

# Social norms and individual climate protection activities: A framed field experiment for Germany

Daniel Engler, University of Kassel, +49 561 804 7573, daniel.engler@uni-kassel.de  
Gunnar Gutsche, University of Kassel, +49 561 804 7505, gunnar.gutsche@uni-kassel.de  
Amantia Simixhiu, University of Kassel, +49 561 804 7573, amantia.simixhiu@uni-kassel.de  
Andreas Ziegler, University of Kassel, +49 561 804 3038, andreas.ziegler@uni-kassel.de

## Overview

The ratification of the Paris Climate Agreement in 2015 signed the first legally binding international agreement on climate change. Since then, a series of international and national policy measures for carbon emission reductions have been implemented to achieve the targets defined in this agreement. However, despite their efforts through laws and treaties, formal institutions in different countries have failed to effectively and efficiently enforce these climate policy measures. It is for this reason that the success of the implementation of conventional climate policy measures such as subsidies, emission trading systems, or CO<sub>2</sub> taxes has been associated with the citizens' acceptance and engagement (e.g., Engler et al., 2021). Against this background, a new wave of voluntary climate protection activities conducted by individuals, firms, and organizations have been increasingly considered as important contributions to the achievement of national climate policies. Examples of individual climate protection activities include saving energy (e.g., by using energy-efficient appliances), the use of renewable energies, reducing car use and flights, the use of climate-friendly means of transportation such as public transportation, as well as the voluntary offsetting of greenhouse gas emissions (known as carbon offsetting) emitted by individuals through, for example, vehicle use, (business) travel activities, or energy consumption (e.g., Lange et al., 2017).

Because the potential to decrease greenhouse gas emissions at the individual level is still considerable, the use of information campaigns may play an important role in the promotion of different voluntary climate protection activities. For example, in the environmental domain, the prominent US public service advertisement Keep America Beautiful (e.g., KAB, 2018), has been shown to have had success in decreasing littering in the past. The success of such messages framed as normative appeals lies in the fact that norms have been a central part of human societies by shaping individuals' behaviors and attitudes. The underlying mechanism behind the success of norms as social regulators is intertwined with the human propensity to crave recognition and a sense of belonging in their social group (e.g., Benabou and Tirole, 2016). Under the influence of their peers, individuals demonstrate an elevated sensitivity to their behavior and thoughts (e.g., Garcia and Wei, 2021) by meanwhile trying to avoid the stigma and loss of reputation that occurs from non-compliance to the overall accepted behavior (e.g., Nyborg et al., 2016).

Previous studies on environment and norms suggest that social norms affect individuals' decisions on mobility (e.g., Gravert and Collentine, 2021), energy consumption (e.g., Schultz et al., 2007), and use of natural resources (e.g., Andor et al., 2020). Concerning climate protection, to the best of our knowledge, only a limited number of studies have researched in this direction and found a statistically significant relationship between social norms and climate protection (e.g., Falk et al., 2021). Based on the discussion emerging from the complementarity of both injunctive and descriptive norms (e.g. Schultz et al., 2007), we compare the effects of injunctive and descriptive norms in isolation, respectively, and additionally a combination of both.

## Methods

Based on data from a representative survey among 1,614 individuals in Germany, this paper empirically examines the causal effect of information interventions referring to social norms on revealed climate protection activities. We run a framed field experiment, where participants are exposed to different norm information and have to decide on whether and to which extent to donate for the retirement of CO<sub>2</sub> certificates from the European Union Emission Trading System (EU-ETS), as in Goeschl et al. (2018). All participants get a brief description of the problem climate change poses and the EU-ETS mechanism.

Before deciding on how much to donate, participants were split into four groups that differ with respect to the information participants received before the donation decision. In the control group, no additional information was provided. In the injunctive norm group, participants were additionally informed about the attitudes of the adult German population concerning climate protection measures. Participants in the descriptive norm treatment group were informed about the behavior of the adult German population concerning climate protection measures. In the third treatment group, we combined both injunctive and descriptive norms.

To fully answer our research question, we additionally conduct a heterogeneity analysis on the effects that normative approaches have on different subgroups of our sample. Previous studies in this regard, show that the reaction to norms depends on certain individual attitudes and characteristics. For example, Falk et al. (2021) show that social information has a larger effect on engagement in climate protection activities among respondents who are skeptical about global warming. Our heterogeneity analysis specifically focuses on environmental attitudes, political orientation and economic preferences like altruism, trust, reciprocity, patience, risk preferences, and political orientation, which have been shown to be determinants of a multitude of behaviors including environmental and climate protection (e.g., Lange et al., 2017; Falk et al., 2021).

## Results

Our preliminary econometric results provide no evidence of a statistically significant effect of any of the treatments on the individual voluntary climate protection behavior. However, in line with previous studies, we find evidence of a positive relationship between environmental awareness, ecological political orientation, altruism, and trust with the amount donated for the retirement of CO<sub>2</sub> certificates. In addition, we find a significant negative relationship between conservative political orientation and the amount donated for the retirement of CO<sub>2</sub> certificates. Additionally, we find evidence of a weak positive relationship of patience and a negative relationship of social political preferences as well as risk preferences with the amount donated for the retirement of CO<sub>2</sub> certificates.

Our heterogeneity analysis suggests that the effect of social norms varies across individual characteristics. The descriptive social norm treatment is the most successful among the different subgroups of our sample, followed by the injunctive norm treatment and the combined norms treatment. Specifically, individuals that identify with an ecological and social, but not with liberal politics and that are altruistic and trust more donate significantly more for the retirement of CO<sub>2</sub> certificates in the descriptive norm treatment compared to their counterparts in the control group. On the other hand, individuals who score high in environmental awareness, altruism, and positive reciprocity donate significantly more for the retirement of CO<sub>2</sub> certificates under the influence of the injunctive norm treatment compared to the control group. In contrast, individuals with a high environmental awareness donate significantly more for the retirement of CO<sub>2</sub> certificates in the combined norms treatment compared to the control group.

## Conclusions

Our overall preliminary results suggest that normative information carry a major potential for reinforcing peoples' climate-friendly approach in their everyday life. More specifically, our analysis of heterogenous treatment effects suggests that norm nudges have very different effects on different population strata. In addition, norm nudges also appear to have unintended negative effects on some respondents. Policymakers should therefore carefully evaluate which information is best suited for different strata of the population when using norm nudges as a tool to encourage pro-environmental behavior.

## References

- Andor, M., A. Gerster, J. Peters, and C. Schmidt (2020), Social norms and energy conservation beyond the US, *Journal of Environmental Economics and Management* 103, 102351.
- Bénabou, R. and J. Tirole (2016), Mindful economics: The production, consumption, and value of beliefs, *Journal of Economic Perspectives* 30 (3), 141-64.
- Engler, D., E. Groh, G. Gutsche, and A. Ziegler (2021), Acceptance of climate-oriented policy measures under the COVID-19 crisis: An empirical analysis for Germany, *Climate Policy* 21 (10) 1281-1297.
- Falk, A., P. Andre, T. Boneva, and F. Chopra (2021), Fighting climate change: The role of norms, preferences and moral values, CESifo Working Paper 9175.
- Garcia, J. and J. Wei (2021), On social norms and beliefs: A model of manager environmental behavior, *Resource and Energy Economics* 65, 101232.
- Gravert, C. and L. Collentine (2021), When nudges aren't enough: Norms, incentives and habit formation in public transport usage, *Journal of Economic Behavior and Organization* 190, 1-14.
- KAB (2018), Keep America Beautiful celebrates its 65th anniversary of improving communities across America, <https://kab.org/keep-america-beautiful-celebrates-its-65th-anniversary-of-improving-communities-across-america/>, last accessed on January 25th, 2021.
- Lange, A., C. Schwirplies, and A. Ziegler (2017), On the interrelation between the consumption of impure public goods and the provision of direct donations: Theory and empirical evidence, *Resource and Energy Economics* 47, 72-88.
- Nyborg, K. et. al. (2016), Social norms as solutions, *Science* 354 (6308), 42-43.
- Schultz, W., J. Nolan, R. Cialdini, N. Goldstein, and V. Griskevicius (2007), The constructive, destructive, and reconstructive power of social norms, *Psychological Science* 18, 429-434.

