



Can social norm interventions promote voluntary pro environmental action?

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ARTICLE INFO

Keywords:

Climate change mitigation
Voluntary pro environmental behaviour
Carbon offsetting
Social norms
Online framing experiment

ABSTRACT

Conventional wisdom holds that voluntary pro-environmental action of citizens is desirable, but there remains much debate over how it could be promoted. We study this issue focusing on social norm interventions to increase voluntary carbon offsetting, which involves high personal costs. Specifically, we examine the causal effects of two types of social norm signals. One relates to attitudes and behaviour of other car owners (group information), the other to government policy on carbon offsetting, which carries an institutional signal of social desirability. While the former should have a positive effect, the latter could encourage or crowd out voluntary offsetting. Based on an experimental study design and a representative sample of 1919 car owners from the largest canton in Switzerland we find that, despite high costs, around 25% of our sample expressed a willingness to offset, and 11% actually paid to offset their emissions. The group norm intervention per se had little effect, but the combination of institutional and group norm signal caused a substantial increase in offsetting payment. Our study contributes to the discussion on how social norms and pro-environmental behaviour relate. The two main policy implications are that: (1) there is substantial room for using voluntary carbon offsetting to reduce emissions; and (2) institutional norm signals can promote voluntary carbon offsetting when pro-environmental behaviour is not yet widespread and group related norm interventions are thus difficult.

1. Introduction

The 2015 Paris Agreement seeks to keep the global mean temperature from rising by more than 1.5–2 °C above preindustrial levels. To reach this goal, both state-led and voluntary initiatives by stakeholders (e.g., individuals, firms, cities) are necessary to achieve the reductions of greenhouse gas emissions (GHG) required to that end. Individuals have a large array of options to voluntarily reduce their GHG emissions. One possibility is voluntary carbon offsetting, which means that individuals voluntarily pay for projects that reduce emissions elsewhere in order to compensate for their carbon footprint. For example, individuals could offset their emissions from air travel by paying for a carbon capture and storage or a reforestation project that reduces the amount of GHG emissions of their flights.

Carbon dioxide emissions in Switzerland are declining slower than needed to meet the ambition of the Paris Agreement according to the Swiss Federal Office for the Environment ([Federal Office for the Environment 2018](#)). A particularly worrisome sector is transport. Emissions from other sectors are decreasing, while emissions from transport, the highest emitting sector, remain constant. A substantial part of these emissions stem from individuals' car use, meaning there is considerable potential for GHG reductions. How could governments

change individuals' behaviour to align better with overall societal goals, such as inducing individuals to voluntarily offset their emissions?

One way to influence individual behaviour is via social norms. Social norms are societal expectations concerning acceptable behaviour ([Fehr and Fischbacher, 2004](#); [Miller and Prentice, 1996](#); [Schwartz and Howard, 1984](#); [Thøgersen, 2006](#)). The perception of societal norms affects how individuals behave. On the one hand, following a logic of consequentialism, individuals fear potential sanctions from their social environment should they violate social norms (see, for example, [Fehr and Fischbacher, 2004](#)). On the other hand, following a logic of appropriateness, individuals may follow social norms because it is the “right” thing to do in their perspective ([March and Heath, 1994](#); [March and Olsen, 2006](#); [Weber et al., 2004](#)).

Policy-makers, civil society, or other actors can seek to actively influence individuals' perceptions of social norms. We follow [Tankard and Paluck \(2016\)](#) and focus on two ways policy-makers and others can affect individuals' perception of social norms: group information and institutional signals. Group information signals to individuals what others in their respective social group (e.g., friends, family, colleagues, or in our case other car drivers) are doing. The social group is important as it informs individuals about the potential consequences of their behaviour, if they have to fear third party sanctions ([Fehr and](#)

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Fischbacher, 2004), or the appropriateness of their action. In our case, a testimonial informs our survey participants about a car driver who believes voluntary carbon offsetting is desirable and that the person's social environment agrees. This treatment combines injunctive (what is ought to be done) and descriptive (what is done) normative information and should appeal to both rationales of norm compliance. The reference group here is not necessarily other car drivers. Rather, the treatment conveys a more general impression of what society thinks about this issue. We anticipate that this treatment increases an individual's intention to voluntarily offset carbon emissions as well as average payments for carbon offsets.

In contrast, institutional signals¹ refer to decisions by institutions that motivate individuals to infer what socially desirable behaviour is. In our case, our treatment informs individuals about Swiss legislation that requires importers of fossil fuels to compensate the resulting emissions from their imports. We argue that institutional signals may have positive or negative effects on individuals' pro-environmental behaviour. On the one hand, this treatment could signal social acceptance of voluntary offsetting, as it highlights that carbon emissions are problematic and offsetting is one mechanism to deal with them. On the other hand, individuals might perceive voluntary individual action as unnecessary as the government is already addressing the problem of carbon emissions. In line with Kallgren et al. (2000) and Cialdini et al. (1990), our treatments explicitly focus on the desired behaviour, in our case voluntary carbon offsetting.²

The importance of social norms for individual behaviour is virtually uncontested in social psychology and behavioural economics (Cialdini, 2003; Cialdini et al., 2006, 1990; Nolan et al., 2008; Tankard and Paluck, 2016; Thaler and Sunstein, 2008; Thøgersen, 2006). Concerning pro-environmental behaviour and more specifically voluntary carbon offsetting, Blasch and Farsi (2014), Blasch and Ohndorf (2015) and Schwirplies and Ziegler (2016) recently studied the effects of perceived social norms on stated behavioural intentions and stated previous voluntary carbon offsetting behaviour. According to this research, individuals who perceive carbon offsetting as a relevant social norm are more likely to have offset in the past, express preferences to offset in the future, exhibit a greater willingness to pay for offsetting, and use potential lottery wins from the survey to offset their emissions (Blasch and Farsi, 2014; Blasch and Ohndorf, 2015). Similarly, Schwirplies and Ziegler (2016) highlight that perceived social norms are specifically related to intentions to offset carbon emissions in the future, but not necessarily the intention to pay higher prices for green products. In other words, individuals who perceive a social norm that voluntarily offsetting carbon emissions is desirable and appropriate are more likely to hold positive preferences towards offsetting and are more willing to pay.

Our work adds to the current literature in several ways. First, we experimentally manipulate social norm perceptions concerning voluntary carbon offsetting. This allows for causal rather than only correlational inference. For example, Blasch and Farsi (2014) as well as Blasch and Ohndorf (2015) record participants' perception of social norms via survey questions, which only allows for correlational analysis.³ Other

¹ Institutions organise, educate or govern a certain group. For example, governments govern their citizens or school authorities educate students (Hogg and Reid, 2006; Silverblatt, 2004).

² Norms tend to affect behaviour more when they are directly connected to an imminent decision (Cialdini et al., 1990; Kallgren et al., 2000). These authors show, for example, that loosely related messages conveying social norms fail to increase compliance, while focused norm-conveying messages have a more substantial effect. This means, in their case, that littering behaviour will be affected more by information on recycling than by information on turning off the light (Cialdini et al., 1990, p. 1024). In other words, the relatedness of a norm to the behaviour matters. Therefore, our treatments are intentionally closely connected to voluntary offsetting behaviour.

³ Blasch and Farsi (2014) as well as Blasch and Ohndorf (2015) use two

research, such as Allcott and colleagues', manipulates norm perceptions but does not focus on voluntary carbon offsetting, which in our opinion represents a particularly tough test for the effects of social norms on pro-environmental behaviour, as it is quite costly without immediate personal rewards (Allcott, 2011; Allcott and Rogers, 2014).⁴ Moreover, we examine different mechanisms of social norms perception (i.e., group information and institutional signals), unlike Allcott and colleagues who concentrate merely on group information. Additionally, the aforementioned studies only examine stated offsetting behaviour prior to the survey, whereas our study design allows us to observe participants' de facto offsetting payments (see, e.g. Blasch and Farsi, 2014; Blasch and Ohndorf, 2015).

To examine the effects of the aforementioned two mechanisms of social norm perception, we designed an online survey-embedded experiment focusing on voluntary carbon offsetting behaviour and randomly sampled 1919 car owners from the population of registered cars in the Canton of Zurich, the largest canton of Switzerland with a population of 1.5 million. We used a 2 × 2 design for the treatment conditions to study both types of social norm signals. First, individuals were randomly assigned to either receive the institutional signal or not, followed by random assignment to the group information treatment or not. Participants were thus assigned to one of four groups: a control group (control), a group that received the group information treatment (group information), a group that received an institutional signal treatment (institutional signal) and those who received both group information and an institutional signal (combined). After exposure to the treatments, we asked participants to offset the emissions from driving their car and provided them with an opportunity to do so. Therefore, we can assess both stated preferences and revealed offsetting behaviour (i.e., whether the participant paid for offsets).

Our results show that institutional signals have a significant positive effect on individuals' voluntary carbon offsetting behaviour, especially when the costs are low. The information on group behaviour has little or even a discouraging effect. The combination of these two treatments outperforms the control condition, regardless of suggested offsetting costs. The main policy implication of these results is that government-led environmental initiatives can stimulate additional voluntary pro-environmental action. In contrast, focusing on social norm interventions pertaining to peer group behaviour alone may have little effect, particularly in areas, such as voluntary carbon offsetting, where the respective pro-environmental behaviour is not yet very widespread.

In the remainder of the paper, we begin by discussing the literature on social norms and pro-environmental behaviour and presenting our theoretical argument, followed by the empirical study design. After that, we present our empirical results, discuss their policy implications, and highlight options for further research.

2. Concepts and theoretical arguments

In this section, we define key concepts, discuss how and why social norms affect pro-environmental behaviour, as well as which mechanisms policymakers can use to change social norm perceptions.

2.1. How and why do social norms affect behaviour?

Social norms act as blueprints for socially acceptable behaviour

(footnote continued)

questions to measure the perception of social norms. Participants are asked whether they think that a) their family and b) their friends expect them to offset their carbon emissions.

⁴ Allcott and colleagues focus on the use of electricity consumption. This domain obviously holds private gains from pro-environmental behaviour, as the monthly costs for electricity decrease with increased pro-environmental behaviour.

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