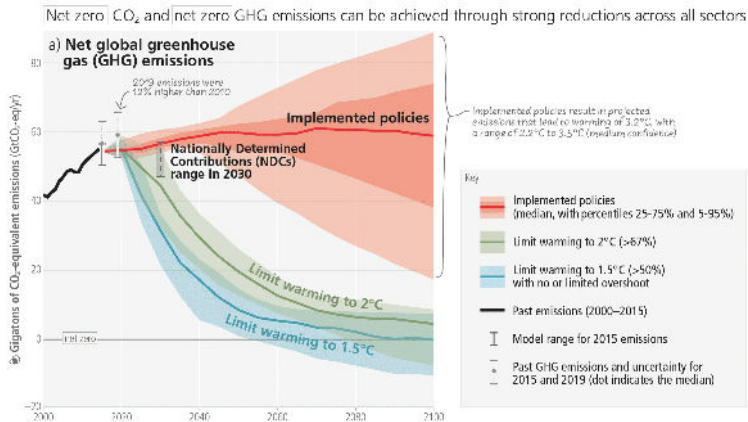# Increasing the acceptability of carbon taxation: The role of social norms and economic reasoning

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Florence, 27 November 2023

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ssee SMITH SCHOOL OF ENTERPRISE AND THE ENVIRONMENT

Source: IPCC Synthesis Report 6

Carbon taxation is viewed as a cornerstone of effective climate policy mixes by many economists

This poses a political economy challenge

Ambitious climate policy (e.g., carbon taxation) requires **broad public acceptance**.

Why do people oppose carbon taxes even despite redistributive measures like lump-sum cash transfers?

How can we foster public support for carbon taxation?

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- limited understanding of how policies work *(e.g., Andres et al 2019; Stantcheva 2021; Douenne & Fabre 2022; Deschezleprêtre et al 2022)*

- underestimate the public consensus on climate action *(e.g., Nyborg et al 2016; Andre et al 2022; Sparkman et al 2022)*

How can we foster public support for carbon taxation?

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- underestimate the public consensus on climate action *(e.g., Nyborg et al 2016; Andre et al 2022; Sparkman et al 2022)*

Can we **build public support** for carbon taxation by

1. ... explaining the economic reasoning behind the policy, and/or
2. ... informing about social norms toward climate action?

Contributions to existing literature

Test the (joint) causal effects

- **Determinants of public support for climate policy:** Maestre-Andres et al., 2021; Drews & van den Bergh 2016; Klenert et al 2018; Fairbrother 2022; Douenne & Fabre 2022; Bergquist et al 2022; Deschezleprêtre et al 2022 → This literature is growing but mostly correlational

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- **Importance of social norms in the environmental context:** Nyborg et al 2016; Lede et al 2019; Costantino et al 2022; Andre et al 2022; Sparkman et al 2022, Drews et al 2022 $\rightarrow$ Few studies on effect of social norms on carbon taxation support

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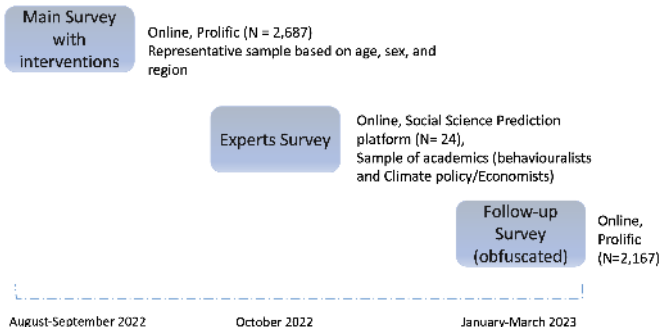
→ test them jointly
→ evaluate long(er)-term effects of interventions

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→ test them jointly
→ evaluate long(er)-term effects of interventions

Test if information provision can be used to scale-up interventions

- **Potential of individual vs systemic interventions:** Chater & Loewenstein 2022

→ use individual-level interventions to support systemic policy change

We test these two levers for policy support in an **online survey experiment** in the U.S (N = 2,685) in August 2022 + follow-up survey 4 months after
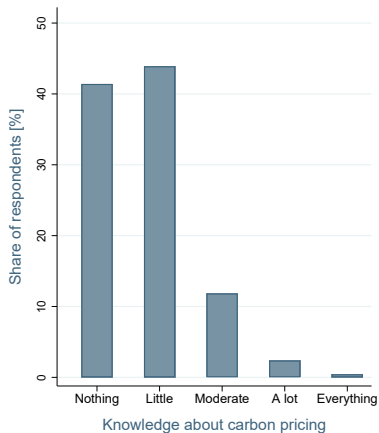

Main Survey with interventions	Online, Prolific (N = 2,687) Representative sample based on age, sex, and region
Experts Survey	Online, Social Science Prediction platform (N= 24), Sample of academics (behaviouralists and Climate policy/Economists)
Follow-up Survey (obfuscated)	Online, Prolific (N=2,167)

August-September 2022   October 2022   January-March 2023
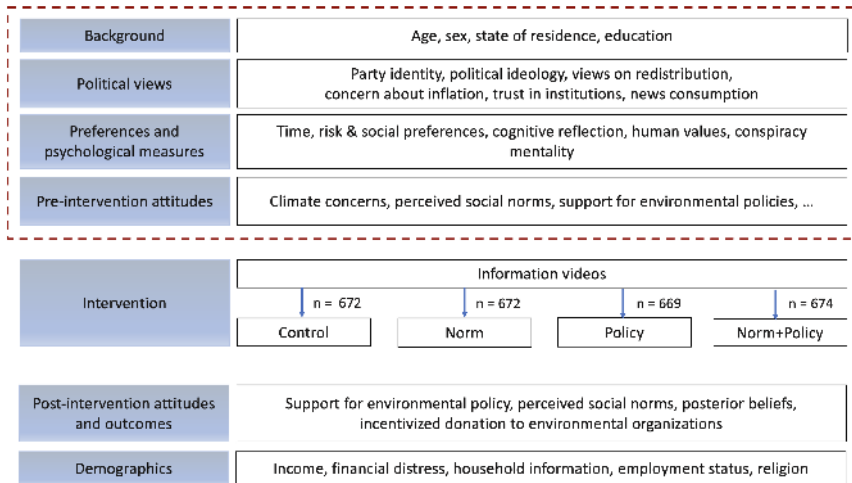
People **underestimate** how many other Americans are in favour of carbon neutrality $\rightarrow$ 69% according to Pew Research Center (2022)

Perceived share of Americans in favor of carbon neutrality [%]
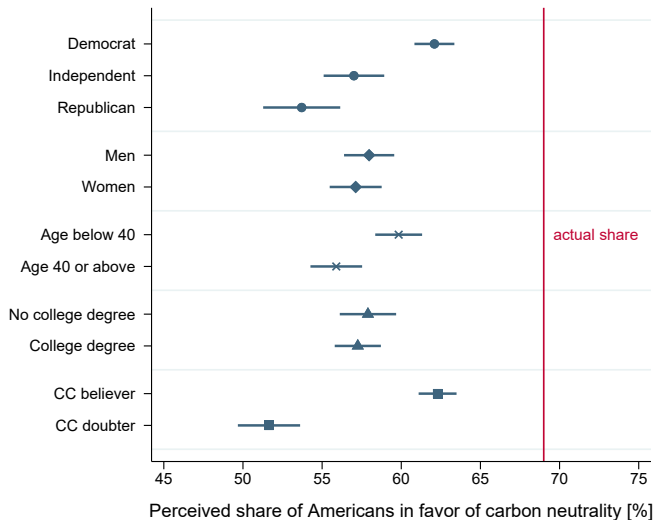
Most Americans are not very knowledgable about carbon taxation

(a) Self-assessed knowledge

(b) Support for environmental policies

Background	Age, sex, state of residence, education
Economic concerns	Concerns about inflation, energy consumption ...
Political views	Party identity, political ideology, views on redistribution, trust in institutions
Preferences and psychological measures	Time, risk & social preferences, cognitive reflection, human values ...
Pre-intervention attitudes	Climate concerns, perceived social norms, support for environmental policies ...

Intervention

Information videos

n = 672 | n = 672 | n = 669 | n = 674

Control | Norm | Policy | Norm+Policy

| Post-intervention attitudes and outcomes | Support for environmental policies, perceived social norms, posterior beliefs, incentivized donation to environmental organizations |
| Demographics | Income, financial vulnerability, household information, employment status, religion |

Overview of video interventions

1 **Stated views toward CP** with lump-sum redistribution

- *"Require fossil fuel companies to pay a fee on carbon emissions, and distribute the money collected to all U.S. citizens, in equal amounts, through monthly dividend checks"*

- 4-point Likert scale response

- Focus on policy support ("support" or "strongly support") and resistance against policy ("strongly oppose")

Main outcome variables

1. **Stated views toward CP** with lump-sum redistribution

   - *"Require fossil fuel companies to pay a fee on carbon emissions, and distribute the money collected to all U.S. citizens, in equal amounts, through monthly dividend checks"*

   - 4-point Likert scale response

   - Focus on policy support ("support" or "strongly support") and resistance against policy ("strongly oppose")

2. **Incentivized donation opportunity**: split $100 between oneself and two environmental organizations

   - Carbon Leadership Council (CLC): bipartisan group advocating for carbon pricing with lump-sum cash transfers in the US

   - National Wildlife Federation (NWF)

All information videos increase stated policy support

Table: Average treatment effects on stated support in the initial survey

	Support carbon tax			Strongly oppose carbon tax		
	(1)	(2)	(3)	(4)	(5)	(6)
Norm group	0.039^{**}	0.043^{**}	0.061^{**}	-0.020	-0.023	-0.035
	(0.019)	(0.019)	(0.028)	(0.015)	(0.016)	(0.024)
Policy group	0.049^{**}	0.043^{**}	0.077^{***}	-0.020	-0.017	-0.030
	(0.019)	(0.019)	(0.028)	(0.017)	(0.017)	(0.026)
Norm+Policy group	0.064^{***}	0.064^{***}	0.085^{***}	-0.037^{**}	-0.039^{**}	-0.057^{**}
	(0.019)	(0.019)	(0.029)	(0.016)	(0.016)	(0.025)
Excl. strong prior supporters			✓			✓
Additional controls		Yes	Yes		Yes	Yes
Baseline attitudes	Yes	Yes	Yes	Yes	Yes	Yes
p-value for H_0: N = P = NP	0.361	0.390	0.644	0.492	0.348	0.511
Control group mean	0.640	0.640	0.452	0.187	0.187	0.287
Observations	2688	2688	1501	2688	2688	1501
R^2	0.620	0.647	0.578	0.600	0.624	0.605

Robust SEs in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Republicans (or leaning Republicans) respond less to all interventions, especially the policy video
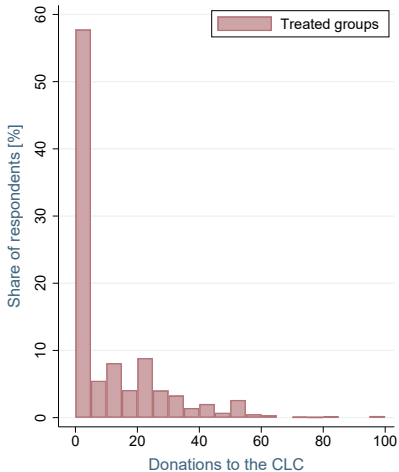

Figure: Effects by party identity
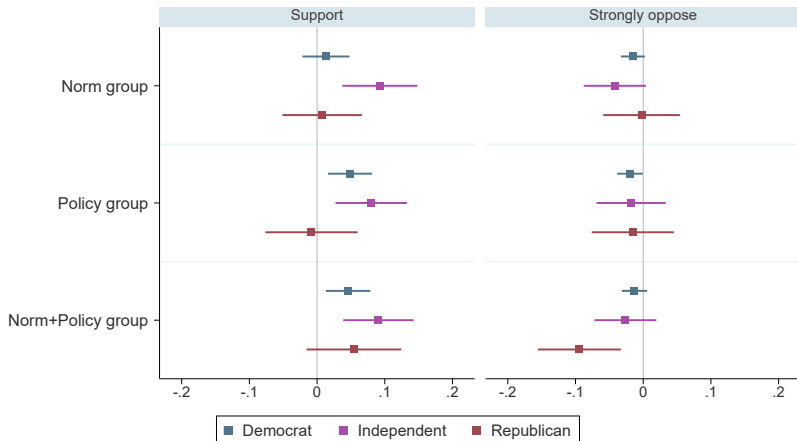
No effects on environmental donations

(a) Donations to the CLC – Control   (b) Donations to the CLC – Treated
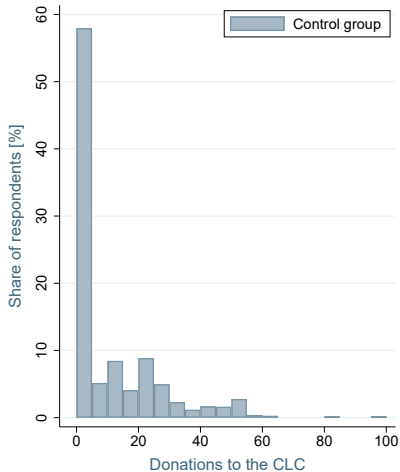
(a) Stated policy support
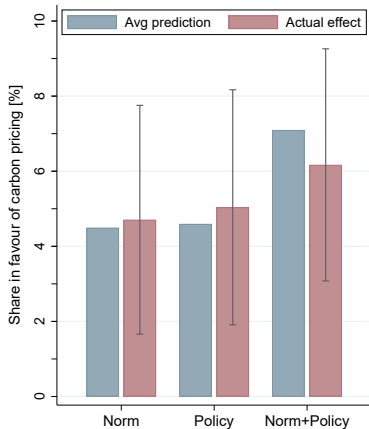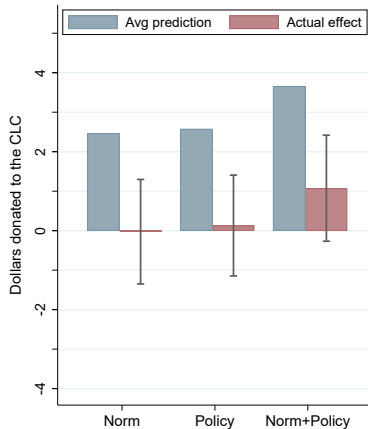
(b) Donations to the CLC

Follow-up survey in a nutshell

- Obfuscated follow-up study from Jan-Mar 2023, about 4-6 months after the initial intervention
- Managed to recontact about 80% of the original sample
- No evidence for differential attrition

Condition	Main survey	Follow-up	Recontact rate
Control group	672	545	81.1%
Norm group	672	530	78.9%
Policy group	669	551	82.4%
Norm+Policy group	674	541	80.3%
Total	2,687	2,167	80.6%

Persistent decrease in strong opposition

Table: **Average treatment effects in follow-up survey**

	Support carbon tax			Strongly oppose carbon tax		
	(1)	(2)	(3)	(4)	(5)	(6)
Norm group	-0.000	0.003	0.009	-0.014	-0.013	-0.031
	(0.024)	(0.023)	(0.032)	(0.020)	(0.019)	(0.029)
Policy group	-0.011	-0.015	-0.026	-0.008	-0.005	-0.023
	(0.023)	(0.022)	(0.032)	(0.021)	(0.019)	(0.029)
Norm+Policy group	0.008	0.001	-0.005	-0.053**	-0.054***	-0.089***
	(0.025)	(0.024)	(0.034)	(0.021)	(0.021)	(0.031)
Excl. strong prior supporters			✓			✓
Additional controls		Yes	Yes		Yes	Yes
Baseline attitudes	Yes	Yes	Yes	Yes	Yes	Yes
p-value for H_0: N = P = NP	0.708	0.662	0.519	0.067	0.036	0.071
Control group mean	0.654	0.654	0.512	0.222	0.222	0.327
Observations	2171	2171	1228	2171	2171	1228
R^2	0.510	0.567	0.527	0.527	0.586	0.570

Robust SEs in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

▸ Donation histograms

Discussion

- Both norm-based info and policy explanation can make carbon taxation more appealing in the short-term

- No long-term incremental effect on support, but persistent reduction in strong opposition in the combined treatment

- Role of both social and policy information in shifting the Overton window as a first step

- Highlights dynamic nature of building persistent policy acceptance and support

Thank you!

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Predictors of baseline support for carbon pricing

	Support CP		Strongly oppose CP	
	(1)	(2)	(3)	(4)
Republican/Lean Rep.	-0.210***	-0.136***	0.101***	0.029*
	(0.024)	(0.022)	(0.019)	(0.018)
Climate change concern (std.)	0.192***	0.086***	-0.161***	-0.090***
	(0.010)	(0.011)	(0.010)	(0.010)
Perceived norms	0.168***	-0.007	-0.185***	-0.079**
	(0.045)	(0.037)	(0.043)	(0.040)
CP reduces emissions	–	0.256***	–	-0.145***
		(0.026)		(0.024)
CP harms the poor	–	-0.043	–	0.033
		(0.030)		(0.034)
CP harms own household	–	-0.084**	–	0.064*
		(0.033)		(0.037)
CP harms the economy	–	-0.326***	–	0.169***
		(0.029)		(0.026)
Market liberalism	–	-0.051	–	0.179***
		(0.035)		(0.033)
Demographic controls	Yes	Yes	Yes	Yes
Observations	2685	2685	2685	2685
R^2	0.399	0.556	0.362	0.448

Robust standard errors in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Common misconceptions about carbon pricing as a policy:

(a) Bans certain technologies?
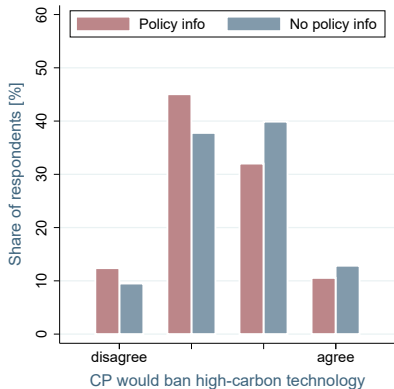
(b) Purpose is to raise funds?
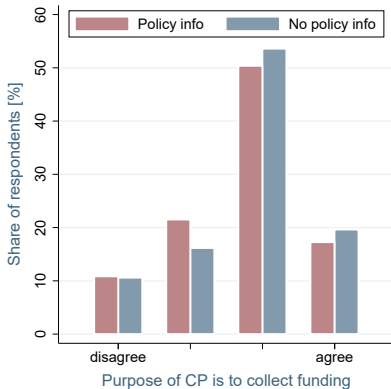
Policy video improves perceived merits

Agreement to statements about carbon pricing (0-100)

Legend: No policy explainer, Policy explainer

Categories: Reduces emissions, Benefits the poor, Benefits the rich, Benefits yourself, Harms the economy
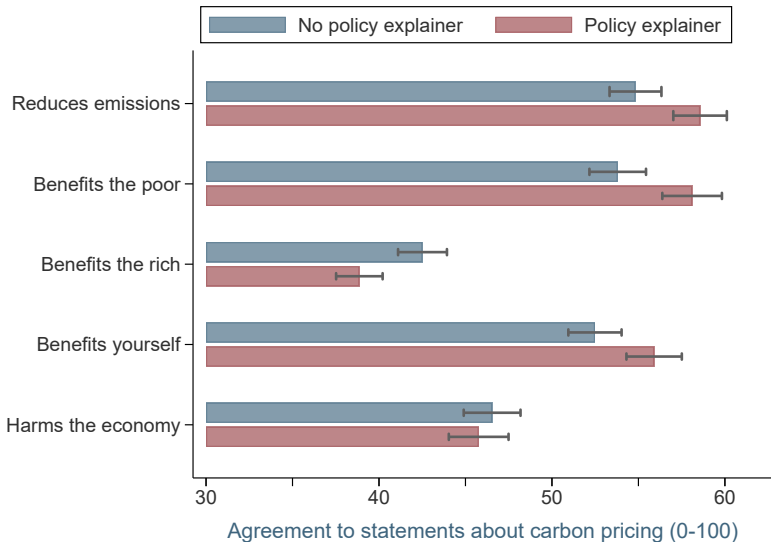
Prior/posterior perception of support for US carbon neutrality goals:

(a) In the general population
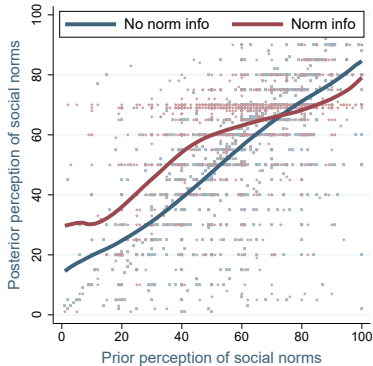
(b) Among friends and family
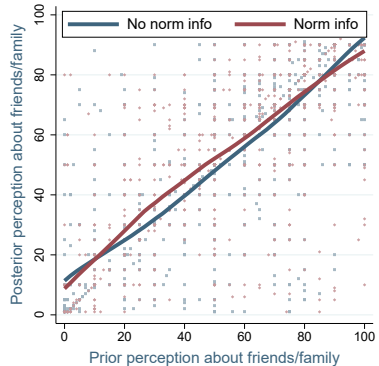
Belief updating by party identity

(a) Democrats and Independents
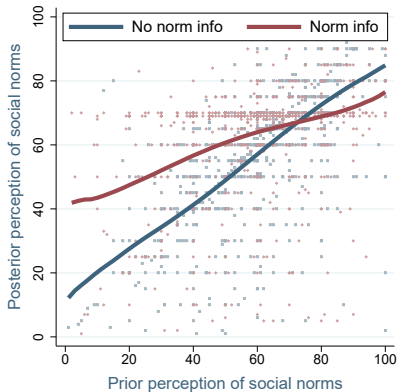
(b) Republicans
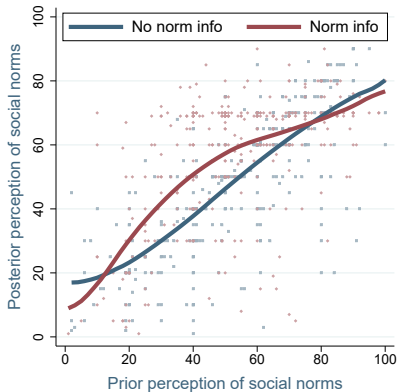
Figure: Post-intervention transition probabilities

(a) In favor of carbon taxation

(b) Strongly oppose carbon taxation
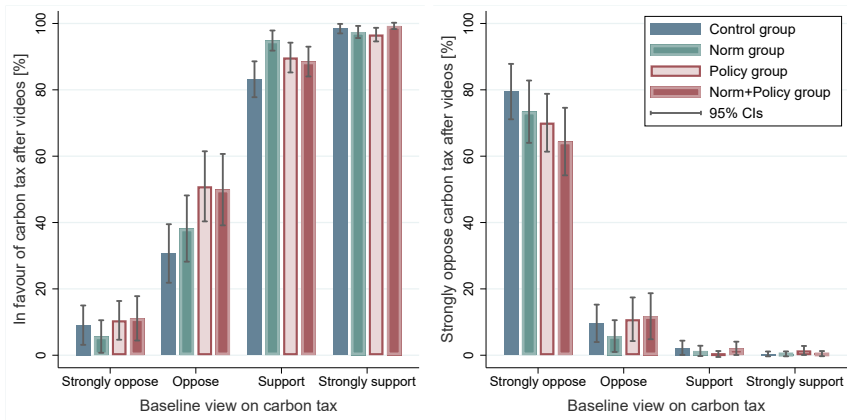
Individuals who use their car daily tend to respond less strongly to the videos

Figure: On support for carbon pricing
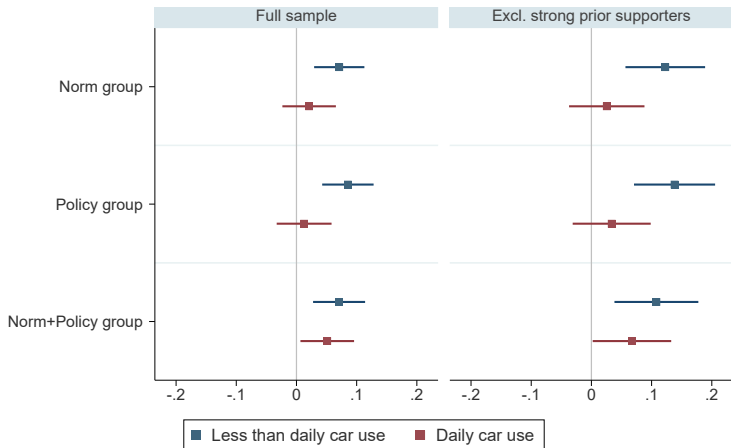
Financially vulnerable people respond less to policy video

Figure: On support for carbon pricing
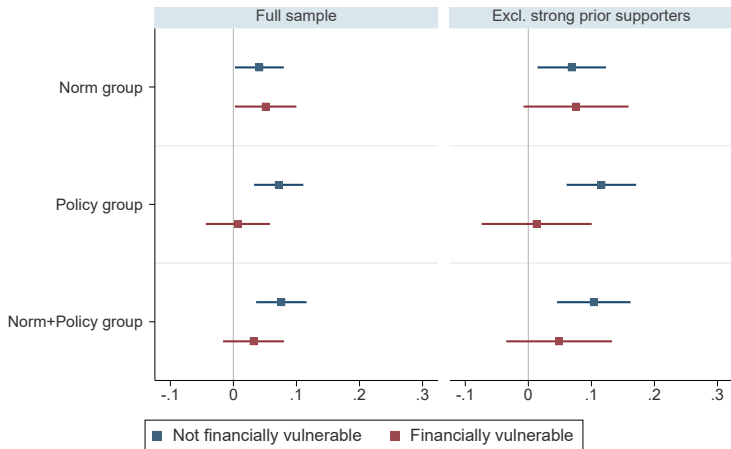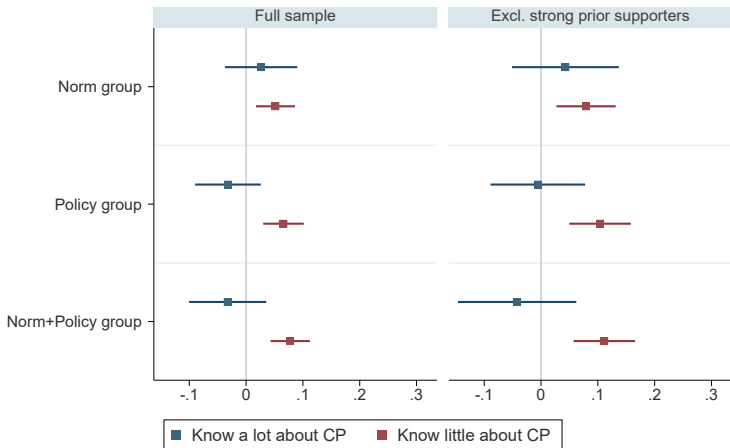
Environmentalists respond less to norms

Figure: On support for carbon pricing

◀ back
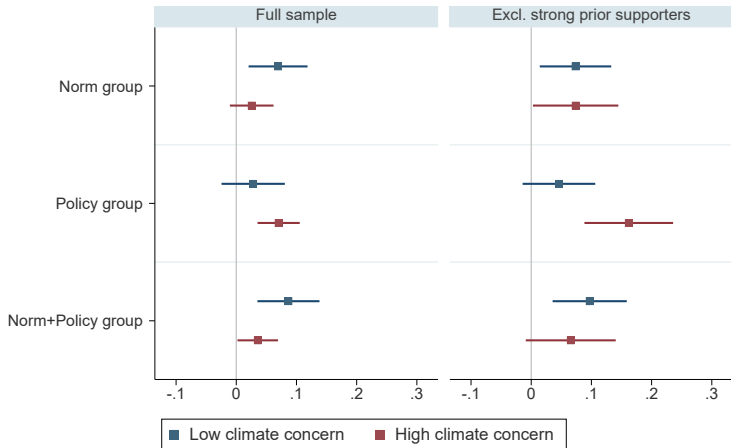
Individuals who underestimated the norm respond less to the policy video
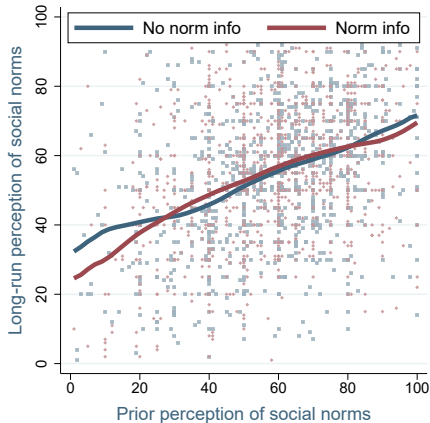
Figure: On support for carbon pricing
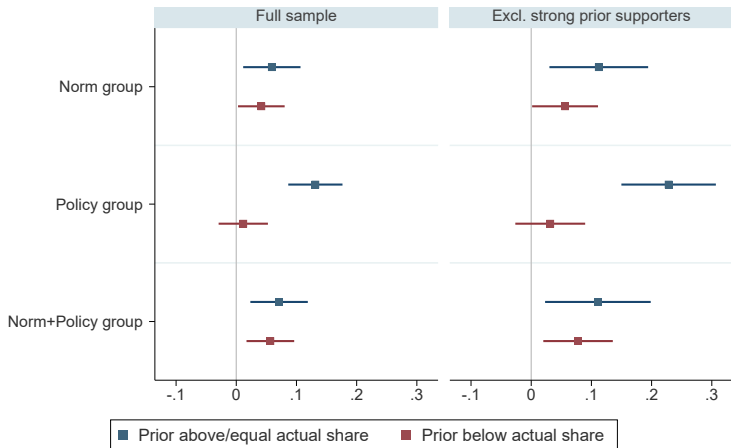
Those who lack knowledge respond more strongly to the policy and policy+norm video
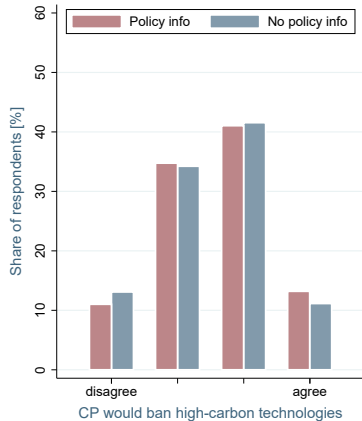

Figure: On support for carbon pricing

No longer-term recall of factual information

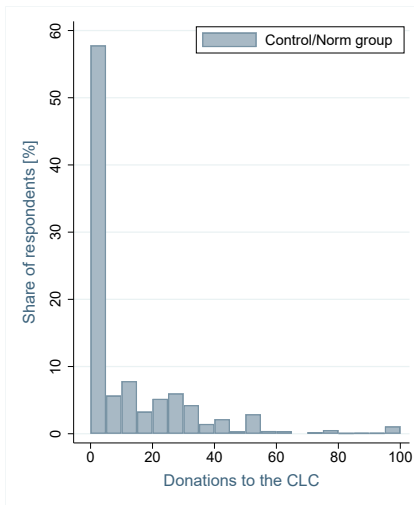
(a) Beliefs about norms in general pop
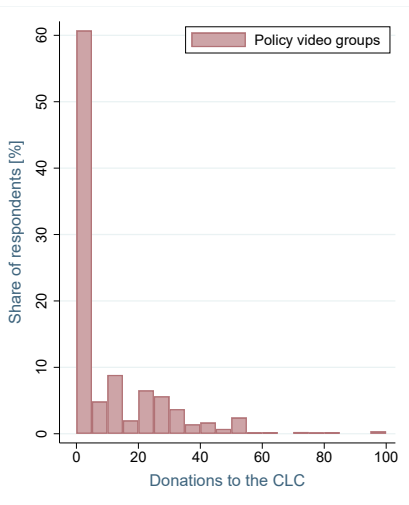
(b) Knowledge about CP

Environmental donations in the follow-up survey

(a) CLC Donations – Control/Norm

(b) CLC Donations – Policy groups

Heterogeneous effects by political identity

Figure: **Follow-up survey (excl. strong prior supporters**