INTERNATIONAL MONETARY FUND

Impact of COVID-19 on Attitudes to Climate Change and Support for Climate Policies

Adil Mohommad and Evgenia Pugacheva

WORKING PAPER

2021
FEB

Research Department

Impact of COVID-19 on Attitudes to Climate Change and Support for Climate Policies[*]
WP/22/23

Adil Mohommad and Evgenia Pugacheva

Authorized for distribution by Shekhar Shankar Aiyar

Abstract

This paper inquires into how individual attitudes to climate issues and support for climate policies have evolved in the context of the pandemic. Using data from a unique survey of 14,500 individuals across 16 major economies, this study shows that the experience of the COVID-19 pandemic increased concern for climate change and public support for green recovery policies. This suggests that the global health crisis has opened up more space for policy makers in key large economies to implement bolder climate policies. The study also finds that support for climate policies decreases when a person has experienced income and/or job loss during the pandemic. Protecting incomes and livelihoods in the near-term is thus important also from a climate policy perspective.

---

[*] We are grateful to Florence Jaumotte, Oya Celasun, and Antonio Spilimbergo for helpful comments and suggestions.

I. INTRODUCTION

This study uses data from a novel cross-country survey covering 14,500 participants from 16 large countries to assess whether the experience of the COVID-19 pandemic has increased people's level of concern about climate change and support for a green recovery. Building wider public support for climate mitigation is a key requirement to make rapid strides towards implementing climate mitigation policies and achieving decarbonization. A major hurdle on the road to decarbonization is the "carbon lock-in"—the fact that, despite knowledge about the benefits of renewable energy, the dominance of dirty fuels makes it hard for renewable fuels to gain ground[1] (Unruh, 2000). In this context, large external shocks, or "focusing events", can sometimes play an important role in dislodging the status-quo. For example, the oil price shocks of the early and late-1970s sparked policy changes in several countries aimed at reducing dependence on oil, including introduction of fuel efficiency standards and increased R&D activity in renewables and other low-carbon energy options. However, the lack of sustained public support for renewables, the lobbying power of fossil fuel companies, and the politicization of energy policies undermined gains in renewable energy technology at that time (Aklin and Urpelainen, 2018).

The COVID-19 pandemic has led to severe economic and social disruptions, with a significant loss of human life, damage to people's health and human capital, and financial hardship. Simultaneously, there is a perception that emergence and spread of the coronavirus is linked with the effect of human actions on the environment.[2] Further, pandemic-induced restrictions on mobility in many areas have led to significant—albeit likely temporary—changes in air quality (Hammer et al., 2021) and CO_2 emissions (Le Quéré et al., 2020), drawing attention to the anthropogenic nature of environmental impacts. Indeed, literature on this topic suggests that understanding that climate change is human-caused is an important predictor of climate risk perception among the public (for example, see Lee et al., 2015). In addition, some behavioral changes brought about in day-to-day activities by the pandemic, such as reduced work commute, fewer international trips, etc.—if maintained beyond the pandemic—could help reduce carbon emissions and climate change. These factors increase the possibility of a more decisive shift in public opinion in favor of taking action on climate change.

Despite these factors, it is still somewhat unclear how the pandemic would impact public concerns for climate change and perceptions of climate policies. On the one hand, rising awareness of our vulnerability to nature and the threat of climate change, coupled with some of the more "visible" environmental impacts of pandemic-induced policy responses, may focus more attention on these issues. On the other hand, the deeply disruptive nature of the pandemic may "crowd out" concern for climate issues, even more acutely so for people who have directly experienced a negative health or financial shock.

The findings in this paper suggest that, controlling for standard drivers of the perception of climate risks, being personally affected by the pandemic—in terms of health—has increased the degree of public worry for climate change, and also increased the willingness to support green recovery policies. The findings also suggest that individuals affected financially by the pandemic (through income and/or job loss) are also more likely to express an increase in worry for climate change, but are significantly *less* likely to support green policies. These findings lead us to propose that from a policy perspective, recovery from the pandemic is an opportunity to promote climate mitigation policies and build back better. At the same time,

---

[1] There are several factors that drive this phenomenon (see Unruh, 2000). First, once a certain technology comes to be dominant, such as the internal combustion engine, it gives rise to processes that cement its position including through greater specialization and improvement of that technology, development of inter-industry networks that support the technology, and institutional and political forces that sustain its dominant position. The high cost of clean alternatives to fossil fuel-based technology may also be a factor cementing the lock-in, although renewable energy costs have been falling dramatically. A third set of factors would include the multiple externalities related to climate change and climate mitigation, which would reduce incentives to take the socially optimal level of mitigation and discourage the development and adoption of cleaner technologies, in the absence of policy intervention to address these externalities.

[2] See, for example, Harvard Chan C-CHANGE (2020), which answers some of the most frequently asked questions regarding the environment and coronavirus.

protecting livelihoods during the pandemic is important for several reasons, including to sustain support for climate-oriented green recovery policies.

This study addresses several strands in the literature. Most relevant is the recent work on the impact of the pandemic on key aspects of public attitudes and policy preferences. Exploring the likely impact of the pandemic on public trust in science and using a sizable cross-country survey dataset, Eichengreen, Aksoy and Saka (2021) find that past epidemics diminished trust in scientists and in the benefits of their work, though not diminishing trust in science itself. In an accompanying paper Eichengreen, Aksoy and Saka (2020) also find that exposure to epidemics in "impressionable years" (between the ages of 18-25) had a negative effect on confidence in political institutions and leaders, likely driven by weak governments with limited capacity to take appropriate healthcare policy actions. In a sample of US respondents, Klemm and Mauro (2021) find that controlling for demographic and other factors, individuals who directly or indirectly experienced the pandemic health shock favored a temporary progressive levy and structural progressive tax changes to a greater extent than those who had not. Our paper also relates to the impact of other types of shocks (such as recessions) on public perceptions. For example, Giuliano and Spilimbergo (2014) demonstrate that individuals experiencing a recession during "impressionable age" are more likely to fear that success in life depends more on luck rather than effort and therefore support redistributive policies and government intervention. A second strand of literature that our paper addresses relates to the drivers of attitudes and perceptions towards climate change. An extensive literature documents the role of age, gender, nationality, weather shocks, ideological preferences, education, and other factors in shaping climate change perceptions and preferences (see Weber 2016 for a review of the literature). We include these factors as controls in our econometric exercises, while focusing on the pandemic shock itself.

The rest of the paper is organized as follows. Section II discusses the data and descriptive statistics. Section III presents results from the regression exercises. Section IV concludes. Details pertaining to the survey data and design are included in the Annex.

II. DATA AND DESCRIPTIVE STATISTICS

The results presented in this paper are derived from a unique commissioned survey performed by Ipsos, a multinational survey company. The survey was conducted in February 25-29, 2021 as part of Ipsos's general COVID-19 tracker survey that has been tracking the changes in public sentiments on multiple dimensions in response to the COVID-19 pandemic. This survey vehicle was used to pose climate-specific questions to gauge the level of support for a green recovery following the pandemic, and to assess the extent to which the experience of the COVID-19 pandemic has affected people's degree of concern about climate change.

During the survey, 14,514 adult respondents aged 16-74 were polled in 16 countries, of which 10 countries are advanced economies (Australia, Canada, France, Germany, Italy, Japan, South Korea, Spain, the United Kingdom, and the United States) and 6 are emerging market economies (Brazil, China, India, Mexico, Russia, and South Africa). Together these countries account for 70% of global GDP and 55% of its population. The survey was conducted via an online platform and is representative of the population in advanced economies, while for emerging market economies the sample of respondents polled corresponds to the more urban, more educated, and higher income individuals. The detailed breakdown on demographic statistics and responses to key questions is presented in Annex 1.

By the time of the survey, a large share of respondents had experienced the effects of the COVID-19 pandemic either directly or indirectly. Around 6% of respondents had been diagnosed with COVID-19, and around 57% of respondents knew a close friend or family member, a colleague, a neighbor, or another acquaintance who had been diagnosed with COVID-19. Besides the impact of the pandemic on health,

around 36% of respondents had experienced financial stress due to lost jobs, reduced working hours or salary, or due to another household member losing their job. The share of people adversely affected by the pandemic on average tends to be higher in emerging market economies compared to advanced economies. This reflects an extraordinarily high level of government support to offset the financial effects of the pandemic and better preparedness of the medical and emergency services in advanced economies. Summary statistics by country are further presented and discussed in Annex 1.

Against this backdrop, unsurprisingly, issues other than climate change or the environment have occupied the top spot in public consciousness. In 2020, the top concerns included the COVID-19 pandemic itself, and worries about the economy and personal financial situation (see Figure 1, panel 1). The relatively low assessment of the environment among other concerns is also a feature of assessments prior to 2020 (see, for example, Leiserowitz, 2007; Motel 2014). In part, this may be explained by the relatively gradual unfolding of climate change-related effects, these being harder to perceive at an individual level (Weber 2016). Moreover, people may have a "finite pool of worry" (van der Linden, 2017) to allocate to different concerns among which the economy, healthcare, security, and other issues consistently tend to rank higher than climate concerns (Leiserowitz, 2007; Motel 2014).

Yet, prior studies also indicate that public concern for climate has been on a rising trend in many countries even prior to the pandemic (Figure 1, panel 2), especially among advanced economies. At the same time, conditional on being aware about climate change, concern about climate change is likewise high in emerging market economies (Lee et al. 2015).

Figure 1. Historical trends in attitudes towards climate change before the pandemic
(Percent)
1. Top challenges: July 2020 – February 2021
   (Survey wave period on the x-axis)
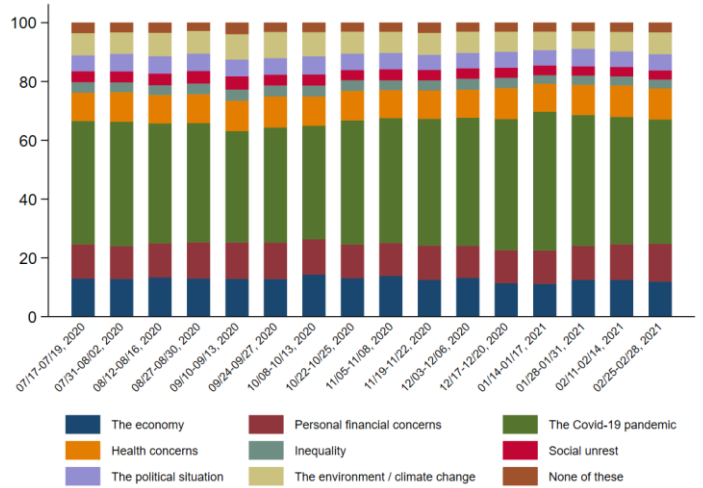
2. Trends across countries: 2007-2020
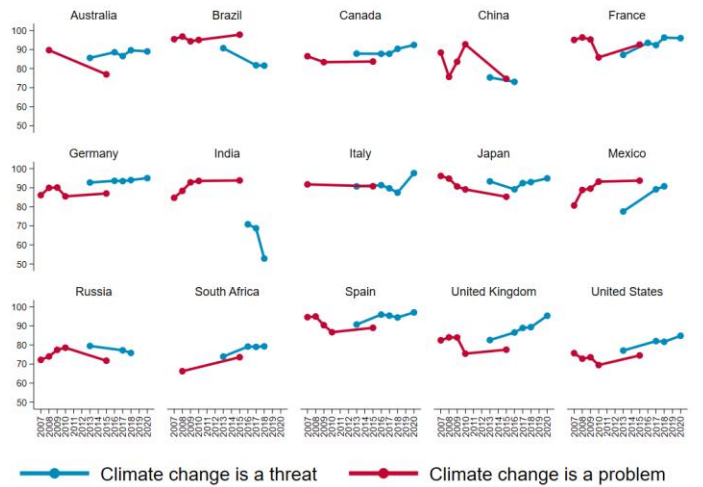
Source: Ipsos, Global Advisor survey, waves 20 (July 17-19, 2020) to 35 (February 25-29, 2021); PEW Research Center; and authors' calculations.
Note: Panel 1 shows the number one challenge identified by the respondent. Panel 2 is based on the data from PEW Research Center, where "Climate change is a threat" shows the percent of respondents who have replied that climate change is either a major threat or a minor threat (as opposed to no threat at all), and "Climate change is a problem" is the percent of respondents who replied that climate change is a serios or somewhat serious problem (as opposed to not too serious or not a problem).

Taking into account the past trend in awareness about climate change and the fact that other issues occupy the central spot in public awareness, to study the changes in attitudes towards climate change following the experience of the pandemic, we asked a retrospective question:

Question 1: Compared with how you were feeling before the pandemic, how much more or less worried are you about climate change today?
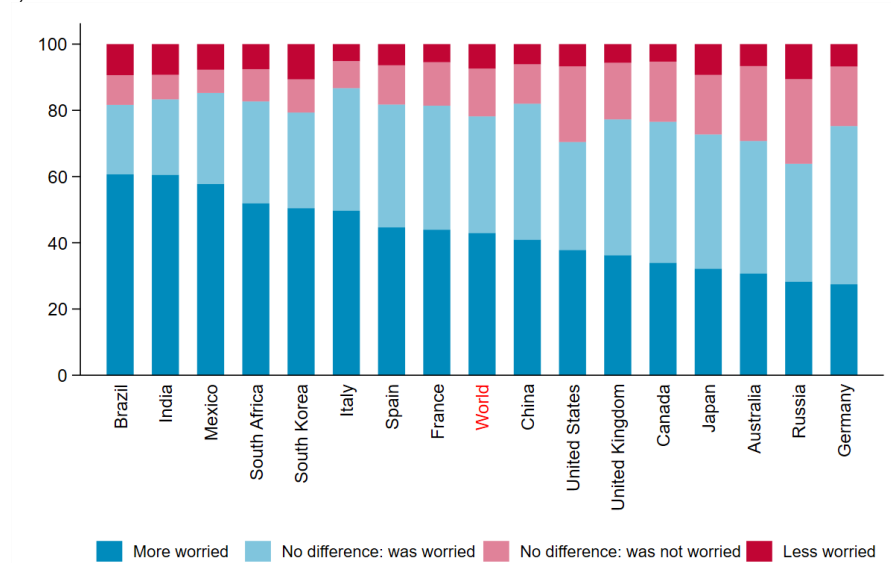
a)   *Much more worried now;*

b)   *A bit more worried now;*

c)   *No difference; I was already concerned;*

d)   *No difference; I was not very concerned;*

e)   *A bit less worried now;*

f)   *Much less worried now.*

While a retrospective question has limitations since recall might be limited, it nevertheless presents valuable insights into self-perceived changes in attitudes. Also, the focus on "worry", as opposed to other possible gauges of climate risk perception (which could be, for example, assessments of objective knowledge regarding climate change) is noted to be preferable in the literature, as objective knowledge appears to be a necessary but not sufficient condition for public concern regarding climate change. In contrast, "worry" is an appropriate indicator if the goal is to understand how climate change concern translates into support for public action on climate change (van der Linden 2017).

Figure 2 shows that based on self-assessment, 43% of respondents worldwide are now more worried about climate change. 35% of respondents report no change in worry, but say they were already concerned about climate change prior to the pandemic. The percent of respondents who are now less concerned about climate change stands at around 7%. Finally, 14% of respondents report being not concerned about climate change to begin with, and no change in concern since the pandemic. Notably, it is among emerging market economies that the increase in concern about climate change has been most pronounced, while in advanced economies the base level of concern about climate change was already high, but continued to increase further for some respondents.

Figure 2. Changes in attitudes towards climate change following the experience with the COVID-19 pandemic
(Percent)

Source: Ipsos, Global Advisor survey, wave 35, February 25-29, 2021; and authors' calculations.
Note: More worried = Much more worried now + A bit more worried now; Less worried = A bit less worried now + Much less worried now.

Next, to assess the level of support for a green recovery, the following question was asked:

Question 2: With which statement do you agree more about policies to support economic recovery after the COVID-19 pandemic:

a)   Government should focus on helping the economy to recover first and foremost, even if that means taking some actions that are bad for the environment. ("Economy first")
b)   Governments should focus on helping the economy to recover in a way that would put the economy on a greener path, even if it would require sacrifices in terms of economic growth and some loss of jobs. ("Green recovery")

The framing of the question tries to make it clear that climate policies may involve short-term sacrifices, to strengthen the chances of receiving an "objective" response mindful of the costs of climate policies. Overall, support for a green recovery is significant (51% on average across countries), but with large variation across countries, as shown in Figure 3. In China the level of support is particularly high (71%, poll results based on the more urban, more educated, and higher income sample), while in the United States only 37% of respondents prioritize a green recovery.

Figure 3. Support for a green recovery
(Percent)

Source: Ipsos, Global Advisor survey, wave 35, February 25-29, 2021; and authors' calculations.
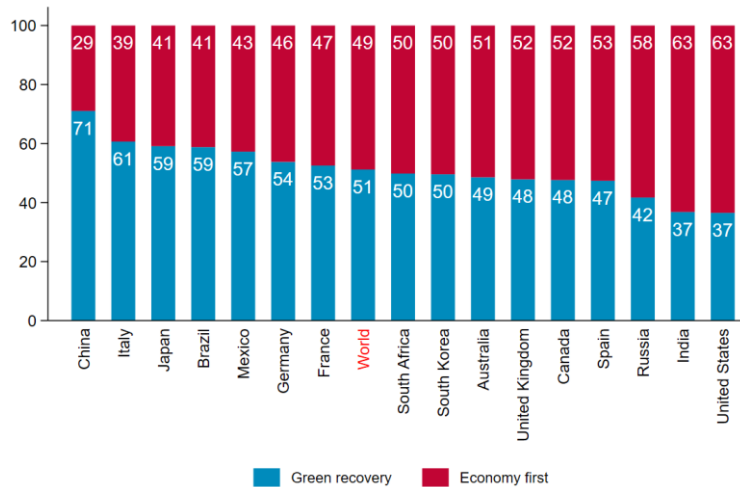
Lastly, as a measure of personal commitment to climate-friendly policies, respondents were asked the following question:

Question 3: Compared to before the COVID-19 pandemic, after the pandemic, I am more likely to…

a)   Work from home more often;
b)   Use public transport more often instead of a car;
c)   Choose holidays which don't require me to fly;
d)   Monitor energy use at home.

For each action, respondents had the option to agree, disagree, or say that the action is not applicable to them. Of note, most respondents replied that they are likely to participate in some environmentally friendly activities. A high number of respondents, particularly in emerging market economies, would like to work from home more often. The majority of respondents wants to monitor energy use at home. Public transportation appears to be the least favored, particularly in countries where car ownership is prevalent, such as the United States. Given the experience of the pandemic, respondents were also more disposed to avoid air travel, which is as expected given the ongoing restrictions on cross-border travel and the high level of uncertainty about the virus.

Figure 4. Support for a green recovery
(Percent)

1. Work from home more often
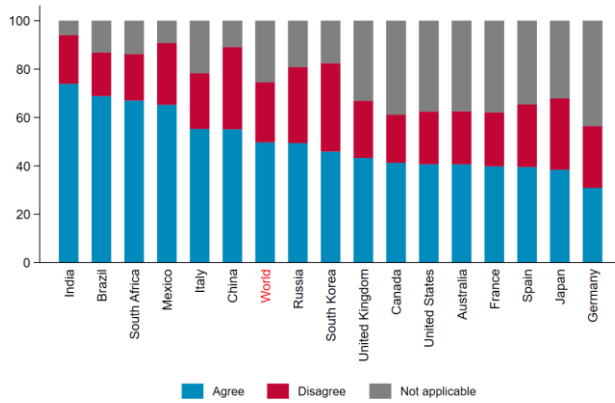
2. Use public transport more often instead of a car

3. Choose holidays which don't require me to fly
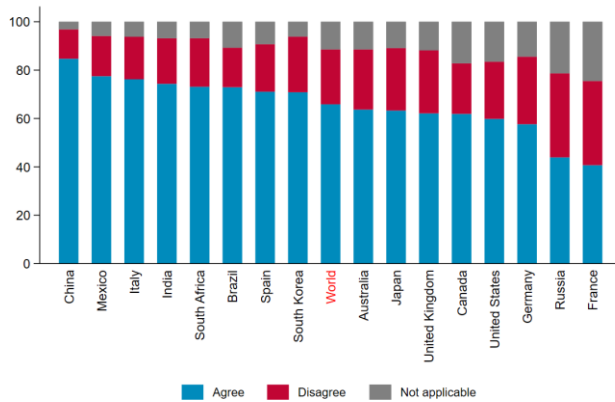
4. Monitor energy use at home
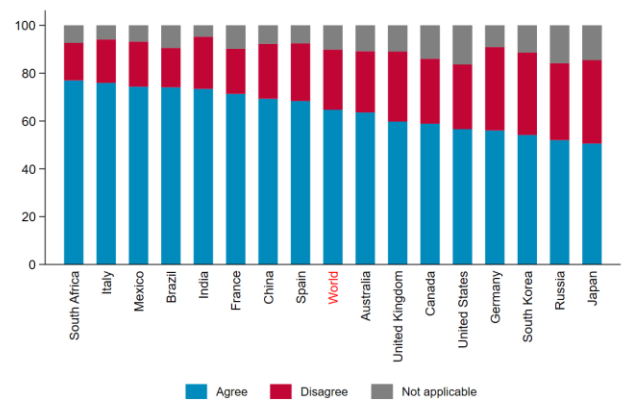
Source: Ipsos, Global Advisor survey, wave 35, February 25-29, 2021; and authors' calculations.

III. REGRESSION ANALYSIS
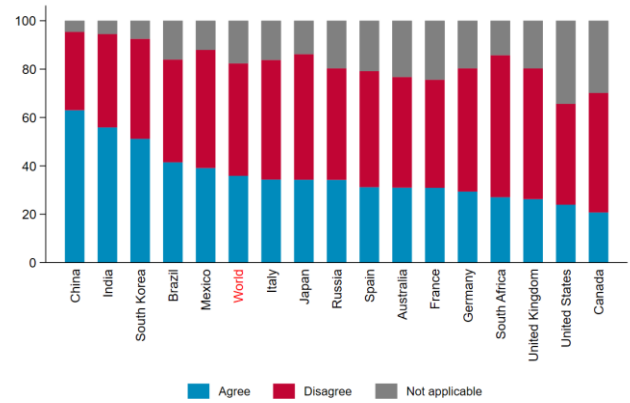
In this section, we present regression analysis examining the impact of the pandemic on individual concerns for climate change and support for green recovery policies, controlling for a number of individual demographic characteristics. Given the binary structure of the responses, the analysis employs probit and logit models to estimate the effect of the COVID-19 pandemic. From the survey, we know whether an individual experienced a health shock due to COVID-19 directly or observed someone in the family or workplace that experienced a health shock. We are also able to observe whether an individual suffered a financial shock (income and/or job loss) due to COVID-19, which we consider separately in the regressions below. The dependent variables are responses to Questions 1 and 2 as described in Section II above. The variable is coded as 1 for the first question if the individual is much more worried or a bit more worried now about climate change, and for the second question if the individual prefers policies that would put the economy on a greener path, and 0 otherwise. Our prior is that the COVID-19 shock could act in either direction on the degree of concern for climate change, in light of the arguments presented in Section I.

A.   Impact of the COVID-19 shock on concern for climate change

Table 1 shows the results for probit regressions with the dependent variable the binary outcome derived from Question 1. All regressions are sample-weighted and include country fixed effects. Column 1 shows that, for the full sample of countries, experiencing a COVID-19 health shock (either directly or indirectly) has a positive and significant effect on the likelihood of being more worried about climate change since the pandemic. The marginal effect of a health shock on the likelihood of increased concern for climate change is about 8 percentage points. This effect is robust across different specifications. In column 2 we control for whether an individual suffered a financial shock due to the pandemic ("COVID-19 Exposure: Financial"), and whether the individual ranks climate change in their top-2 concerns from among a list of other concerns, capturing the general importance of climate change issues for the individual. While the effect of the health shock remains highly statistically significant, there is a strong positive effect of the financial shock on the level of worry about climate change. The marginal effect of the financial shock is more than 7 percentage points. As expected, individuals who rank climate change among their top concerns are very likely to experience *increased* concern about the climate during the pandemic. Thus, a key result is that the pandemic has indeed heightened concerns about climate change, even though the crisis poses other immediate challenges that could potentially reduce concern about climate change.

It can be argued that concern for climate may be driven by other events coincidental to the pandemic, in particular natural disasters and extreme weather events that can bring environmental concerns dramatically to the forefront. We control for these factors in column 3. "Recent Natural Disasters" is coded as 1 if an individual belongs to a sub-national region that experienced a natural disaster that claimed 50 or more lives within 24 months prior to the survey.[3] "Recent Heatwave/Drought" is coded as 1 if over the same time period there was a heatwave or a drought, irrespective of the number of lives lost. Inclusion of these variables is only possible for a sub-set of countries for which information on the sub-national region of the respondent is available (Australia, Brazil, China, India, Japan, Mexico, Spain, United Kingdom, United States). The effect of natural disasters is somewhat significant with a positive sign: an experience of a natural disasters heightens concerns about climate change. With the additional controls for natural disasters, the sign and significance of both COVID-19 shock variables remain unchanged, with even slightly larger marginal effects than in column 2.

Next, we split the sample into advanced economies (AEs) and emerging economies (EMs). As seen in the descriptive statistics section and Annex 1, nearly 52 percent of respondents from EMs are now more worried about climate change, compared to 39 percent of respondents from AEs. This could be due to a higher "initial" level of concern among respondents in AEs. Historical data on attitudes to climate (Figure 1, panel 2) does suggest that concern for climate is more prevalent in AEs than in EMs—although this does not preclude a greater intensification of concern for climate change even among populations where prevalence of concern is higher. The results in columns 4 and 5 show that both the health and financial shock form COVID-19 have a positive and significant effect in AEs and EMs. Moreover, a noteworthy result, once controlling for extreme weather events in column 7, is that among EMs extreme droughts or heatwaves have a strong positive impact on concern for climate, with a marginal effect of 28 percentage points. While we are unable to establish how persistent the effects of such weather events are on climate perceptions, with prospects of increased frequency and severity of extreme weather under even moderate climate change scenarios, this result suggests that public concern for climate change among EMs will strengthen quickly under the influence of such events and require an appropriate policy response.

Finally, we examine whether there is a difference between a direct and an indirect health shock. We find that contracting the virus personally has a more sizable effect on the likelihood of increased concern about climate change; the marginal effect of the direct shock is more than double (16 percentage points) than that

---

[3] All sub-national regions experienced natural disasters that claimed at least 10 lives and could not be distinguished from the constant. Coding the dummy at the 25 lives threshold produces similar results.

of the indirect experience (6 percentage points). Having said that, the direct shock only affects 6.3 percent of the sample, whereas 55 percent of the sample has experienced the health shock indirectly,[4] and as such is more reflective of the global experience of the pandemic. Moreover, the indirect shock is more likely to be exogenous, to the extent that unobservable attributes could influence both contracting the infection and attitudes towards climate issues (e.g. attitudes to risk not captured by demographic controls that could endogenously determine both infection and attitudes to climate change, likely inducing a downward bias in the estimate).

Among the other demographic controls, we find that political preferences have a strong influence on the dependent variable. The results are consistent with a sizable literature that finds that individuals who align with the political left on the ideological spectrum are significantly more likely to express concern for climate change and support for climate policies, whereas those aligned with the political right are significantly less likely to do so (see McCright et al. 2015; Gregersen et al. 2020; Kulin et al. 2021 for evidence on European countries; and McCright et al. 2011 for evidence on the United States). In our results, relative to the group that is either centrist in its views or chooses not to reveal their preferences, the marginal effect of aligning left is +13 percentage points for the likelihood of increased worry for climate change, while that of aligning right is -4 percentage points (based on estimates in column 2). There appears to be a distinction among AEs and EMs in this respect, whereby among AEs both aligning left and aligning right have opposing and statistically significant effects (column 4), whereas among EMs aligning with the political right has no apparent significance (column 5) at least in the narrow context of the pandemic, while aligning with the political left has a positive and significant effect.

Next, we find that being employed has a positive and statistically significant impact on the likelihood of increased concern for climate change, among both AEs and EMs. Again, this is consistent with the literature on drivers of climate concerns, which finds that climate concerns are negatively correlated with unemployment both at the aggregate level (Scruggs and Benegal 2012; Duijndam and van Beukering 2021) and at the level of the individual respondent (Duijndam and van Beukering 2021), and could be related to the importance of material well-being as a pre-requisite for concerns for the environment and climate change. Further, we also find that, controlling for being employed, having a job in a carbon-intensive sector (defined as: agriculture, construction, natural resource extraction, transportation and warehousing, utilities, and power) also has a positive, though small and weakly significant, effect. This could be indicative of concern about the impact of climate change on occupations in high-emission industries, as well as higher awareness about issues of climate change among people employed in industries that are directly related to the issue. Finally, we find that female respondents and older respondents have reported an increase in worry about climate change, and that relatively high levels of education are associated positively with increased concern for climate change, although this effect is not always significant.

Annex Table 2 shows the logit estimation results, which are very similar. The estimated marginal effects of the COVID-19 health shock ranges between 5-7 percentage points, and similar magnitude for the financial shock. Among the other controls, political preferences (particularly aligning politically left), and in EMs recent extreme weather events have a very strong impact on the likelihood of increased concern for climate change.

---

[4] These groups were constructed as mutually exclusive. If the respondent has been diagnosed with COVID-19, then they fall into the group that has experienced a direct impact. If the respondent has not been diagnosed with COVID-19, but knows someone who was, then the respondent falls into the group that experienced an indirect impact.

Table 1: Probit Regression: Being More Worried about Climate Change Following the Experience with the COVID-19 Pandemic

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
COVID-19 Exposure: Health	0.212***	0.186***	0.236***	0.206***	0.132**	0.228***	0.239***	
	(0.0299)	(0.0302)	(0.0423)	(0.0335)	(0.0646)	(0.0524)	(0.0724)	
COVID-19 Exposure: Financial		0.185***	0.210***	0.230***	0.131***	0.297***	0.131***	0.182***
		(0.0258)	(0.0330)	(0.0317)	(0.0430)	(0.0447)	(0.0485)	(0.0259)
Environment: Top2 Concern		0.324***	0.332***	0.350***	0.248***	0.420***	0.211***	0.329***
		(0.0298)	(0.0402)	(0.0345)	(0.0590)	(0.0519)	(0.0625)	(0.0299)
Recent Heatwave/Drought			0.00778			-0.0135	0.756**	
			(0.0588)			(0.0605)	(0.333)	
Recent Natural Disasters			0.130**			0.158	0.114*	
			(0.0530)			(0.102)	(0.0615)	
COVID-19 Exposure: Health (Direct)								0.411***
								(0.0552)
COVID-19 Exposure: Health (Indirect)								0.165***
								(0.0305)
Female	0.0697***	0.0677***	0.0612**	0.0397	0.111***	0.0414	0.0871*	0.0693***
	(0.0238)	(0.0239)	(0.0311)	(0.0284)	(0.0426)	(0.0413)	(0.0477)	(0.0239)
Age: Older (Above Country Median)	0.0538**	0.0659***	0.0932***	0.0682**	0.0614	0.0788*	0.102**	0.0702***
	(0.0246)	(0.0248)	(0.0316)	(0.0301)	(0.0425)	(0.0429)	(0.0476)	(0.0248)
Education: Medium	-0.00674	-0.0118	-0.0412	0.00912	-0.0539	-0.0440	0.0108	-0.0113
	(0.0403)	(0.0405)	(0.0503)	(0.0442)	(0.0852)	(0.0573)	(0.120)	(0.0404)
Education: High	0.0597	0.0533	0.0993**	0.0468	0.0494	0.0521	0.189	0.0549
	(0.0401)	(0.0402)	(0.0484)	(0.0437)	(0.0844)	(0.0534)	(0.121)	(0.0402)
Employed	0.133***	0.106***	0.116***	0.0577*	0.202***	0.0255	0.244***	0.101***
	(0.0297)	(0.0301)	(0.0402)	(0.0338)	(0.0634)	(0.0485)	(0.0734)	(0.0301)
Employed: Carbon-Intensive Sector	0.0908**	0.0829*	0.0656	0.101*	0.0665	0.164**	-0.0186	0.0821*
	(0.0447)	(0.0450)	(0.0584)	(0.0565)	(0.0714)	(0.0812)	(0.0817)	(0.0451)
Income: Medium	-0.0188	-0.0111	-0.00770	-0.0453	0.0857	-0.0475	0.0878	-0.0108
	(0.0337)	(0.0338)	(0.0421)	(0.0375)	(0.0735)	(0.0495)	(0.0808)	(0.0338)
Income: High	-0.0241	-0.0150	-0.00309	0.00430	-0.00768	0.0414	0.00323	-0.0185
	(0.0377)	(0.0380)	(0.0503)	(0.0432)	(0.0766)	(0.0628)	(0.0879)	(0.0380)
Political alignment: Left	0.356***	0.326***	0.370***	0.339***	0.295***	0.425***	0.301***	0.323***
	(0.0289)	(0.0290)	(0.0380)	(0.0341)	(0.0525)	(0.0496)	(0.0584)	(0.0291)
Political alignment: Right	-0.109***	-0.107***	-0.0791**	-0.166***	-0.00746	-0.108**	-0.0370	-0.108***
	(0.0301)	(0.0303)	(0.0397)	(0.0360)	(0.0544)	(0.0523)	(0.0617)	(0.0304)
Constant	-0.814***	-0.929***	-1.006***	-0.897***	-0.508***	-0.968***	-0.635***	-0.926***
	(0.0643)	(0.0652)	(0.0744)	(0.0697)	(0.119)	(0.0839)	(0.158)	(0.0652)
Sample				AE	EM	AE	EM	
Observations	14,514	14,514	8,507	10,010	4,504	5,004	3,503	14,514

Source: Authors' calculations.

Note: Regressions follow a probit specification. Dependent variable takes the value of 1 when the respondent has answered that they are much more or a bit more worried now about climate change, and zero otherwise. In columns 3, 6, 7 the sample is limited to countries for which information on the sub-national region was available in Ipsos and EMDAT (Australia, Brazil, China, India, Japan, Mexico, Spain, United Kingdom, United States). Robust standard errors in parentheses. For 7.5% of observations the information on income was not available and imputed as "Medium". Equilibrated survey weights used. AE = advanced economies; EM = emerging markets.

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

B. Impact of the COVID-19 shock on support for climate policies

Next, we consider the regressions with support for green recovery policies as the dependent variable. It is useful to bear in mind that the question presented to survey respondents highlights that pursuing purely growth-oriented policies for the economic recovery involves environmental costs, while green recovery policies could involve some sacrifice in terms of output and jobs. Thus, while not polling attitudes towards specific environmental policies, in principle the respondent is asked to weigh the possible growth and employment costs such policies could involve.

Column 1 of Table 2 shows that the COVID-19 health shock in general has a positive and significant effect on support for green recovery policies. Thus, experience of the pandemic increases support for a green recovery. This effect is robust to controlling for the COVID-19 financial shock, and for whether concern for climate change is an important issue to the respondent. The marginal impact of the health shock on the likelihood of support is about +4 percentage points. However this effect is not significant upon the inclusion of controls for recent heat/drought and natural disasters (which themselves have a negative, albeit insignificant effect). On the other hand, the financial shock has a negative and significant effect on support for green recovery policies (a marginal effect of -3 percentage points based on column 2) and is fairly robust across specifications. As the question is phrased to clarify that green policies may involve short-term economic sacrifices, it is not surprising that those experiencing a negative income shock are unwilling to support such a policy. This may also be interpreted as pointing to the importance of protecting livelihoods during the pandemic, as widespread job losses may undermine the space to enact climate policies that may entail economic sacrifices. Individuals who rank the issues of environment and climate change among top-2 concerns are also strongly in support of green recovery policies; the marginal effect ranging around 20–24 percentage points across specifications. The effect of the health shock is positive and significant among both AEs and EMs (columns 4 and 5), but not significant controlling for extreme weather events and natural disasters—though this involves a substantial sample loss as well, especially among AEs.

Among the other control variables, we find that being employed in a carbon-intensive sector has a significant negative effect on likelihood of support for a green recovery. The marginal effect is estimated to be -5 percentage points (column 2 estimates), and somewhat larger for EMs: -9 percentage points (column 5 estimates). Somewhat surprisingly, we also find that being employed, and having a relatively high income have a negative and significant effect on support for a green recovery in advanced economies (columns 4 and 6), but not so in emerging market economies (columns 5 and 7). This likely stems from the emphasis on potential economic costs to climate policies in the question, that could include potential job loss. Employment confers a degree of economic wellbeing, which the literature shows (and we also find above) is positively correlated with *concern* for climate change, but the risk of job loss could reduce *support* for climate policies. In the case of high relative income, the negative coefficient might in part be explained by greater ability of richer people to avoid harm from climate change or environmental hazards. Finally, there appears to be a distinction between the direct and indirect COVID-19 health shock. The results in column 8 suggest that while the indirect experience of COVID-19 increases the likelihood of support for green recovery policies, the direct experience appears to reduce it. However, this result should be cautiously interpreted as the sample of direct experience of COVID-19 health shock is small, and over 44 percent of the cases are from just 3 countries (India, Brazil, and the US). Finally, we note that logit results are qualitatively very similar to those from the probit regressions (Annex Table 3).

Table 2: Probit Regression: Support for a Green Economic Recovery Following the Experience with the COVID-19 Pandemic

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
COVID-19 Exposure: Health	0.100***	0.0991***	0.0408	0.0675**	0.143**	-0.0242	0.119	
	(0.0289)	(0.0297)	(0.0419)	(0.0329)	(0.0644)	(0.0503)	(0.0754)	
COVID-19 Exposure: Financial		-0.0795***	-0.0817**	-0.0463	-0.113***	-0.0123	-0.147***	-0.0765***
		(0.0259)	(0.0329)	(0.0319)	(0.0430)	(0.0450)	(0.0483)	(0.0259)
Environment: Top2 Concern		0.644***	0.540***	0.765***	0.318***	0.733***	0.240***	0.641***
		(0.0311)	(0.0415)	(0.0361)	(0.0592)	(0.0545)	(0.0631)	(0.0311)
Recent Heatwave/Drought			-0.0257			0.00298	-0.0445	
			(0.0532)			(0.101)	(0.0628)	
Recent Natural Disasters			-0.0254			-0.0147	-0.0262	
			(0.0578)			(0.0598)	(0.322)	
COVID-19 Exposure: Health (Direct)								-0.120**
								(0.0550)
COVID-19 Exposure: Health (Indirect)								0.119***
								(0.0299)
Female	0.0461**	0.0490**	0.00627	0.00629	0.123***	-0.0263	0.0582	0.0478**
	(0.0233)	(0.0236)	(0.0307)	(0.0281)	(0.0424)	(0.0404)	(0.0477)	(0.0237)
Age: Older (Above Country Median)	0.0280	0.0304	0.0106	0.00827	0.0614	-0.0252	0.0507	0.0267
	(0.0242)	(0.0245)	(0.0312)	(0.0298)	(0.0424)	(0.0420)	(0.0477)	(0.0246)
Education: Medium	-0.000910	0.00741	0.0154	9.32e-06	-0.0103	0.00895	-0.0677	0.00672
	(0.0388)	(0.0396)	(0.0487)	(0.0442)	(0.0830)	(0.0559)	(0.119)	(0.0397)
Education: High	0.0373	0.0420	0.0233	0.0445	-0.0257	0.0298	-0.111	0.0403
	(0.0386)	(0.0395)	(0.0473)	(0.0435)	(0.0827)	(0.0525)	(0.120)	(0.0395)
Employed	-0.0693**	-0.0718**	-0.0902**	-0.0942***	-0.0336	-0.0965**	-0.114	-0.0677**
	(0.0289)	(0.0294)	(0.0391)	(0.0333)	(0.0617)	(0.0472)	(0.0734)	(0.0294)
Employed: Carbon-Intensive Sector	-0.137***	-0.131***	-0.147**	-0.0530	-0.224***	-0.116	-0.169**	-0.131***
	(0.0439)	(0.0447)	(0.0575)	(0.0568)	(0.0703)	(0.0811)	(0.0817)	(0.0448)
Income: Medium	-0.0402	-0.0493	-0.0266	-0.0649*	-0.0131	-0.0331	0.0115	-0.0494
	(0.0329)	(0.0334)	(0.0412)	(0.0376)	(0.0726)	(0.0489)	(0.0799)	(0.0334)
Income: High	-0.0496	-0.0734*	-0.0631	-0.103**	-0.0193	-0.108*	0.00558	-0.0695*
	(0.0369)	(0.0375)	(0.0495)	(0.0430)	(0.0757)	(0.0626)	(0.0876)	(0.0375)
Political alignment: Left	0.137***	0.0919***	0.00994	0.264***	-0.195***	0.246***	-0.268***	0.0963***
	(0.0284)	(0.0289)	(0.0375)	(0.0343)	(0.0517)	(0.0492)	(0.0571)	(0.0290)
Political alignment: Right	-0.225***	-0.215***	-0.208***	-0.246***	-0.133**	-0.235***	-0.142**	-0.215***
	(0.0295)	(0.0299)	(0.0389)	(0.0353)	(0.0543)	(0.0507)	(0.0620)	(0.0299)
Constant	-0.00951	-0.132**	-0.0344	-0.145**	-0.0371	-0.0925	0.374**	-0.135**
	(0.0614)	(0.0628)	(0.0707)	(0.0686)	(0.114)	(0.0808)	(0.155)	(0.0628)
Sample				AE	EM	AE	EM	
Observations	14,514	14,514	8,507	10,010	4,504	5,004	3,503	14,514

Source: Authors' calculations.

Note: Regressions follow a probit specification. Dependent variable takes the value of 1 when the respondent has answered that "Governments should focus on helping the economy to recover in a way that would put the economy on a greener path, even if it would require sacrifices in terms of economic growth and some loss of jobs", and zero otherwise. In columns 3, 6, 7 the sample is limited to countries for which information on the sub-national region was available in Ipsos and EMDAT (Australia, Brazil, China, India, Japan, Mexico, Spain, United Kingdom, United States). For 7.5% of observations the information on income was not available and imputed as "Medium". Robust standard errors in parentheses. Equilibrated survey weights used. AE = advanced economies; EM = emerging markets.

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

C. Robustness checks

We report the results of a few robustness exercises. Firstly, we replace the actual answers given by the respondents to the question of whether they have experienced a health shock from the COVID-19 pandemic (either direct or indirect) with randomized answers generating via Monte Carlo simulations. We perform this exercise at the country level, thus not changing the distribution of the exposure to COVID-19 in the aggregate sample. We then compare the p-value of the test statistic generated by the true exposure to COVID-19 with the distribution of the statistic generated by the Monte Carlo simulations, under the null hypothesis of a zero effect from the COVID-19 pandemic. We run 1,000 simulations of the baseline regressions in Table 1 (increased concern for climate change) and Table 2 (support for climate policies). In both cases, the p-value for finding a value of the t-statistic smaller than it is under the actual exposure to COVID-19 is unity, thus rejecting the null hypothesis of a zero effect from a COVID-19 health shock.

Second, we look at whether the results are driven by any particular country and consider dropping one country at a time from the sample. In both sets of regressions, the magnitude of the coefficient on the health shock variable remains stable and highly statistically significant upon excluding any one country at a time. Third, we include sub-national region dummies (187 in number), which also does not change the results for the main variable of interest (COVID-19 Exposure: Health) much in size or significance. Fourth, we specify robust standard errors clustered at the country level, which does not affect the results. These additional regressions are reported in Table 3.

Table 3: Robustness Checks

	Region Dummies		Clustered SE	
	Q1	Q2	Q1	Q2
	(3)	(4)	(5)	(6)
COVID-19 Exposure: Health	0.218***	0.105***	0.212***	0.100**
	(0.0299)	(0.0292)	(0.0510)	(0.0459)
Female	0.0680***	0.0497**	0.0699***	0.0462
	(0.0240)	(0.0235)	(0.0204)	(0.0338)
Age: Older (Above Country Median)	0.0581**	0.0231	0.0538	0.0280
	(0.0248)	(0.0244)	(0.0429)	(0.0289)
Education: Medium	-0.00773	-0.00353	-0.00662	-0.000881
	(0.0404)	(0.0390)	(0.0324)	(0.0444)
Education: High	0.0540	0.0376	0.0596	0.0373
	(0.0401)	(0.0388)	(0.0414)	(0.0442)
Employed	0.133***	-0.0768***	0.132***	-0.0691**
	(0.0298)	(0.0290)	(0.0441)	(0.0309)
Employed: Carbon-Intensive Sector	0.0933**	-0.134***	0.0904**	-0.138***
	(0.0448)	(0.0444)	(0.0401)	(0.0453)
Income: Medium	-0.0157	-0.0359	-0.0190	-0.0405*
	(0.0338)	(0.0330)	(0.0417)	(0.0224)
Income: High	-0.0174	-0.0447	-0.0246	-0.0503
	(0.0382)	(0.0372)	(0.0509)	(0.0338)
Political alignment: Left	0.349***	0.138***	0.356***	0.137
	(0.0290)	(0.0285)	(0.0337)	(0.0923)
Political alignment: Right	-0.111***	-0.223***	-0.109***	-0.225***
	(0.0303)	(0.0297)	(0.0383)	(0.0340)
Constant	-0.776***	0.189	-0.760***	0.0192
	(0.184)	(0.182)	(0.0596)	(0.0552)
Observations	14,444	14,468	14,514	14,514

Source: Authors' calculations.

Note: Regressions follow a probit specification. Robust standard errors in parentheses. Equilibrated survey weights used.

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

IV. SUMMARY

This paper examines the impact of COVID-19 on attitudes to climate change and support for climate policies. Using micro data from a unique survey across 16 major economies, it inquires explicitly into how individual attitudes to climate issues have changed in the context of the pandemic. In addition to key stylized facts on attitudes to climate issues among several major economies, the study finds that the experience of the pandemic has increased concern for climate change, and also increased public support for a green recovery, in both advanced and emerging economies. This suggests that the global health crisis has opened up more space for policy makers in key large economies to implement bolder climate policies. At the same time, one of the key results of this work is that support for climate policies falls when COVID-19 resulted in income and/or job loss for an individual. Protecting incomes and livelihoods in the near-term is thus important also from a climate policy perspective, as inability to do so may erode space to implement green recovery policies.

REFERENCES

Aklin, Michaël, and Johannes Urpelainen. 2018. Renewables: The Politics of a Global Energy Transition. The MIT Press.

Duijndam, Sem, and Pieter van Beukering. 2021. "Understanding Public Concern About Climate Change in Europe 2008-2017: the Influence of Economic Factors and Right-Wing Populism." *Climate Policy* 21(3): 353–367.

Eichengreen, Barry, Orkun Saka, and Cevat Giray Aksoy. 2020. "The Political Scar of Epidemics." NBER Working Paper 27401.

Eichengreen, Barry, Orkun Saka, and Cevat Giray Aksoy. 2021. "Revenge of the Experts: Will COVID-19 Renew or Diminish Public Trust in Science?" *Journal of Public Economics* 193.

Giuliano, Paola, and Antonio Spilimbergo. 2014. "Growing up in a Recession." *Review of Economic Studies* 81: 787–817.

Gregersen, Thea, Rouven Doran, Gisela Böhm, Endre Tvinnereim, and Wouter Poortinga. 2020. "Political Orientation Moderates the Relationship Between Climate Change Beliefs and Worry About Climate Change." *Frontiers in Psychology* 11:1573.

Hammer, Melanie S., Aaron van Donkelaar, Randall V. Martin, Erin E. McDuffie, Alexei Lyapustin, Andrew M. Sayer, N. Christina Hsu, Robert C. Levy, Michael J. Garay, Olga V. Kalashnikova, and Ralph A. Kahn. 2021. "Effects of COVID-19 Lockdowns on Fine Particulate Matter Concentrations." *Science Advances* 7(26).

Harvard Chan C-CHANGE. 2020. "Coronavirus, Climate Change, and the Environment A Conversation on COVID-19 with Dr. Aaron Bernstein, Director of Harvard Chan C-CHANGE." Available at https://www.hsph.harvard.edu/c-change/subtopics/coronavirus-and-climate-change/ (accessed in September 2021).

Klemm, Alexander, and Paolo Mauro. 2021. "Pandemic and Progressivity." Working Paper No. 2021/024, International Monetary Fund.

Kulin, Joakim, Ingemar Johansson Sevä, and Riley E. Dunlap. 2021. "Nationalist Ideology, Rightwing Populism, and Public Views About Climate Change in Europe." *Environmental Politics* 30(7): 1111–1134.

Le Quéré, Corinne, Robert B. Jackson, Matthew W. Jones, Adam J. P. Smith, Sam Abernethy, Robbie M. Andrew, Anthony J. De-Gol, David R. Willis, Yuli Shan, Josep G. Canadell, Pierre Friedlingstein, Felix Creutzig, and Glen P. Peters. 2020. "Temporary Reduction in Daily Global CO_2 Emissions During the COVID-19 Forced Confinement." *Nature Climate Change* 10: 647–653.

Lee, Tien Ming, Ezra M. Markowitz, Peter D. Howe, Chia-Ying Ko, and Anthony A. Lieserowitz. 2015. "Predictors of Public Climate Change Awareness and Risk Perception Around the World." *Nature Climate Change* 5: 1014–1020.

Leiserowitz, Anthony. 2007. "International Public Opinion, Perception, and Understanding of Global Climate Change," UNHDR Office Occasional Paper 2007/31, UNDP.

McCright, Aaron M., and Riley E. Dunlap. 2011. "The Politicization of Climate Change in the American Public's Views of Global Warming, 2001-2010." *The Sociological Quarterly* 52(2).

McCright, Aaron M., Riley E. Dunlap, and Sandra T. Marquatt-Pyatt. 2015. "Political Ideology and Views About Climate Change in the European Union." *Environmental Politics* 25(2): 338–358.

Motel Seth. 2014. "Poll Shows Most Americans Believe in Climate Change, but Give it Low Priority." Pew Research Center. Available at http://pewrsr.ch/1DvMLej.

Scruggs, Lyle, and Salil Benegal. 2012. "Declining Public Concern About Climate Change: Can We Blame the Great Recession?" *Global Environmental Change* 22(2): 505–515.

Unruh, Gregory C. 2000. "Understanding Carbon Lock-in." *Energy Policy* 28: 817-830.

van der Linden, Sander. 2017. "Determinants and Measurement of Climate Change Risk Perception, Worry, and Concern." In M.C. Nisbet, M. Schafer, E. Markowitz, S. Ho, S. O'Neill, & J. Thaker (Eds.), The Oxford Encyclopedia of Climate Change Communication. Oxford University Press, Oxford, UK.

Weber, Elke U. 2016. "What shapes perceptions of climate change? New research since 2010." *WIREs Climate Change* 7: 125-134.

ANNEX 1: SURVEY STATISTICS

During the Ipsos survey carried over February 25-29, 2021, 14,514 adult respondents aged 16-74 were polled in 16 countries, of which 10 countries are advanced economies (Australia, Canada, France, Germany, Italy, Japan, South Korea, Spain, the United Kingdom, and the United States) and 6 are emerging market economies (Brazil, China, India, Mexico, Russia, and South Africa). Approximately 1,000 individuals were polled in each country (a smaller sample of 500 individuals in South Africa, Mexico, and Russia). The number of observations in each country is presented in the last row of Annex Table 1. The set of countries in the sample encompasses around 55% of the world population and 70% of the world GDP.

The sample is approximately equally split across genders. The age of respondents in emerging market economies is younger, with 22% of the sample falling into the 16-24 age bracket, as opposed to 14% for advanced economies. Conversely, 31% of respondents in advanced economies are 55 and older, as opposed to 17% in emerging market economies, in line with general demographic composition of these countries. In advanced economies, 43% of respondents have tertiary university-level education ("High") and another 40% have secondary education ("Medium"). 66% were employed at the time of the survey, with 33% falling into the high income bracket (income brackets are country-specific and determined by Ipsos following standard classifications). The sample of respondents in advanced economies has been selected by Ipsos to be representative of the entire population. On the other hand, the sample of respondents from emerging market economies is skewed towards individuals who are more educated (56% with tertiary education) and have higher income (84% employed, and 53% classified as high income).

Across countries, employment in carbon-intensive sectors (agriculture, construction, natural resource extraction, transportation and warehousing, utilities, and power) stands at around 5-16% of the sample, with higher proportion of respondents being employed in carbon-intensive sectors in emerging market economies.

In terms of political orientation, respondents are approximately evenly split between left, center, and right on average, but with notable differences across countries. The majority of respondents in Canada, Italy, Spain, and Mexico identify more with the left. Respondents in Germany, Japan, South Korea, and China primarily identify as centrist. Finally, respondents in the United States, and India were leaning right. In the remaining countries, the share of respondents leaning left and right was approximately equal, with the share of respondents leaning centrist being the smaller group.

Exposure to the COVID-19 pandemic has been measured by both health effects and financial impact. The percent of respondents who have been diagnosed with COVID-19 varied between 1% to 16% percent across countries, with fewer respondents being directly exposed in countries where the pandemic has been more contained. Indirect exposure when somebody else the respondents knows (such as a close friend or family member, a colleague, a neighbor, or somebody else the respondent knows) has been diagnosed with COVID-19 ranged between 13% and 81%, again with percentage being smaller in countries where the pandemic has been more contained. Notwithstanding the differences across countries, a large share of respondents has been directly or indirectly affected by the pandemic in terms of health impacts, more so in emerging market economies than in advanced economies. Likewise, around 18% to 54% of respondents across countries have been financially affected by the pandemic (the respondent has lost their job, theirs working hours or salary were reduced, or another household member has lost their job), with the numbers being higher in emerging market economies compared to advanced economies, in part owing to higher level of government support in the latter.

The detailed breakdown of responses to the key questions on attitudes towards climate change and green policies following the experience with the COVID-19 pandemic is presented in Annex Table 1. Refer to the main text for further discussion about the findings.

Annex Table 1: Survey Statistics and Respondent Characteristics

Percent of respondents by country	Averages			Advanced Economies (AEs)										Emerging Market Economies (EMs)					
	World	AEs	EMs	Australia	Canada	France	Germany	Italy	Japan	South Korea	Spain	United Kingdom	United States	Brazil	China	India	Mexico	Russia	South Africa
Gender:																			
Male	49%	49%	49%	49%	49%	49%	50%	49%	50%	51%	50%	49%	49%	48%	51%	51%	47%	47%	48%
Female	51%	51%	51%	51%	51%	51%	50%	51%	50%	49%	50%	51%	51%	52%	49%	49%	53%	53%	52%
Age:																			
16-24	17%	14%	22%	16%	16%	15%	13%	12%	12%	15%	12%	15%	12%	20%	20%	26%	23%	17%	27%
25-34	19%	17%	22%	20%	17%	17%	16%	16%	15%	17%	18%	18%	19%	21%	19%	24%	21%	21%	26%
35-44	19%	19%	20%	18%	18%	19%	17%	21%	20%	20%	23%	18%	18%	20%	23%	20%	21%	17%	19%
45-54	19%	19%	19%	17%	18%	18%	21%	20%	18%	23%	19%	19%	19%	22%	25%	14%	22%	17%	14%
55-74	25%	31%	17%	29%	31%	31%	33%	31%	36%	24%	28%	30%	32%	17%	13%	15%	13%	28%	14%
Education:																			
High	48%	43%	56%	48%	38%	56%	32%	30%	26%	59%	60%	35%	45%	44%	68%	78%	56%	53%	36%
Medium	37%	40%	32%	38%	45%	37%	62%	60%	20%	38%	28%	41%	31%	47%	31%	18%	37%	37%	21%
Low	15%	17%	12%	14%	16%	7%	5%	10%	53%	3%	12%	24%	24%	9%	1%	4%	6%	10%	43%
Employment status:																			
Employed	73%	66%	84%	64%	65%	62%	63%	68%	58%	77%	67%	75%	58%	78%	92%	87%	83%	79%	83%
Carbon-intensive sector	8%	7%	11%	9%	6%	6%	8%	6%	7%	8%	8%	8%	5%	7%	15%	6%	12%	16%	7%
Income:																			
High	40%	33%	53%	32%	38%	31%	48%	31%	5%	62%	13%	32%	34%	27%	81%	32%	49%	63%	67%
Medium	33%	34%	33%	43%	37%	40%	24%	38%	23%	21%	31%	44%	37%	59%	13%	49%	31%	24%	21%
Low	19%	24%	11%	17%	12%	15%	19%	20%	57%	12%	49%	13%	25%	9%	4%	17%	16%	10%	12%
Other	7%	10%	3%	8%	13%	13%	9%	11%	15%	5%	8%	10%	4%	5%	2%	2%	4%	3%	0%
Political orientation:																			
Left	27%	28%	25%	28%	35%	23%	25%	34%	11%	20%	41%	27%	31%	27%	22%	30%	30%	19%	24%
Centrist	21%	21%	20%	19%	14%	11%	35%	13%	25%	38%	17%	18%	16%	12%	42%	17%	23%	11%	18%
Right	24%	25%	23%	24%	23%	27%	18%	23%	17%	22%	24%	30%	36%	25%	11%	37%	20%	18%	25%
Other	4%	3%	4%	3%	3%	7%	3%	5%	2%	2%	3%	2%	4%	5%	3%	3%	5%	7%	4%
Beliefs:																			
Environment: Top2 Concern	19%	22%	14%	26%	25%	33%	28%	21%	17%	17%	11%	27%	14%	9%	24%	21%	13%	10%	8%
COVID-19 exposure:																			
Health	64%	57%	74%	27%	56%	71%	55%	83%	17%	26%	87%	77%	74%	92%	14%	87%	85%	79%	89%
Direct	6%	5%	9%	2%	2%	8%	3%	5%	1%	3%	7%	6%	9%	13%	1%	16%	10%	8%	9%
Indirect	57%	53%	65%	25%	54%	63%	51%	78%	16%	24%	81%	70%	65%	79%	13%	71%	75%	71%	80%
Financial	36%	29%	46%	28%	33%	18%	22%	29%	25%	41%	38%	28%	33%	40%	41%	53%	53%	33%	54%
Compared with how you were feeling before the pandemic, how much more or less worried are you about climate change today?																			
Much more worried now	21%	18%	26%	12%	15%	21%	12%	24%	15%	25%	24%	14%	19%	41%	12%	33%	31%	12%	29%
A bit more worried now	22%	21%	24%	18%	19%	23%	15%	26%	18%	26%	20%	22%	18%	20%	28%	28%	26%	17%	23%
No difference; I was already concerned	35%	38%	30%	40%	43%	37%	48%	37%	41%	29%	37%	41%	33%	21%	41%	23%	28%	36%	31%
No difference; I was not very concerned	14%	16%	12%	23%	18%	13%	18%	8%	18%	10%	12%	17%	23%	9%	12%	7%	7%	26%	10%
A bit less worried now	4%	3%	4%	3%	3%	2%	3%	3%	4%	6%	4%	2%	3%	5%	4%	6%	4%	4%	5%
Much less worried now	4%	3%	4%	4%	2%	3%	3%	2%	5%	5%	3%	3%	4%	4%	2%	4%	4%	7%	3%
With which statement do you agree more about policies to support economic recovery after the COVID-19 pandemic?																			
Economy first	49%	50%	47%	51%	52%	47%	46%	39%	41%	50%	53%	52%	63%	41%	29%	63%	43%	58%	50%
Green recovery	51%	50%	53%	49%	48%	53%	54%	61%	59%	50%	47%	48%	37%	59%	71%	37%	57%	42%	50%
Number of observations	14,514	10,010	4,504	1,001	1,004	1,000	1,000	1,001	1,000	1,001	1,003	1,000	1,000	1,001	1,001	1,000	501	500	501

Sources: Ipsos, Global Advisor survey, wave 35, February 25-29, 2021; and authors' calculations.

Note: High education corresponds to tertiary university-level education, medium education corresponds to secondary education. Employment in a carbon-intensive sector encompasses employment in agriculture, construction, natural resource extraction, transportation and warehousing, utilities and power. For 7.5% of observations the information on income was not available. Environment in the top2 concerns means that the respondent finds the environment and climate change to be either the most important or the second most important issue facing society today. Health exposure to COVID-19 means that either the respondent has been diagnosed (direct exposure) or someone else the respondent knows has been diagnosed (indirect exposure). Financial exposure to COVID-19 means that the respondent has lost their job, theirs working hours or salary were reduced, or another household member has lost their job as the result of the pandemic. "Economy first" stands for "Government should focus on helping the economy to recover first and foremost, even if that means taking some actions that are bad for the environment;" and "Green recovery" stands for "Governments should focus on helping the economy to recover in a way that would put the economy on a greener path, even if it would require sacrifices in terms of economic growth and some loss of jobs." "Other" means that the respondent did not provide an answer or replied that they do not know. Percentages are calculated using equilibrated survey weights.

As a robustness check, Annex Figure 1 presents comparison of the Ipsos survey findings with similar questions posed in other surveys, namely the survey done by PEW Research Center and the World Values Survey (WVS). Given that these comparator surveys are published with a time lag and that there are differences in how the questions are worded, the surveys are not meant to be strictly equivalent, but can be used to present a general comparison of the sentiments. The level of worry about climate change can be gleaned from the PEW question on whether respondents see climate change as a threat, the question was last asked in 2020. The sample of countries included in both Ipsos and PEW comprises 9 advanced economies. As shown in panel 1, the correlation between the two surveys is positive and high (0.79), with both surveys reporting the lowest level of concern among respondents in the United States (70%) and the highest level of concern among respondents in several European countries (above 80%). In another survey conducted only for the United States the Yale Program on Climate Change Communication finds that in 2020 66% of adults worry about climate change and 73% believe that it is happening – a comparable number to the 70% of adults in the United States who are now more worried or have already been worried about climate change according to the current Ipsos survey used in this paper.

The question about whether the respondents give higher priority to protection of the environment, even at the expense of some economic progress, has been asked in PEW survey of 2010 and in the WVS conducted over 2010-14 and 2017-20. Panel 2 presents the results from all three sources. On average across countries in all surveys around 50% of respondents support green policies. For PEW the number is even higher, but overall the levels are consistent across surveys with some differences that could be either attributed to changes in sentiments over time, or to differences in the way the questions were phrased, or to other differences in survey methodology.

Annex Figure 1. Cross-survey comparison
(Percent)
1. Concern about climate change
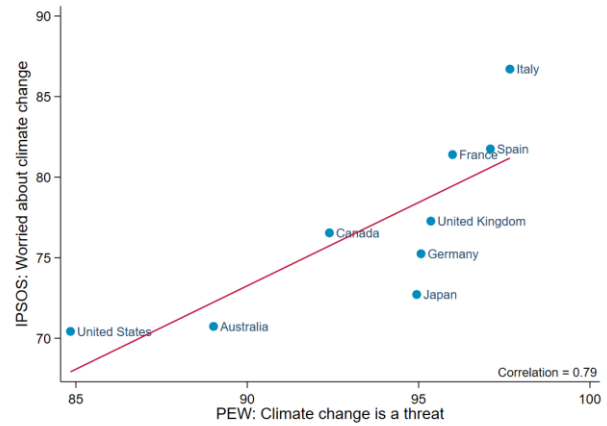
2. Protecting environment vs. economic growth
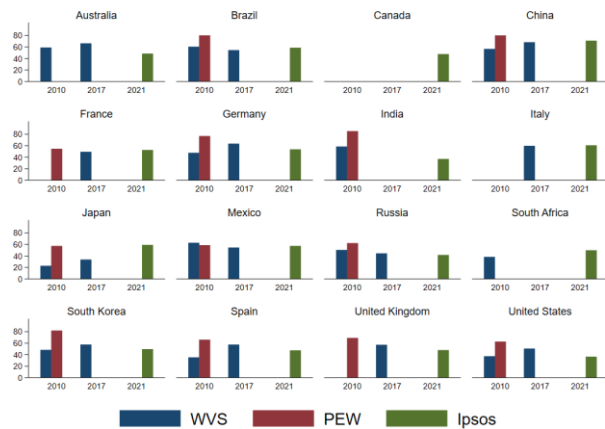
Sources: Ipsos, Global Advisor survey, wave 35 (February 25-29, 2021); PEW Research Center (June 10-August 3, 2020 and April 7 - May 8, 2010); World Values Survey (wave 6 2010-2014 and wave 7 2017-2020); and authors' calculations.
Note: Panel 1 shows comparison of data from Ipsos (2021) and PEW (2020). Ipsos "Worried about climate change" = "Much more worried now" + "A bit more worried now" + "No difference; I was already concerned". PEW "Climate change is a threat" = "A major threat" + "A minor threat."
Panel 2 shows comparison of Ipsos (2021), PEW (2010), and WVS (2010-14, 2017-20). Ipsos "Governments should focus on helping the economy to recover in a way that would put the economy on a greener path, even if it would require sacrifices in terms of economic growth and some loss of jobs" as opposed to "Government should focus on helping the economy to recover first and foremost, even if that means taking some actions that are bad for the environment". PEW "Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs" answer options "Completely agree" + "Strongly agree." WVS "Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs" as opposed to "Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent."

ANNEX 2: LOGIT REGRESSION RESULTS

Annex Table 2: Logit Regression: Being More Worried about Climate Change Following the Experience with the COVID-19 Pandemic

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
COVID-19 Exposure: Health	0.348***	0.306***	0.388***	0.339***	0.222**	0.380***	0.389***	
	(0.0491)	(0.0497)	(0.0698)	(0.0554)	(0.105)	(0.0878)	(0.117)	
COVID-19 Exposure: Financial		0.301***	0.344***	0.377***	0.214***	0.489***	0.214***	0.297***
		(0.0420)	(0.0538)	(0.0516)	(0.0698)	(0.0731)	(0.0787)	(0.0421)
Environment: Top2 Concern		0.528***	0.544***	0.569***	0.406***	0.689***	0.345***	0.535***
		(0.0488)	(0.0658)	(0.0564)	(0.0965)	(0.0848)	(0.102)	(0.0489)
Recent Heatwave/Drought			0.0130			-0.0224	1.206**	
			(0.0958)			(0.0993)	(0.551)	
Recent Natural Disasters			0.216**			0.264	0.190*	
			(0.0866)			(0.170)	(0.0996)	
COVID-19 Exposure: Health (Direct)								0.673***
								(0.0906)
COVID-19 Exposure: Health (Indirect)								0.273***
								(0.0502)
Female	0.113***	0.111***	0.102**	0.0641	0.182***	0.0669	0.144*	0.114***
	(0.0387)	(0.0390)	(0.0509)	(0.0465)	(0.0690)	(0.0682)	(0.0774)	(0.0390)
Age: Older (Above Country Median)	0.0880**	0.109***	0.153***	0.112**	0.101	0.134*	0.165**	0.115***
	(0.0400)	(0.0404)	(0.0517)	(0.0492)	(0.0691)	(0.0706)	(0.0775)	(0.0405)
Education: Medium	-0.00951	-0.0193	-0.0673	0.0172	-0.0901	-0.0718	0.0200	-0.0181
	(0.0660)	(0.0662)	(0.0828)	(0.0727)	(0.138)	(0.0948)	(0.194)	(0.0662)
Education: High	0.0983	0.0872	0.161**	0.0752	0.0837	0.0823	0.310	0.0901
	(0.0655)	(0.0658)	(0.0793)	(0.0717)	(0.137)	(0.0881)	(0.195)	(0.0657)
Employed	0.218***	0.173***	0.193***	0.0938*	0.333***	0.0455	0.395***	0.166***
	(0.0485)	(0.0492)	(0.0660)	(0.0555)	(0.103)	(0.0799)	(0.119)	(0.0492)
Employed: Carbon-Intensive Sector	0.149**	0.138*	0.111	0.168*	0.111	0.270**	-0.0267	0.137*
	(0.0729)	(0.0736)	(0.0959)	(0.0926)	(0.117)	(0.133)	(0.134)	(0.0739)
Income: Medium	-0.0284	-0.0168	-0.0107	-0.0736	0.140	-0.0783	0.143	-0.0171
	(0.0549)	(0.0552)	(0.0689)	(0.0616)	(0.119)	(0.0817)	(0.131)	(0.0552)
Income: High	-0.0370	-0.0232	-0.00395	0.00912	-0.0147	0.0680	0.00512	-0.0300
	(0.0615)	(0.0621)	(0.0825)	(0.0708)	(0.124)	(0.103)	(0.143)	(0.0622)
Political alignment: Left	0.576***	0.529***	0.602***	0.549***	0.478***	0.688***	0.489***	0.524***
	(0.0469)	(0.0473)	(0.0621)	(0.0555)	(0.0856)	(0.0809)	(0.0954)	(0.0474)
Political alignment: Right	-0.178***	-0.175***	-0.132**	-0.275***	-0.0156	-0.184**	-0.0620	-0.177***
	(0.0492)	(0.0496)	(0.0649)	(0.0595)	(0.0880)	(0.0870)	(0.0997)	(0.0498)
Constant	-1.321***	-1.510***	-1.641***	-1.458***	-0.836***	-1.582***	-1.036***	-1.506***
	(0.106)	(0.108)	(0.124)	(0.115)	(0.193)	(0.140)	(0.259)	(0.108)
Sample				AE	EM	AE	EM	
Observations	14,514	14,514	8,507	10,010	4,504	5,004	3,503	14,514

Source: Authors' calculations.

Note: Regressions follow a logit specification. Dependent variable takes the value of 1 when the respondent has answered that they are much more or a bit more worried now about climate change, and zero otherwise. In columns 3, 6, 7 the sample is limited to countries for which information on the sub-national region was available in Ipsos and EMDAT (Australia, Brazil, China, India, Japan, Mexico, Spain, United Kingdom, United States). For 7.5% of observations the information on income was not available and imputed as "Medium". Robust standard errors in parentheses. Equilibrated survey weights used. AE = advanced economies; EM = emerging markets.

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

Annex Table 3: Logit Regression: Support for a Green Economic Recovery Following the Experience with the COVID-19 Pandemic

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
COVID-19 Exposure: Health	0.162***	0.159***	0.0652	0.108**	0.236**	-0.0394	0.198	
	(0.0467)	(0.0484)	(0.0684)	(0.0536)	(0.106)	(0.0820)	(0.125)	
COVID-19 Exposure: Financial		-0.128***	-0.133**	-0.0759	-0.183***	-0.0209	-0.240***	-0.123***
		(0.0421)	(0.0535)	(0.0521)	(0.0699)	(0.0735)	(0.0786)	(0.0422)
Environment: Top2 Concern		1.055***	0.887***	1.253***	0.518***	1.198***	0.390***	1.050***
		(0.0518)	(0.0690)	(0.0606)	(0.0970)	(0.0911)	(0.103)	(0.0518)
Recent Heatwave/Drought			-0.0397			-0.0228	-0.0434	
			(0.0930)			(0.0975)	(0.519)	
Recent Natural Disasters			-0.0440			-0.00132	-0.0766	
			(0.0871)			(0.165)	(0.104)	
COVID-19 Exposure: Health (Direct)								-0.195**
								(0.0900)
COVID-19 Exposure: Health (Indirect)								0.190***
								(0.0487)
Female	0.0745**	0.0798**	0.00883	0.0103	0.200***	-0.0443	0.0933	0.0778**
	(0.0376)	(0.0383)	(0.0498)	(0.0458)	(0.0689)	(0.0658)	(0.0778)	(0.0384)
Age: Older (Above Country Median)	0.0449	0.0475	0.0143	0.0109	0.0986	-0.0414	0.0799	0.0419
	(0.0390)	(0.0398)	(0.0507)	(0.0486)	(0.0690)	(0.0684)	(0.0780)	(0.0399)
Education: Medium	-0.000716	0.0102	0.0242	-0.00311	-0.0161	0.0152	-0.114	0.00909
	(0.0625)	(0.0643)	(0.0789)	(0.0724)	(0.134)	(0.0912)	(0.194)	(0.0646)
Education: High	0.0608	0.0663	0.0366	0.0708	-0.0404	0.0502	-0.184	0.0636
	(0.0621)	(0.0642)	(0.0767)	(0.0713)	(0.134)	(0.0856)	(0.196)	(0.0644)
Employed	-0.111**	-0.115**	-0.146**	-0.152***	-0.0552	-0.158**	-0.187	-0.109**
	(0.0465)	(0.0475)	(0.0632)	(0.0541)	(0.0999)	(0.0764)	(0.120)	(0.0476)
Employed: Carbon-Intensive Sector	-0.223***	-0.214***	-0.241**	-0.0848	-0.366***	-0.191	-0.277**	-0.213***
	(0.0711)	(0.0732)	(0.0943)	(0.0935)	(0.115)	(0.133)	(0.134)	(0.0735)
Income: Medium	-0.0651	-0.0797	-0.0418	-0.106*	-0.0208	-0.0525	0.0213	-0.0795
	(0.0531)	(0.0543)	(0.0666)	(0.0615)	(0.117)	(0.0798)	(0.130)	(0.0543)
Income: High	-0.0800	-0.118*	-0.0989	-0.167**	-0.0300	-0.171*	0.0132	-0.111*
	(0.0594)	(0.0609)	(0.0803)	(0.0702)	(0.123)	(0.102)	(0.143)	(0.0609)
Political alignment: Left	0.222***	0.150***	0.0182	0.427***	-0.314***	0.396***	-0.433***	0.157***
	(0.0457)	(0.0470)	(0.0607)	(0.0559)	(0.0838)	(0.0796)	(0.0923)	(0.0471)
Political alignment: Right	-0.361***	-0.347***	-0.336***	-0.398***	-0.216**	-0.381***	-0.232**	-0.347***
	(0.0477)	(0.0486)	(0.0632)	(0.0578)	(0.0882)	(0.0830)	(0.101)	(0.0487)
Constant	-0.0167	-0.215**	-0.0582	-0.231**	-0.0646	-0.150	0.607**	-0.220**
	(0.0987)	(0.102)	(0.114)	(0.112)	(0.184)	(0.132)	(0.254)	(0.102)
Sample				AE	EM	AE	EM	
Observations	14,514	14,514	8,507	10,010	4,504	5,004	3,503	14,514

Source: Authors' calculations.

Note: Regressions follow a logit specification. Dependent variable takes the value of 1 when the respondent has answered that "Governments should focus on helping the economy to recover in a way that would put the economy on a greener path, even if it would require sacrifices in terms of economic growth and some loss of jobs", and zero otherwise. In columns 3, 6, 7 the sample is limited to countries for which information on the sub-national region was available in Ipsos and EMDAT (Australia, Brazil, China, India, Japan, Mexico, Spain, United Kingdom, United States). For 7.5% of observations the information on income was not available and imputed as "Medium". Robust standard errors in parentheses. Equilibrated survey weights used. AE = advanced economies; EM = emerging markets.

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