



## Motivating the selfish to stop idling: Self-interest cues can improve environmentally relevant driver behaviour

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### ABSTRACT

Air pollution has a huge and negative impact on society, and idling engines are a major contributor to air pollution. The current paper draws on evolutionary models of environmental behaviour to test whether appeals to self-interest can encourage drivers to turn off their engines at long wait stops. Using an experimental design, drivers were shown one of three self-interest appeals (financial, health, kin) while waiting at a congested level-crossing site in the UK. Results showed that all three self-interest appeals increased the chances of drivers turning off their engines compared to the control condition. Specifically, drivers were approximately twice as likely to turn off their engines in the self-interest conditions (39–41% compliance) compared to drivers in the control condition (22% compliance). Thus, self-interest motives can be effective for promoting pro-environmental behavioural compliance. Theoretical and applied implications of this research are discussed.

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### 1. Introduction

The current paper reports a field experiment that complements recent studies testing the efficacy of different theory-based approaches to influencing vehicle drivers' pro-environmental behaviour (Meleady et al., 2017).<sup>1</sup> The present study draws on recent evolutionary models of environmental behaviour change (De Dominicis, Schultz, & Bonaiuto, 2017; Van Vugt, Griskevicius, & Schultz, 2014) to examine whether and how car drivers' self-interest may be harnessed to reduce engine idling at long wait stops. Importantly, we distinguish between three types of self-interest messages (financial-focused, health-focused, and kin-focused) to see how they affect behavioural change. Although the three self-interest messages used are all consistent with evolutionary theory, they may also invoke more proximal motivations which are not dependent on evolutionary assumptions. These proximal motivations are: people's cognitive bias to avoid material loss (Tversky & Kahneman, 1991), their motivation to avoid personal mortality (Greenberg et al., 1990), and their inclination to protect the young (Batson, Lishner, Cook, & Sawyer, 2005; Bleske-Rechek, Nelson, Baker, Remiker, & Brandt, 2010; Burnstein, Crandall, & Kitayama, 1994).

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<sup>1</sup> Other studies testing social psychological interventions on engine idling have investigated the role of self-monitoring (Meleady et al., 2017) and social norms (Player et al., 2018). It is notable that there is a comparably low level of compliance in the control conditions across these different studies.

### 1.1. Harnessing self-interest

Environmental problems are often caused or exacerbated by evolutionarily adaptive psychological biases (Van Vugt et al., 2014). Many environmental issues can be considered as social dilemmas where the interests of the individual are at odds with the interests of the collective. Ample empirical evidence shows that, in social dilemmas, most people make self-interested choices in one-shot encounters (Fehr & Gächter, 2002; Komorita & Parks, 1994; Van Lange, Balliet, Parks, & van Vugt, 2013). If all individuals in a group each pursue their own self-interest, this results in damaging consequences for the collective. For example, it may be in an individual's self-interest to drive to work because it is faster and more convenient than the alternatives. However, this choice harms the collective's interests by causing greater air pollution, congestion, and use of natural resources. The question therefore becomes, if self-interest is such an unavoidable psychological bias, how can we use this bias to promote environmentally-responsible rather than damaging behaviour? Specifically, are there ways to view the boundaries of the self more widely so that self-interest and collective benefit become aligned? (cf. Hothrow & Abrams, 2010).

Recent evolutionary and social psychological models of environmental behavioural change propose that, although self-interest may diminish peoples' motivation to engage in environmental behaviour, carefully designed interventions can in fact harness this self-interest tendency and use it to encourage greater pro-environmental behaviour (see De Dominicis et al., 2017; Nolan & Schultz, 2015; Van Vugt et al., 2014). Specifically, environmental campaigns could highlight particular personal benefits of engaging in pro-environmental behaviours, and thereby promote a greater behavioural uptake. There is some empirical support for the effectiveness of self-interest frames in environmental contexts. For example, across three studies De Dominicis et al. (2017) showed that self-interest messages (e.g., "save 50% on your energy bill"; "public transit pass is 75% less expensive than using your car") were effective for promoting energy conservation and the use of public transportation.

### 1.2. Null effects of self-interest interventions

Nevertheless, programs designed to appeal to self-interest have also been criticized (Bolderdijk, Steg, Geller, Lehman, & Postmes, 2013), and a number of recent field studies have reported null effects when testing the impact of self-interest interventions on behavioural compliance in a range of applied contexts such as the promotion of recycling behaviours (Evans et al., 2013). Bolderdijk et al. (2013) found that a self-interest frame ("Do you care about your finances? Get a free tire check") did not significantly promote behavioural compliance compared to a control message ("Get a free tire check"). Similarly, Asensio and Delmas (2015) found that, compared to a control condition, providing information about economic impacts of household energy use (e.g., monthly billings) also did not significantly affect householders' energy use.

### 1.3. When and why might self-interest work?

In the preceding examples self-interest may not have been a particularly powerful strategy for promoting behavioural compliance because these contexts involved behaviours over which people may have already considered their self-interest, and in which the presence of others (i.e., the collective relevance) was not necessarily involved. It therefore seems likely that the potential impact of self-interest on behaviour depends on the particular type of context and within that the scope for a particular focus of self-interest to create a new impetus for behaviour. The current research aims to further understand whether and when self-interest may be harnessed to affect pro-environmental behavioural compliance in a situation where self-interest may not be generally salient. Below we outline why more research is required to understand when and why self-interest may impact behavioural compliance.

#### 1.3.1. Framing

In Asensio and Delmas' (2015) study the monthly household savings estimates were relatively small (roughly equivalent to two cups of coffee), and may therefore not have been sufficient to motivate household behavioural change. Moreover, participants had probably already given thought to their energy costs and may have felt comfortable with their existing usage levels. Indeed, in De Dominicis et al.'s (2017) study, in which self-interest did significantly enhance behavioural compliance, the financial gain was extremely high (e.g., 50% reduction of energy bill). Thus, it seems likely that financial incentives have to be very salient or large in order to engage self-interest, but this might be difficult to envisage in the context of making pro-environmental choices. Indeed, although the majority of studies in this field have focused on messages tapping into "financial savings", "financial gain", and "financial incentives" (see Delmas, Fischlein, & Asensio, 2013), a promising approach may be to frame financial-focused messages in terms of avoiding loss. Moreover, ample research shows that humans are inherently loss averse, and are more sensitive to losses and disadvantages than to gains and advantages (Tversky & Kahneman, 1991). We will therefore directly test whether a financial message framed as a potential imminent loss may promote pro-environmental behavioural compliance.

#### 1.3.2. Type of self-interest

Furthermore, while research has predominantly focused on the role of financial self-interest for promoting or inhibiting environmental responses, there are other types of self-interest beyond wealth and resources. For example, consistent with

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