data from all seven Latin American countries, mean WTP derived from the univariate model (Model A) is US \$79 per month (Table 5; Figure 1). Including covariates in the estimating regression has a minimal effect on estimated WTP (Models B and C). In the remainder of this section, for simplicity, we focus on estimates from the univariate model (Model A).

[Insert Table 5 and Figure 2 here]

WTP estimates from the univariate model vary considerably across the study countries (Table 6 and Figure 2). Among the Latin American countries, they range from lows of US \$38 and US \$41 in Brazil and Argentina to highs of US \$108 and US \$94 in Chile and Colombia.

[Insert Table 6 here]

Average WTPs for Latin American countries are on par with that in the United States: US \$66 (Table 6; Figure 2). They are also consistent with estimates from Carlsson et al. (2021), the CV study most similar to ours, which estimates WTP for an 85 percent reduction in GHG, which as noted above, would be more than sufficient to achieve net zero (IPCC 2023). Adjusted for inflation, estimates from that study of range from \$87 to \$96 for China, Sweden, and the United States (Figure 2).

As noted above, to control for inattention, we dropped all 1,071 respondents who completed the survey in seven minutes or less, which was half the median completion time. This filter affects the representativeness of our sample. Dropped respondents were slightly younger, more likely to be male, and had a higher self-reported socioeconomic level (Table S4). Importantly, however, dropping these responses has the effect of reducing our estimates of mean WTP, that is, it generates more conservative estimates. The reason is that respondents who took seven minutes or less to complete the survey were more likely to accept their bids than those who took longer and therefore had an average WTP more than twice as high (Table S5).

Finally, note that as expected, WTP estimates from a double-bounded dichotomous choice model are generally lower than those from our preferred single-bounded models (Table S3). For example, the univariate double-bounded estimate for the pooled sample of Latin American

countries (US \$56) is 28 percent lower than the univariate single-bounded estimate (US \$79). As noted above, double-bounded estimators can be biased downward for reasons having to do with incentive compatibility and anchoring (Johnson et al. 2017; Chien et al. 2005).

4.3.2. Putting WTP in context

To put our WTP estimates in context, we normalize by measures of income and GHG emissions. Normalizing by income, average monthly WTP is 5 percent of median household income for the pooled Latin American country sample (Table 7 and Figure 3). For individual Latin American countries, it ranges from a low of 2 percent for Brazil to 10 percent for Perú. These estimates are larger than our estimate for the United States (1 percent) and are also larger than the Carlsson et al. (2021) estimates for China (3 percent), Sweden (2 percent) and the United States (2 percent).

[Insert Table 7 and Figure 3 here]

Normalizing by GHG emissions, for the pooled Latin American country sample, households are willing to pay an average of US \$48 per ton of carbon dioxide equivalent (CO₂e) (Table 7 and Figure 4). For individual Latin American countries, average WTP ranges from US \$18 (Argentina) to US \$139 (Chile) per ton. In contrast to WTP estimates normalized by median income, these estimates are not higher than those for the United States, China and Sweden. Rather, they are bracketed by our estimate for the United States (US \$20 per ton) and the estimates of Carlsson et al. (2021) for China (US \$54), Sweden (US \$158), and the United States (US \$38). However, they are considerably smaller than a recent estimate of the social cost of carbon: \$185 per ton (Rennert et al. 2022).

[Insert Figure 4 here]

Total annual WTP is calculated by multiplying average monthly WTP by the number of households in each country and then by the number of months in year (Table 8). For all seven Latin American countries, this calculation implies a WTP of US \$137.0 billion, equivalent to 1.2 percent of collective GDP. For individual Latin American countries, total WTP ranges from US \$4.7 billion

for Ecuador to US \$33.4 billion for Mexico. And as a percentage of GDP, it ranges from a low of 0.5 percent for Argentina to a high of 1.8 percent for both Ecuador and Perú. By contrast, for the United States, total WTP is US \$101.2 billion, equivalent to 0.2 percent of GDP.

[Insert Table 8 here]

4.4. Experimental treatment

Somewhat surprisingly, in the pooled sample of Latin American countries, the probability of accepting the bid for the randomly selected half of respondents who were told that the cost of the Net Zero Program would be proportional to household income is slightly lower than the mean for the respondents who were told that all households would pay the same amount (52.0 versus 53.3 percent) (Figure 5).

[Insert Figure 5 here]

However, the negative correlation between the probability of accepting the bid and having received the proportional cost experimental treatment is not particularly robust to model specification (Table 9). For the pooled sample of all Latin American countries, a binary indicator of whether respondents received the proportional cost experimental treatment is not statistically significant when added to Model A (univariate) or Model B (multivariate with sociodemographic covariates). However, it is negative and statistically significant when added to Model C, which includes the full set of covariates. Moreover, the negative correlation between the probability of accepting the bid and having received the proportional cost experimental treatment is not particularly robust in single country subsamples. In the eight individual country regressions, the treatment variable is only statistically significant in the Chile and US subsamples (Table S6).

[Insert Table 9 here]

What explains these findings? They likely reflect the fact that our respondents had varying attitudes about the appropriate distribution of the costs of the Net Zero Program across households. While two-thirds of respondents in Latin American study countries said that higher income

households should pay more, one-third said they should not (Table 2). The latter group may have believed that requiring all households to pay the same amount is somehow “fairer” than requiring some households to pay more. In any case, in the two specifications that do not control for this heterogeneity (Models A and B), the informational treatment does not have a discernable effect on WTP. But in the specification that does control for it, the informational treatment has a negative effect (Table 9).

4.5. Determinants of willingness to pay

To identify the determinants of WTP, we estimate marginal mean willingness to pay (MMWTP) for each covariate in the multivariate model that includes all covariates (Model C) using the sample of respondents in all seven Latin American countries (Table 10).⁷ MMWTPs for individual country samples are presented in the Supplemental Material (Table S7).

[Insert Table 10 here]

MMWTPs for the country dummies indicate that compared to respondents in Peru (the omitted category), those in Argentina, Brazil, Ecuador and Mexico have a lower mean WTP. In terms of magnitude, the largest effect is for being from Brazil, which reduces mean WTP by US \$50, all other things equal, and being from Argentina, which reduces it by US \$37.

Results for the remaining covariates generally comport with the literature on the determinants of climate attitudes summarized in Section 2. As for the sociodemographic covariates, mean WTP is higher for respondents who are older, from higher (subjectively assessed) socioeconomic levels, and for those who reported having experienced a disaster in the past year. Among the binary covariates, the largest effects are for being at socioeconomic levels 3, 4 or 6, which increased mean WTP by US \$42, US \$53, and US \$52, all other things equal.

Finally, regarding the climate attitude covariates, mean WTP is higher for respondents who: believe that climate change is happening; believe it is caused by human activities; believe it will cause significant harm in the next 20 years; believe higher income households should pay more for the Net Zero Program; believe net zero will generate significant co-benefits; are aware that

⁷ Marginal mean WTP for covariate x is calculated as $-\beta_x/\lambda_1$ where β_x is the coefficient of x and λ_1 is the coefficient of the bid.

their country has made climate mitigation commitments; trust their national government to do the right thing; and believe that their government is generally effective. Mean WTP is lower for respondents who believe that higher income countries should pay more for net zero; and believe their taxes are too high. Among these climate attitude covariates, the three largest effects are for believing that net zero will generate significant co-benefits, which increases mean WTP by US \$94; believing that higher income households should pay more, which increases it by US \$39; and trusting the national government to do the right thing, which increases it by US \$34.

5. DISCUSSION

What are the policy implications of our main finding that WTP in the Latin American sample is on par with that for the United States, China, and Sweden? It suggests that notwithstanding a host of factors that in principle could undercut public support for climate mitigation in Latin America—including other pressing national problems that may reduce the salience of climate change along with documented concerns about the fairness, efficacy, and trustworthiness of governance—public support for climate action does not appear to be significantly weaker than in countries in other regions.

However, that finding does not imply that policymakers in Latin America have a blank check to implement decarbonization policies. One reason is that even in our sample of seven study countries, estimated WTP for climate mitigation varies substantially across countries. As noted above, it is particularly low in Argentina and Brazil. Our sample of seven study countries is too small to econometrically identify the drivers of this variation. However, our survey data suggest some hypotheses about why WTPs in Argentina and Brazil are relatively low.

In Argentina, only 19 percent of respondents ranked climate change as the first or second most important among four national problems (climate change; high inflation; political instability; and poverty and inequality) and only 9 percent of respondents were aware that their government has made formal commitments to reducing GHGs (Table 2). Both statistics are less than half the averages for all Latin American study countries. These statistics hint that in Argentina, public support for climate action may have been undercut by other pressing national problems along with ineffective or mixed communication about climate policy.

In Brazil, 79 percent of respondent said they think that their taxes are too high and should be reduced, 23 percentage points more than the Latin American average (Table 2). In addition, 52

percent of the respondents who rejected their first bid said the reason was that they could not afford to pay it, more than twice the average for Latin American study countries. These statistics may reflect respondents' concerns about the tax-to-GDP ratio in Brazil (32 percent), which is the highest in Latin America and among the highest in middle income countries (OECD 2022; Orair 2023). Hence, Brazilian respondents' relatively low average WTP may be driven by reservations about the cost of mitigation policies.

Aside from heterogeneity in WTP for net zero across countries, a second reason to be cautious about the policy implications of our finding that in Latin America, WTP for achieving net zero is on par with that in other regions, is that as discussed above, our data indicate that there is considerable heterogeneity in both climate attitudes and WTP for net zero *within* our study countries. As for attitudes, although a large majority of respondents in all our Latin American study countries believe climate change is happening, is caused by human activity, and is likely to cause significant harm, there is much less uniformity in attitudes about other salient factors including whether climate change is a top national problem (44 percent agree), whether government are effective and trustworthy (46 and 31 percent agree), and whether taxes are already too high (56 percent agree) (Table 2). The implication is that significant and potentially politically influential segments of voters could be reluctant to support climate mitigation. To make progress on decarbonization, policymakers may need to address these concerns by, for example, better communicating the benefits of achieving net zero, ensuring that both the benefits and costs of decarbonization policies are equitably distributed across households, and to the extent possible, shoring up public confidence in the efficacy and efficiency of climate governance.

Finally, it is worth noting that among the determinants of climate change discussed in the previous section, the one with the largest marginal effect on WTP is believing that net zero will generate significant co-benefits, which increases marginal mean WTP by US \$94. The policy implication is that better communicating the benefits of mitigation may be an effective means of garnering political support.

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TABLES

Table 1. Studies using contingent valuation method to estimate willingness to pay for climate mitigation

Study	Country	Year	CV scenario	WTP per month	
<i>Multi-country</i>					
Carlsson et al. (2012)	China	2009	85% reduction in global GHG emissions	China	US \$11
	Sweden			Sweden	US \$54
	USA			USA	US \$36
Carlsson et al. (2021)	China	2019	85% reduction in global GHG emissions	China	US \$75
	Sweden			Sweden	US \$71
	USA			USA	US \$78
Windén et al. (2018)	China	2013	Climate mitigation generally	China	US \$29
	USA			USA	US \$47
<i>Single-country</i>					
Berrens et al. (2004)	USA	1998	Kyoto Protocol		US\$17
Hanemann et al. (2011)	Spain	2010	Decarbonization elec. generation & gasoline formulation in Spain		€11
Kotchen et al. (2013)	USA	2010 & 2011	17% US GHG reduction		US \$79-89
Li et al. (2005)	USA	2000	Kyoto Protocol		US \$4
Longo et al. (2012)	Spain	2008	Basque Plan to Combat Climate Change 2008–2012		€23

Table 2. Covariates and means

Covariate	units	Definition	Arg.	Brazil	Chile	Col.	Ecu.	Mexico	Peru	USA	All L.A.
Sociodemographic characteristics											
<i>age</i>	yrs.	Age	43.05	41.91	43.90	40.40	42.53	39.03	36.42	47.43	40.87
<i>female</i>	0/1	Female	0.50	0.50	0.51	0.51	0.58	0.51	0.54	0.50	0.51
<i>education post-high school</i>	0/1	Highest education = complete vocational or incomplete university	0.44	0.53	0.35	0.17	0.20	0.22	0.35	0.36	0.33
<i>education university</i>	0/1	Highest education = complete university or post-graduate	0.18	0.27	0.20	0.60	0.57	0.26	0.27	0.43	0.31
<i>socioeconomic level</i>	1-6	Subjective assessment of socioeconomic level	2.88	2.63	2.86	2.79	3.09	2.85	2.82	3.23	2.82
<i>hh affected by disaster</i>	0/1	Experienced heat wave, hurricane, flood, or drought in last year	0.33	0.36	0.33	0.35	0.38	0.41	0.45	0.30	0.37
Attitudes											
<i>cc happening</i>	0/1	Believe CC has been happening	0.96	0.97	0.98	0.98	0.98	0.97	0.98	0.88	0.97
<i>cc caused by humans</i>	0/1	Believe CC is largely caused by humans	0.78	0.81	0.83	0.87	0.85	0.86	0.86	0.54	0.84
<i>cc likely to cause harm</i>	0/1	Believe CC likely or very likely to cause significant harm to this or other households within 20 years	0.82	0.82	0.90	0.91	0.94	0.93	0.92	0.52	0.89
<i>cc 1st or 2nd most important natl. problem</i>	0/1	Believe CC is 1st or 2nd most important among four national problems ^a	0.19	0.54	0.46	0.40	0.37	0.60	0.48	0.36	0.44
<i>higher income hhs should pay more</i>	0/1	Believe higher income households should pay more for NZP	0.62	0.71	0.65	0.64	0.69	0.70	0.69	0.61	0.67
<i>higher income countries should pay more</i>	0/1	Believe higher income countries should pay more for net zero	0.41	0.46	0.43	0.48	0.56	0.43	0.48	0.26	0.45
<i>NZ will generate significant co-benefits</i>	0/1	Believe net zero will generate significant co-benefits	0.77	0.68	0.77	0.78	0.78	0.77	0.83	0.59	0.77
<i>national climate mitigation commitments</i>	0/1	Aware country has made a commitment to reducing GHGs	0.09	0.26	0.35	0.38	0.16	0.18	0.17	0.37	0.24
<i>trust national government</i>	0/1	Trust national government to do the right thing	0.26	0.32	0.33	0.32	0.37	0.36	0.25	0.34	0.31
<i>government effective</i>	0/1	Believe their government is effective in achieving their stated goals within a reasonable time frame	0.33	0.57	0.49	0.44	0.44	0.58	0.37	0.57	0.46
<i>taxes too high</i>	0/1	Believe their taxes are too high and should be reduced	0.64	0.79	0.42	0.59	0.38	0.53	0.44	0.60	0.56
Nobs.			1432	1427	1444	1473	417	1441	1426	1500	9060

CC = climate change; GHG = greenhouse gas; NZ = net zero greenhouse gas emissions; NZP = Net Zero Program.

^aAmong four problems: climate change; high inflation; political instability; and poverty and inequality.

Table 3. Percentage of respondents accepting bid

Bid (US\$)	Arg.	Brazil	Chile	Colombia	Ecuador	Mexico	Peru	USA	All L.A.
5	60.7	72.3	80.8	71.7	75.5	79.3	72.1	64.6	72.9
15	57.8	56.7	76.5	68.9	66.7	74.1	74.1	59.9	68.1
25	57.7	46.4	64.9	62.2	66.0	60.2	68.0	55.9	60.2
35	42.8	49.2	69.8	57.1	50.9	59.6	65.9	48.2	57.1
50	45.8	41.7	60.5	48.3	48.1	53.6	58.8	62.3	51.2
75	39.1	37.2	50.6	47.1	50.0	43.9	51.5	38.3	45.1
125	34.6	28.9	45.1	47.5	34.0	29.9	37.6	22.9	37.1
200	32.3	18.0	31.9	35.0	37.0	31.8	30.2	42.5	30.3
Nobs.	1432	1427	1444	1473	417	1441	1426	1500	9060

Table 4. Responses to follow-on questions after the contingent valuation (CV) question: Means

	Arg.	Brazil	Chile	Col.	Ecu.	Mexico	Peru	USA	All L.A.
Believed CV scenario?									
Definitely yes	43.6	37.1	47.4	47.8	42.7	40.0	49.6	38.5	44.2
Mostly yes	40.0	42.6	34.6	39.2	42.7	43.9	38.5	35.8	39.9
Mostly no	7.0	12.1	8.1	6.9	7.2	8.0	5.0	13.4	7.8
Definitely no	4.3	3.2	5.8	3.7	4.3	4.7	3.4	6.1	4.2
Don't know	5.2	5.0	4.1	2.3	3.1	3.3	3.5	6.2	3.9
Certain of response to CV question?									
Very certain	40.3	45.3	50.2	52.5	46.5	44.0	44.0	56.5	46.1
Somewhat certain	31.4	23.7	25.9	27.2	30.5	31.9	35.4	26.6	29.3
Neither certain nor uncertain	19.2	25.6	15	12.6	14.4	15.3	12.1	12.6	16.5
Somewhat uncertain	6.1	2.7	5.7	5.0	5.8	5.9	6.0	2.7	5.3
Not certain at all	2.9	2.7	3.1	2.7	2.9	2.8	2.5	1.6	2.8
Reason for "no" response									
I can't afford it	65.5	52.0	52.0	46.5	48.7	51.9	45.4	55.9	19.6
Cost is too high given benefit	9.9	12.8	14.4	16.4	11.3	15.2	17.6	38.7	33.2
CC is not a major problem	4.3	4.1	4.8	2.5	2.1	2.7	4.4	31.2	6.5
NZ program would harm my household	4.0	6.6	7.7	12.9	9.2	9.7	8.5	3.70	26.6
Unfair b/c firms not households cause CC	34.1	39.6	49.1	44.6	46.2	49.6	41.6	35.6	6.6
Distribution NZP costs across households unfair	17.4	20.8	21.7	23.0	18.5	23.1	15.5	32.0	52.5
Distribution NZP costs across countries unfair	19.6	16.7	20.3	22.2	26.7	18.9	18.3	26.1	14.0
Don't trust government to reach NZ by 2050	30.3	29.9	27.5	44.1	44.6	31.4	33.0	40.1	3.7
Question is not realistic, so I just gave an answer	7.0	7.1	8.9	6.1	5.6	5.2	4.7	0.0	8.1
Don't trust government to use resources for NZP	23.0	26.0	23.8	35.1	36.4	28.0	20.9	26.5	42.8
Other	7.6	6.2	6.8	10.1	6.2	4.2	4.6	4.7	20.1
WTP for NZP > 0?	64.5	61.9	74.1	70.9	70.3	72.4	75.3	67.7	68.7
Nobs.	1432	1427	1444	1473	417	1441	1426	1500	9060

CC = climate change; NZP = Net Zero Program.

Table 5. Pooled Latin American countries models; probit regression coefficients and derived mean willingness to pay (WTP); dependent variable = 1 if response to contingent valuation question was yes, and 0 otherwise (s.e.)

	A	B	C
	Univ.^a	Multiv.^b	Multiv.^c
bid	-0.005*** (0.000)	-0.006*** (0.000)	-0.006*** (0.000)
intercept	0.429*** (0.020)	0.305*** (0.071)	-0.927*** (0.123)
mean WTP (US \$) ^d	78.57*** (2.52)	78.71*** (2.50)	77.98*** (2.47)
Nobs.	9060	9060	9060

^aSole independent variable is the bid.

^bIndependent variables are sociodemographic covariates in Table 1.

^cIndependent variables are sociodemographic and attitude covariates in Table 2.

^dMean WTP is calculated as $-\beta' \bar{X} / \lambda_1$ where β is a vector of all regression coefficients except the bid, $\bar{X}$ is a vector of the sample means of those regressors, and λ_1 is the coefficient of the bid.

*** p<0.01

Table 6. Individual country models; probit regression coefficients and derived mean willingness to pay (WTP); dependent variable = 1 if response to contingent valuation question was yes, and 0 otherwise (s.e.)

	A	B	C	A	B	C
	Univ. ^a	Multiv. ^b	Multiv. ^c	Univ. ^a	Multiv. ^b	Multiv. ^c
	Argentina			Brazil		
bid	-0.004*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.006*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)
intercept	0.152*** (0.049)	0.145 (0.174)	-0.870** (0.269)	0.246*** (0.050)	0.092 (0.171)	-0.970** (0.312)
mean WTP (US \$) ^d	40.69*** (9.648)	40.42*** (9.720)	38.10*** (10.01)	38.33*** (5.722)	38.53*** (5.616)	36.65*** (5.38)
Nobs.	1,432	1,432	1,432	1,427	1,427	1,427
	Chile			Colombia		
bid	-0.006*** (0.001)	-0.006*** (0.001)	-0.007*** (0.001)	-0.004*** (0.001)	-0.004*** (0.001)	-0.005*** (0.001)
intercept	0.686*** (0.051)	0.222 (0.175)	-1.752*** (0.361)	0.407*** (0.049)	0.183 (0.161)	-0.951** (0.322)
mean WTP (US \$) ^d	108.20*** (6.47)	109.1*** (6.578)	108.39*** (6.51)	93.98*** (8.394)	94.08*** (8.369)	93.82*** (7.92)
Nobs.	1,444	1,444	1,444	1,473	1,473	1,473
	Ecuador			Mexico		
bid	-0.005*** (0.001)	-0.005*** (0.001)	-0.005*** (0.001)	-0.006*** (0.001)	-0.007*** (0.001)	-0.007*** (0.001)
intercept	84.60*** (13.64)	84.55*** (13.23)	-1.528 (0.934)	0.523*** (0.050)	0.153 (0.186)	-1.004** (0.308)
mean WTP (US \$) ^d	84.60*** (13.64)	84.55*** (13.23)	83.15*** (12.89)	81.53*** (5.49)	81.25*** (5.40)	80.76*** (5.27)
Nobs.	417	417	417	1,441	1,441	1,441
	Perú			USA		
bid	-0.006*** (0.001)	-0.006*** (0.001)	-0.007*** (0.001)	-0.003*** (0.001)	-0.004*** (0.001)	-0.005*** (0.001)
intercept	0.604*** (0.051)	0.280* (0.163)	-0.992** (0.318)	0.221*** (0.047)	0.533** (0.191)	-1.170** (0.361)
mean WTP	96.46*** (6.11)	96.74*** (6.03)	96.97*** (6.04)	66.37*** (9.78)	66.60*** (9.47)	39.76 (48.36)
Nobs.	1,426	1,426	1,426	1,500	1,500	1,500

^aSole independent variable is the bid.

^bIndependent variables are sociodemographic covariates in Table 1.

^cIndependent variables are sociodemographic and attitude covariates in Table 2.

^dMean WTP is calculated as $-\beta' \bar{X} / \lambda_1$ where β is a vector of all regression coefficients except the bid, $\bar{X}$ is a vector of the sample means of those regressors, and λ_1 is the coefficient of the bid.

*** p<0.01, ** p<0.05, * p<0.1

Table 7. Putting household (HH) monthly willingness to pay (WTP) into context

Country	Monthly HH WTP ^a	Median monthly HH income ^b	WTP ÷ median monthly income	Per capita GHG emissions	Mean persons per HH	WTP per ton CO ₂ e
	(US\$ PPP)	(US\$ PPP)	(%)	(tCO ₂ e)	(no.)	(US\$ PPP/ton)
Argentina	40.69	1065	3.82	8.7	3.16	17.76
Brazil	38.33	2063	1.86	6.9	2.87	23.23
Chile	108.20	1471	7.36	2.6	3.60	138.72
Colombia	93.98	2136	4.40	5.3	3.53	60.28
Ecuador	84.60	1858	4.55	5.3	3.87	49.50
Mexico	81.53	2102	3.88	4.7	3.34	62.32
Perú	96.46	970	9.94	5.5	4.12	51.08
All LA countries	78.57	1666	4.71	5.6	3.50	48.37
USA	66.37	4850	1.37	16.0	2.48	20.07

GHG = greenhouse gas; PPP = purchasing power parity.

^aWTP from univariate model.

^bHH income from survey used for present study.

^cAverage across LA countries.

Table 8. Putting total willingness to pay (WTP) into context

Country	Monthly HH WTP^a	HHs	Total annual WTP national	GDP	Total annual WTP national / GDP
	(US\$ PPP)	(No.)	(US\$ millions PPP)	(US\$ millions PPP)	(%)
Argentina	40.69	13,925,275	6,799	1,342,539.57	0.5
Brazil	38.33	64,124,398	29,495	4,119,552.57	0.7
Chile	108.20	5,440,715	7,064	616,274.23	1.1
Colombia	93.98	14,282,545	16,107	1,086,840.50	1.5
Ecuador	84.60	4,659,382	4,730	260,709.10	1.8
Mexico	81.53	34,167,462	33,428	304,739.03	1.1
Perú	96.46	13,925,275	10,065	550,442.12	1.8
All LA countries	78.57	145,294,970	136,989	11,023,755.12	1.2
USA	66.37	132,736,055	105,716	25,439,700.00	0.4

PPP = purchasing power parity.

^aWTP from univariate model.

^cAverage across LA countries.

Table 9. Effect on WTP of split sample informational treatment about distribution of costs of Net Zero Program across households: Pooled sample of all Latin American countries; single bounded univariate and multivariate unconditional models

Variable	A	B	C
	Univ. ^a	Multiv. ^b	Multiv. ^c
bid	-0.005*** (0.000)	-0.006*** (0.000)	-0.006*** (0.000)
intercept	0.376*** (0.045)	0.322*** (0.073)	-0.901*** (0.123)
treat (prop. costs) = 1	0.035 (0.027)	-0.036 (0.027)	-0.066** (0.028)
Nobs.	9060	9060	9060

^aSole independent variable is the bid.

^bIndependent variables are sociodemographic covariates in Table 1.

^cIndependent variables are sociodemographic and attitude covariates in Table 1.

*** p<0.01, ** p<0.05, * p<0.1

Table 10. Explaining willingness to pay; marginal mean willingness to pay (MMWTP)
derived from multivariate probit regression with all covariates (Model C);
sample includes all Latin American countries (s.e.)

Covariate	MMWTP^a
<i>argentina</i>	-37.037*** (8.892)
<i>brazil</i>	-49.779*** (9.309)
<i>chile</i>	9.937 (8.862)
<i>colombia</i>	-9.050 (8.896)
<i>ecuador</i>	-30.248* (12.927)
<i>mexico</i>	-21.272* (8.766)
<i>age</i>	0.611*** (0.169)
<i>female</i>	-4.621 (4.996)
<i>education post-high school</i>	5.966 (6.003)
<i>education university</i>	4.660 (6.422)
<i>soeicoeconomic level _2</i>	6.790 (9.678)
<i>soeicoeconomic level _3</i>	41.932*** (9.388)
<i>soeicoeconomic level _4</i>	53.124*** (10.826)
<i>soeicoeconomic level _5</i>	24.701 (18.464)
<i>soeicoeconomic level _6</i>	51.868* (23.588)
<i>hh affected by disaster</i>	31.083*** (5.222)
<i>cc happening</i>	36.419* (17.841)
<i>cc caused by humans</i>	26.840*** (7.469)
<i>cc likely to cause harm</i>	29.922*** (8.607)

<i>higher income hhs should pay more</i>	39.134*** (5.541)
<i>higher income countries should pay more</i>	-17.102*** (5.053)
<i>NZ will generate significant co-benefits</i>	94.328*** (7.141)
<i>national climate mitigation commitments</i>	17.782** (6.261)
<i>trust national government</i>	33.799*** (6.222)
<i>government effective</i>	31.827*** (5.754)
<i>taxes too high</i>	-29.940*** (5.215)
Nobs.	9060

^aMMWTP for covariate x is calculated
as $-\beta_x/\lambda_1$ where β_x is the coefficient of x and λ_1
is the coefficient of the bid.
*** $p<0.01$, ** $p<0.05$, * $p<0.1$.

FIGURES

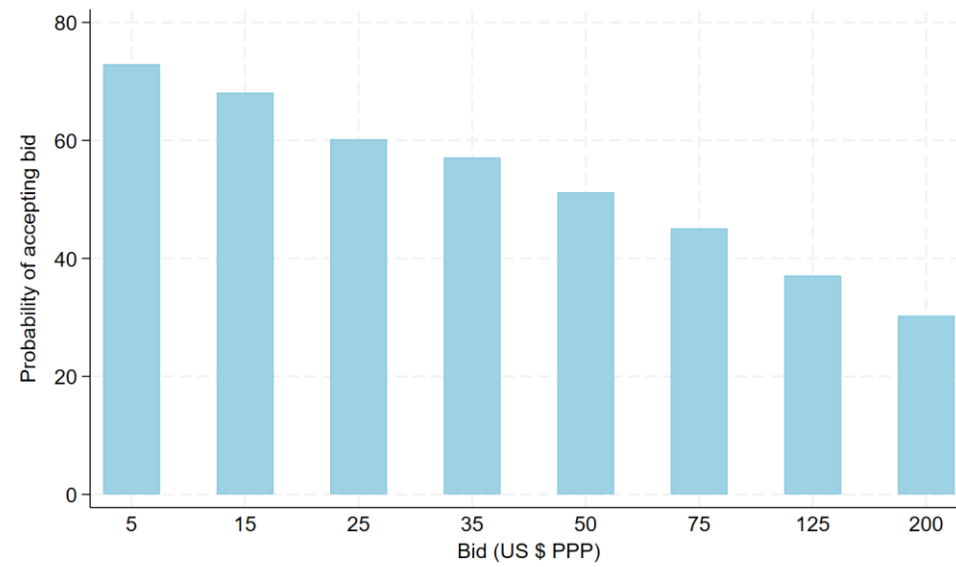


Figure 1. Demand curve for Net Zero Program for all Latin American countries

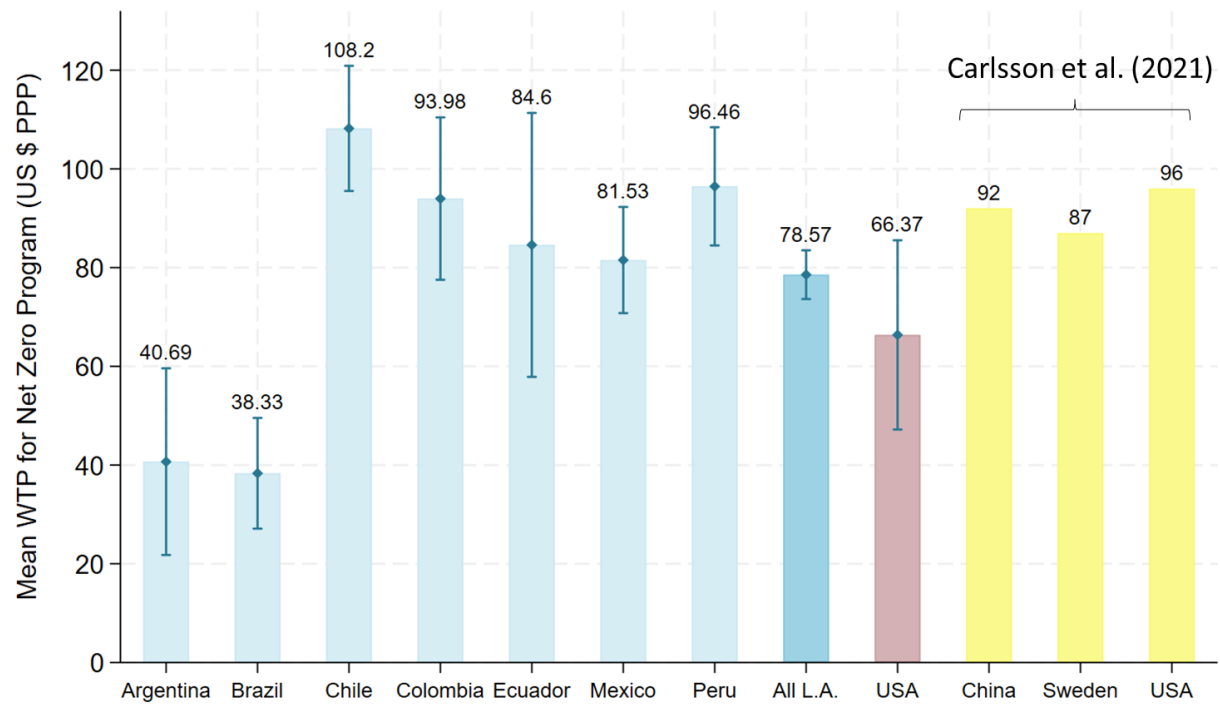


Figure 2. Mean willingness to pay for a Net Zero Program from single bounded unconditional univariate model, by country; point estimates and 95 percent confidence intervals.

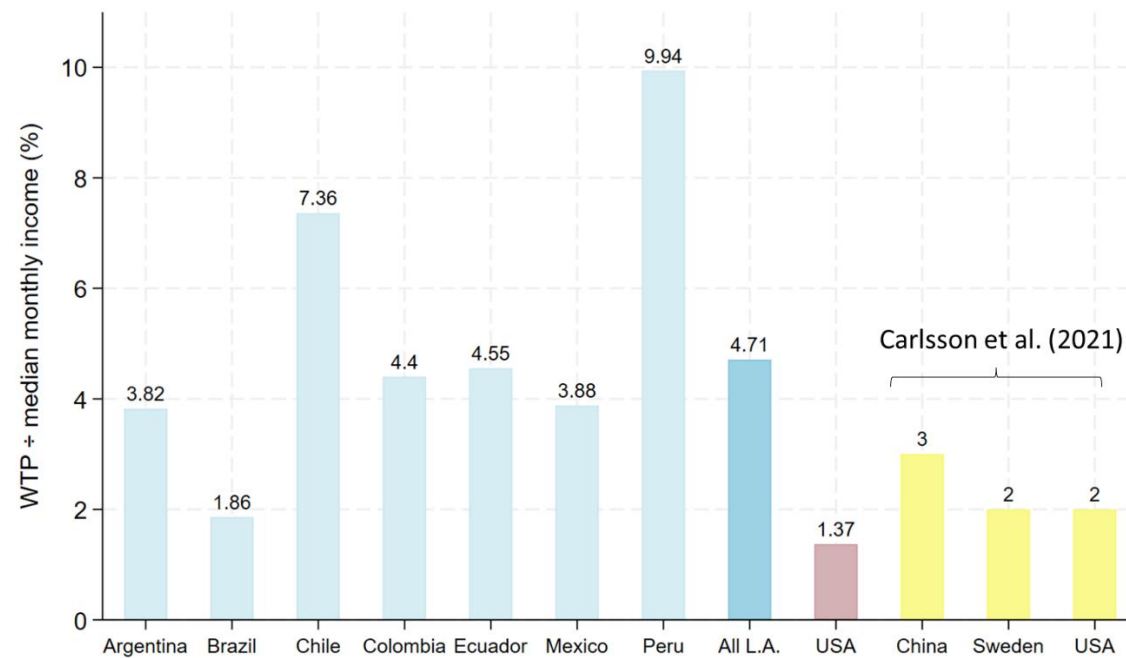


Figure 3. Mean willingness to pay for a Net Zero Program as a percentage of household income from single bounded unconditional univariate model, by country; point estimates and 95 percent confidence intervals.

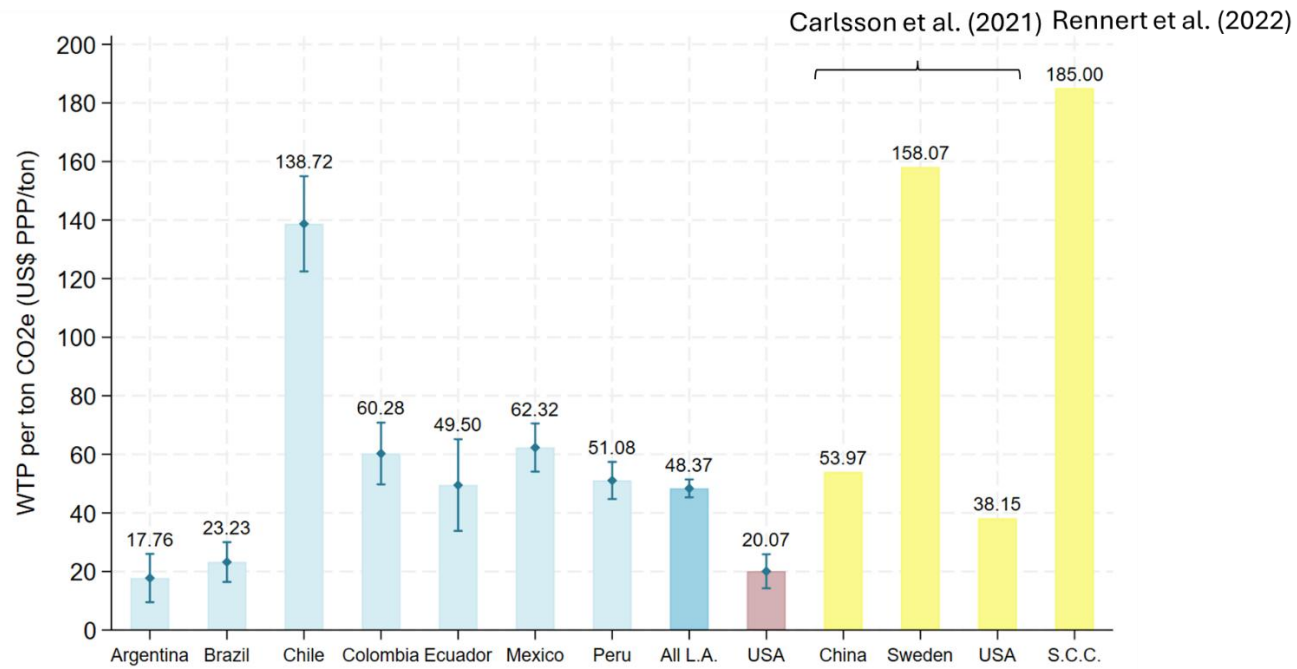


Figure 4. Mean willingness to pay for a Net Zero Program per ton of greenhouse gas emissions from single bounded unconditional univariate model, by country; point estimates and 95 percent confidence intervals.

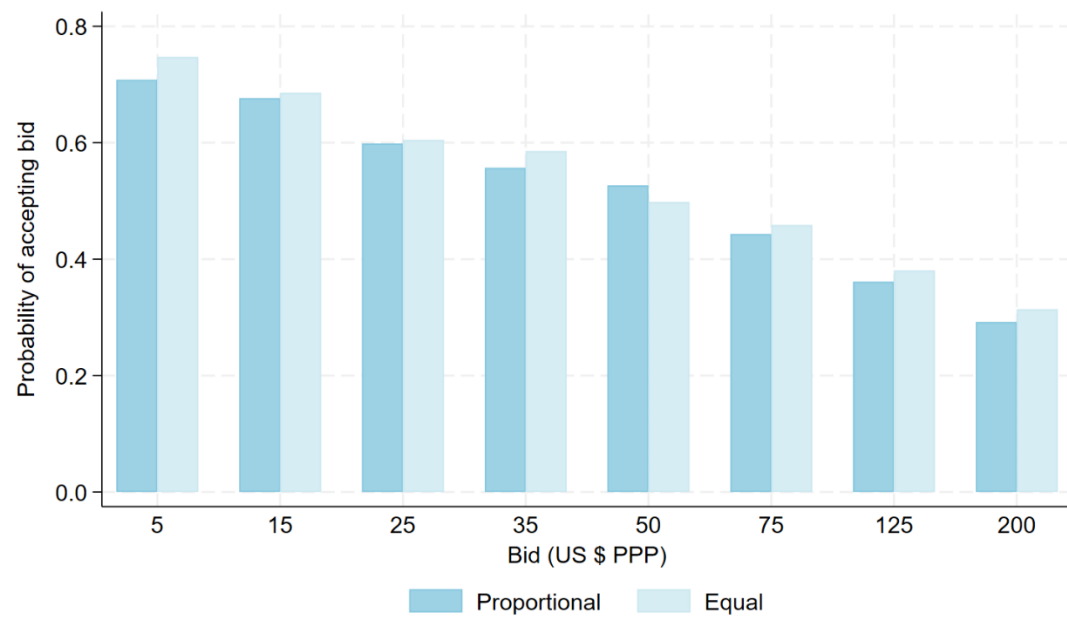


Figure 5. Demand curve for Net Zero Program for all Latin American countries, by treatment arm

SUPPLEMENTAL MATERIAL

TABLES

Table S1. Comprehension questions; respondents answering correctly^a

No. questions answered correctly	Nobs.	%
0	265	2.51
1	940	8.90
2	1,395	13.21
3	1,694	16.04
4	1,983	18.78
5	2,387	22.60
6	1,896	17.95

^aSample includes all respondents from all eight study countries who completed the survey in than seven minutes.

Table S2. Comprehension questions; percentage of respondents each question correctly in all eight study countries^a

Topic	Nobs.	%
Types of damages CC has caused	10,560	45.44
Types of transformations needed for net zero	10,560	69.32
Attributes of Net Zero Program	10,560	64.85
Distribution of costs of Net Zero Program across HHs	5,305	73.78
Distribution of costs of Net Zero Program across HHs	5,255	58.42
Minimum % that must vote yes for referendum to pass	10,560	77.29
Amount of randomly assigned bid	10,560	56.29
<i>Grand mean</i>		63.63

CC = climate change; HH = household

^aSample includes all respondents from all eight study countries who completed the survey in more than seven minutes.

Table S3. Double-bounded unconditional univariate estimates of
mean willingness to pay (WTP) (s.e.)

	Arg.	Brazil	Chile	Col.	Ecu.	Mexico	Peru	USA	All L.A.
mean WTP (US \$)	44.206*** (3.672)	29.754*** (3.041)	63.283*** (2.876)	57.697*** (3.231)	52.514*** (5.736)	54.785*** (2.619)	60.202*** (2.669)	46.925*** (4.758)	56.346*** (1.178)
Nobs.	1,427	1,418	1,437	1,465	417	1,435	1,422	1,500	9,538

*** p<0.01

Table S4. Means of strata covariates by survey completion time (SCT),
and t-test for equality of means;

	SCT ≤7 min.	SCT >7 min.	t-test
<i>age</i>	39.64	42.84	0.00
<i>female</i>	0.50	0.53	0.01
<i>socioeconomic level</i>	3.29	2.84	0.00

Table S5. Filtering sample using survey completion time: Pooled Latin American countries sample; probit regression coefficients and derived mean unconditional willingness to pay (WTP); univariate model (A); dependent variable = 1 if response to contingent valuation question was yes, and 0 otherwise (s.e.)

Model	1	2	3
Time to complete survey	full sample	<=7 min.	>7 min.
bid	-0.005*** (0.00)	-0.002*** (0.001)	-0.005*** (0.000)
intercept	0.429*** (0.019)	0.423*** (0.069)	0.429*** (0.020)
mean WTP (US \$) ^a	81.840*** (2.557)	186.904*** (48.972)	78.57*** (2.52)
Nobs.	9,777	717	9060

^aMean WTP is calculated as $-\beta/\lambda_1$ where β is the intercept and λ_1 is the coefficient of the bid.

*** p<0.01.

Table S6. Effect on WTP of split sample informational treatment about distribution of costs of Net Zero Program across households: Individual country univariate models

Variable	Arg.	Brazil	Chile	Col.	Ecu.	Mexico	Peru	USA
bid	-0.004*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.004*** (0.001)	-0.005*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.003*** (0.001)
intercept	0.198*** (0.060)	0.270*** (0.060)	0.745*** (0.062)	0.390*** (0.059)	0.468*** (0.110)	0.525*** (0.063)	0.578*** (0.061)	0.140** (0.058)
treat (prop. costs) = 1	-0.088 (0.067)	-0.049 (0.069)	-0.121* (0.069)	0.035 (0.066)	-0.139 (0.125)	-0.004 (0.068)	0.053 (0.069)	0.156** (0.065)
Nobs.	1432	1427	1444	1473	417	1441	1426	1500

*** p<0.01, ** p<0.05, * p<0.1

Table S7. Explaining willingness to pay; marginal mean willingness to pay (MMWTP) derived from multivariate probit regression with all covariates (Model C); individual country samples (s.e.)^a

	Argentina	Brazil	Chile	Colombia	Ecuador	Mexico	Perú	USA
<i>age</i>	0.123 (0.607)	0.766* (0.361)	0.648 (0.376)	0.579 (0.518)	1.381 (0.998)	-0.042 (0.405)	0.499 (0.415)	-2.203*** (0.629)
<i>female</i>	-33.976 (20.128)	25.894* (10.447)	-5.401 (11.279)	-22.826 (15.242)	2.936 (27.420)	-9.818 (10.526)	-16.094 (12.086)	61.688** (19.305)
<i>education post-high school</i>	13.429 (21.096)	7.356 (13.569)	-6.068 (12.532)	16.895 (23.277)	2.992 (37.863)	9.752 (13.188)	7.084 (12.769)	-14.069 (23.436)
<i>education university</i>	18.846 (27.608)	-23.791 (15.998)	1.522 (15.187)	23.230 (18.739)	8.555 (32.288)	-2.573 (12.754)	28.108 (14.588)	-6.915 (22.984)
<i>soeicoeconomic level _2</i>	-51.029 (42.978)	-13.353 (16.354)	28.370 (22.876)	24.959 (29.014)	-52.617 (76.016)	44.545 (23.802)	34.438 (20.438)	95.496* (42.248)
<i>soeicoeconomic level _3</i>	1.616 (39.716)	5.069 (15.651)	61.173** (22.275)	76.236* (30.051)	-10.080 (71.948)	93.119*** (23.929)	51.380** (19.472)	106.706** (39.107)
<i>soeicoeconomic level _4</i>	10.211 (43.991)	24.624 (20.309)	66.935** (25.042)	83.750* (34.675)	51.011 (74.596)	70.545** (26.040)	86.323*** (23.492)	175.225*** (43.552)
<i>soeicoeconomic level _5</i>	-24.261 (85.149)	-12.280 (39.038)	132.355** (46.727)	85.425 (49.943)	-77.304 (103.780)	55.343 (42.002)	-20.161 (40.730)	222.877*** (63.066)
<i>soeicoeconomic level _6</i>	-110.555 (132.646)	10.092 (40.074)	31.557 (58.686)	111.111 (85.379)	31.776 (201.744)	138.295** (50.785)	56.478 (42.384)	249.960* (110.172)
<i>hh affected by disaster</i>	26.368 (19.946)	16.394 (10.797)	25.063* (11.870)	64.310*** (17.072)	22.026 (26.525)	32.386** (10.859)	34.010** (11.602)	30.889 (20.296)
<i>cc happening</i>	93.282 (62.027)	-21.715 (36.071)	155.723** (50.628)	16.802 (58.601)	136.819 (159.145)	-11.624 (35.124)	7.237 (41.302)	99.255* (42.504)
<i>cc caused by humans</i>	37.329 (25.939)	25.379 (14.843)	32.075 (16.530)	37.095 (24.543)	35.623 (40.460)	12.465 (16.693)	34.448 (18.121)	-5.154 (20.339)
<i>cc likely to cause harm</i>	41.956 (28.234)	9.762 (14.553)	15.149 (21.016)	-12.390 (27.596)	85.910 (67.614)	78.468*** (21.778)	47.075* (22.561)	212.783*** (33.675)
<i>higher income hhs should pay more</i>	47.595* (21.459)	41.859*** (12.252)	43.276*** (12.266)	77.505*** (17.871)	10.297 (28.435)	24.789* (11.789)	17.244 (12.090)	76.586*** (21.260)
<i>higher income countries should pay more</i>	-49.443* (20.986)	-11.477 (10.386)	-14.509 (11.476)	-46.238** (15.973)	-15.498 (25.973)	1.018 (10.588)	0.794 (11.138)	1.320 (20.337)
<i>NZ will generate significant co-benefits</i>	123.265*** (30.147)	89.317*** (14.081)	73.825*** (15.071)	141.446*** (24.822)	64.286 (34.914)	81.432*** (14.350)	73.738*** (16.421)	119.186*** (27.960)
<i>national climate mitigation commitments</i>	66.561 (34.428)	0.887 (12.091)	-2.688 (12.782)	20.007 (16.719)	-58.543 (38.018)	39.458** (14.163)	35.897* (15.698)	-3.495 (19.800)
<i>trust national government</i>	108.052*** (27.786)	20.482 (12.639)	12.482 (14.096)	66.675** (20.588)	65.706* (31.878)	-9.909 (12.789)	34.037* (14.628)	32.605 (21.713)
<i>government effective</i>	24.885 (21.433)	56.125*** (12.344)	44.835*** (13.481)	37.428* (17.693)	28.981 (29.258)	19.105 (12.197)	1.439 (12.611)	46.410* (21.550)

<i>taxes too high</i>	-45.194*	-15.065	-13.067	-67.540***	-48.985	-38.455***	-3.434	-97.341***
	(20.458)	(12.777)	(11.241)	(16.630)	(27.664)	(10.943)	(10.992)	(22.040)
Nobs.	1432	1427	1444	1473	417	1441	1426	1500

MMWTP for covariate x is calculated as $-\beta_x/\lambda_1$ where β_x is the coefficient of x and λ_1 is the coefficient of the bid.

*** p<0.01, ** p<0.05, * p<0.1.

Survey Instrument (English version)

YOUR OPINIONS ABOUT CLIMATE CHANGE

No. questions: 24 questions

Please make sure to carefully read each statement and each question in the survey and to think carefully about your answers before submitting them. The integrity of our study depends on it. Some of the questions that follow will test whether you've carefully read the survey.

SECTION 1: GENERAL VIEWS ABOUT CLIMATE CHANGE (5 questions)

1.1. You may have heard about the idea that the world's average temperature may have been going up slowly over the past 100 years, a phenomenon known as climate change. What is your personal opinion on this? [CHOOSE ONLY ONE]

- ☐ Has been happening
- ☐ Hasn't been happening

1.2. How sure are you about your answer to Question 1? [CHOOSE ONLY ONE]

- ☐ Very sure
- ☐ Quite sure
- ☐ Neither sure nor unsure
- ☐ Quite unsure
- ☐ Very unsure

1.3. If you think the world's average temperature is rising, do you think that this is caused by human behavior, for example by emissions of carbon dioxide from factories, power plants and cars?

[THIS QUESTION ONLY APPEARS IF ANSWER TO Q1 WAS 'HAS BEEN HAPPENING']
[CHOOSE ONLY ONE]

- ☐ Yes, to a large extent
- ☐ Yes, but only partially
- ☐ Not at all

1.4. In your view, in the next 20 years, how likely is climate change to have significant harmful effects on members of your household or other households? [CHOOSE ONLY ONE]

- ☐ Very likely
- ☐ Likely
- ☐ Somewhat likely
- ☐ Unlikely
- ☐ Very unlikely
- ☐ Don't know

1.5. Please rank the following four problems in order of their seriousness in [insert name of country] in 2023 where 1 = most serious and 4 = least serious.

[RANDOMIZE ORDER OF ROWS]

Problem	Rank
Poverty and inequality	
High inflation	
Climate change	
Political instability	

SECTION 2. KEY FINDINGS OF TOP CLIMATE SCIENTISTS (2 questions)

A panel of top climate scientists convened by the United Nations has determined that over the past 100 years, emissions of climate altering pollutants called green house gases (GHGs) from electricity generation, transportation and other human activities have caused global temperatures to increase. Those temperature increases, in turn, have:

- increased the frequency and intensity of storms, floods, and droughts;
- made water and food more difficult to obtain;
- caused death and illness due to heat waves, malnutrition, disasters, and the spread of tropical diseases; and
- damaged natural systems and caused extinctions of animal and plant species.

2.1. According to climate scientists convened by the UN, which of the following widespread losses and damages has climate change NOT already caused? [CHOOSE ONLY ONE]

- ☐ caused death and illness due to heat waves, malnutrition, disasters, and the spread of tropical diseases;
- ☐ damaged natural systems and caused extinctions of animal and plant species
- ☐ increased the frequency and intensity of storms, floods, and droughts;
- ☐ made water and food more difficult to obtain;
- ☐ reduced average global ocean temperatures
- ☐ Don't know

[IF RESPONDENT DOES NOT ANSWER “reduced average global ocean temperatures”, DISPLAY THE FOLLOWING STATEMENT: “Not quite: according to the top climate scientists convened by the UN, climate change has not reduced global average ocean temperatures” Please make sure to carefully read each statement and each question in the survey and to think carefully about your answers before submitting them. The integrity of our study depends on it. Some of the questions that follow will test whether you’ve carefully read the survey.]

The panel of top climate scientists convened by the UN has also determined that to avoid the most serious effects of climate change, the world will have to reach “net zero” GHG emissions by 2050.

This means that by 2050, the world must reduce emissions below the level that is naturally removed from the atmosphere (by, for example, forests which absorb GHGs).

Finally, the panel of top climate scientists has determined that to achieve net zero emissions by 2050, transformations are needed in four main sectors:

- *Electricity generation*: replace coal, oil and natural gas with solar, wind and hydro.
- *Industry and buildings*: increase energy efficiency and use of clean electricity.
- *Forests and agriculture*: conserve and restore forests and use sustainable agriculture.
- *Transportation*: switch to electric vehicles and expand public transportation.

2.2. According to the panel of climate scientists convened by the UN, which of the following transformation areas is NOT needed to reach net-zero?

[RANDOMIZE ORDER OF ANSWERS]

- ☐ Forests and agriculture: conserve and restore forests and use sustainable agriculture.
- ☐ Electricity generation: replace oil and natural gas with solar, wind and hydro.
- ☐ Health care: use natural medicines instead of conventional ones.
- ☐ Transportation: switch to electric vehicles and expand public transportation.
- ☐ Industry and buildings: increase energy efficiency and use of clean electricity.

[IF RESPONDENT DOES ANSWERS “Health care”, DISPLAY THE FOLLOWING STATEMENT: “Not quite. The top climate scientists convened by the UN do not recommend changes in the health care sector to reach net zero.” Please make sure to carefully read each statement and each question in the survey and to think carefully about your answers before submitting them. The integrity of our study depends on it. Some of the questions that follow will test whether you’ve carefully read the survey.]

SECTION 3. YOUR WILLINGNESS TO PAY FOR A “NET ZERO PROGRAM” (4 to 6 questions)

We would like to know about your household’s willingness to pay for a “Net Zero Program” that would reach net zero GHG emissions in [autofill name of country] by 2050 by implementing the four transformations described above (using renewable energy, preserving and restoring forests, etc.).

The main benefit of the Net Zero Program would be to avoid the worst effects of climate change.

To fund the NetZero Program in [autofill name of country], your household would have to pay higher energy prices and/or taxes up until the year 2050. The cost would be the same every month and would be adjusted for any inflation so that the ‘real’ cost remains the same over time. Please assume that:

- aside from paying the monetary cost, your household would not have to make any other changes;

- there is no risk that the program would fail to achieve its goal of reaching net zero emissions by 2050; and
- all other countries would implement a similar Net Zero Program.

Based on what you read, which of the following statements is false?

- ☐ There is a risk that the program would fail to achieve its goal of reaching net zero emissions by 2050.
- ☐ All other countries would implement a similar Net Zero Program.
- ☐ Aside from paying the monetary cost, your household would not have to make any other changes.

[IF RESPONDENT ANSWERS, “All other countries would implement a similar Net Zero Program” DISPLAY THE FOLLOWING STATEMENT: “Not quite, it is actually true that “All other countries would implement a similar Net Zero Program. The option that was false was, “There is a risk that the program would fail to achieve its goal of reaching net zero emissions by 2050.” It is important that you answer the questions that follow based on the assumption that this would be true. Going forward, please make sure to carefully read each statement and question in the survey. It is critically important that you think about them before responding.”]

[IF RESPONDENT ANSWERS, “Aside from paying the monetary cost, your household would not have to make any other changes” DISPLAY THE FOLLOWING STATEMENT: “Not quite, it is actually true that “Aside from paying the monetary cost, your household would not have to make any other changes.” The option that was false was, “There is a risk that the program would fail to achieve its goal of reaching net zero emissions by 2050.” It is important that you answer the questions that follow based on the assumption that this would be true. Going forward, please make sure to carefully read each statement and question in the survey. It is critically important that you think about them before responding.”]

[START OF SURVEY EXPERIMENT]

[FOR A RANDOMLY SELECTED HALF OF SAMPLE, ADD THE FOLLOWING LANGUAGE AND QUESTION]

You may be wondering what cost other households in [autofill name of country] would have to pay for the Net Zero Program. The cost would be proportional to your household income: richer households would pay more and poorer households would pay less.

3.1a. Which of the following statements about the cost of the Net Zero Program is true? [CHOOSE ONLY ONE]

- ☐ all households in [autofill name of country] will pay the same cost
- ☐ inflation will make the monthly cost of the program fall over time
- ☐ the cost of the program would be proportional to your household income: richer households would pay more and poorer households would pay less

[IF RESPONDENT DOES NOT ANSWER “the cost of the program would be proportional to your household income...” DISPLAY THE FOLLOWING STATEMENT: “Not quite. The correct answer is “The cost of the program would be proportional to your household income: richer households would pay more and poorer households would pay less.” Please make sure to carefully read each statement and each question in the survey and to think carefully about your answers before submitting them. The integrity of our study depends on it. Some of the questions that follow will test whether you’ve carefully read the survey.]

[FOR THE OTHER RANDOMLY SELECTED HALF OF SAMPLE, ADD THE FOLLOWING LANGUAGE AND QUESTION]

You may be wondering what cost other households in [autofill name of country] would have to pay for the Net Zero Program. The cost would be the same for every household.

3.1b. Which of the following statements about the cost of the Net Zero Program is true? [CHOOSE ONLY ONE]

- ☐ all households in [autofill name of country] will pay the same cost
- ☐ inflation will make the monthly cost of the program fall over time
- ☐ the cost of the program would be proportional to your household income: richer households would pay more and poorer households would pay less

[IF RESPONDENT DOES NOT ANSWER “all households in [autofill name of country] will pay the same cost” DISPLAY THE FOLLOWING STATEMENT: “Not quite. The correct answer is “All households in [autofill name of country] will pay the same cost.” Please make sure to carefully read each statement and each question in the survey and to think carefully about your answers before submitting them. The integrity of our study depends on it. Some of the questions that follow will test whether you’ve carefully read the survey.]

[END OF SURVEY EXPERIMENT ALTERNATIVE 2]

Vote for or against the Net Zero Program

Now suppose that there were a yes or no vote held today about whether the national government in [autofill name of country] should launch the Net Zero Program. If a *minimum* of 51% of the people in the country vote for the program, it would be implemented and households would have to pay higher taxes and energy prices. Otherwise, taxes and energy prices would stay the same. To be clear, this vote has not been proposed in [autofill name of country] at this time, but your opinion on it is important for policy making that is responsive to people’s desires and needs.

While you think about whether or not you would vote for the Net Zero Program—that is, whether you would be willing to help pay for it—please keep in mind all the other things you could spend your household’s money on. Please consider whether the program would be worth it to you given the cost. People may have different views on this depending on their individual circumstances, and

that is OK. We want to know how you feel personally, so that policy makers have a good understanding of whether people like you think the Net Zero Program should be implemented.

NQ1. Based on what you just read, what is the *minimum* percentage of people would need to vote yes in order for the Net Zero program to be implemented?

- ☐ 33%
- ☐ 51%
- ☐ 66%
- ☐ 75%

[IF RESPONDENT DOES NOT ANSWER “half” DISPLAY THE FOLLOWING STATEMENT: “Not quite. The correct answer is 51%. Going forward, please make sure to carefully read each statement and question in the survey. It is critically important that you think about them before responding.]

QA. Now imagine that the Net Zero Program in [autofill name of country] would cost your household Z per month up to the year 2050. Note that a cost of Z per month means that you would pay ($Z \times 12$) per year in current money terms, until the year 2050 to reach net-zero GHG emissions by that time. Would you vote for the program and be willing to pay this amount for it? [CHOOSE ONLY ONE]

- ☐ No
- ☐ Yes

NQ2. In the preceding question, what did we tell you the Net Zero Program in [autofill name of country] would cost your household Z per month?

(These are expressed in local currency)

- ☐ 5
- ☐ 15
- ☐ 25
- ☐ 35
- ☐ 50
- ☐ 75
- ☐ 125
- ☐ 200

[IF THE RESPONDENT DOES NOT ANSWER CORRECTLY, THEN

- (i) DISPLAY THE FOLLOWING STATEMENT: “Not quite. The correct answer is [X]. Going forward, please make sure to carefully read each statement and question in the survey. It is critically important that you think about them before responding.]
- (ii) ASK QUESTION QAA SECOND TIME

QB. Are you certain of your response the question about whether you would vote for the Net Zero program? Please choose one of the following options. [CHOOSE ONLY ONE]

- ☐ Very certain [SKIP TO QD IF QA = "YES" ELSE CONTINUE TO QC]
- ☐ Somewhat certain [SKIP TO QD IF QA = "YES" ELSE CONTINUE TO QC]
- ☐ Neither certain nor uncertain [SKIP TO QD IF QA = "YES" ELSE CONTINUE TO QC]
- ☐ Somewhat uncertain [SKIP TO QD IF QA = "YES" ELSE CONTINUE TO QC]
- ☐ Not certain at all [CONTINUE TO QC]

QC. You said that if your household had to make a monthly payment of Z per month until 2050 to fund the Net Zero Program you would not be willing to pay for it or you were very uncertain about whether you would be willing to pay. Why did you give that response? Please choose as many of the following reasons that apply to you. [CHOOSE AS MANY AS APPLY]

- ☐ I can't afford it.
- ☐ The cost is too high: it is not worth paying that amount to reduce climate change .
- ☐ I do not think climate change is a major problem.
- ☐ I believe that, aside from the monthly payment my household would have to make, the program would harm households like mine. Please specify how: _____.
- ☐ I do not think it is fair for my household to have to pay since firms in [autofill name of country], not households in [autofill name of country] are the main source of GHG emissions.
- ☐ I do not think that the distribution of costs of the program across households in [autofill name of country] is fair
- ☐ I do not think it is fair for any households in [autofill name of country] have to pay since other countries are the main source of GHG emissions.
- ☐ I do not have confidence in the government to design and implement policies to reach net zero GHG emissions by 2050.
- ☐ I don't believe the preceding question is realistic, so I just gave an answer.
- ☐ I do not believe that revenue from higher taxes and energy prices will be used for the Net Zero Program
- ☐ Other. Please specify. _____.

[SKIP TO QE]

QD. You said that if your household had to make a monthly payment of Z per month until 2050 to fund the Net Zero Program you would be willing to pay for it. Now imagine the cost was twice as high: ($2 \times Z$) per month until 2050 (or ($2 \times Z \times 12$) per year). At this higher cost, would you vote for the program and be willing to pay this amount for it? [CHOOSE ONLY ONE]

- ☐ No [SKIP TO PART 3]
- ☐ Yes [SKIP TO PART 3]

QE. You said that if your household had to make a monthly payment of Z per month until 2050 to fund the Net Zero Program you would not be willing to pay for it or you said you were very uncertain about whether you would be willing to pay. Now imagine this cost was only half as high:

($\frac{1}{2} \times Z$) per month up to the year 2050 (or ($\frac{1}{2} \times Z \times 12$ per year)). At this lower cost, would you vote for the program and be willing to pay this amount for it? [CHOOSE ONLY ONE]

- ☐ No [GO ON TO QF]
- ☐ Yes [SKIP TO PART 3]

QF. Would you be willing to pay any amount to fund the Net Zero Program? [CHOOSE ONLY ONE]

- ☐ No [SKIP TO Part 3]
- ☐ Yes [GO ON TO QG]

QG. What is the highest amount you would you be willing to pay to fund the Net Zero Program?

_____ \$ per month

SECTION 4. OPINIONS ABOUT CLIMATE POLICY ACTION (5 questions)

4.1. Did you believe the information about climate change that we presented to you above, specifically, the information on whether climate change is happening, why it is happening, what effects it will have, and the ways that we can stop it? [CHOOSE ONLY ONE]

- ☐ Definitely believed it
- ☐ Mostly believed it
- ☐ Mostly did not believe it
- ☐ Definitely did not believe it
- ☐ Do not know

4.2. If households (and not firms or government) have to pay for [insert name of country here]'s Net-Zero program, in your opinion, what type of households should pay the *most*? [CHOOSE ONLY ONE]

- ☐ High-income households
- ☐ High-income and middle-income households, but not lower-income households
- ☐ All households should pay equally
- ☐ Other, please explain who you think should pay the most: _____
- ☐ Don't know

4.3. In your opinion, how much should different countries pay to reach global net zero GHG emissions? [CHOOSE ONLY ONE]

- ☐ All countries should pay the amount that it costs to reduce their own GHG emissions to net zero
- ☐ Higher income countries should pay both the costs of reducing their own GHG emissions and *some* of the costs of reducing GHG emissions of lower income countries

- ☐ Higher income countries should pay both the costs of reducing their own GHG emissions and *all* of the costs of reducing GHG emissions of lower income countries
- ☐ Don't know

4.4. To what extent do you agree or disagree with the following statement? *In addition to helping to stem climate change, achieving net-zero GHG emissions is likely to generate significant benefits such as creating new 'green' jobs, and reducing traffic congestion and accidents.* [CHOOSE ONLY ONE]

- ☐ Fully agree
- ☐ Somewhat agree
- ☐ Neither agree nor disagree
- ☐ Somewhat disagree
- ☐ Fully disagree
- ☐ Don't know

4.5. As far as you know, has your government made a commitment to reduce [insert name of country here]'s GHG emissions? [CHOOSE ONLY ONE]

- ☐ Yes
- ☐ No
- ☐ Don't know

SECTION 5. QUESTIONS ABOUT YOUR GENERAL OPINIONS (4 questions)

5.1. What is your political ideology: [CHOOSE ONLY ONE]

- ☐ Left
- ☐ Centre-left
- ☐ Centre
- ☐ Centre-right
- ☐ Right
- ☐ I prefer not to answer
- ☐ I don't have a political ideology

5.2. To what extent do you agree or disagree with the following statement: The national government in your country can be trusted to do the right thing. [CHOOSE ONLY ONE]

- ☐ Fully agree
- ☐ Somewhat agree
- ☐ Neither agree nor disagree
- ☐ Somewhat disagree
- ☐ Fully disagree
- ☐ Don't know

5.3. In general, when the government of [autofil name of country] implements new policies and programs, how effective are they in achieving their stated goals within a reasonable time frame? [CHOOSE ONLY ONE]

- ☐ Very effective
- ☐ Mostly effective
- ☐ Somewhat effective
- ☐ Not very effective
- ☐ Not effective at all
- ☐ Don't know

5.4. Which of the following best describes your personal views on government taxes overall, including all local, regional and national taxes you face? [CHOOSE ONLY ONE]

- ☐ My taxes are high, and need to be reduced
- ☐ My taxes are high, but should be maintained at the current levels
- ☐ My taxes are high, but should be increased to provide better and more services
- ☐ My taxes are not high, but should be reduced
- ☐ My taxes are not high, and should be maintained at current levels
- ☐ My taxes are not high, and should be increased to provide better and more services
- ☐ Don't know / not sure

SECTION 6. QUESTIONS ABOUT YOUR BACKGROUND (2 questions)

6.1. Imagine a stairway with 6 steps. On the bottom step (step 1), we have the poorest people in [autofil name of country]; on the highest step (step 6), we have the richest people. On which step would you say you are now? [CHOOSE ONLY ONE]

[DROP DOWN MENU Choices: 1, 2, 3, 4, 5, 6]

6.2. Have you been directly affected by heat wave, hurricane, flood or drought in the past year? [CHOOSE ONLY ONE]

- ☐ Yes
- ☐ No