IMF, Research Department

Impact of the COVID-19 pandemic on climate beliefs, and support for a green recovery

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IMF – SINGAPORE REGIONAL TRAINING INSTITUTE

Adil Mohommad, Evgenia Pugacheva

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Motivation

Carbon "lock-in": hard to dislodge brown technology despite known benefits of green energy

"Focusing events" can shock the system; e.g. oil price shocks in 1970s led to renewables push in U.S. (fuel efficiency standards, green R&D…)

Lost momentum due to lack of sustained public support, lobbying by fossil fuel firms, political factors

Public opinion matters for climate change mitigation:

In general, public opinion is a key driver of policy change in democratic countries

Empirical evidence for U.S., Europe consistent with policies reflecting public preferences on climate; lack of public support a key barrier (Anderson, Bohmelt, and Ward 2017).

Is COVID-19 potentially a focusing event for climate attitudes and policies:

- Emergence of the pandemic linked in perception to human impact on environment (deforestation and loss of habitat – Harvard TH Chan School of Public Health 2020)

- Unprecedented reductions in air pollution and GHG emissions (La Quere et al. 2020, Hammer et al. 2021, NASA 2021)

Related literature and contribution

1. **Drivers of attitudes to climate change and support for climate policies.** (Drews and van den Bergh, 2016).

   - Socio-psychological factors (related to beliefs, climate change perception, political orientation)

   - Policy design features (perceived costs and benefits, fairness)

   - Contextual factors (trust and social norms, economic conditions, weather/geography).

2. **Impact on pandemics on matters of public interest, for example:**

   - **Impact of COVID-19 on support for more progressive fiscal policy** (Klemm and Mauro, IMF WP 2021/24): Support for progressive fiscal policies increased among those who personally experienced COVID-19 (and more strongly among those who do not identify as "universalist").

   - **Impact of historical epidemics (since 1970) on trust in public institutions and leaders**; trust in science (Eichengreen, Aksoy, and Saka, NBER 2021; JPE 2021): exposure in "impressionable years" (18-25) reduces trust in political and health institutions, trust in scientists.

   Our study focuses on a <u>particular contextual pathway</u>—the outbreak of COVID-19.

   Typical studies focus on U.S., Europe. We present cross-country evidence for a sample of major emitters.

Key findings

1. COVID-19 has resulted in a noticeable increase in the intensity concern for climate change.

2. There is significant support for a green recovery, which likely increased during the pandemic. But there are caveats:

   - Some major emitters show much lower preferences towards a green recovery in aggregate

   - Regression results show:

     ☐ Experiencing COVID-19 personally *increases* the likelihood of more concern for climate, and by much more than observing COVID-19 in the community.

     ☐ Having COVID-19 personally *reduces* the likelihood of support for green recovery policies, whereas observing COVID-19 in the community *increases* it.

     ☐ Financial effects (income/job loss) increase concern for climate change; but tend to reduce support for policies.

3. There is a strong preference for more climate friendly actions at an individual level, such as energy efficient consumption and working from home.

Policy messages

- Action on climate change remains urgent, and COVID-19 has sharpened concerns about climate change.

- Support for climate policies appears contingent on health and job security. Important to protect people's health and incomes to sustain support for climate mitigation.

- More effort is needed in key large economies to build support for a green transition and green recovery.

- Invest in digital infrastructure, and energy efficiency solutions for households.

Survey Design and Summary Statistics

IMF-IPSOS Climate COVID-19 Survey

**Sample size:** 16 countries, 14,514 respondents

Dates of survey: February 25-28, 2021

Methodology: Online platform; adults aged 16-74; representative sample in AEs; more urban, educated, and affluent sample in EMs.
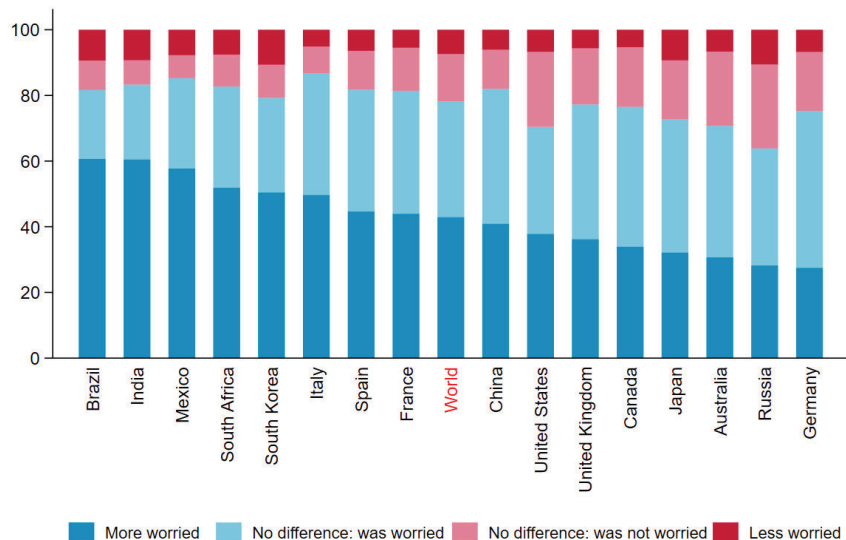
Questions:

From Our World in Data · Last updated: 18 hours ago

- Compared with how you were feeling before the pandemic, how much more or less worried are you about climate change today?

- Policy preference to support economic recovery after the COVID-19 pandemic: green economy vs economy first.

- Which climate-friendly actions are you more likely to do after the COVID-19 pandemic?
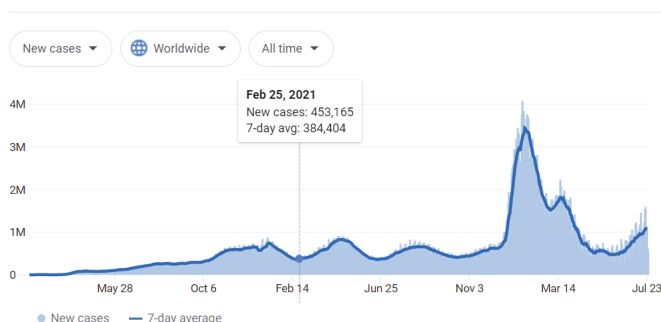
Level of concern about climate change is high and increasing as people become more worried

More worried | **No difference: was worried** | **No difference: was not worried** | **Less worried**

Select one of the options that best fits your views regarding climate change. 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
- A bit more worried now
- No difference; I was concerned about climate change before the pandemic
- No difference; I was not very concerned about climate change before the pandemic
- A bit less worried now
- Much less worried now

Support for a green recovery is significant, but varies across countries
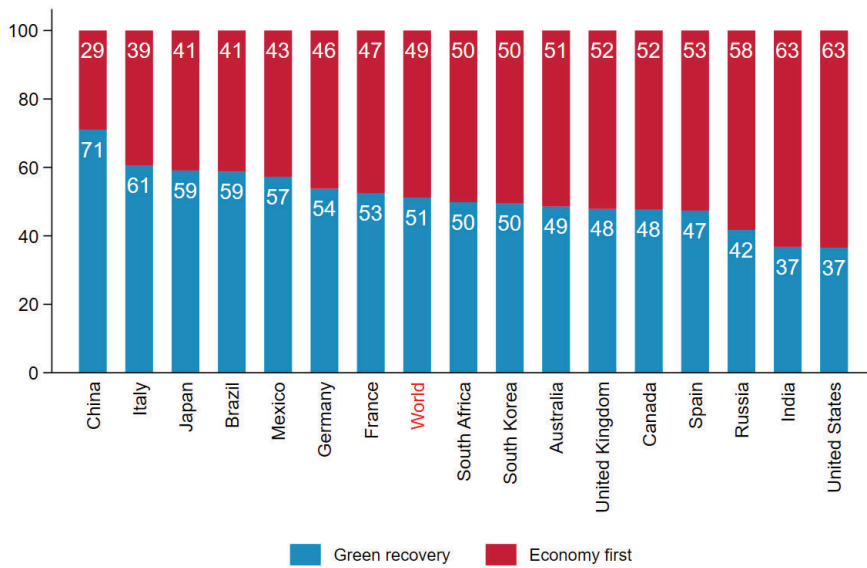

With which statement do you agree more about policies to support economic recovery after the COVID-19 pandemic:

- 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")
- 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")

A big share of respondents would like to work from home (esp. in EMs), but more public transport is not widely popular
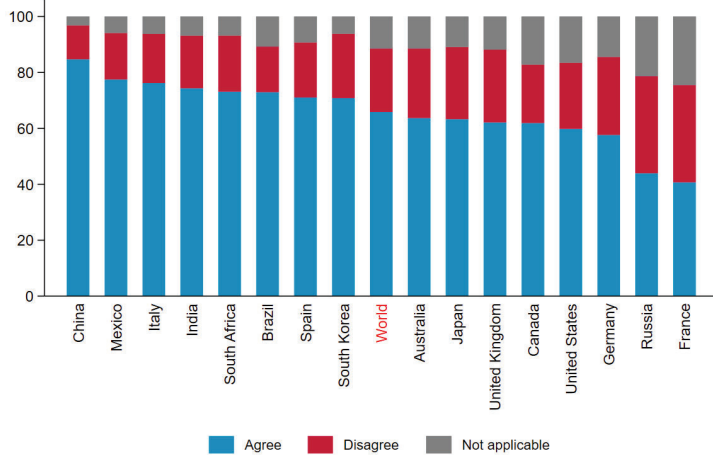
Work from home more often
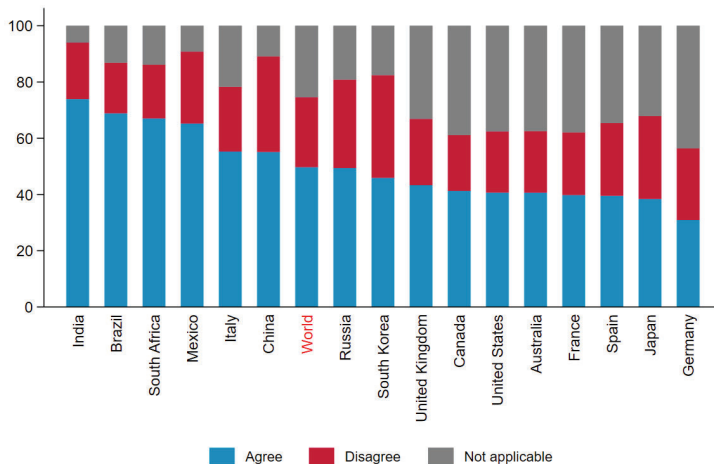
Use public transport more often instead of a car
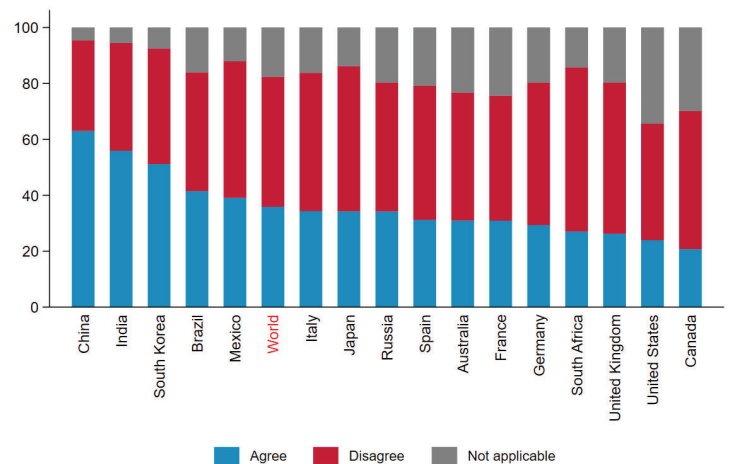
The majority of the respondents choose energy and cost saving actions

Choose energy efficient gadgets and appliances

Monitor energy use at home
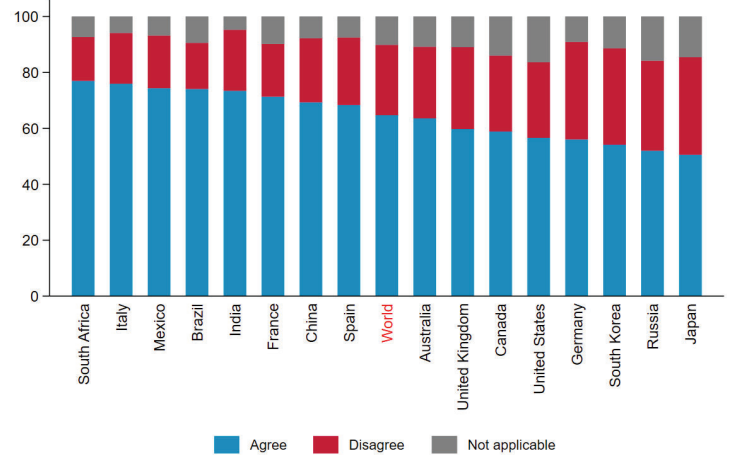
Comparison with other sources and trends over time: worry over climate change

IPSOS data matches other sources such as PEW
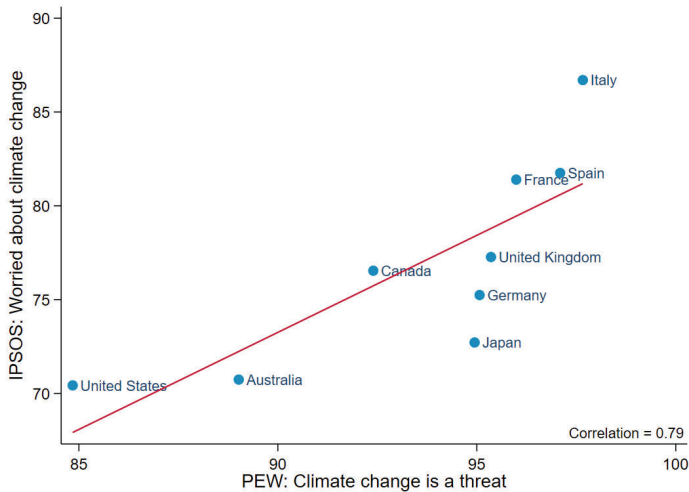
PEW: Perception of climate change as a threat has been increasing in AEs and stable in EMDEs
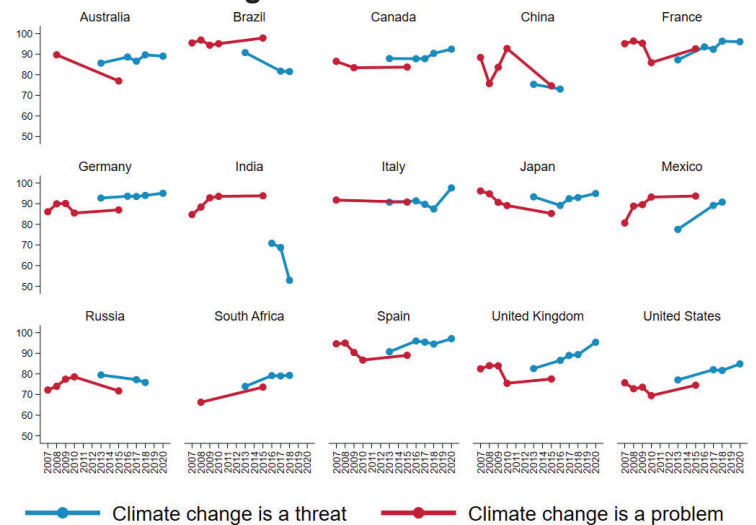
Sources: IPSOS, PEW Research Center.

Note: IPSOS worried about climate change includes: Much more worried now; A bit more worried now; No difference, I was concerned about climate change before the pandemic. PEW climate change is a threat includes: Climate change is a major threat; climate change is a minor threat (as opposed to no threat at all).

Comparison with other sources and trends over time: protecting the environment vs economic growth, USA

Over the past 10 years, the share of Americans prioritizing the environment has increased

Americans' Prioritization of the Environment vs. the Economy

With which one of these statements about the environment and the economy do you most agree -- [protection of the environment should be given priority, even at the risk of curbing economic growth (or) economic growth should be given priority, even if the environment suffers to some extent]?

— % Environment — % Economic growth

GALLUP

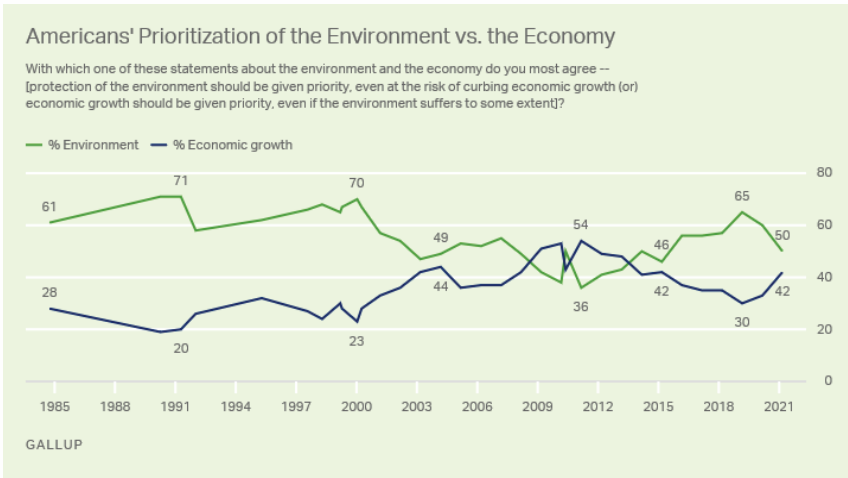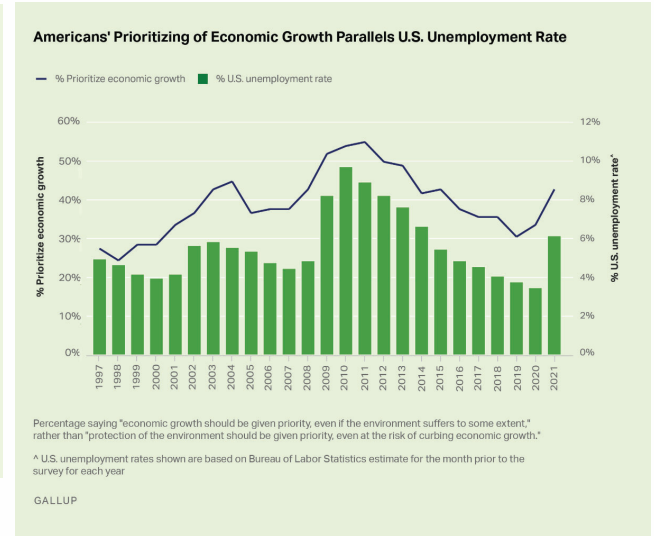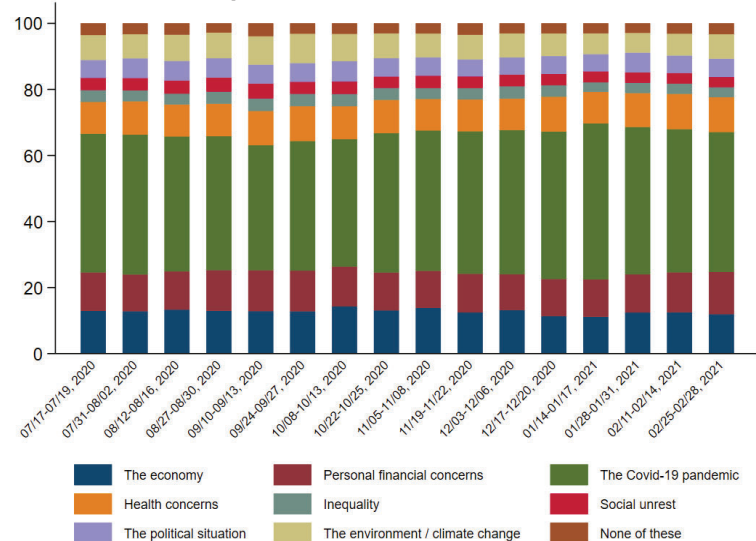**At the same time, concerns about economic growth dominate when times are tough**

Americans' Prioritizing of Economic Growth Parallels U.S. Unemployment Rate

— % Prioritize economic growth   ■ % U.S. unemployment rate

Percentage saying "economic growth should be given priority, even if the environment suffers to some extent," rather than "protection of the environment should be given priority, even at the risk of curbing economic growth."

^ U.S. unemployment rates shown are based on Bureau of Labor Statistics estimate for the month prior to the survey for each year

GALLUP

Source: Gallup (https://news.gallup.com/poll/344252/americans-emphasis-environmental-protection-shrinks.aspx).

Change in the level of worry about climate change vs environment as the Top-2 concern

Top challenges facing society: around 8% of respondents pick "climate change" as their top concern, and 12% pick it as their second top concern

		The economy		Personal financial concerns		The Covid-19 pandemic
Health concerns		Inequality		Social unrest
The political situation		The environment / climate change		None of these

But even among respondents not picking climate change as the Top-2 concern the level of worry has increased

|	Environment Top-2 Concern	
Worry about climate change:	**No**	**Yes**
Much more worried now	2,188	834
A bit more worried now	2,527	636
No difference; I was concerned about climate change before the pandemic	4,060	1,117
No difference; I was not very concerned about climate change before the pandemic	1,952	138
A bit less worried now	481	61
Much less worried now	475	45

Distribution of negative health and financial shocks due to COVID-19

COVID-19 exposure:	World	Advanced Economies										Emerging Markets					
		Australia	Canada	France	Germany	Italy	Japan	South Korea	Spain	UK	US	Brazil	China	India	Mexico	Russia	South Africa
Health	**64%**	27%	56%	71%	55%	83%	17%	26%	87%	77%	74%	92%	14%	87%	85%	79%	89%
Direct	**6%**	2%	2%	8%	3%	5%	1%	3%	7%	6%	9%	13%	1%	16%	10%	8%	9%
Indirect	**57%**	25%	54%	63%	51%	78%	16%	24%	81%	70%	65%	79%	13%	71%	75%	71%	80%
Financial	**36%**	28%	33%	18%	22%	29%	25%	41%	38%	28%	33%	40%	41%	53%	53%	33%	54%

Note: Direct health exposure: the respondent was diagnosed with COVID-19. Indirect health exposure: close friend or family member or someone else the respondent knows was diagnosed. Financial exposure: the respondent has lost their job, their working hours or salary were reduced, or another household member has lost their job.

Negative COVID-19 shock likely to increase concern for climate change
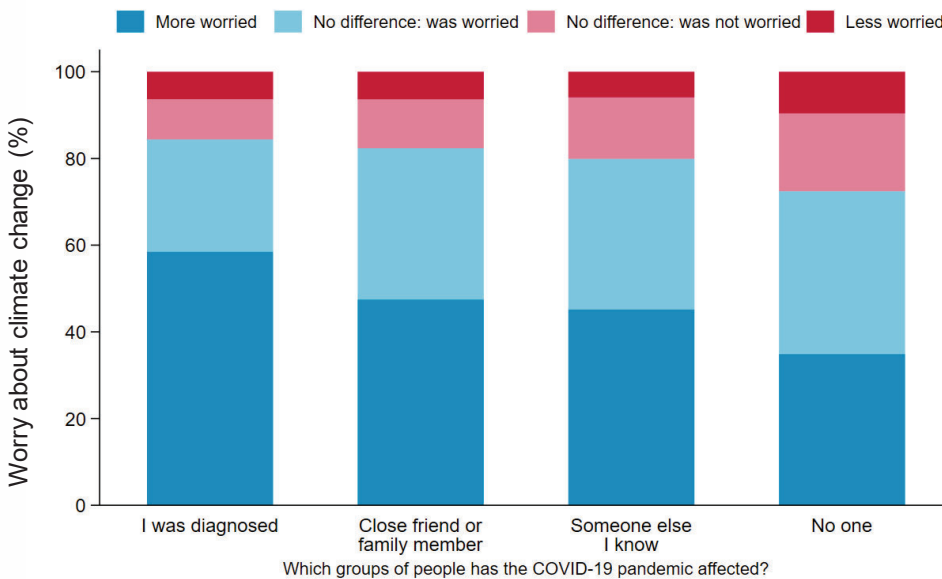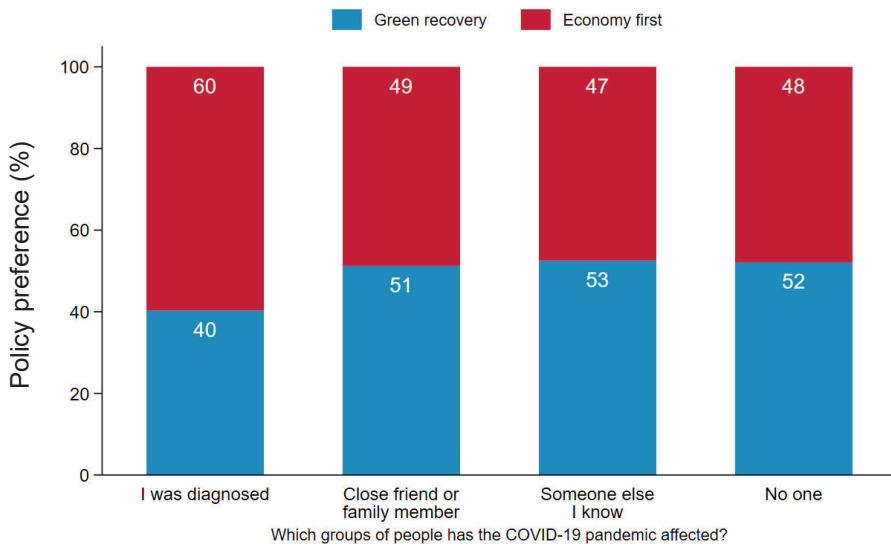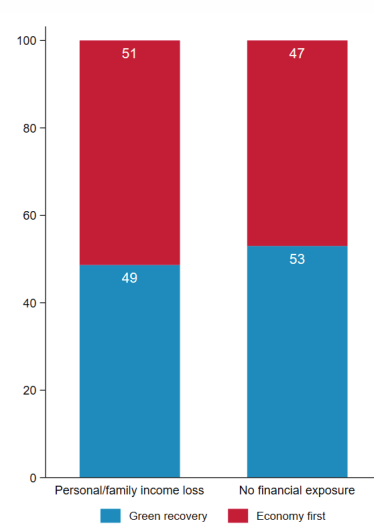

Negative health shock / Negative financial shock
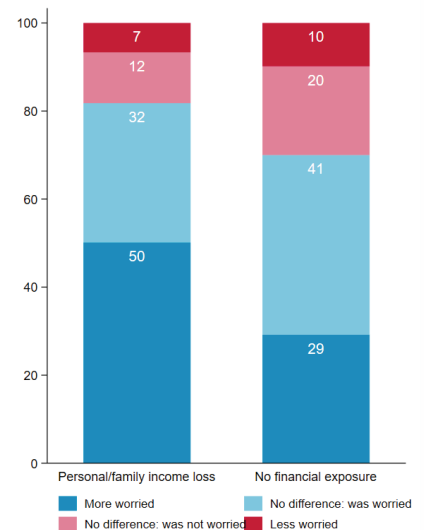
... But support for a green recovery declines with a negative shock

Negative health shock

Negative financial shock

Econometric evidence

Regressions: Impact of COVID on Concern for Climate and Support for Green Recovery

Following Mauro and Klemm (2021): $Y_{i,j} = a + b1 * Covid_i + b2 * X_i + C_j + \varepsilon_i$

- Y = 1 if more concerned about climate since pandemic; 1 if support green policies over economic recovery; 0 otherwise

- Covid dummy: =1 if I was diagnosed personally, 0 else; =1 if someone I know was diagnosed, 0 else.

- Additionally: dummy for experienced income/job income loss = 1; dummy if environment features in top 2 concerns = 1; dummy if experienced extreme weather event recently = 1.

- Other controls: age, gender, relative level of education, relative level of income, employment status, sector of employment (high or low carbon), political views (left, right). C = country dummy.

Potential endogeneity:

- Increase in concern be driven by other recent events such as large <u>natural disasters</u>.

- Omitted variable: Covid experience and climate views driven by unobservable; e.g. attitude to risk not captured by X's. (IV does not appear a standard approach in literature).

Additional regressor: EM-DAT subnational (state/province level) data on recent natural disasters that took 50 or more lives. = 1 if such event recorded b/w Jan 2019 and Feb 2021, 0 else. (Date of Survey = March 2021).

Regression results: 1

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***	
COVID-19 Exposure: Health (Direct)								0.411***
COVID-19 Exposure: Health (Indirect)								0.165***
COVID-19 Exposure: Financial		0.185***	0.210***	0.230***	0.131***	0.297***	0.131***	0.182***
Environment: Top 2 Concerns		0.324***	0.332***	0.350***	0.248***	0.420***	0.211***	0.329***
Recent Heatwave/Drought			0.00778			-0.0135	0.756**	
Recent Natural Disasters			0.130**			0.158	0.114*	
CONTROLS								
Female	0.0697***	0.0677***	0.0612**	0.0397	0.111***	0.0414	0.0871*	0.0693***
Age: Older (Above Country Median)	0.0538**	0.0659***	0.0932***	0.0682**	0.0614	0.0788*	0.102**	0.0702***
Education: Medium	-0.00674	-0.0118	-0.0412	0.00912	-0.0539	-0.0440	0.0108	-0.0113
Education: High	0.0597	0.0533	0.0993**	0.0468	0.0494	0.0521	0.189	0.0549
Employed	0.133***	0.106***	0.116***	0.0577*	0.202***	0.0255	0.244***	0.101***
Employed: Carbon-Intensive Sector	0.0908**	0.0829*	0.0656	0.101*	0.0665	0.164**	-0.0186	0.0821*
Income: Medium	-0.0188	-0.0111	-0.00770	-0.0453	0.0857	-0.0475	0.0878	-0.0108
Income: High	-0.0241	-0.0150	-0.00309	0.00430	-0.00768	0.0414	0.00323	-0.0185
Political alignment: Left	0.356***	0.326***	0.370***	0.339***	0.295***	0.425***	0.301***	0.323***
Political alignment: Right	-0.109***	-0.107***	-0.0791**	-0.166***	-0.00746	-0.108**	-0.0370	-0.108***
Constant	-0.814***	-0.929***	-1.006***	-0.897***	-0.508***	-0.968***	-0.635***	-0.926***
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

1. **Concern for climate:**
   - On average, the experience of COVID-19 **increases** likelihood of greater concern for climate change by 8 percentage points.
   - <u>Directly</u> experiencing COVID-19 **increases** likelihood by 16 percentage points.

2. Loss of income and/or jobs loss increases the likelihood of greater concern by 7.5 percentage points.

3. In EMs, recent weather events play a role; but COVID-19 still matters.

Regression results: 2

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)	(9)
COVID-19 Exposure: Health	0.100***	0.0991***	0.0408	0.0675**	0.143**	-0.0242	0.119		
COVID-19 Exposure: Health (Direct)								-0.120**	-0.236***
COVID-19 Exposure: Health (Indirect)								0.119***	0.0668
COVID-19 Exposure: Financial		-0.0795***	-0.0817**	-0.0463	-0.113***	-0.0123	-0.147***	-0.0765***	-0.0756**
Environment: Top2 Concern		0.644***	0.540***	0.765***	0.318***	0.733***	0.240***	0.641***	0.533***
Recent Heatwave/Drought			-0.0257			0.00298	-0.0445		-0.0319
Recent Natural Disasters			-0.0254			-0.0147	-0.0262		-0.0300
CONTROLS									
Female	0.0461**	0.0490**	0.00627	0.00629	0.123***	-0.0263	0.0582	0.0478**	0.00315
Age: Older (Above Country Median)	0.0280	0.0304	0.0106	0.00827	0.0614	-0.0252	0.0507	0.0267	0.00622
Education: Medium	-0.000910	0.00741	0.0154	9.32e-06	-0.0103	0.00895	-0.0677	0.00672	0.0111
Education: High	0.0373	0.0420	0.0233	0.0445	-0.0257	0.0298	-0.111	0.0403	0.0166
Employed	-0.0693**	-0.0718**	-0.0902**	-0.0942***	-0.0336	-0.0965**	-0.114	-0.0677**	-0.0809**
Employed: Carbon-Intensive Sector	-0.137***	-0.131***	-0.147**	-0.0530	-0.224***	-0.116	-0.169**	-0.131***	-0.150***
Income: Medium	-0.0402	-0.0493	-0.0266	-0.0649*	-0.0131	-0.0331	0.0115	-0.0494	-0.0267
Income: High	-0.0496	-0.0734*	-0.0631	-0.103**	-0.0193	-0.108*	0.00558	-0.0695*	-0.0586
Political alignment: Left	0.137***	0.0919***	0.00994	0.264***	-0.195***	0.246***	-0.268***	0.0963***	0.0203
Political alignment: Right	-0.225***	-0.215***	-0.208***	-0.246***	-0.133**	-0.235***	-0.142**	-0.215***	-0.206***
Constant	-0.00951	-0.132**	-0.0344	-0.145**	-0.0371	-0.0925	0.374**	-0.135**	-0.0387
Sample				AE	EM	AE	EM		
Observations	14,514	14,514	8,507	10,010	4,504	5,004	3,503	14,514	8,507

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

1. **Support for green recovery:**
   - Less robust findings with respect to support for climate policies. An average impact of 3 percentage points.
   - Directly experiencing COVID-19 **decreases** likelihood by nearly 5 percentage points.

2. Loss of income/jobs **decreases** support by about 3 percentage points on average.

3. Employment in high-carbon sector reduces support for green policies. Being employed also weakens support.

Robustness exercises

- Results robust to excluding one country at a time.

- Robust to controlling for sub-national (region) dummies (in addition to country FE).

- Robust to standard errors clustered at country level.

- Similar results under LOGIT specification.

- Monte Carlo simulations randomly assigning the treatment of the experiencing COVID-19 (1000 times). → Distribution of test statistics under the null of no effect, indicates that observed effect of COVID-19 on (i) concern for climate and (ii) support for climate policies is extreme under the null of no effect (p-value = 1).

Table 3: Selected robustness checks

	Concern		Policies	
	Drop one country	Sub national dummies	Drop one country	Sub-national dummies
Health (Direct)	0.362*** - 0.429***	0.390***	-0.110* - -0.172***	-0.136**
Health (Indirect)	0.160*** - 0.193***	0.181***	0.118*** - 0.160***	0.139***
Financial	0.156*** - 0.177***	0.175***	-0.0870*** - -0.108***	-0.100***

Summary

❑ Worldwide, a large share of respondents are more concerned about climate since COVID-19.

❑ Worldwide, majority of respondents support a green recovery, though some large emitters are significant exceptions.

❑ Controlling for a variety of other possible determinants, experiencing COVID-19:

  ▪ Accompanied by intensification of concern for climate; more so under direct health/financial shock.

  ▪ Some evidence consistent with an expansion of concern for climate at the extensive margin.

  ▪ Shocks reduce likelihood of support for green recovery policies when experienced directly.

❑ COVID-19 likely intensified concern for climate change globally. Overall, the effect on support for climate policies is a bit ambiguous.

  ▪ Preserving lives and livelihoods through the pandemic is critical to sustain support. May require more effort to convince people of the benefits of green recovery policies, and assurance that livelihoods will be protected.

❑ Invest in digital infrastructure, and options for energy efficiency for households.

Thank you!