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Will one size fit all? Incentives designed to nurture prosocial behaviour

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ABSTRACT

Gneezy et al. (2011) review a literature that assesses the relevance of the form (monetary or non-monetary) of incentives employed to nurture prosocial behaviour. Here the objective is to assess the relevance of characteristics employed to describe individuals when comparing the efficacy of incentives designed to nurture prosocial behaviour. The impact of different incentives depends on the form they take *and* on the way they are received. This paper compares the impact of different incentives designed to increase pro-environmental behaviour (by increasing individuals' willingness to recycle household waste). Some individuals are more responsive to a nudge (that increases individuals' perceptions of the intrinsic value of action) than to a threat (that they will be punished if they refuse to comply). The relative efficacy of these incentives depends on the extent to which individuals are motivated by 'environmental morale'. When designing policy to increase prosocial behaviour, 'one size will not fit all'.

1. Introduction

Gneezy et al. (2011, p. 206) examine "…when and why incentives…work to modify behaviour". They conclude that "… the effect of incentives depends on how they are designed, the form in which they are given (especially monetary or non-monetary), how they interact with intrinsic motivation and social motivation and what happens after they are withdrawn". In this paper the objective is to explore the efficacy of different incentives with reference to characteristics that can be employed to describe 'representative individuals'.

Gneezy et al. (ibid, p. 199) survey the literature that assesses the impact of incentives with reference to their impact on "…voluntary contributions to public goods, such as donating blood, volunteering or protecting the environment." Here the intention is to compare the impact of incentives with reference to individuals' willingness to protect the environment. This paper compares the efficacy of incentives designed to increase individuals' willingness to recycle household waste.

Neoclassical economics explores the impact that incentives exert on relative prices. This approach often focuses on monetary incentives (monetary rewards, or monetary punishments). The impact of an incentive depends on the extent to which it alters the relative price of achieving an outcome. By comparison, behavioural economics insists that individuals are motivated by the value of outcomes (contingent on action) *and* by the intrinsic value of action. As an example, Andreoni (1990) refers to the 'warm glow' that individuals derive from the *act* of giving to charities.

Thaler and Sunstein (2008) draw on insights from behavioural economics to argue that individuals can be 'nudged' to act more prosocially (e.g. they show that policy can be designed to increase the supply of human organs for transplant operations). In this paper the objective is to question whether individuals can be nudged to increase their willingness to recycle household waste by changing their perceptions of the intrinsic value of pro-environmental action. The paper is organized as follows:

Section 2 considers the relevance of intrinsic motivation. Are individuals more like instrumental *homo economicus,* or are they also motivated by environmental morale? If 'tax morale' is relevant when explaining individuals' willingness to pay taxes (e.g., Torgler, 2005), is 'environmental morale' relevant when explaining individuals' willingness to protect the environment?

Section 3 of the paper focuses on the impact of incentives. If incentives are able to change perceptions of the intrinsic value of action, how will they change individuals' perceptions of the intrinsic value

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of recycling household waste? Is it possible to 'nudge'? Is it possible to increase perceptions of the intrinsic value of recycling household waste? If so, will a nudge prove more effective than a coercive intervention? For Thaler and Sunstein (2008) a nudge is an example of 'paternal libertarianism'. While the intention is to change behaviour, individuals must always remain free to choose how they will behave. In this study the impact exerted by a nudge is compared to the impact that is exerted when the government threatens to fine individuals if they do not recycle household waste. This coercive intervention is more of a 'shove' than a 'nudge'. Results from this analysis suggest that, on first comparison, the nudge and the shove appear equally effective. There is *policy invariance*. However, the nudge appears to be more effective than the shove the more that individuals are motivated by the intrinsic value of action.

With evidence that the impact of incentives depends on descriptions of 'representative individuals', Section 4 of the paper considers the difficulties that policymakers will encounter if they decide to 'tailor' incentives to different descriptions of 'representative individuals'. The results in the early section of the paper suggest that policymakers can achieve more if they rely on a set of bespoke incentives. This section illustrates the costs that they are likely to encounter.

In the racing fraternity it is common knowledge that there are '... different horses for different courses' (the likelihood that a horse will win a race depends on the characteristics of the racecourse). In just the same way, the performance of an incentive depends on the characteristics of 'representative individuals' of the targeted group. The impact of incentives (monetary or non-monetary) depends on the way that they are received. One size will not fit all!

2. The description of the 'representative individual'

Neoclassical economics focuses on the behaviour of *homo economicus*. *Homo economicus* has been described as: rational; egoistic; with egoism predicated on self-interest, narrowly defined in terms of income or wealth (Brennan and Lomasky, 1993). *Homo economicus* responds to 'economic' (or 'extrinsic') incentives – taxes, subsidies, fines, mandatory policy, etc. Analysts focus on the way that changes in incentives change constraints. Predictions are premised on the assumption that preferences are exogenous and constant (Stigler and Becker, 1977).

More recently, behavioural economics has been identified as a different 'representative individual' (*homo behavioural economicus*). This actor might rely on: bounded rationality; bounded self-will; bounded self-interest (see Mullainathan and Thaler, 2000). However in this paper, the important difference is that the 'representative individual' derives value from outcomes contingent on action *and* also intrinsic value from action itself. Individuals are described as "... intrinsically motivated to perform an activity when one receives no apparent reward except the activity itself..." (Deci, 1971, p. 105).[3]

Perceptions of the intrinsic value of action depend on moral considerations and on low-cost signals that acknowledge action (e.g., Deci and Ryan, 1985). In this context, behaviour depends on the low-cost signals that are emitted when governments introduce and administer public policies (e.g., Frey, 1997). Here the objective is to assess: (i) the extent to which the relevance of intrinsic motivation differs across different individuals, and (ii) the extent to which intrinsic motivation is relevant when predicting willingness to recycle household waste.

A literature in environmental economics has already explored the importance of intrinsic motivation, e.g. De Young (1996) refers to the personal contentment that individuals derive from pro-environmental behaviour. A literature also explores the importance of intrinsic motivation when explaining willingness to recycle household waste. Brekke, Kverndokke, and Nyborg (2003), Kinnaman (2006) and Abbott, Nandeibam, and O'Shea (2013) conclude that individuals experience a 'warm glow' when recycling household waste. However, here the objective is to focus on differences in the impact that different incentives exert. In order to explore these differences, a questionnaire was designed and distributed to students at the Universities of Bath (United Kingdom) and Florence (Italy). Data were collected from students enrolled on economics and psychology taught course units (the overwhelming majority of respondents were registered in the economics and psychology departments). The choice of academic disciplines reflects a literature on economists being 'different' and less likely to contribute to the common good (see, for example, Cipriani, Lubian, and Zago, 2009). During a brief introduction to the study, participants were instructed that the survey was anonymous and there were no right or wrong answers. After receiving a printed version of the questionnaire, students were asked to complete the survey on their own and without consulting their colleagues. The time taken to hand out the questionnaires, to complete them and to collect them again was approximately 20 min. In all, 1190 responses were collected.[4]

One of the important questions is whether the extent to which the 'representative individual' for this cohort is motivated by 'environmental morale'. In the questionnaire survey 'environmental morale' was inferred from the responses to a set of questions (multi-item index – Cronbach's Alpha = 0.61) where individuals were asked to indicate how often (from 1 = never, to 5 = always) they take specific 'green' actions (such as save water, recycle,[5] turn off lights, and walk, cycle or take public transport) for environmental reasons.[6] Responses to the items were aggregated to form an index ranging from 4 to 20. This measure of environmental morale is important when analysing the relevance of the intrinsic value (or 'warm glow') that individuals derive from action that is pro-environmental.[7]

If environmental morale differs systematically across individuals, how important is environmental morale when predicting individuals' willingness to recycle household waste? Willingness to recycle was inferred by asking respondents to assess their level of contribution in terms of effort spent on recycling activities given the assumption that they had to bear the time and trouble costs of recycling activities (e.g., separate their waste and/or buy different bins and garbage bags for specific waste). In this setting (hereafter BENCHMARK/COUNTERFACTUAL scenario), responses were based on a five-point Likert scale (from 1 = I will do hardly any recycling, to 5 = very high).[8] Using ordered probit, the following relationship was estimated:

$$\text{dep}_i = \beta_0 + \beta_1 \text{ sociode m}_i + \beta_2 \text{ attitude s}_i + \beta_3 \text{ ethic s}_i + \varepsilon_i, \quad (1)$$

where dep_i represents the willingness to recycle, sociodem_i and attitudes_i represent respectively socio-demographic/economic and attitudinal variables derived from individual responses to the

[3] It seems that the dopamine system in the brain will reward you for 'doing the right thing', so the lack of reward may be more apparent than real (leaving the possibility of truly selfless acts in doubt).

[4] Data from 25 participants were excluded. Among them, 10 did not complete the questionnaire, 8 answered all questions without following the instructions (next to each option), and the remaining 7 provided answers that were not consistent with the structure of the questionnaire. This provides evidence in support of the conclusion that, generally, respondents understood the questionnaire.

[5] The inclusion of this item into the index measurement increases the reliability of the index (i.e., Cronbach's Alpha increases from 0.54 to 0.61). While it might appear circular to include this item, all of the tests reported below remain robust when this item is excluded from the index measurement.

[6] Berglund (2006) uses a similar approach to build a green moral index (GMI). Note that in its original formulation, the index included a question about individuals' willingness to buy a 'green' product rather than a conventional identical good (see Barile, 2012). However, both the estimated Cronbach's Alpha when deleting the item and the corrected item-total correlation suggested removing this item from the index measurement.

[7] Torgler (2005) uses a similar definition of 'tax morale'.

[8] The questionnaire is reproduced in Barile (2012).