Collective Evidence on Behavioral Interventions Targeting Carbon Pricing Support

A Many-Designs Approach with 55 Studies

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Direct route: Change individual behaviors (e.g. green electricity tariffs, public transport, meat consumption etc.) $\longrightarrow$ Recent studies cast doubt on consistency and external validity (e.g., Byerly et al. 2018; DellaVigna & Linos, 2022; Bruns et al. 2025; Kaiser et al. 2025).

Indirect route: Application to *increase public support* for climate policies—**especially carbon pricing**, which is economically efficient but under-adopted.

Reality check: Only ∼25 % of global emissions are priced—and typically below social-cost levels (IPCC, 2022; World Bank Group, 2024).

Measurement gap: Evidence on policy support—as opposed to pro-environmental behavior—is scarce. Mostly hypotheticals or self-reports $\longrightarrow$ **cheap-talk, social-desirability bias, and the intention–action gap** (Kormos & Gifford, 2014; Vlasceanu et al. 2024; Dechezleprêtre et al. 2025).

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As researchers we are often guided by prior choices → **path dependence** that narrows perspective.

Meta-analytic heterogeneity reflects many factors—not just **study design** → less precise meta-effects. At the same time, meta-analyses are prone to **publication bias**, driven by academic incentives → post hoc correction is only approximate.

→ **Important policy question** → demands methodology that also prevents *p*-hacking, and HARKing.

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PROCEDURE

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PAP + Launch Open Call	Notification	Pre-reg. & Survey-A	Software & Survey-B	Pilot	Start data collection	End data collection and Analyses

- Registration of a **comprehensive pre-analysis plan** including detailed protocols, planned analyses, and extensive power simulations **hosted on OSF**: all raw datasets, all analyses scripts, software packages, team proposals, and IRB-approvals.
- **Project website launched**: www.manydesignscarbon.online.
- **Open call:** Distributed via LinkedIn and society mailing lists (Economics, Finance, Behavioral Science) to recruit research teams (up to 2 members each).

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- In total, **135 research teams (RTs)** applied to take part in the project.
  - In a first step, we **randomly selected 42 RTs** (pre-registered **STATA** script).
  - Additionally, we **added 25 randomly selected RTs** (Addendum to the PAP), which could signal to fund themselves (funding was **no** pre-requisite).
  - Of the 67 selected teams, **55 completed the full study protocol** and were included in the data analysis.

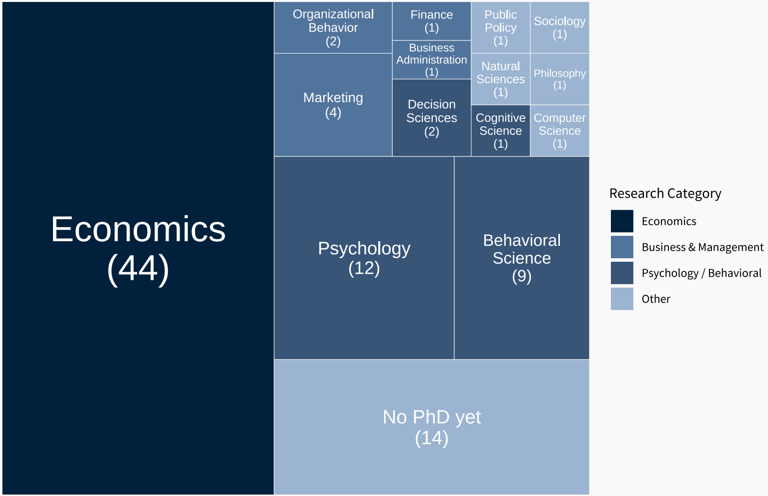

Figure 1: Distribution of research fields the final 55 RTs hold their PhDs in.

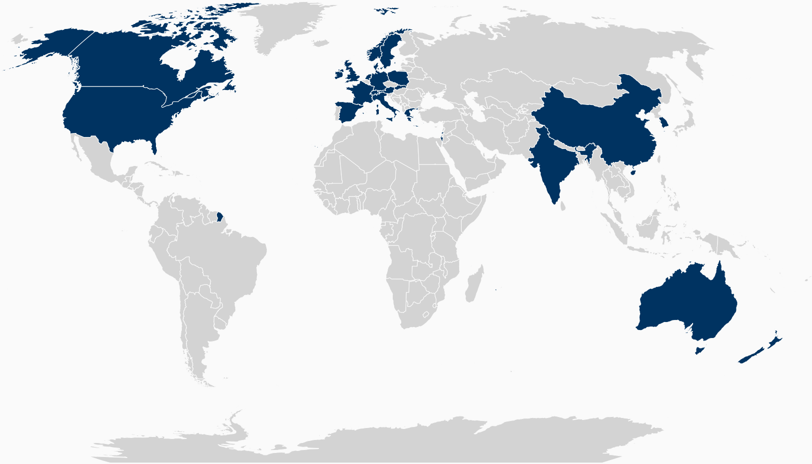

Figure 2: Geographical locations among the final 55 RTs.

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- **Pre-Registration:** All teams submitted a **standardized pre-registration** detailing their experimental conditions and outcome measures. **The PIs validated the designs including the outcome measures** $\rightarrow$ **real-world impact**.
- **Survey A (Self-Assessment):** Immediately after pre-registration, teams predicted the standardized effect size (Cohen's d) of their own design.

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- **Software:** RTs programmed the software with one control and one intervention condition (*oTree* or *Qualtrics*). Common survey battery implemented across all studies to ensure consistency (Vlasceanu et al. 2024; Dechezleprêtre et al. 2025).
- **Survey B (Peer-Assessment):** Each team anonymously evaluated 10 randomly assigned peer designs, including the intervention's (i) *predicted effect*, (ii) *informativeness*, and (iii) its *categories*.

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- **Main Launch:** Over **20,000 U.S. adults** via Prolific—randomly assigned to each of the 110 conditions (55 designs × 2 arms, n = 175 participants per arm) over 6 weeks.

Examples

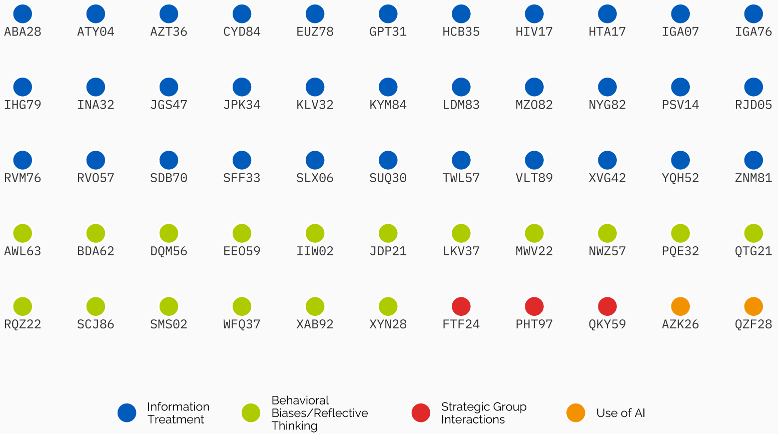

Figure 3: Peer (Survey B) + AI classification of types of interventions across teams (registered prompt with GPT-4o).

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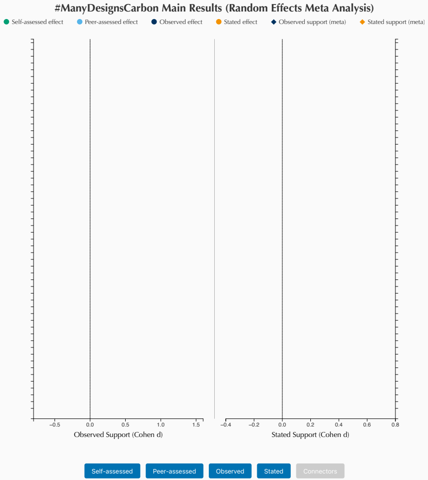
- **Uniform estimation**—For each study $i = 1, \ldots, 55$ (with N_i participants), estimate the univariate OLS

$$Y_{ij} \;=\; \alpha_i \;+\; \beta_i T_{ij} \;+\; \varepsilon_{ij}, \quad j = 1, \ldots, N_i.$$

- **Standardized synthesis**—convert each β_i to Cohen's d_i (with CIs) and pool via a random-effects meta-analysis.

MAIN RESULTS (PRE-REGISTERED)

Open Dynamic Version



SUMMARY META-ANALYTICAL EFFECT SIZES (PRE-REGISTERED)

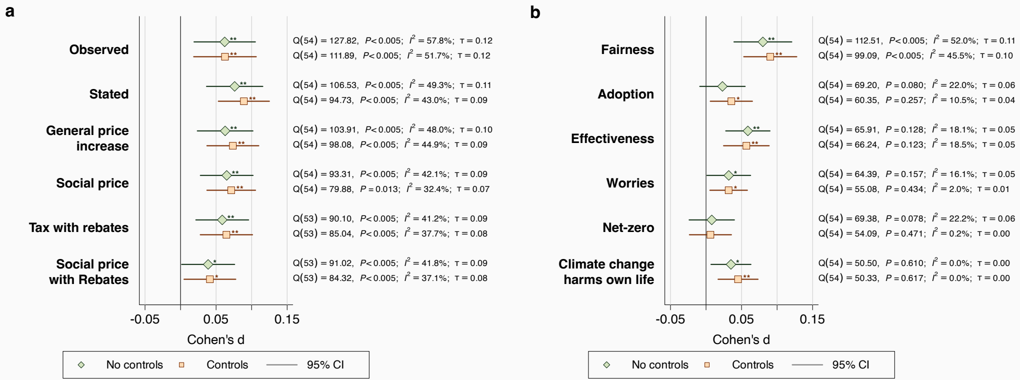


Figure 4: Panel (a): **Meta-analytical results across primary support outcomes.** Panel (b): **Meta-analytical results across secondary outcomes.**

META REGRESSIONS WITH MODERATOR VARIABLES (PRE-REGISTERED)

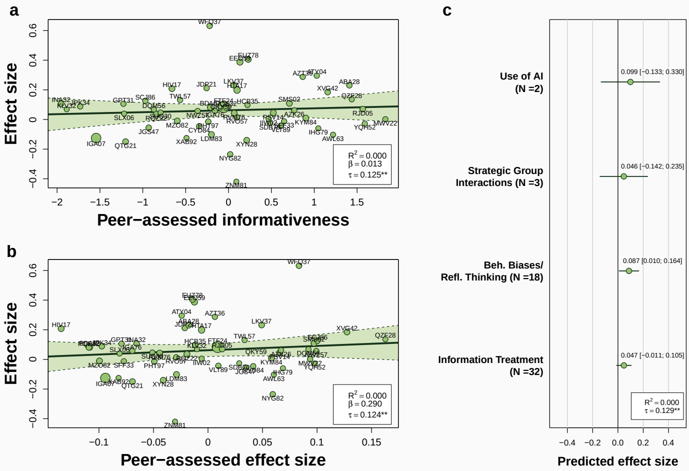


Figure 5: Results of meta-regressions exploring potential pre-registered peer assessed moderators.

CONCLUSION

- First Many-Designs study on the effect of behavioral interventions on support for carbon pricing (**observed & stated**).
- Meta-analysis finds a **very small but robust positive effect**.
- small-to-medium **heterogeneity** across designs underscores certain context-dependence (see prediction intervals).
- Interventions can **backfire**—they're not always "innocent".
- Peer assessed **moderators cannot explain** results.
- Teams **overestimated** both their own and others' effects before data collection.

Questions & Discussion

Your feedback helps us improve!

Supplement: Power Simulations

Back to Procedure

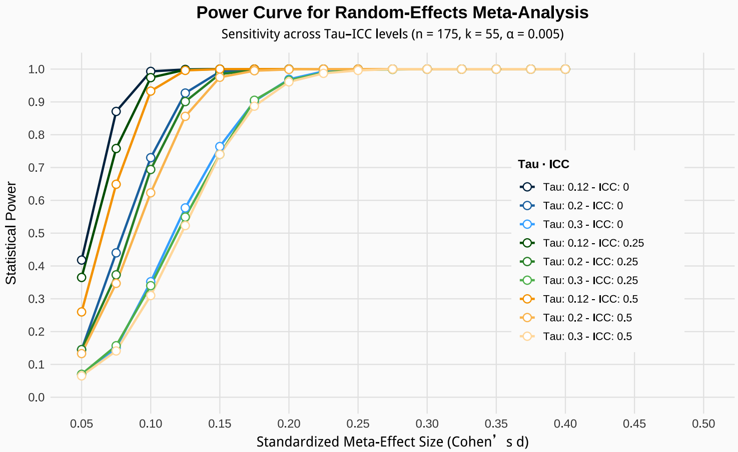


Figure 6: Power simulation for a random-effects meta-analysis, including sensitivity to between-study heterogeneity and intra-cluster correlation (ICC).

Supplement: Examples of Studies

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AZK26 (AI): 4-min AI chatbot on carbon tax *vs* open-topic chatbot; outcome: proof of contacting a representative or posting pro-carbon-tax message within 24 h.

EEO59 (Bias/Reflective Thinking): 3-min ≥100-word letter to future generations on climate policy *vs* reading neutral text; outcome: \$0–4 donation to Citizens' Climate Lobby.

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