Supporting Information for "Facing Change: Gender and Climate Change Attitudes Worldwide"

Sarah Sunn Bush and Amanda Clayton

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A Survey question wording

Dataset	Question	Responses	No. countries and observations
Americas-Barometer (2016-2017)	If nothing is done to reduce climate change in the future, how serious of a problem do you think it will be for [country]?	Not at all serious, A little serious, Somewhat serious, very serious	29 countries (n = 43,454)
	On this card there is a 1-10 scale that goes from left to right. The number one means left and 10 means right. Nowadays, when we speak of political leanings, we talk of those on the left and those on the right. In other words, some people sympathize more with the left and others with the right. According to the meaning that the terms "left" and "right" have for you, and thinking of your own political leanings, where would you place yourself on this scale? Tell me the number.	1 (left), 2, 3, 4, 5, 6, 7, 8, 9, 10 (right)	22 countries (n = 31,628)
Pew Global Attitudes Survey (2015)	In your view, is global climate change a very serious problem, somewhat serious, not too serious or not a problem?	Not a problem, Not too serious, Somewhat serious, Very serious	40 countries (n = 45,435)
	Some people talk about politics in terms of left, center and right. On a left-right scale from 0 to 6, with 0 indicating extreme left and 6 indicating extreme right, where would you place yourself?	0 (left), 1, 2, 3, 4, 5, 6 (right)	12 countries (n = 8,982)

Table A1: Questions about concern for global climate change and political ideology in two cross-national surveys. These are the questions used for the analysis in Figures 1 and 2 and Table 1 in the main text.

B Ideology as a moderating variable

In Table 1 in our manuscript, we include ideology as a control variable to assess whether the gender gaps that we observe can be explained by well-established ideological and partisan gender gaps that tend to emerge only in higher-income countries. Here we consider the role of ideology in a different way, as potentially moderating the emergence and size of gender gaps in climate attitudes. We first do this through a triple interaction term with both the AmericasBarometer and Pew data. This approach tests whether as the gender gap widens in wealthier countries, this trend is more pronounced for men and women on the right than for men and women on the left. Put another way: It allows us to test whether conservative women depart from conservative men (as compared to differences between liberal women and liberal men) when countries are wealthier put not when they are poorer.

The triple interaction term (female x GDPpc x ideology) is not significant either when using the Pew data or the AmericasBarometer data. Yet, we do have some weaker evidence that gender gaps are more pronounced among conservatives in some very wealthy countries. In the Pew data, in the four highest-income countries with significant climate gender gaps and for which we have ideological self-placement data (the UK, Germany, Italy, and Spain), we find a positive interaction between respondent gender and ideology (see Table A2, interaction term significant at $p = 0.06$). Additionally, when we look the three high-income countries in our Netquest data (the U.S., Spain, and the UK), we also observe a positive and statistically significant interaction term between ideology and respondent gender in all three, again indicating that the gender gaps that we observe are being driven by differences among conservatives.

Our initial speculation as to why we find some evidence that ideology is a moderating variable in some very high-income countries but that the triple interaction is not significant could be because the relationship is not linear. For instance, it may be that in high-middle income countries (e.g., Argentina, Chile, etc.), gender gaps are more pronounced among liberals than among conservatives. Indeed, we find some evidence of this. When we look at subset of countries in the AmericasBarometer that are above the sample's median GDPpc but exclude the two richest countries (the US and Canada), we find a negative interaction between respondent gender and ideology: the gender gap is more pronounced among citizens on the left. Given the potentially non-monotonic nature of this relationship, we leave the moderating role of ideology to future work.

	Model 1 AmericasBarometer	Model 2 AmericasBarometer	Model 3 Pew	Model 4 Pew
(Intercept)	0.641	−0.734	3.170*	−0.453
	(0.395)	(0.420)	(1.325)	(1.523)
Female	−0.999***	−0.861***	−0.681*	0.016
	(0.102)	(0.218)	(0.279)	(0.883)
Ideology	−0.028***	0.222***	−0.048***	0.836***
	(0.002)	(0.024)	(0.006)	(0.140)
log(GDPPC)	−0.045	0.112*	−0.289*	0.082
	(0.043)	(0.046)	(0.132)	(0.156)
Female x log(GDPPC)	0.114***	0.097***	0.080**	0.004
	(0.011)	(0.025)	(0.028)	(0.089)
Ideology x log(GDPPC)		−0.029***		−0.091***
		(0.003)		(0.014)
Female x ideology		−0.013		−0.174
		(0.034)		(0.199)
Female x Ideology x log(GDPPC)		0.002		0.019
		(0.004)		(0.020)
AIC	87907	87741	23207	23170
Log Likelihood	-43944	-43858	-11594	-11573
Num. obs.	31628	31628	9202	9202
Num. groups: country	22	22	12	12

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

Table A2: Triple interactions between respondent gender, ideology, and GDPpc for the AmericasBarometer data (Model 1) and the Pew data (Model 2).

	Model 1	Model 2
(Intercept)	0.221**	0.316**
	(0.085)	(0.099)
Female	0.169***	−0.031
	(0.033)	(0.110)
Education	0.010**	0.010**
	(0.004)	(0.004)
Household Income	−0.026	−0.027
	(0.019)	(0.019)
Ideology	−0.090***	−0.114***
	(0.013)	(0.018)
Female x Ideology		0.050
		(0.026)
Country fixed effects	✓	✓
R^2	0.050	0.051
Adj. R^2	0.047	0.048
Num. obs.	2940	2940
RMSE	0.897	0.897

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

Table A3: Pew high-income countries that include data on respondent ideology: Germany, the UK, Spain, and Italy. The interaction term is significant at the $p = 0.06$ level.

	Model 1 UK	Model 2 UK	Model 3 Spain	Model 4 Spain	Model 5 USA	Model 6 USA
(Intercept)	4.403***	5.097***	3.938***	4.017***	4.469***	4.755***
	(0.122)	(0.265)	(0.032)	(0.042)	(0.080)	(0.102)
Female	0.206***	−0.252	0.109***	−0.038	0.166**	−0.414**
	(0.054)	(0.165)	(0.025)	(0.057)	(0.057)	(0.142)
Ideology	−0.092***	−0.219***	−0.050***	−0.066***	−0.486***	−0.577***
	(0.014)	(0.045)	(0.005)	(0.008)	(0.022)	(0.030)
Female x ideology		0.085**		0.031**		0.193***
		(0.029)		(0.011)		(0.043)
R^2	0.046	0.052	0.070	0.075	0.369	0.383
Adj. R^2	0.045	0.050	0.069	0.073	0.367	0.380
Num. obs.	1291	1291	1408	1408	898	898
RMSE	0.964	0.961	0.476	0.475	0.847	0.838

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

Table A4: Interaction between respondent gender and ideology in three very high-income countries: the US, the UK, and Spain. Netquest data.

C Negative gender gaps in low-income countries

In the lowest-income cases in our cross-national analysis, it appears that men may prioritize climate change to a greater extent than women, although these differences do not appear as pronounced as the very high-income cases in which we observe substantially higher levels of concern among women. Moreover, once we control for our standard set of controls (respondent education, ideology, and income) as well whether the respondent identifies with a party, his or her political interest, political knowledge, and media exposure, the covariate associated with respondent gender loses its significance. This pattern suggests to us that "negative" gender gaps in very low-income counties are driven by well documented gender differences in respondent education and exposure to and interest in politics. More research will be needed to theorize and empirically examine gender differences in these cases.

	Model 1	Model 2
(Intercept)	0.234^{***}	-0.214^{***}
	(0.026)	(0.046)
Female	-0.076^{***}	-0.024
	(0.015)	(0.017)
Education		0.025^{***}
		(0.002)
Ideology		-0.011^{***}
		(0.003)
Income		0.003
		(0.002)
Party Identification		0.007
		(0.021)
Political Interest		0.031^{***}
		(0.009)
Political Knowledge		0.067^{***}
		(0.010)
Media consumption		0.070^{***}
		(0.008)
Country fixed effects	✓	✓
R^2	0.043	0.061
Adj. R^2	0.042	0.060
Num. obs.	17917	12743
RMSE	0.977	0.929

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

Table A5: Gender Gaps in Low-Income Countries. AmericasBarometer countries include: Bolivia, Honduras, Haiti, Nicaragua, El Salvador, Guatemala, Peru, Panama, Jamaica, Ecuador, San Lucia, and Grenada

D Other surveys with climate questions

We next consider gender and climate change attitudes using four other high-quality surveys conducted over a roughly contemporaneous period.

First, the 2016 Afro-Barometer asks respondents a series of questions about the environment. Most relevant for our purposes, enumerators first asked respondents whether they have heard of climate change, and then among those who responded affirmatively, they asked: "Do you think that climate change needs to be stopped?" We observe very small gender differences across the 31 countries in which this question was asked. On average 24 percent of female respondents reported: "No, climate change does not need to be stopped," whereas 22 percent of male respondents did so." Or put conversely: men are more likely than women to say that climate change needs to be stopped. Interestingly, we do observe that gender gaps are correlated with logged GDP per capita ($\rho = 0.20$), but these differences are not statistically significant ($p = 0.28$), perhaps because of the limited variation in logged GDP in the sample.

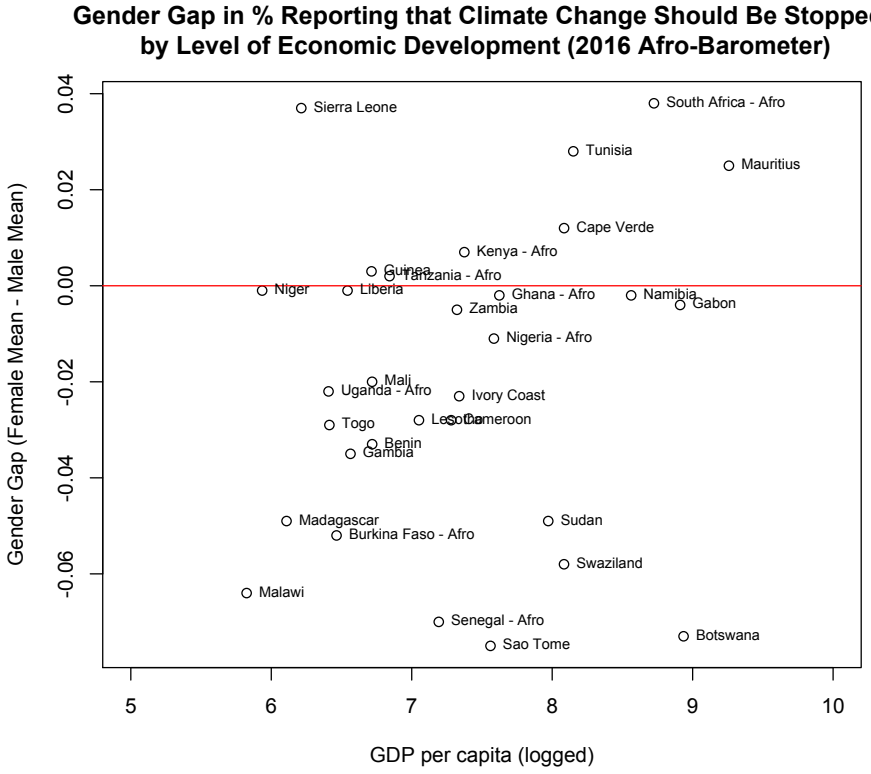

Figure A1: Afro-Barometer. Gender gap in percent of respondents reporting that climate change should be stopped by level of economic development. Afro-Barometer data, 2016.

Second, the 2016 European Social Survey (ESS; Round 8) asked respondents: "How worried are you about climate change?" Respondents could reply on a five-point scale from

"Not at all worried" to "Extremely worried." Pooled across countries, we observe that women report significantly more concern than men (around 0.1 standard deviations, $p \leq 0.001$). We also observe that gender gaps are somewhat correlated by logged GDPpc ($\rho = 0.25$), but this correlation does not achieve statistical significance ($p = 0.27$), again perhaps because we do not observe a very wide range of variation of economic development across the surveyed countries.

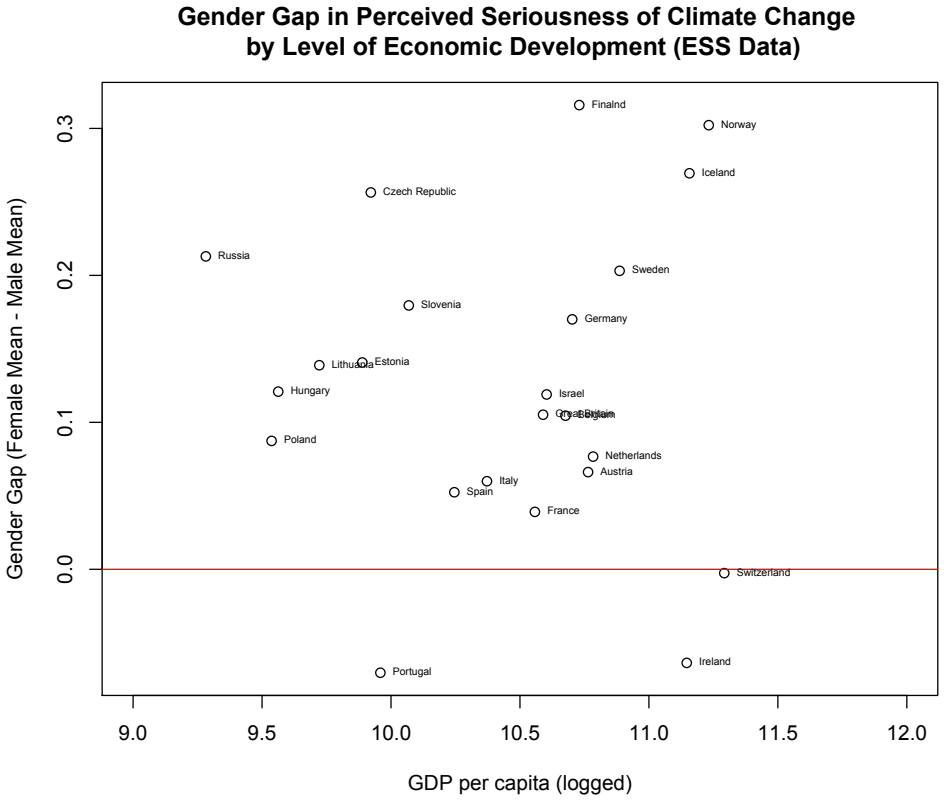

Figure A2: ESS. Gender gap in concern for climate change by level of economic development. European Social Survey data, 2016.

The ESS asks a number of additional questions about climate change that are also relevant for our inquiry. Across these different questions, we observe that women consistently report significantly more concern about climate change and more support for climate mitigation policies and personal actions. This pattern is to be expected given the survey's sample of high-income countries in Europe. The relevant questions are:

- "If you were to buy a large electrical appliance for your home, how likely is it that you would buy one of the most energy efficient ones?" (Gender difference significant at $p < 0.001$)
- "There are some things that can be done to reduce energy use, such as switching off appliances that are not being used, walking for short journeys, or only using the heating

or air conditioning when really needed. In your daily life, how often do you do things to reduce your energy use?" (Gender difference significant at $p < 0.001$)

- "To what extent do you feel a personal responsibility to try to reduce climate change?" (Gender difference significant at $p < 0.001$)
- "Do you support: Increasing taxes on fossil fuels, such as oil, gas and coal?" (Gender difference significant at $p < 0.001$)
- "Do you support: Using public money to subsidise renewable energy such as wind and solar power?" (Gender difference significant at $p < 0.001$)
- "Do you support: A law banning the sale of the least energy efficient household appliances?" (Gender difference significant at $p < 0.001$)

When we include both the ESS and Afro-Barometer country-level averages (using the questions about stopping climate change and the seriousness of climate change, respectively) into our analysis of the AmericasBarometer and Pew data in Figure A3, we again confirm the overall cross-national trend ($\rho = 0.60$, $p \leq 0.001$).

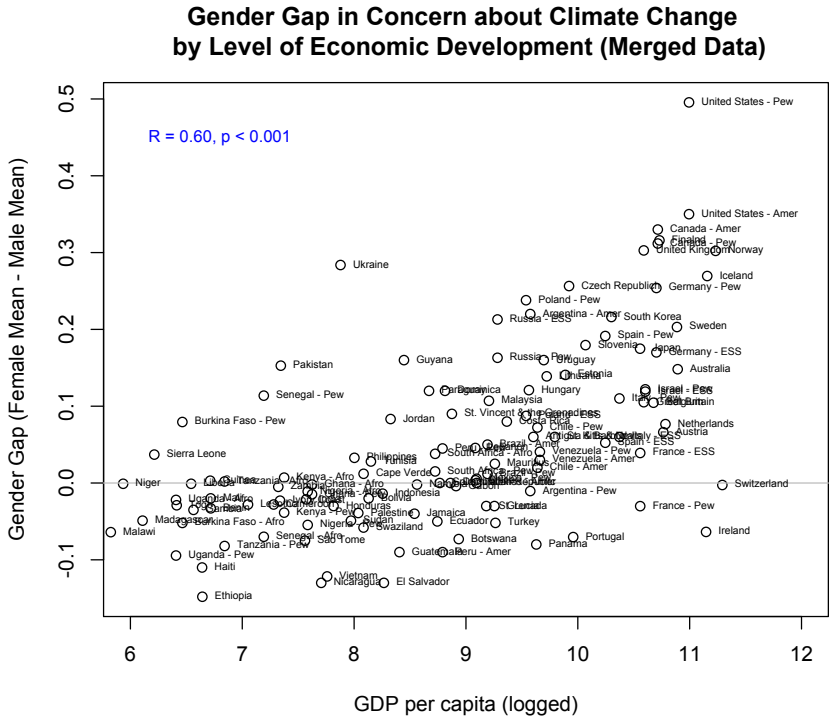

Figure A3: Pew, AmericasBarometer, Afro-Barometer, and ESS. Gender gap in concern for climate change by level of economic development. Data: Pew, AmericasBarometer, Afro-Barometer and European Social Survey.

Third, we examine gender differences in the 2010 International Social Survey Programme (ISSP), which includes respondents from 31 mostly high-income countries. Unfortunately, this survey does not ask specifically about concern over climate change, but rather asks respondents: "Generally speaking, how concerned are you about environmental issues?" Response categories are on a five-point Likert-type scale from "Not at all concerned" to "Very concerned." As with the survey questions more directly related to climate change, we observe that gender gaps become more pronounced as countries become wealthier ($\rho = 0.36$, $p = 0.045$).

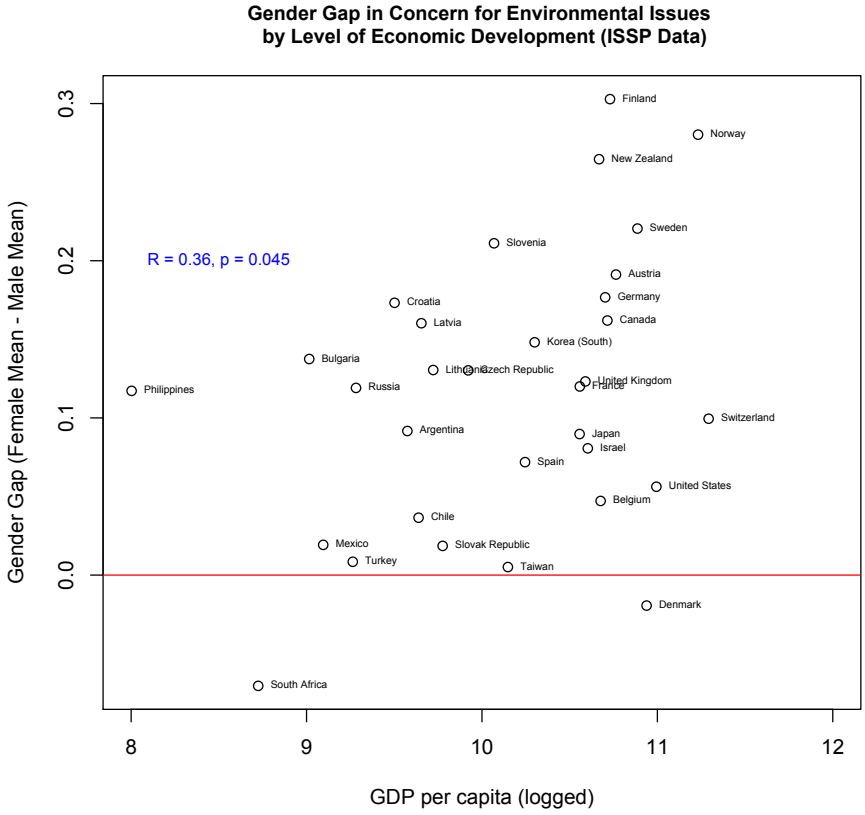

Figure A4: ISSP. Gender gap in concern for general environmental issues by level of economic development. International Social Survey Programme, 2010.

The 2016 Pew Global Attitudes Survey asks a differently-worded question about climate change compared to the 2015 survey that we use in our main analysis, namely:

> Do you think that global climate change is a major threat, a minor threat, or not a threat to (survey country)?

Again we standardized responses such that higher values indicate more concern about climate change. We then calculate the gender gaps for concern for climate change for each

country. Figure A5 again reveals a strong correlation with gender gaps in concern for climate change by level of economic development (left panel, $\rho = 0.79$, $p \leq 0.001$). In short, this finding appears incredibly robust across both the AmericasBarometer and Pew Global surveys.

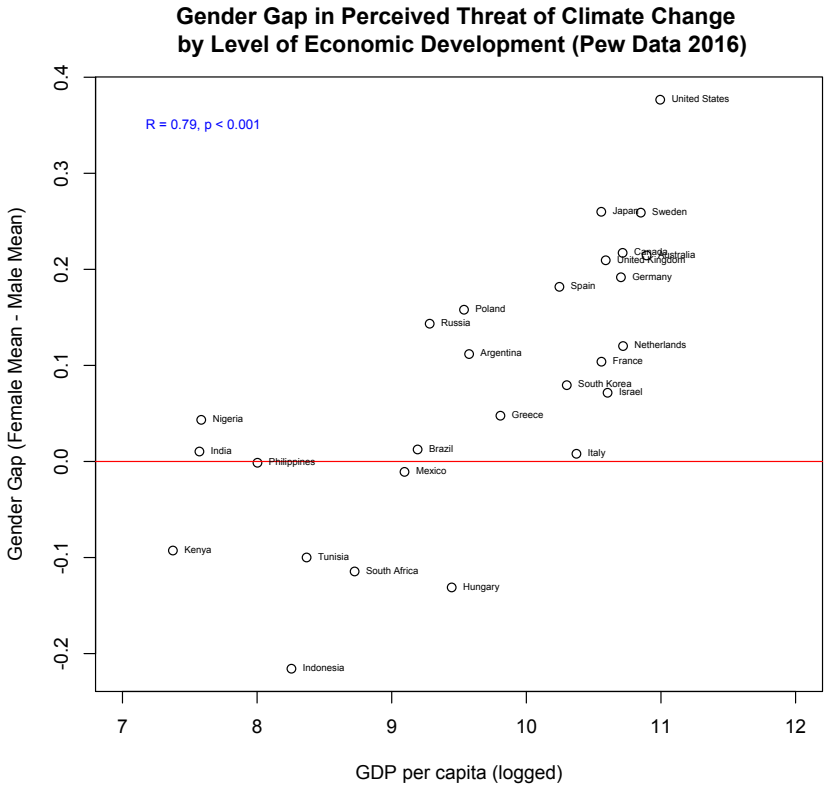

Figure A5: Gap in perceived threat. Gender gap in considering climate change a threat by level of economic development. Pew Global Attitudes Survey (2016).

Finally, we examine whether this pattern exists in world region not heavily sampled in our existing data sets. Using data from the fifth wave of the Arab Barometer (2018-2019), we examine gender differences in responses to the following question:

> "Is climate change a very serious problem, a somewhat serious problem, not a very serious problem, not at all a serious problem?"

Again we standardized responses such that higher values indicate more concern about climate change. We then calculate the gender gaps for concern for climate change for each country. Figure A6 again reveals a strong correlation with gender gaps in concern for climate change by level of economic development in this set of countries ($\rho = 0.69$, $p = 0.01$).

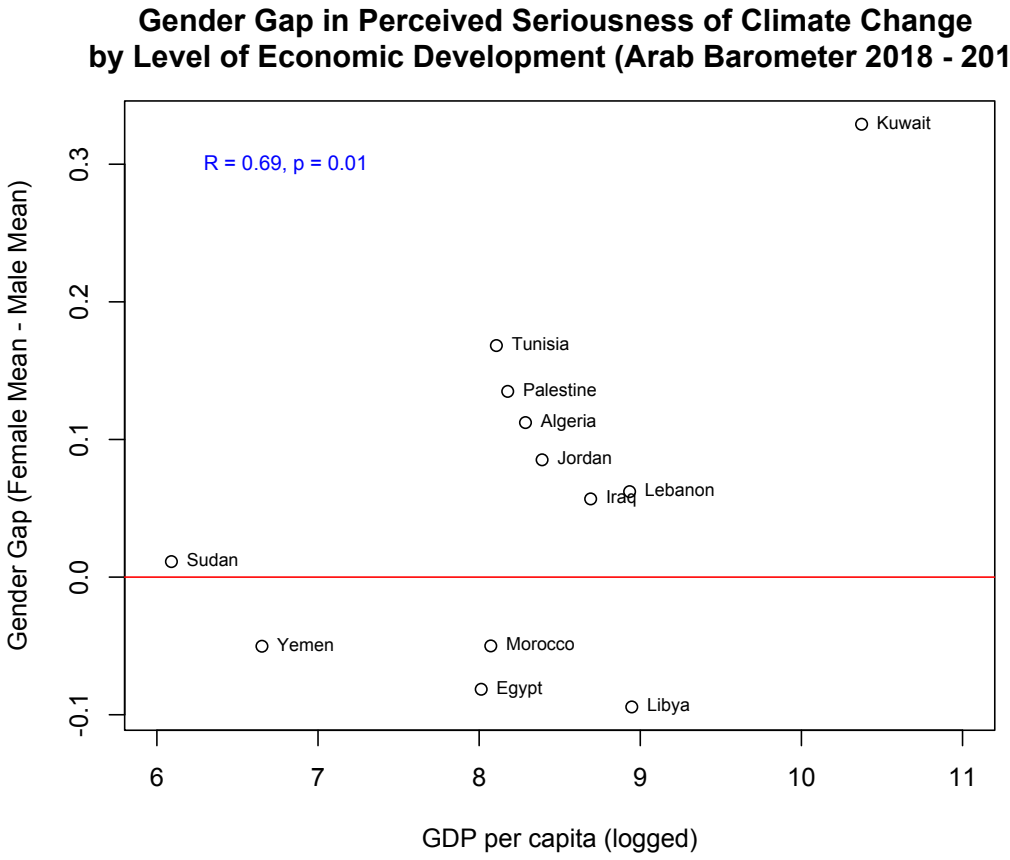

Figure A6: Gap in perceived seriousness. Gender gap in perceived seriousness of climate change by level of economic development. Arab Barometer Round V (2018 - 2019).

E Excluding Anglophone and very poor countries

As a robustness check we test whether the results we present in the main models in our paper are robust to excluding the few wealthy Anglophone countries and the handful of very poor countries. In the following two tables we show these robustness checks for the AmericasBarometer (Table A6) and the Pew data (Table A7) respectively. For both data sets, the key interaction term of interest (Female x log(GDPpc)) retains its statistical significance when we exclude both sets of cases.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	(Excluding Anglophone countries)			(Excluding very poor countries)		
(Intercept)	0.390	0.287	0.211	1.518**	0.839	0.361
	(0.449)	(0.333)	(0.381)	(0.504)	(0.562)	(0.437)
Women	−0.593***	−0.703***	−0.524***	−1.180***	−1.274***	−0.609**
	(0.114)	(0.126)	(0.141)	(0.134)	(0.142)	(0.220)
log(GDPpc)	−0.039	−0.014	−0.041	−0.166**	−0.064	−0.057
	(0.050)	(0.035)	(0.040)	(0.057)	(0.062)	(0.046)
Women x log(GDPpc)	0.068***	0.079***	0.060***	0.133***	0.143***	0.070**
	(0.013)	(0.014)	(0.016)	(0.015)	(0.015)	(0.024)
Ideology		−0.014***	−0.012***		−0.030***	−0.012***
		(0.002)	(0.002)		(0.002)	(0.002)
Household Income			0.006***			0.006***
			(0.001)			(0.001)
Education			0.027***			0.026***
			(0.002)			(0.002)
Log Likelihood	-48929.502	-39226.636	-32686.712	-46079.444	-37330.553	-27920.567
Num. obs.	35777	28735	24619	33695	27314	21333
Num. groups: country	27	20	20	26	19	17

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

Table A6: The individual- and country-level predictors of climate concern (AmericasBarometer). The results are from mixed effect linear models. Data are from the AmericasBarometer with climate concern standardized so that the mean value is 0 and the standard deviation is 1. Models 1 - 3 exclude Anglophone countries. Models 4 - 6 exclude very poor countries, those with a logged GDPpc below one standard deviation below the average logged GDPpc in the data set.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
	(Excluding Anglophone countries)			(Excluding very poor countries)		
(Intercept)	0.638	3.164*	3.230*	1.215*	3.164*	3.230*
	(0.374)	(1.373)	(1.410)	(0.513)	(1.373)	(1.410)
Female	−0.325***	−0.681*	−0.632*	−0.534***	−0.681*	−0.632*
	(0.064)	(0.279)	(0.282)	(0.082)	(0.279)	(0.282)
log(GDPpc)	−0.071	−0.289*	−0.310*	−0.134*	−0.289*	−0.310*
	(0.042)	(0.134)	(0.138)	(0.053)	(0.134)	(0.138)
Female x log(GDPpc)	0.044***	0.080**	0.075**	0.068***	0.080**	0.075**
	(0.007)	(0.028)	(0.028)	(0.009)	(0.028)	(0.028)
Ideology		−0.048***	−0.048***		−0.048***	−0.048***
		(0.006)	(0.006)		(0.006)	(0.006)
Education			0.011***			0.011***
			(0.002)			(0.002)
Household Income			0.016			0.016
			(0.010)			(0.010)
AIC	109526.990	23207.666	22606.182	100349.169	23207.666	22606.182
BIC	109595.984	23271.810	22684.315	100417.372	23271.810	22684.315
Log Likelihood	-54755.495	-11594.833	-11292.091	-50166.585	-11594.833	-11292.091
Num. obs.	41116	9202	8982	37247	9202	8982
Num. groups: Country	37	12	12	33	12	12

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

Table A7: The individual- and country-level predictors of climate concern (Pew). The results are from mixed effect linear models. Data are from the Pew Global Attitudes Survey with climate concern standardized so that the mean value is 0 and the standard deviation is 1. Models 1 - 3 exclude Anglophone countries. Models 4 - 6 exclude very poor countries, those with a logged GDPpc below one standard deviation below the average logged GDPpc in the data set.

F Additional robustness checks

Here we consider several additional alternative explanations for the widening gender gap in climate attitudes in wealthier countries. Whenever possible, we draw on the main survey data sources used in the paper (in Table 1), which are the Pew Global Attitudes survey and the AmericasBarometer survey. Some of the relevant covariates are available in each survey, so we present the robustness checks separately.

F.1 Using the Pew data

The robustness checks using the Pew data can be found in Table A8 below. They involve including both additional individual- and country-level variables.

First, it is possible that in wealthy countries, men have more faith that technological advances will help abate climate change than women do. To test for this possibility, we include a survey question asked on the Pew survey: "To reduce the effects of global climate change, do you think people will have to make major changes in the way they live or can technology solve the problem without requiring major changes?" When we control for responses to this question, the observed cross-level interaction between logged GDP and respondent gender maintains its magnitude and statistical significance.

Second, we add several different country-level variables to our analysis, including fossil fuel consumption, climate vulnerability, the political ideology of the executive, the nation's human development index, and oil rents as a percentage of GDP. Our key interaction of interest (Female x log GDPPC) retains its magnitude and statistical significance across specifications.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
(Intercept)	0.845*	3.170*	1.151***	2.030	−0.163	1.444
	(0.346)	(1.327)	(0.280)	(1.265)	(1.952)	(1.792)
Female	−0.432***	−0.681*	−0.380***	−0.373***	−0.385***	−0.419***
	(0.061)	(0.279)	(0.060)	(0.060)	(0.069)	(0.063)
log(GDPPC)	−0.097*	−0.289*	−0.116***	−0.175*	−0.126	−0.148
	(0.038)	(0.132)	(0.030)	(0.083)	(0.216)	(0.154)
Female x log(GDPPC)	0.057***	0.080**	0.047***	0.046***	0.048***	0.051***
	(0.007)	(0.028)	(0.007)	(0.007)	(0.008)	(0.007)
Respondent Ideology		−0.048***				
		(0.006)				
Education			0.008***	0.009***	0.010***	0.009***
			(0.001)	(0.001)	(0.001)	(0.001)
Income			0.001	0.000	0.002	0.002
			(0.005)	(0.005)	(0.005)	(0.005)
Faith in Technology			−0.445***	−0.443***	−0.456***	−0.450***
			(0.010)	(0.010)	(0.011)	(0.011)
Climate Vulnerability				−0.859	1.852	−0.143
				(1.323)	(2.193)	(1.691)
Executive Ideology, Left					0.072	0.020
					(0.146)	(0.886)
Human Development Index					0.673	0.070
					(2.355)	(1.506)
Fossil Fuel Consumption					0.002	0.002
					(0.004)	(0.004)
Oil Rents, % of GDP						0.043
						(0.039)
Latitude (abs. value)						−0.005
						(0.004)
# HQs of Most Polluting Firms						−0.008
						(0.005)
% Women with Secondary Edu.						−0.001
						(0.005)
Female x % women with Secondary Edu.						0.001
						(0.001)
Female x Education						0.003
						(0.002)
AIC	119594.530	23207.949	92799.398	90457.040	82272.646	86776.482
Log Likelihood	-59789.265	-11594.974	-46388.699	-45213.520	-41103.323	-43347.241
Num. obs.	44099	9202	36994	36155	32541	34387
Num. groups: Country	40	12	39	38	34	36

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

Table A8: Robustness Checks, Pew: Respondent-level data from the Pew Global Attitudes Survey (2015). The climate vulnerability measure comes from the Notre Dame Global Adaptation Initiative, and it captures a country's "exposure, sensitivity, and capacity to adapt to negative consequences of climate change" in 2015. For most countries, the political ideology of the executive in 2015 is taken from the Database of Political Institutions. For those with missing or incomplete data, the researchers supplemented the data with independent searches. The Human Development Index and Fossil Fuel Consumption measures both come from the 2015 United Nations Human Development Data website. Oil rents as percentage of GDP and the percentage of the female population with at least as secondary education are provided by the World Bank, and the number of national headquarters of major polluting firms come from the Climate 100+ Database.

	Model 1
(Intercept)	1.043
	(1.089)
Female	-0.452^{***}
	(0.064)
log(GDPpc)	-0.224^{**}
	(0.084)
Female x log(GDPpc)	0.059^{***}
	(0.007)
Education	0.013^{***}
	(0.001)
Income	0.012^{*}
	(0.006)
% women employed in service sector	0.008
	(0.005)
% men employed in agricultural sector	0.004
	(0.009)
% men employed in industrial sector	0.008
	(0.013)
AIC	99932.154
BIC	100025.866
Log Likelihood	-49955.077
Num. obs.	37022
Num. groups: Country	35

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

Table A9: Robustness Checks, Pew (continued): Respondent-level data from the Pew Global Attitudes Survey (2015). Employment sector data are from the World Bank.

F.2 Using the AmericasBarometer data

The robustness checks using the AmericasBarometer data can be found in Table A11 below. They involve including additional individual-level variables.

Specifically, we include measures of political interest, political knowledge, media exposure, and party identification to measure whether our key finding is driven by gender differences along these measures, which may become more associated with climate change beliefs as countries become wealthier. We also include a measure of perceived personal risks to the effects of natural disasters (flooding, droughts, hurricanes, etc.). This belief may be pertinent if men are more likely to think that they will be immune to the effects of the sorts of natural disasters caused by climate change than are women as countries become wealthier. We also include a measure of general preferences towards the government's redistribution of wealth. This attitude may be relevant to climate change beliefs if men, more so than women, are more averse to redistributive policies in general as countries become wealthier. Lastly, we include four demographic controls that may have different distributions across countries with different levels of economic development and may also affect climate attitudes: urban v. rural residence, age, number of children, and whether the respondent is married. For simplicity, we include all these individual-level variables in the same model. This significantly decreases the number of countries in the model (from 29 to 9), as it only includes countries in which all questions were asked. Yet, even with this very limited sample, our key interaction of interest maintains its statistical significance at the $p < 0.05$ level.

	Model 1
(Intercept)	−0.313
	(1.379)
Female	−0.605*
	(0.244)
log(GDPPC)	−0.062
	(0.069)
Female x log(GDPPC)	0.071*
	(0.028)
Household income	0.006***
	(0.002)
Education	0.021***
	(0.003)
Ideology	−0.008*
	(0.003)
Political knowledge	0.054***
	(0.010)
Party identification	0.018
	(0.020)
Political interest	0.011
	(0.009)
Perceived natural disaster risk	0.094***
	(0.009)
Media consumption	0.058***
	(0.008)
Redistribution preferences	0.051***
	(0.005)
Married	0.037*
	(0.018)
Number of children	0.001
	(0.007)
Age	−0.000
	(0.001)
Urban	−0.050*
	(0.020)
Female x Education	−0.001
	(0.004)
AIC	26449.122
Log Likelihood	-13203.561
Num. obs.	10294
Num. groups: country	9

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

Table A10: Robustness Checks, AmericasBarometer. Data from the 2016 / 2017 AmericasBarometer Survey.

F.3 Climate industry employment

As an additional test of whether and how occupational employment might explain our results, we present evidence from our original ten-country Netquest survey. We ran our survey in two waves. In the first wave, we had the opportunity to put a small question module on six countries in the Americas. In the second wave, we ran a longer survey in four additional countries: Peru, Spain, Portugal, and the UK.

On the second-wave Netquest survey, we included an extended series of questions, including on employment sector. Namely, one of our questions asked:

"Do you or a member of your household work in the coal, steel, oil, or gas industries?"

We note that the number of respondents who responded positively to this question represent a very small subset of our sample, as expected: less than 4% of total respondents (209 respondents out of 5,460).[1] Counter to explanations that might posit that men's employment patterns alone explain our main findings, we find that employment in these carbon intensive industries is higher in the poorest country in our sample, Peru (about 8% of those surveyed), and lowest in the wealthiest country in our sample, the UK (about 2 % of those surveyed), even though climate concern is higher in Peru than in the UK overall.

Comporting with the extant literature, we find that those people who either work in or have family members who work in extractive industries report less worry about climate change. We find evidence that this pattern is true for both men and women respondents separately. In Model 3 and Model 4, the coefficients are of the similar magnitude, but because we lose power by splitting our sample in half, neither acheives traditional significance levels. From Model 1 and Model 2, we observe that the gender gap remains in this relatively high-income sample of countries (excluding Peru) even when we include this occupational variable.

[1] Perhaps ideally this question would have asked about personal employment and not household employment.

	Model 1 Full Sample 1	Model 2 Full Sample	Model 3 Women	Model 4 Men
(Intercept)	0.154^{***}	0.164^{***}	0.293^{***}	0.239^{***}
	(0.028)	(0.029)	(0.030)	(0.041)
Female	0.192^{***}	0.193^{***}		
	(0.025)	(0.025)		
Portugal	-0.070	-0.078^{*}	-0.051	-0.120^{*}
	(0.036)	(0.036)	(0.045)	(0.057)
Spain	-0.105^{**}	-0.110^{**}	-0.037	-0.194^{***}
	(0.035)	(0.035)	(0.043)	(0.057)
UK	-0.872^{***}	-0.880^{***}	-0.716^{***}	-1.059^{***}
	(0.036)	(0.036)	(0.044)	(0.058)
Climate industry employment		-0.139^{*}	-0.161	-0.133
		(0.066)	(0.083)	(0.103)
R^2	0.132	0.132	0.113	0.138
Adj. R^2	0.131	0.132	0.112	0.137
Num. obs.	5467	5458	2784	2674

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

Table A11: Robustness checks, original Netquest data. Data are from the second round of our original Netquest data collection in Peru, Spain, Portugal and the U.K.

F.4 Additional alternative explanations

Another alternative explanation is that in wealthier countries, men have more faith than women that governments will be able to address climate change in the future. Some of the preceding analyses may partially capture this alternative explanation. However, to further test for this possibility, we consider a question that was asked on the European Social Survey (ESS): "How likely do you think it is that governments in enough countries will take action that reduces climate change?" Among this sample of high-income countries, we observe no gender differences in response to this question; the gender difference is just 0.006 standard deviations ($p = 0.54$), suggesting this attitude is not driving the gender differences we observe in the Global North.

Finally, we consider whether it may be that men and women form different time horizons as countries become wealthier, with women placing greater value on the future than men, on average. Across societies, women are often socialized as caregivers, so this explanation does not, in and of itself, offer an explanation for variation in the gender gap across countries with different levels of economic development. Yet whether concern for the environment becomes a "caregiving issue" may depend on whether one's basic needs are met, as is more likely in wealthier countries. According to this logic, concern about the environment could be thought of as a sort of luxury good. However, this alternative explanation is inconsistent with our finding that *both* men and women respondents on average express decreasing levels of concern for climate change as countries become wealthier (recall Figure 2 in the main text). Findings consistent with a time horizons story would suggest gender gaps are driven by women's increased concern for climate change (relative to men's) as countries become wealthier. Yet this pattern is not what we observe, as we demonstrate in the main text of the paper.

G Alternative dependent variables

The main dependent variable in our paper—concern for climate change—offers several advantages. First, it is a substantively important outcome and has received attention in the literature (e.g., Bayer and Genovese, 2020). Second, it is the most commonly asked question across surveys. Yet, there are additional questions within particular surveys that can serve as alternative dependent variables. Perhaps most importantly, the 2015 Pew Global Attitudes survey asks respondents not just about their concern over climate change, but also about their support for climate mitigation policies. Specifically, the question asks:

> "Countries from around the world will meet in December in Paris to deal with global climate change. They will discuss an agreement to limit greenhouse gas emissions, such as from burning coal or [gas/petrol]. Do you support or oppose (survey country) limiting its greenhouse gas emissions as part of such an agreement?"

Unsurprisingly, concern for climate change is correlated with support for the Paris Agreement ($\rho = 0.20$, $p < 0.001$). Importantly, we also see that when we use this variable as our dependent variable rather than concern for climate change in Table A12, we still observe that our key interaction of interest (Female x GDPpc) retains its statistical significance.

	Model 1
(Intercept)	0.927^{***}
	(0.071)
Female	-0.087^{***}
	(0.023)
log(GDPPC)	-0.009
	(0.008)
Female x log(GDPPC)	0.010^{***}
	(0.003)
AIC	29679.206
Log Likelihood	-14831.603
Num. obs.	40749
Num. groups: Country	40
Var: Country (Intercept)	0.038
Var: Country log(GDPPC)	0.001
Cov: Country (Intercept) log(GDPPC)	-0.004
Var: Residual	0.121

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

Table A12: Alternative Dependent Variable. Dependent variable is support for Paris Climate Agreement. Data are from the 2015 Pew Global Attitudes Survey.

H Placebo issue: immigration

Our theory is that citizens perceive the costs of climate change mitigation (relative to the benefits) more acutely in wealthier countries than in poorer countries. As a robustness check, we compare climate attitudes to attitudes about another foreign economic policy issue: immigration. We focus on immigration attitudes because it is a policy for which there might be similar types of gendered costs (both material and psychological), but it is not obvious how those costs vary with the country's level of economic development. To elaborate: similar to opposition to climate action, citizens' opposition to more open immigration policies might evoke similar perceived material costs (related to job loss, tax burden, etc.) and psychological costs (related to identity and status threat). Yet, importantly these costs seem much less related to the country's level of economic development. Thus, whereas we expect to observe a gender gap in climate attitudes that varies by GDPpc, we do not expect the same pattern to emerge for immigration attitudes.

To test this proposition, we use the 2016 Pew Global Attitudes Survey. Note that this is a different survey from that we which we use in our main analysis; it took place during the subsequent year. Importantly for our purposes, this survey round included a new battery of questions on immigration as well as one question on attitudes towards climate change. We standardize how respondents answer the following question, with higher values indicating more support for immigration:

> "In your opinion, should we allow more immigrants to move to our country, fewer immigrants, or just about the same as we do now?"

We also examine the one included question on climate change:

> "Do you think that global climate change is a major threat, a minor threat, or not a threat to (survey country)?"

Again we standardized responses such that higher values indicate more concern about climate change. We then calculate the gender gaps for concern for climate change and support for immigration for each country. Figure A10 shows that whereas again we observe a strong correlation with gender gaps in concern for climate change (left panel, $\rho = 0.79$, $p \leq 0.001$), no such pattern exists for attitudes towards immigration (right panel, $\rho = 0.12$, $p = 0.54$). This pattern should also address the possibility that our findings about the relationship between gender gaps in climate concern and economic development reflect a pattern that women in wealthier countries tend to express more concern about policy issues in general or policy issues concerning people residing in the Global South in particular.

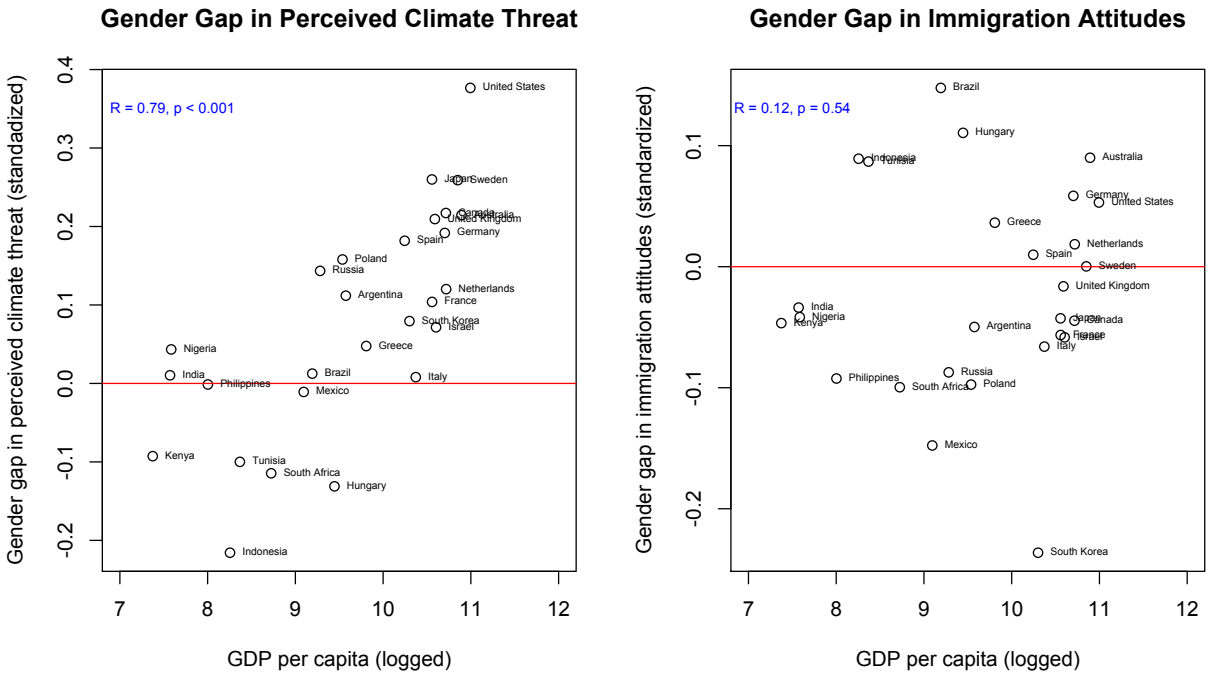

Figure A7: Climate vs. Immigration Attitudes. Country-level gender gap (female mean - male mean) in the belief that climate change is a major threat (left panel) and attitudes towards immigration (right panel) by level of economic development. Data: 2016 Global Attitudes Pew Data.

I Correlations between climate concern and perceptions about mitigation

Our theory is about a trade-off in how citizens perceive the costs and benefits of climate action. In this section, we provide supportive survey evidence concerning three assumptions within our theory:

- Climate concern is positively correlated with a belief that climate change mitigation will have benefits;
- It is negatively correlated with a belief that climate change mitigation will have costs; and
- Beliefs about the benefits and costs of climate change mitigation are closely related.

This analysis supplements our main empirical evidence, which focuses mostly on how citizens perceive the costs of climate action as a question about such costs was available to us in the largest number of countries in our analysis. However, we show in this section that by focusing on how citizens perceive and articulate costs, we are also able to shed light on how they weigh the overall value of climate action since perceptions about costs are strongly related to perceptions about benefits. We present empirical evidence consistent with this claim from the five countries in which we asked in-depth climate questions: Peru, Spain, Portugal, United Kingdom, and United States.[2]

In the introduction to our survey block on climate attitudes in these countries, we asked respondents to think both about how climate action might harm them (the costs) and how it might help them (the benefits). The former question asked: "Acting to stop global climate change may help some people and it may harm some people. We're interested in your opinion." The latter question: "How much do you think acting to stop climate change could harm you personally?" and "How much do you think acting to store climate change could help you personally?" We randomized the order these questions were presented. We find, consistent with our assumptions, that the costs and benefits that citizens associate with climate action are negatively and significantly correlated (ρ = -0.11, $p \leq 0.001$). We find even stronger correlations when we ask about respondents benefits of the costs and benefits to their country (ρ = -0.30, $p \leq 0.001$).

Importantly, and as shown in the first row of Table A17, beliefs about the costs of climate action are negatively correlated with climate concern, while beliefs about the benefits are positively correlated with it. Moreover, these data support the idea that respondents are thinking about costs and benefits as two sides of the same coin, and therefore that their

[2]As discussed elsewhere, we ran our original Netquest survey in two waves, and the first wave only involved a small question module, whereas the later wave included more questions. The second wave included Peru, Portugal, Spain, and the United Kingdom. In addition, we conducted a follow-up survey in Peru and the United States. The analysis in this section draws on the Peru data from the original survey, although it would be similar if we used the follow-up survey data.

open-ended responses about the potential costs of climate action should reflect, at least to some degree, their net positions. Moreover, we see that responses to the closed-ended harm question are negatively and significantly correlated with other survey questions that ask about support for climate mitigation policies (e.g., support for international cooperation on climate change or supporting a fuel tax), and that responses on the perceived benefits to climate action are positively and significantly associated with support for mitigation policies. In sum, consistent with our assumptions, those who perceive high costs to climate action also tend to see low benefits and tend to be less supportive of mitigation policies than those who perceive lower costs.

	Climate action harm	Climate action help
Climate concern	-0.154	0.390
Support intern'l cooperation on climate action	-0.183	0.148
Support fuel tax	-0.171	0.211
Support public money for renewable energy	-0.181	0.249
Support appliance ban	-0.124	0.253
Climate action v. way of life	-0.156	0.298

Table A13: Correlation matrix of perceived costs and benefits of climate action. Netquest data for Peru, Spain, Portugal, the United Kingdom, and the United States. $n = 6,594$. All correlations are significant at $p \leq 0.001$.

J Within-country wealth

Our theory pertains to variation in gender gaps across countries, but a related question is whether wealth operates the same way among individuals within countries. That is, we observe that average levels of climate concern decrease when countries are wealthier, so do we also observe that average levels of climate concern decrease within countries when individuals are wealthier? We are uncertain about the extent to which "income" or "wealth" mean the same thing conceptually when we move from the unit of countries (where the concepts are typically operationalized as GDPpc) to individuals (where they are typically operationalized as household income). Nevertheless, the question of what happens when we move from examining across- to within-country variation is a natural one that arises from our inquiry.

On the level of theory, it is possible that wealthier people within countries would be less vulnerable to climate change and more sensitive to the costs of mitigation than poorer people, and that this dynamic would cause wealthier people to express less climate concern than poorer people. Certainly, and in line with our argument about country-level perceived costs and benefits, wealthier people tend to have both larger climate footprints than poorer people, on average, and also more resources available to cope with problems such as floods, fires, and extreme heat. At the same time, and in contrast to our country-level argument, it is not clear that the perceived costs associated with mitigating climate change would increase within countries with individual wealth. Wealthier countries will have to make larger adjustments than poorer countries in absolute terms to meet global emission standards, but the extent to which wealthier individuals within countries will have to bear the brunt of the costs of decarbonization depends on the specific policy instruments countries choose. Moreover, elite cues related to climate change and climate change mitigation likely operate differently within vs. across countries. Organized resistance to decarbonization—which we argue plays a key role in shaping the public's perceptions about the costs and benefits of mitigation in wealthy countries—is not focused on wealthy individuals within countries globally in the same way that it tends to be focused on wealthy countries, which have established industries (e.g., coal, oil, and gas producers) who have incentives to oppose decarbonization. Finally, and as we note in the main text, elite cues related to economic policy issues typically comment on national-level policies and outcomes, which causes the public to care greatly about the national consequences of a policy such as trade (Mansfield and Mutz, 2009; Guisinger, 2017). We expect all these dynamics to cut against our theory's extension to within-country variation in wealth.

We also take up this question empirically. Previous work on the effects of household or personal income on climate attitudes cross-nationally have been mixed. For instance, in a review, McCright et al. (2016) report that among studies with that find statistically significant relationships, climate change concern rose with income in roughly half and declined with income in the rest. In our own data, we also find inconclusive patterns. Table 1 in the manuscript shows that in the Pew data, climate concern is uncorrelated with household income. In the AmericasBarometer data, we do see a positive correlation, but we note that this effect becomes insignificant once we include country fixed effects to better measure the

effects of rising wealth within countries (associated tables available on request). This further supports our suspicion that country-level factors shape citizens' perceptions about the costs and benefits of climate action in ways that are theoretically distinct from the effects of personal income.

K Human subjects research

This research employs a quantitative analysis of existing and originally-collected data. The research also employs data from qualitative focus groups in the United States and Peru. This appendix details how precaution was taken to adhere to the APSA Council's Principles and Guidance for Human Subjects Research regarding the originally collected data.

General principles: The procedures used to obtain the quantitative (survey) and qualitative (focus group) data featured in this study respect the autonomy and wellbeing of respondents / participants and of other people affected by the research, as detailed in the following sections.

Power: Survey participants were recruited by the survey firm Netquest from a panel of participants that have previously expressed an interest in completing surveys for compensation. After being recruited, the participant had the ability to opt in to the the online survey. Our recruitment practices for the focus groups are detailed extensively in this appendix. For both the survey and focus groups, participation was entirely voluntary. No covert or deceptive research practices were used.

Consent: All respondents / participants were given an information sheet about the study, and gave their informed consent in order to participate. Respondents / participants were made aware that they could opt-out at any point of the survey / focus group and still receive the same compensation. For the focus groups, this research employed standard techniques and involved minimal risk and harm to participants.

Deception: No deception of any sort was used in this study. The researchers accurately described the nature of the research in the survey consent form and in the focus group protocol.

Harm and Trauma: The topic of the surveys / focus groups—perceptions of policies to combat climate change—did not entail any harm or trauma to participants. Climate change is a topic that is frequently discussed and debated by media outlets in both Peru and the United States, as well as openly in other public fora by public officials and citizens alike.

Confidentiality: We did not record identifying information (respondent name, social security number, etc.) for either our survey respondents or focus group participants.

Impact: The surveys / focus groups conducted for this study did not compromise the integrity of political processes in any way.

Laws, Regulations, and Prospective Review: The procedures used to conduct the surveys / focus groups for this study fully comply with the law both in the respective countries in which they were conducted and in the home countries of the researchers. This research was approved by the Human Subjects Internal Review Board of the corresponding PI's uni-

versity (information redacted for author anonymity). Further, the researchers attest to the ethics of the research beyond institutional approvals.

Compensation: Netquest compensates individuals for participating in their online survey panel at a standard rate that they have set. We chose to give focus group participants compensation for participation in our study in the form of locally-relevant gift cards. We provided gift cards to focus group participants to encourage participation and compensate them for the time that they spent participating in our study. We chose the amounts for this compensation after consultation with local experts who indicated that the figures we chose would be sufficient to encourage participation but without being so large that people would feel pressured to do so. See also our discussion above on Power for a discussion of the voluntary nature of participation in the research.

Shared Responsibility: The researchers have sought to adhere to the principle of shared responsibility as described in the APSA Council's guidelines.

L Focus group details

L.1 Recruitment

Our research team conducted focus groups in urban and rural areas of Peru and the United States. The focus groups in Peru were conducted in early October 2019. The focus groups in rural areas of the United States occurred in early December 2019, and the urban groups took place in February 2020 (men's group) and June 2020 (women's group, over Zoom).

We stratify the focus groups by urban versus rural settings in order to get plausible variation in socio-economic status (SES) that we could identify before recruitment. Given our recruitment strategies (described below), it was not feasible for us to screen for respondent SES status prior to our group discussions. To address this, we theorized that urban versus rural divisions would allow us a plausible proxy for resident SES generally. We find evidence confirming our expectations from a short demographic survey that we asked our participants to fill out after the group discussions. Respondents in our urban groups (both men and women) in both countries report higher education levels that their counterparts in the rural groups. For instance, all our urban participants in the United States have at least some post-secondary education, which several earning post-graduate degrees (further details contained in the next section).

The Peruvian focus groups were conducted in Spanish and moderated by local moderators who were hired by the researchers. The same woman moderated both of the women's groups, and the same man moderated both of the men's groups. The urban groups took place at a local classroom used for night classes and workshops. The rural groups were conducted in a library and cultural center for the surrounding community. The rural location was selected with the assistance of our local team. It was located approximately an hour and a half drive outside of Lima. The employment opportunities in the area are in transportation (e.g., trucking) and agriculture. For each set of groups, participants were recruited face-to-face with flyers and encouraged to share the focus group opportunity with others (i.e., snowball recruitment). Participants received a gift card to a local set of stores that was valued at 100 soles (approximately $30 USD) as compensation.

The groups in the United States were both moderated by political science graduate students. The rural groups took place in a restaurant banquet room, while three of the urban groups took place in a university classroom during the evening, and the fourth took place over Zoom due to the COVID-19 pandemic. Rural participants were recruited from a list of local Republican party members, and because the groups were held on the same evening there were many married couples who took part in the study. Urban groups were recruited through snowball recruitment after the researchers reached out to local GOP-affiliated groups and think tanks. Participants in the rural groups received a $50 USD gift card, and participants in the urban groups received a $75 USD gift card.

In the U.S., because gender differences in concern for climate change are driven by Republican respondents, we only recruited individuals who identified as Republican and / or conservative. In Peru, we did not put this criteria on recruitment, as concern for climate change does not appear to be driven by respondent gender, respondent ideology, or an inter-

action between the two. Table A19 shows the correlates of climate attitudes from Peruvian respondents, using data from the AmericasBarometer. Table A20 lists the average demographic variables for each group, as well as the number of group participants. All groups had between six and eight participants, except our rural men's group, which was larger. We did not restrict the size of this group as we were relying on our moderator's connection to a local GOP affiliated group, and his suggestion was to let all interested participants join the conversation.

	Model 1
(Intercept)	3.741***
	(0.051)
Left / right ideo	−0.014
	(0.009)
Female	−0.038
	(0.071)
I(Female * Ideo)	−0.007
	(0.012)
R^2	0.007
Adj. R^2	0.006
Num. obs.	2455
RMSE	0.755

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

Table A14: OLS models of Peruvian Climate Attitudes. Correlates of concern for climate change for Peruvian respondents on the AmericasBarometer. The dependent variable is responses to the climate concern question on the original 4-point scale.

L.2 Focus group descriptive statistics

Peru Focus Groups				
	Average Age	Modal Education Level	Left-Right Placement	n. participants
Urban, Female	43	Post-Secondary	5.2	6
Urban, Male	40	Post-Secondary	5.6	8
Rural, Female	35	Some Secondary	6.1	8
Rural, Male	38	Some Secondary	6.3	6
US Focus Groups				
	Average Age	Modal Education Level	Left-Right Placement	n. participants
Urban, Female	39	Post-Secondary	6.8	7
Urban, Male	30	Post-Secondary	7.7	7
Rural, Female	66	Post-Secondary	9.0	8
Rural, Male	69	Post-Secondary	9.0	14

Table A15: Demographic composition of all eight focus groups. Education and left–right placement refer to the average participant. Left–right placement is scored on a ten-point scale on which 1 is most left and 10 is most right.

In the U.S., our rural focus group participants had a mix of secondary and post-secondary education. In our urban focus groups, all participants had post-secondary education with some having attained advanced degrees (PhD, MBA, etc.)

L.3 Focus group transcript coding

Qualitative data coding and analysis was managed by the Qualitative Research Core at [University name redacted], led by a PhD-level psychologist. Data coding and analysis was conducted by following the COREQ guidelines (Tong, Sainsbury, and Craig, 2007), an evidence-based qualitative methodology. A hierarchical coding system was developed and refined using the focus group guide and a preliminary review of the transcripts. The major categories included 1) attitudes and beliefs about climate change; 2) policy type; 3) individual behavior; 4) barriers and concerns; and 5) group comparisons. The categories were further divided from one to 15 subcategories, with some categories having additional levels of hierarchical division. Definitions and rules were written for the use of each category.

Two experienced qualitative coders coded each of the transcripts. Coding of each transcript was compared, and any discrepancies resolved to create a single coded transcript. Each statement was treated as a separate quote and could be assigned up to seven different codes. Transcripts were combined and sorted by code. Management of transcripts, quotations, and codes were done using Microsoft Excel 2016.

L.4 Focus group protocol

What follows is the specific protocol followed by the focus group moderators in English for all focus groups.

L.4.1 Preliminaries

Upon arrival, the moderator will present himself or herself and explain the mechanics of the focus group. After this, the moderator will go over the study participation sheet and will give the participants the opportunity to opt out of participating. The study participation sheet also describes the use of an audio recorder. The focus groups will only continue with those participants that have agreed to the conditions of the focus group. The moderator will lead the focus group discussion, and will follow the instructions within the brackets.

L.4.2 Moderator introduction

INTRODUCTION: The purpose of this research is to find out more about how people think about the environment and climate change. During the discussion I would like you to share your honest opinions and thoughts, positive or negative. Everything that you say here will be kept confidential, and your names or any other identifying information will not be linked to any report coming from this research. You may refuse to participate in this study. Even if you choose to participate in the study, you may discontinue participation at any time without penalty or loss of participant benefits. The researcher will be joining us, but will not participate in the discussion.

ORGANIZATION: Before beginning, I just want to go over three ground rules for discussion:

- There is a limited amount of time, so I might have to interrupt the conversation from time to time to keep things moving.
- There are no wrong answers to the questions. We are interested in your personal views. You can agree with other participants' opinions, but please do not feel as though you must agree with anyone else.
- Please talk one at a time and please do not have side conversations. Are there any questions? Alright – let's begin.

L.4.3 Question guides

1. Recently, climate change has been receiving a lot attention in the news and by politicians. Please take a few minutes to write down three things that come to mind when you think of climate change.

2. A lot of people say that acting to stop climate change is going to require that governments make some big policy changes. If the U.S. [Peru] acts to stop climate change, what kinds of policy changes do you think are most likely to happen? Are there additional policy changes that have been considered in the past?

3. If the U.S. [Peru] acts to stop climate change, do you think these new policies would affect you personally? Why or why not? If yes, could you give some examples of how policies to stop climate change might affect you personally?

4. Would you be willing to make changes in your daily life to address climate change? What sort of changes would you be willing to make? Are there changes you wouldn't be willing to make? a. Would others in your household find these changes easier or harder than you would?

5. Are there some activities that people do now that would become more difficult if the U.S. [Peru] acts to stop climate change? If so, what types of activities are you thinking of?

6. If the U.S. [Peru] acts to stop climate change, do you think some people will be more negatively affected than others? What types of people do you think will be most affected? How so? Probing/prompting: Are there certain jobs that might be affected?

7. What about for Americans [Peruvians] more generally, do you think the American [Peruvian] way of life would change considerably if the U.S. [Peru] acts to stop climate change? Can you give some examples? Why or why not? What does the American [Peruvian] way of life mean to you?

8. So, summing up, what do you think would be most difficult thing for you to adjust to if climate change policies were adopted?

9. Wrapping up now, I have just a couple more questions: do you think men or women would have a harder time adjusting to policies that address climate change? Could you please take a moment to write down: In what ways would women and men face similar challenges? In what ways, would women or men have a harder time?

10. Do you think what it means to be a man would change if the U.S. adopted policies to address climate change?

M Carbon footprints and climate attitudes in Peru and the United States

M.1 Consumption habits

In the summer of 2021, we ran a follow-up survey in Peru and the United States. Each survey contained approximately 1,300 respondents and again was fielded through the survey firm Netquest. In these surveys, we asked a series of questions related to respondents' carbon footprints. First, we asked how frequently they eat beef, pork, or lamb, which are the three most carbon-intensive meat types. Respondents could answer on a six-point scale from "never" to "multiple times a day." We also asked respondents whether the owned a vehicle and their average daily drive time. Table A21 reports these averages both Peru and the United States, and Table A22 reports the averages by gender in each country.

	Americans	Peruvians	Difference (SE)
Eat beef, pork, or lamb (6 – point scale)	3.91	3.54	0.37 (0.04)
Own a vehicle (%)	0.82	0.39	0.42 (0.02)
Average daily drive time (4-point scale)	1.29	0.83	0.46 (0.04)

Table A16: Netquest data, 2021 survey, USA and Peru, n = 2636.

	American Men	American Women	Difference (SE)	Peruvian Men	Peruvian Women	Difference (SE)
Eat beef, pork, or lamb (6 – point scale)	4.01	3.79	0.22 (0.06)	3.59	3.49	0.10 (0.04)
Own a vehicle (%)	0.82	0.81	0.01 (0.02)	0.46	0.33	0.13 (0.03)
Average daily drive time (5-point scale)	1.35	1.24	0.13 (0.05)	1.09	0.61	0.48 (0.07)

Table A17: Netquest data, 2021 survey, USA and Peru, n = 2636.

We find lower carbon footprints across all three categories in Peru than in the United States. And we find that women tend to have lower carbon footprints than their men counterparts in both cases. (The only exception is that women and men in the United States are equally as likely to own cars.)

Next, we calculate whether carbon footprints are associated with climate attitudes in each country. In the United States, we find that meat consumption, owning a vehicle,

and daily drive time, are all negatively and significantly correlated with climate concern, even when controlling for party identification, political ideology, and the type of area the respondent lives in (urban, suburban, or rural). In separate models with men and women respondents, we see that in all three cases the magnitude of the coefficients is much larger among American men than they are among American women. That is, men report more carbon intensive lifestyles than do women and, for men, carbon consumption is more closely tied to climate attitudes than it is for women. We speculate that this difference in effect size may be due to how different genders perceive the significance of these consumption habits and therefore the psychological costs of making such habits more expensive. For some men, carbon consumption is related to masculine self-expression and thus limitations on this behavior may be perceived as more costly to them than to women. Moreover, theories of identity protection and loss aversion would suggest that those who benefit the most from the current social hierarchies will have the most difficult time accepting the costs that come with change (McCright and Dunlap 2011).

DV: climate concern	Model 1	Model 2	Model 3
(Intercept)	4.505^{***}	4.107^{***}	4.031^{***}
	(0.139)	(0.144)	(0.129)
Meat consumption	-0.090^{***}		
	(0.030)		
own a vehicle		-0.138^{*}	
		(0.078)	
Daily drive time			-0.043
			(0.032)
Female	0.184^{***}	0.219^{***}	0.216^{***}
	(0.057)	(0.057)	(0.058)
Left / right ideology	-0.120^{***}	-0.120^{***}	-0.120^{***}
	(0.013)	(0.013)	(0.013)
Area type		0.071^{*}	0.080^{**}
		(0.041)	(0.040)
Party ID: Republican	-0.909^{***}	-0.905^{***}	-0.912^{***}
	(0.083)	(0.084)	(0.084)
Party ID: Independent	-0.423^{***}	-0.411^{***}	-0.411^{***}
	(0.075)	(0.075)	(0.075)
Party ID: Other	-0.645^{***}	-0.629^{***}	-0.629^{***}
	(0.141)	(0.141)	(0.141)
R^2	0.332	0.330	0.329
Adj. R^2	0.328	0.326	0.325
Num. obs.	1035	1035	1035

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A18: Netquest Data: American respondents. Area type is coded: (1) rural, (2) suburban, and (3) urban.

DV: climate concern	Model 1 Men	Model 2 Men	Model 3 Men	Model 4 Women	Model 5 Women	Model 6 Women
(Intercept)	4.765***	4.135***	4.020***	4.471***	4.265***	4.215***
	(0.208)	(0.202)	(0.180)	(0.168)	(0.187)	(0.165)
Meat consumption	−0.147***			−0.041		
	(0.045)			(0.039)		
Own a vehicle		−0.250**			−0.035	
		(0.114)			(0.106)	
Daily drive time			−0.092**			0.010
			(0.045)			(0.046)
Left/ right ideology	−0.118***	−0.116***	−0.114***	−0.120***	−0.119***	−0.119***
	(0.019)	(0.019)	(0.020)	(0.018)	(0.018)	(0.018)
Area type		0.111*	0.123**		0.040	0.046
		(0.059)	(0.058)		(0.056)	(0.055)
Party ID: Republican	−0.971***	−0.968***	−0.974***	−0.865***	−0.867***	−0.870***
	(0.127)	(0.128)	(0.128)	(0.110)	(0.111)	(0.110)
Party ID: Independent	−0.454***	−0.427***	−0.431***	−0.414***	−0.407***	−0.407***
	(0.110)	(0.111)	(0.111)	(0.102)	(0.102)	(0.102)
Party ID: Other	−0.975***	−0.981***	−0.996***	−0.370**	−0.353*	−0.349*
	(0.218)	(0.218)	(0.218)	(0.183)	(0.184)	(0.184)
R^2	0.343	0.343	0.342	0.310	0.306	0.306
Adj. R^2	0.336	0.335	0.334	0.304	0.298	0.298
Num. obs.	521	521	521	514	514	514

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A19: Netquest data, American men and women separately. Area type is coded: (1) rural, (2) suburban, and (3) urban.

In contrast, in our lower-income case, Peru, we find no evidence that carbon-intensive activities are associated with climate concern.[3] This pattern is true for the population generally and on models run with men and women respondents separately (latter models not shown).

[3]The only carbon-intensive activity in Peru with a significant coefficient is drive time, which is *positively* associated with climate concern. Given the small magnitude and unintuitive direction of the coefficient, we suspect this may just be noise.

DV: climate concern	Model 1	Model 2	Model 3
(Intercept)	3.770***	3.730***	3.728***
	(0.088)	(0.077)	(0.077)
Meat consumption	0.003		
	(0.017)		
Own a vehicle		0.040	
		(0.029)	
Daily drive time			0.018*
			(0.011)
Female	0.037	0.044	0.047*
	(0.028)	(0.028)	(0.029)
Left / right ideo	0.006	0.005	0.005
	(0.006)	(0.006)	(0.006)
Area type		0.038	0.036
		(0.043)	(0.043)
Party fixed effects	✓	✓	✓
R^2	0.021	0.025	0.025
Adj. R^2	0.012	0.014	0.015
Num. obs.	1221	1213	1214

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A20: Netquest data, Peruvian respondents. Area type is coded: (1) rural, (2) suburban, and (3) urban.

M.2 Perceptions about job loss from climate action

Our follow-up asked respondents the following questions (order randomized) after presenting this introductory text: "Policies to address climate change will cause some people to lose jobs and other people to gain jobs."

1. When you think about policies to address climate change, which of the following statements best describes your view about the types of people who will lose jobs?
    - Policies to address climate change will cause men to lose jobs more than they will cause women to lose jobs.
    - Policies to address climate change will cause both men and women to lose jobs equally.
    - Policies to address climate change will cause women to lose jobs more than they will cause men to lose jobs.
2. When you think about policies to address climate change, which of the following statements best describes your view about the types of people who will gain jobs?
    - Policies to address climate change will cause men to gain jobs more than they will cause women to gain jobs.
    - Policies to address climate change will cause both men and women to gain jobs equally.
    - Policies to address climate change will cause women to gain jobs more than they will cause men to gain jobs.

Table A26 shows the percentage of respondents who answered that climate action will cause men to lose or gain more jobs by nationality and gender.

% reporting that men will	American Men	American Women	Difference (SE)	Peruvian Men	Peruvian Women	Difference (SE)
Lose more jobs than women	0.27	0.22	0.06	0.15	0.14	0.01
			(0.02)			(0.02)
Gain more jobs than women	0.11	0.18	-0.07	0.09	0.12	-0.03
			(0.02)			(0.02)

Table A21: Netquest data, 2021 survey, USA and Peru, n = 2636.

Several patterns emerge here that are consistent with our theory. In the United States, we find that men are more likely than women to report that climate action will cause men to lose jobs (27% v. 22%, two-tailed t-test $p \leq 0.05$), and men are less likely than women to think that climate action will cause men to gain jobs (11% v. 18%, two-tailed t-test $p \leq 0.01$). In Peru, we find no significant gender differences in responses to either question.

In Peru, we also find that respondents in general (both men and women) are less likely to think that climate action will disproportionately cause men to lose jobs than respondents in the United States (24% of Americans v. 14% of Peruvians). And whereas Peruvians are also more likely than Americans to report that men will gain jobs due to climate action (15% of Americans v. 11% of Peruvians), this gap is not as large. Comparing the perceptions of gains v. loses, we see that the group for whom the gap between the job losses and the job gains is the largest is American men. The 16-percentage point gap between gains and losses (27% v. 11%) is 2.5 times larger than the next group (Peruvian men with a 6-percentage point gap).[4]

M.3 Gendered products

As further empirical support for our theory, we ask a series of survey questions in the United States and Peru to gauge respondents' perceptions on how climate action might affect the costs of certain consumer goods and, whether they perceived these goods as masculine, feminine, or neither. We presented respondents with a list of twelve products and asked them the following question (referencing the respondents' own country):

> If [the United States / Peru] acts to stop global climate change, do you think the following items will become more expensive, less expensive, or stay at about the same price?

We also asked respondents whether they thought each project was more important to men, more important to women, or of equal importance to both genders. Our expectations pertaining to this exercise were two-fold: (1) Americans should perceive that climate mitigation policies will make products more expensive than will Peruvians, in general, and (2) and products most affected by climate action will be those that are perceived as more masculine. Related to our second expectation, to the extent that citizens' perceptions are shaped by elite messaging on climate change (that, in wealthy countries, tends to emphasize the costs of climate action) rather than underlying consumption differences, this pattern may be even more pronounced in the U.S. than in Peru.

Tables A25 and A26 show average responses to these questions in the U.S. and Peru. In each case, for ease of interpretation, we order the products based on the percentage of respondents who believe the item will become more expensive (from highest to lowest), and we highlight the products that are perceived as more masculine than feminine in red.

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[4]Recall that in our focus groups we do find that Peruvian men mention job loss mor than do Peruvian women. Our focus group results might reflect the fact that job loss in general is more salient to men than to women, rather than a general sentiment that men are more likely to lose jobs than are women due to climate action, which is what our survey measures.

Product	% believes product will become more expensive	% believes that the product more important for men vs. women
Gasoline	80	11 v. 1
Trucks	77	63 v. 1
Sports cars	77	63 v. 1
Air conditioning systems	70	8 v. 2
Construction projects	68	51 v. 1
Beef	64	24 v. 2
Washers and dryers	63	1 v. 6
Refrigerators	61	2 v. 13
Smart phones	57	3 v. 6
Shoes	45	1 v. 43
Rice	41	2 v. 6
Perfume	39	2 v. 58

Table A22: American respondents. Netquest data (n = 1378). Products considered more important to men are highlighted in red.

Product	% believes product will become more expensive	% believes that the product more important for men vs. women
Gasoline	67	33 v. 3
Sports cars	61	65 v. 3
Air conditioning systems	58	10 v. 5
Trucks	57	50 v. 4
Washers and dryers	48	2 v. 44
Smart phones	46	7 v. 5
Refrigerators	43	2 v. 25
Construction projects	42	33 v. 2
Perfume	35	2 v. 49
Beef	34	8 v. 7
Shoes	30	3 v. 36
Rice	29	4 v. 13

Table A23: Peruvian respondents. Netquest data (n = 1258). Products considered more important to men are highlighted in red.

These results support our expectations. First, for each of the twelve products that we ask about, we find that a greater percentage of Americans than Peruvians think the product will become more expensive.[5] Second, in both countries, we find that the products that most respondents think will become more expensive are those that are perceived as masculine. This pattern is stronger in the U.S. than in Peru. The top six products that Americans believe will become more expensive due to climate action (gasoline, trucks, sports cars, air conditioning systems, construction projects, and beef) are also those that tend to be

[5]Averaging across all twelve products, 63% of Americans think the product will become more expensive as compared 46% of Peruvians averaged across products.

perceived as more masculine. Interestingly, air conditioning systems are perceived as more likely to become expensive than other household goods, such as washers and dryers and refrigerators, that are perceived viewed as more feminine, even though one might expect climate policies to affect all of these goods. We see a somewhat similar pattern in Peru, but also more variation in these perceptions. For instance, constructions projects and beef are further down the list than washers and dryers and refrigerators.

M.4 Sociotropic costs

We theorized that material costs can be personal, or they can be sociotropic; and that men are more sensitive to the costs of climate action experienced by other men than are women. We test two implications of this argument. First, men should report feeling closer to men than do women. To test this expected, we asked respondents how close they felt to different groups, and we told respondents that "By 'close,' we mean the people who are most like you in their ideas and interests and feelings." In both the U.S and Peru, men reported feeling closer to other men than did women.

A second implication is that among men, those who feel a greater sense of gender solidarity should express less concern about climate change than men who identify less with men as a group. We do not expect this pattern to hold for other groups (i.e., American women and Peruvian men and women). To test this expectation, we adapted a survey question suggested by Bittner and Goodyear-Grant (2017). For men respondents, the question read:

> In the previous question, you said that you are a man. How closely do you identify with your gender group (i.e., other men)? Using a scale from 0–100 where 0 means not at all close and 100 means extremely close, how closely do you identify with other men?

We asked the same question to women respondents about their closeness to other women.[6]

Consistent with our expectations, American men who felt closely identified with other men expressed less concern for climate change than those who did not feel closely identify with other men. Across all other groups (i.e., American women and Peruvian men and women), the correlation coefficients are positive: closely identifying with others of one's gender is, if anything, associated with more concern for climate change, perhaps for reasons of basic human empathy. American men are the only group for whom gender solidarity is negatively associated with concern for climate change. A basic OLS model indicates that the difference in coefficients between American men and American women is statistically significant (interaction term significant at $p \leq 0.05$).

[6] in both cases, we find that men express more closeness to other men than women report closeness to other women. In the U.S., men report an average of 91 on the scale, while women report an average of 84 (two-tailed t-test difference significant at $p \leq 0.001$). In Peru, men also report an average of 91 on scale, and women report an average of 80 (two-tailed t-test difference significant at $p \leq 0.001$).

	Model 1 Men	Model 2 Women	Model 3 Full sample
(Intercept)	3.463***	2.993***	3.463***
	(0.262)	(0.138)	(0.251)
Feel close to men	−0.006**		
	(0.003)		
Feel close to women		0.003*	
		(0.002)	
Feel close to one's gender			−0.006**
			(0.003)
Female			−0.503*
			(0.288)
I(Female * Close one's gender)			0.009***
			(0.003)
R^2	0.008	0.005	0.021
Adj. R^2	0.006	0.003	0.019
Num. obs.	524	519	1046

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A24: Gender solidarity and climate attitudes. American respondents.

	Model 1 Men	Model 2 Women	Model 3 Full sample
(Intercept)	3.524***	3.757***	3.545***
	(0.106)	(0.051)	(0.101)
Feel close to men	0.003**		
	(0.001)		
Feel close to women		0.001	
		(0.001)	
Feel close to one's gender			0.003**
			(0.001)
Female			0.209*
			(0.113)
I(Female * Close one's gender)			−0.002
			(0.001)
R^2	0.010	0.002	0.007
Adj. R^2	0.008	0.000	0.004
Num. obs.	578	688	1270

$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A25: Gender solidarity and climate attitudes. Peruvian respondents.

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