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Centre for Behavioural and Experimental Social Science

UEA
University of East Anglia

2021-03

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November 2021

We investigate the effect of worthiness framing on donation behaviour – both the propensity to donate and magnitude of donation. People prefer to donate to 'worthy' causes. Prosocial behaviour is strongly influenced by value judgements based on the individual's perception of a situation and are therefore highly context-dependent. In this experiment, the target of manipulation is the context of a donation decision. We invited participants to donate to the local food bank and used selected questions from the World Values Survey to measure perceptions about the context of inequality. We find a treatment effect of worthiness framing– but only for those with certain beliefs about the context of inequality. We use hardworking and unlucky frames to highlight the worthiness of the recipient group and find this framing is only effective in increasing donations if it challenges an individual's prior beliefs. Framing a recipient as worthy only increases donations from those whose beliefs suggest they consider the poor less worthy.

Keywords: prosocial behaviour, charity, worthiness, framing, deservingness

1 Introduction

Donations to anti-poverty charities are akin to a redistribution of wealth. Previous work has found that support for redistribution correlates with subjective perceptions about the causes of inequality (Almås et al., 2020), such as whether the donor believes the recipient has invested effort into changing their situation (Aarøe and Petersen, 2014). Therefore, framing recipients from an anti-poverty charity as 'worthy' could increase donations, through changing the context of the inequality. For this experiment on worthiness framing we chose to use an anti-poverty charity due to debate around the worthiness of those in poverty in the UK. There is a large charitable sector in the UK, with donations totalling over £10.1 billion in 2018 (Charities Aid Foundation, 2019). However, charitable donations are concentrated towards larger, more popular charities (Body and Breeze, 2016). People like to choose the causes and how much they donate. Generally, there is a preference for causes

perceived as 'worthy'. Charities which support causes which are perceived as less worthy can struggle to secure funds ahead of more popular causes (Body and Breeze, 2016).

In this paper, we investigate whether worthiness framing can be used to elicit greater donations from donors, by challenging their perceptions about the context of inequality. The application of fairness principles depends strongly on the context: can contextual perceptions be manipulated to influence donation behaviour? We worked together with a local food bank (Norwich [UK] Trussel Trust FoodBank, henceforth FoodBank) which provides crisis provisions to those in need. We change the context of the donation by framing recipients as unlucky and hardworking in an attempt to increase their perceived worthiness in comparison to a neutral frame. The donors' donation and redistributive preferences were not targeted. We used two treatments of worthiness framing, changing only the wording about the recipients. After completing a real effort task (RET), participants were given the opportunity to donate money earned during the session, in cash, to the local FoodBank.

A key determinant of worthiness is perceived culpability: whether responsibility for the situation is attributed to the person in need. Konow (2000, p.1073-1074) describes the 'accountability principle': a rule of justice which requires "a person's fair allocation (e.g., of income) [to] vary in proportion to the relevant variables that he can influence (e.g., work effort) but not according to those that he cannot reasonably influence (e.g., a physical handicap)." According to this principle, the level of effort observed could influence the 'fair' distributive choice more than the absolute level of need. We use 'hardworking' and 'unlucky' frames to reduce perceived culpability and therefore increase worthiness and donations.

Framing is used extensively in charitable appeals in order to evoke empathy and thereby increase donations and is addressed in a variety of literatures (e.g. the identifiable victim effect (Schelling, 1968), valence of message used (Chang and Lee, 2009). Body and Breeze (2016) analysed determinants of the popularity of causes, but there is little research separating the worthiness of a cause from the worthiness of its recipients. In a lab experiment, Fong (2007) gave potential donors information about the level of effort and desire for employment of potential beneficiaries, and found such information significantly positively affects donation levels. However, the literature has not yet looked at using framing on the worthiness of the recipient.

We find some evidence, in line with previous research in this field, that there are correlations between donation behaviour and beliefs about the origin of inequality - henceforth we call these 'unworthiness' beliefs. Our findings suggest that there was a positive effect of the worthiness framing on donation behaviour, but only on those who held one or more unworthiness beliefs about those in need, as defined from our coding of responses. Finally, one third of the subjects participated in a competitive version of the RET, resulting in 'winners' and 'losers'. This allowed exploratory analysis of the effects of competitive outcomes on donation behaviour. We find that be-

ing in a competitive scenario alone does not affect donation behaviour, but experiencing a strongly positive or negative outcome both increase donation rates in comparison to those with overall neutral outcomes.

Policy applications include understanding how language and framing lead to greater pro-social outcomes. Particularly, we give insight into how charities and fundraisers could approach this aspect of their marketing. Challenging the context of a decision can lead to immediate changes in behaviour where changing preferences is not possible or would take much longer. The design of this behavioural 'nudge' has taken account of the idea that nudges should be low-cost and easy to implement in the long term.

This paper is organised as follows: we begin with the literature review discussing determinants of donation behaviour and how these influences the subjective worthiness of the recipient in Section 2. Section 3 includes information on the political relevance of FoodBanks to worthiness perceptions. Section 4 describes the methodology and contains our hypotheses, design of the lab experiment, analysis strategy and descriptive statistics. Section 5 presents the results. Finally, in Section 6 we present the discussion and conclusion.

2 Related literature

2.1 Worthiness

There is a wide literature around the topic of worthiness in a variety of domains, but there is not yet a literature directly relating perceptions of worthiness to donation behaviour. We therefore observe the relationship between redistribution and donation to those in poverty in order to infer the relationship between worthiness and donation preferences.

Donors like to choose where their money is donated and prefer worthy causes. Charitable giving is a form of redistribution. Beliefs about the source, or context, of inequality correlate strongly with political and redistributive preferences (Almås et al., 2020; Alesina and Angeletos, 2005; Benabou and Tirole, 2006). Those who believe luck has a strong role to play in determining outcomes tend not to blame those in poverty for their situation. Conversely, those with "just world beliefs" - who believe that effort and hard work are the main determinants of success - tend to believe the poor could try harder in order to be relieved of poverty (Furnham and Gunter, 1984). These perceptions shape considerations of 'just deserts' – a fair allocation based on deservingness – and therefore influence if a cause is considered worthy.

Using an experimental method, Cappelen et al. (2007) suggest a mechanism in which context determines the application of fairness principles: highlighting egalitarianism, liberalism and liberal egalitarianism. They define liberal egalitarianism as a fairness principle by which "only inequali-

ties that arise from factors under individual control should be accepted" (ibid, p.818), such as the choice of how much effort to expend. This idea resonates with the 'accountability principle' proposed by Konow (2000). Social norms of distributive fairness are found to be frequently governed by contextual factors such as perceived merit and opportunity or luck (Cappelen et al., 2017). Their study changed the context of the inequality to evoke different fairness norms by varying the influence of merit and luck on payoffs and measuring distributive preferences. However, in reality it is not always possible to change the context of the inequality. An easier task is to reframe the context of inequality to lead to the application of different fairness principles. Aarøe and Petersen (2014) discuss this point and name it the 'Deservingness Heuristic', finding that when cues about the deservingness of a welfare recipient are present, cross-country differences in opposition to welfare are diminished.

Beliefs about the context of poverty - how it came about and who might be to 'blame'- can usually fall into one of two categories. Some criticise the structure of society as it leads to unfair inequality, whereas others criticise the individual and highlight personal responsibility. A robust finding is that individuals place relatively more responsibility on a person for their situation than they attribute to circumstance or luck (Cappelen et al., 2007). This is known as attribution error, and decreases the perceived fair allocation for the relief of poverty. Fong (2001) notes that a key factor in determining willingness to support the poor is "conditional on them [the poor] having industrious traits or intentions". An experiment on donation to health causes showed that subjects were less willing to donate to causes for diseases that were more 'controllable'. This effect is reported as being due to the subjects' "tendency to blame people with more controllable health conditions" (Hsieh and Yucel-Aybat, 2018, p. 112). It is clear that whether an individual is at fault, or to blame influences whether they are perceived as a worthy recipient of charity.

The study which most closely reflects our own research questions is that of Fong (2007). Fong's experiment used a novel social context in conjunction with a variant of the dictator game to investigate donation behaviour and measure the effects of conditional and unconditional altruism. The recipients of the donation were welfare recipients, with information on recipient characteristics provided to the donors in 'industrious-recipient' versus 'lazy-recipient' treatment conditions. Fong (2007: p. 1019) found that "Those who scored high on the HE [1] measure were highly responsive to the perceived worthiness of recipients." That is, Fong found a worthiness treatment effect only on those who appeared to be unconditional altruists. She reconciles this counterintuitive finding by suggesting that self-defined unconditional altruists combine the desire to help others and the desire to reciprocate in one prosocial attitude termed 'empathic responsiveness'. Fong's experiment uses real information about specific people. However, there has not been an experiment that manipulates worthiness through framing, whilst holding the charity constant, nor the use of a group of

[1] Humanitarianism-Egalitarianism scale created by Katz and Hass (1988)

beneficiaries instead of an individual.

2.2 Donation Determinants

Much research has sought to understand why people sacrifice their own welfare or payoffs for others. One explanation is that it is due to some form of altruism. A related explanation is inequality aversion. Having an outcome that is unequal produces negative utility for those with inequality aversion, though the aversion is stronger for disadvantageous inequality than advantageous inequality (Fehr and Schmidt, 1999) therefore, highlighting inequality could lead to higher charitable donations to anti-poverty causes.

In-group bias is when individuals act in favour of their own in-group and those who comprise it, than those others who are in 'out-groups'. Research has found that trivial differences can create in-group bias, for example in seminal work by Tajfel (1970) on the minimal group paradigm. This bias can extend to more generous behaviour towards those in an in-group. Donations may therefore be higher when framed as within an in-group. Framing of charitable appeals often seek to elicit an emotional response in order to increase donations. Many studies have experimented with message framing factors - such as statistical, temporal and valence framing (Chang and Lee, 2009) – and found them to have significant effects on donation behaviour. Framing the beneficiary of a charity as a specific identifiable person has been found to increase generosity (Lee and Feeley, 2016). Research has consistently found that empathy is a strong predictor of donation behaviour (Klimecki et al., 2016; Penner et al., 2005). Medical literature has found that empathy releases oxytocin, which increases generosity (Zak et al., 2007). More recently, beliefs in conjunction with empathy have been found to moderate donation behaviour (Martinez, 2018). Whether empathy is the main driver of the identifiable victim effect[2] is contentious (Jenni and Loewenstein, 1997), but some argue that it is due to the 'vividness' of the victim which incites a greater emotional response (Small and Loewenstein, 2003). Inciting empathy leads to greater generosity and helping behaviour. There is little research on framing the attributes of recipients in comparison to framing of the cause itself, and such framing has not to our knowledge been tested experimentally.

Psychology research has long documented how affective state and emotion impact generosity (Underwood et al., 1976). The experience of winning or losing can evoke positive or negative emotions in an individual or group. This means that 'losers' display less pro-social behaviour due to their low mood. Underwood et al. (1976) replicated this finding that sadness or low-mood reduces generosity. Conversely, this could mean that winners could behave more pro-socially after experiencing a win (Kellner et al., 2019). Winning or losing can also affect the status of an individual. Liebe and Tutic (2010, p. 353) find that "the higher the status of the dictator, the more

[2]The 'Identifiable Victim effect' is the propensity for individuals to offer greater assistance to an identifiable, specific 'victim' than to an anonymous/statistical victim.

she donates", in a dictator game using German school children and the status that their school type confers. As yet, there is not known evidence on the effect of competitive outcomes on generosity.

3 The Politics of Food Banks

The cause chosen for this experiment was the local food bank. In the UK, those who find themselves in a crisis and lacking sufficient funds can access food banks. The majority of UK food banks are in a network operated by the Trussel Trust organisation. These 'Trussel Trust Food-Banks' require a voucher provided by a doctor, health professional or other service, in the event of a crisis. These are redeemed at a local FoodBank for 3 days' worth of food. The FoodBank also supports signposting to appropriate resources and organisations to help resolve the crisis. Trussel Trust statistics show that nationally, over 70% of referrals for the period 2017-18 were due to "'income not covering essential costs', 'benefit delays' and 'benefit changes'"(The Trussel Trust, 2020*b*).

This charity was chosen because opinions on the recipients' culpability for their situation often appears in media and political discourse. Some argue that food bank users may not be 'blameless' for their situation. Between 2014-2019, the number of food parcels distributed rose sharply (up 73%), in response to increasing demand (The Trussel Trust, 2020*b*). This increase in demand is a contentious issue for UK politics, as it could indicate the failure of the 'social safety net' and the effect of prolonged austerity on the most economically vulnerable. Members of the Conservative UK Government have sought to disassociate this increase in food bank users from their austerity policies, by implying that the increase in use is not due to a lack of funds, but opportunism to benefit from free food and laziness from those unprepared to find employment (Caraher et al., 2014). This relates to ongoing rhetoric about 'benefit scroungers' and laziness (Garthwaite, 2011), which seeks to highlight benefit fraud, despite its low incidence: estimated at 1.4% of the value of total benefits payments in 2019-2020 (Department for Work and Pensions, 2020).

Such depictions in the news and media influence perceptions about the context of inequality in the UK. The All Party Parliamentary Group on Hunger noted that many voters "no longer believe" evidence of increased demand for food banks (Forsey, 2016). Food bank users may be deemed culpable for their situation if they are not thought of as having put enough effort into finding a job, or if they own certain goods deemed as luxuries such as a car, mobile phone or television. However, common negative views about food bank users do not directly reflect reality: the majority of reasons people use food banks can be attributed to larger problems in the economy leading to structural and frictional unemployment, benefit delays/changes, low income, debt and mental illness (Loopstra and Lalor, 2017). Widespread financial insecurity even among the employed means that many are vulnerable to shocks such as bereavement, ill health and redundancy, while

60% of UK renting families "could be just one paycheck away from losing their home" (Shelter, 2019). For most, it is bad luck rather than lack of effort that leaves them in a crisis. These opposing discourses have led to an array of views about the worthiness of food bank donation recipients and makes this charity an ideal cause to use in this experiment.

4 Hypotheses and Methodology

4.1 Hypotheses

We investigate the effects of worthiness framing and subjective perceptions about income inequality on donation behaviour, as well as the interaction between the two. Framing the recipient of the donation as worthy changes the context of the decision, leading to the evocation of pro-social norms. We expected this to result in a higher frequency of donations, and donations of a larger size than in the unframed treatment. In a neutral frame, the subjects' own pre-conceived perceptions are used to fill in the context of the donation decision.

Hypothesis 1. *A 'worthy' frame increases donations, as measured by rate and size of donation.*

If individuals have beliefs which attribute responsibility for poverty to those in poverty, they are less likely to perceive the recipients as worthy of help. As there is a preference for worthy causes, those who do not perceive the recipients of this charity as worthy are less likely to donate and any donation they do make is likely to be smaller than those without those views.

Hypothesis 2. *Donation rate and level correlate with subjective perceptions about the determinants of income inequality, as measured by beliefs survey responses.*

If subjects believe that the poor are lazy, they are less likely to believe that a potential recipient of the food bank is worthy, and would therefore be less likely to donate.

Hypothesis 3. *Donation level and rate will be lower in donors who believe that "Laziness" is why there are people in this country who live in need.*

If the donor believes that the government does not do 'the right amount' or more to aid those in poverty in the UK, then this would reduce the perceived culpability of the poor for their position, therefore increasing perceived worthiness.

Hypothesis 4. *Donation level and rate will be lower in donors who believe that the government does "Too Much or About the right amount" for people in this country in poverty.*

If a larger income differential incentivises effort, this would imply that those in poverty have exerted low effort, and would therefore be perceived as unworthy.

Hypothesis 5. *Donation level and rate will be lower in donors who believe "we need larger income differences as incentives for individual effort".*

If the donor holds the belief that hard work usually brings a better life, it implies that most people who are in poverty could be in a better position had they tried harder. This reduces perceived worthiness and thereby donations.

Hypothesis 6. *Donation level and rate will be lower in donors who answer "in the long run hard work usually brings a better life".*

The size of the treatment effect depends on the beliefs held by the subject. The context of the decision will change more for those who do not perceive the recipients of the charity as worthy but will not change as much for those who already perceive the recipients as worthy. This means there will be a larger effect of worthiness framing on those who believe that those in poverty are responsible for their own situations.

Hypothesis 7. *Worthiness framing interacts with beliefs to increase donation level and rate.*

In our experiment, there is a RET earnings phase, explained in more detail in the design section and in Nasamu (2020). In our analysis we control for differences in experiences that subjects had during this phase. The treatments were a Competition treatment (CT) or Non-Competition treatment (NC). Two thirds of participants were allocated to the NC. The remaining one third of subjects were allocated to the CT. Crucially, payoffs did not differ depending on the treatment. *Ex-post*, we have considered if the experience of winning/losing a competitive game could affect donation behaviour, as measured by donation rate and size. The experiment informed the subjects of their two competitive outcomes. Winning twice could increase positive affect, and losing twice could increase negative affect, and therefore influence donation behaviour (Weiss and Cohen, 2019). In addition, the most recent outcome could affect donation behaviour more than the first outcome. This experiment is not able to create a causal link between competitive outcomes and donation behaviour but could indicate areas for further research.

Hypothesis 8. *'Winners' donate differently to 'non-winners'.*

Hypothesis 9. *'Losers' donate differently to 'non-losers'.*

4.2 Experimental Design

We ran a lab experiment using the Laboratory for Economic and Decision Research (LEDR) labs at the University of East Anglia in January to March 2018. We designed three framing treatments displayed as a message soliciting donations at the end of an earnings task.

The participants first completed a RET to earn £15. Following the completion of this RET and a subsequent demographics survey, the subjects were then exposed to the messaging from one of the three framing treatments and given the opportunity to make a donation. They then completed the beliefs survey, at which point the session ended and subjects left one by one. To reassure them that the donations would really be made and the experiment was not deceptive, the subjects were given a choice to leave their contact details so they could be sent a video link to watch the donations they made be given to a representative of the local FoodBank. The subject recruitment criteria at LEDR required that the individuals were students or staff of the University of East Anglia. We therefore have a predominantly student-based subject pool. There was a further sign-up restriction that the participants must be a native English speaker. This was to ensure that the framing could not be misunderstood.

Subjects were seated in high-sided cubicles to maintain privacy and anonymity, in line with standard practice for the LEDR. Each cubicle had a computer - used for the RET, and for the display of the treatment message, as well as the post-experimental survey. In the cubicle there was also a white donation box and coin envelope (see Appendix A).

4.2.1 The Real Effort Task and Demographics Survey

The subjects completed a RET[3] in an unrelated experiment (Nasamu, 2020) lasting around 45 minutes, in order to earn their payoff and avoid the windfall effect (Clark, 2002). Subjects either participated in a treatment with competitive feedback, or with no competitive feedback. Subjects received £15 in cash at their desks upon the completion of this task, regardless of which treatment they had been assigned to. After payment, subjects completed a brief demographics survey, which asked for gender, age, year of study, field of study and nationality.

4.2.2 Framing Treatments

The display of the treatment message began after the RET had been completed and payments made. The subjects' computers displayed a screen explaining the collaboration with the local FoodBank, and an appeal for donations (Figure 1). This message varied depending on the treatment: baseline (B), Luck (L) or Luck and Effort (LE). Within each experimental session, all three treatments were implemented. The framing treatments differed in only one way: the message displayed to the subject. The message displayed was randomised but balanced within sessions to avoid session effects. The message displayed was as follows:

[3]The real effort task used was a variant of the travelling salesman problem, called the 'Team Dispatching Problem' based on the original optimisation problem by Dantzig and Ramser (1959). (cont..) The task requires 'visiting' up to 5 different 'checkpoints' on a virtual map. The participant's score is determined by the length of the route they construct, the aim being to minimise the length of the route. The task had two blocks of 7 rounds each.

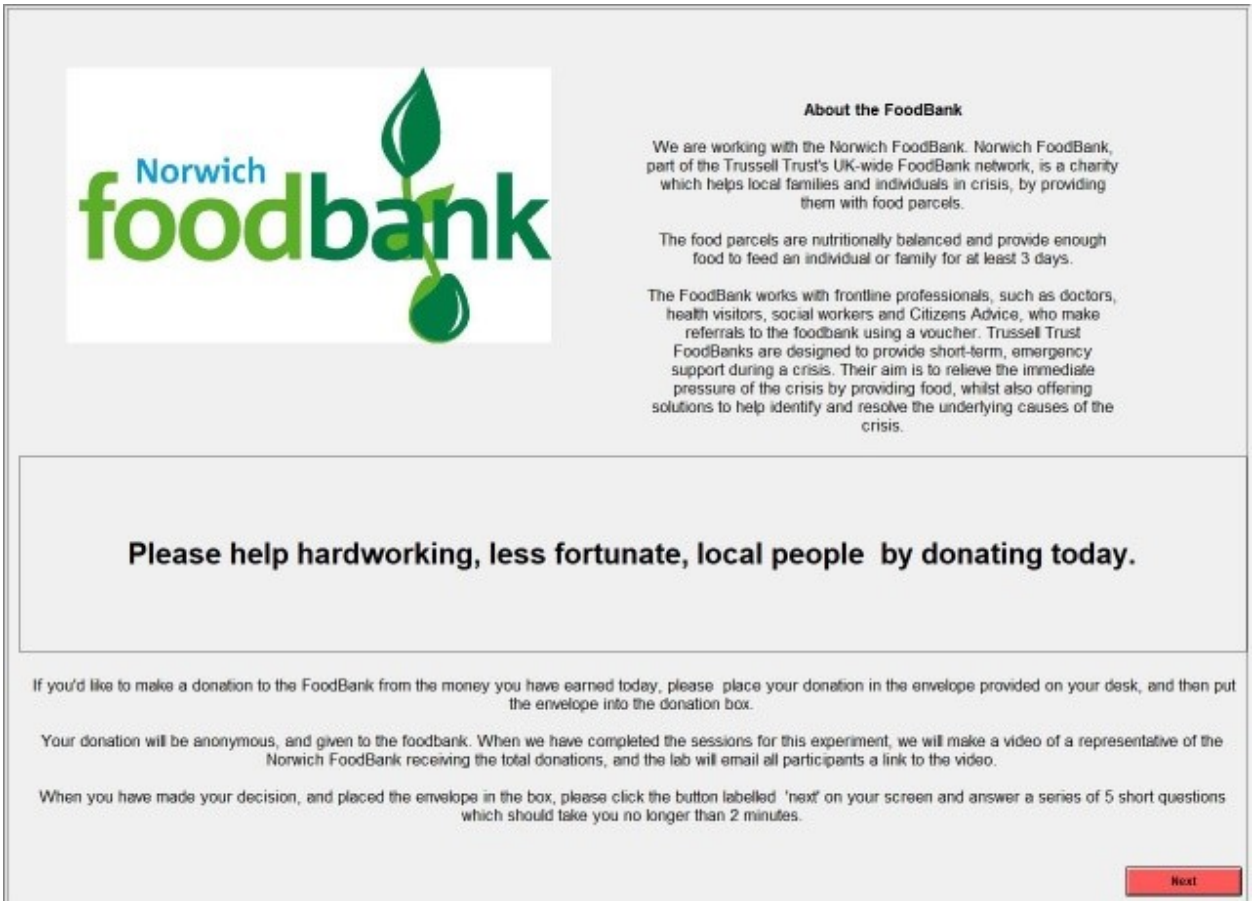

Figure 1: Screenshot of the donation solicitation page

Displaying FoodBank logo, information about the charity, treatment message (Treatment LE) and practical instructions.

Treatment 1: Baseline: "Please help local people by donating today."

Treatment 2: Luck Frame: "Please help less fortunate local people by donating today."

Treatment 3: Effort and Luck Frame: "Please help hardworking, less fortunate, local people by donating today."

These messages were chosen to evoke the "accountability principle" (Konow, 2000) and the "deservingness heuristic" (Aarøe and Petersen, 2014): if someone has been unlucky or 'less fortunate' this is due to things outside of their control (luck), which makes the recipients appear more worthy. The use of the descriptor 'hardworking' indicates that the recipients are expending effort to extricate themselves from their situation and are therefore 'worthy', in contrast to stereotypes that depict those in poverty as lazy.

On each desk was an unmarked cardboard donation box. Next to this was an envelope in which to put a cash donation before sealing it and putting it in the donation box. As this step

creates rustling and the sound of coins in the room, donors cannot be singled out as having made a donation or not. The denominations of the cash payments were such that any amount could be donated between 0-£15 in increments of 10p, see Appendix B. The donation amount could not be changed after answering the beliefs questionnaire, as the donation had already been sealed and placed in the donation box.

4.2.3 Beliefs Questionnaire

The final task was a beliefs questionnaire. These were selected and taken directly from the World Values Survey (2012). These questions were used to identify attitudes and beliefs, thereby allowing the differential effect of the treatment by belief to be measured. The subjects were asked to complete these final survey questions and then allowed to leave the experiment. It was possible to match the donation amount with the survey answers, and with the demographic data collected at the beginning of the experiment. The questions and their responses can be found in the descriptive statistics in Section 4.4. This survey also asked subjects to indicate their level of familiarity with the Norwich FoodBank, asking if they had previously heard of the charity.

4.3 Analysis

The two dependent variables in the experiment were the donation level (the amount donated) and the donation rate (the proportion of subjects who donated). The treatment effect on donation rate was tested using a Probit regression to estimate likelihood of donation. Although we look at the rate as a proportion, the underlying data is binary in nature: whether a donation is made or not. For the donation level variable, a Tobit regression was used. This was used due to natural censoring at £0 and £15, as donation amounts could not be outside of this range.

Perceptions about the origin of inequality were measured using the beliefs survey at the end of the experiment. A binary variable was created to indicate if the subject held one or more of these views. This allows us to estimate the interaction between treatment and beliefs. Norton et al. (2004) show that interpretation of the coefficients produced when using interaction dummies with non-linear models is not straightforward. We therefore show that the OLS model produces similar estimates to the simple Probit model, before estimating the interaction effects within the OLS model.

As a robustness check we change the level at which a view is coded as an 'unworthiness belief' for Questions 3 and 4. These questions required a response on a scale of 1-10, and initially a response of 7 or over was used to assign the binary unworthiness beliefs 3 and 4. We increase this to 8 in our robustness check to include only the strongest views.

To control for potential effects associated with participating in a competitive RET we have

Table 1: Demographics by Treatment.

Treatment	Age	% Male	% Native English Speaker	% British	N
Control	21.00	56%	85%	73%	48
Luck	21.62	43%	86%	74%	42
Luck+Effort	20.75	50%	86%	86%	36
Total	21.13	50%	86%	80%	126

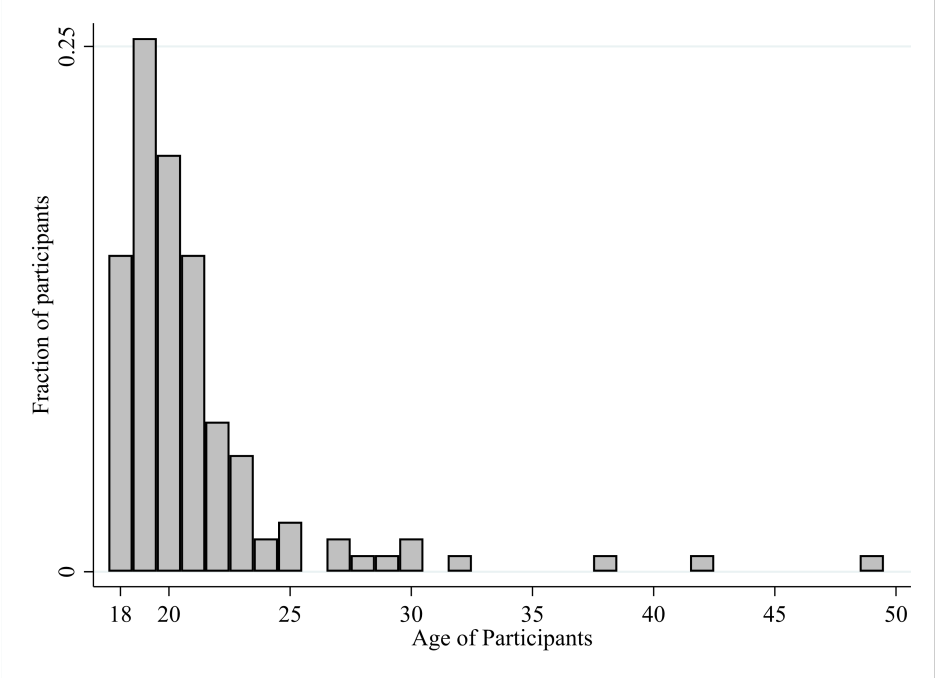

Figure 2: Histogram of age of participants, showing the majority are between 18-21

introduced a dummy variable. This takes the value of 1 if the subject had a particularly good or particularly bad competitive experience (winning twice or losing twice); or 0 if the subject did not compete in the competitive treatment (NC) or they had a 'neutral' competitive experience (in which they won one round and lost the other).

4.4 Descriptive Statistics

Table 1 shows the mean observed demographics of subjects by treatment. The results of an F-test show that the distributions between treatments were not statistically different. Figure 2 shows the fraction of participants in each age category. Our predominantly student-based sample is reflected in the fact that the majority of participants were between 18-21.

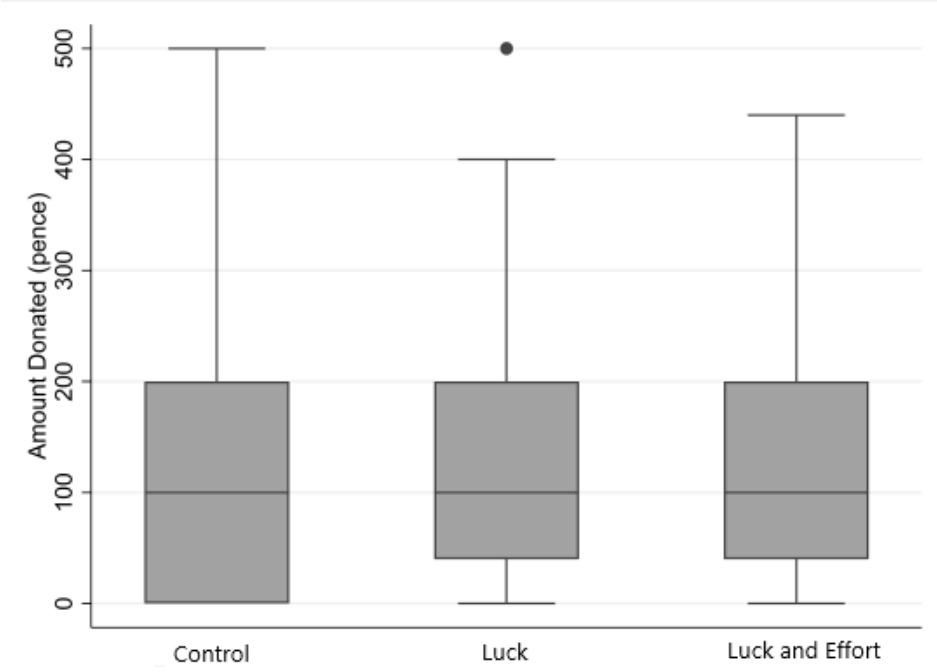

Figure 3: Box plot showing the amount donated by treatment in pence.

This shows that the distributions of donations were similar between treatments with most donations falling in the 0-£2 range. Note: the dot represents an outlier in the Luck Treatment.

4.4.1 Donation Level

Across all treatments, the mean donation made was £1.31. This is very similar across treatments, as seen in Table 2. Table 3 shows the mean donation of only those who donated (removing the non-donors from the average), which shows the in Treatments 2 and 3 there is a lower mean donation than in the non-framed control treatment. This difference is not statistically significant using a Kruskal-Wallis equality-of-populations rank test. Figure 3 shows the median donation is the same across treatments: there is a cluster of donations at £1, the mode donation.

Table 2: Summary statistics of amount donated by treatment in pence

Treatment	Obs	Mean	Std. Dev.	Min	Max
Control	48	134.17	162.56	0	500
Effort	42	132.33	138.38	0	500
Effort+Luck	36	124.72	116.73	0	440

Note: includes non-donors

Table 3: Summary statistics of amount donated by treatment in pence, excluding non-donors

Treatment	Obs	Mean	Std. Dev.	Min	Max
Control	33	195.15	162.91	10	500
Effort	35	158.80	136.98	10	500
Effort+Luck	28	160.36	108.34	30	440

Table 4: Summary statistics: % of subjects who made a donation in each treatment

Treatment	Obs	Mean	Std. Dev.
Control	48	68.75%	46.84
Effort	42	83.33%	37.72
Effort+Luck	36	77.78%	42.16

4.4.2 Donation Rate

The overall frequency of donation was 76%. The donation rate was higher in the framed messages (80.8% v 68.6%) but this difference is not statistically significant using t-tests or a Kruskal-Wallis equality-of-populations rank test. Donation rate by treatment is presented in Table 4.

4.4.3 Responses to Beliefs Survey

Question 1 asked for the participant's views on why people live in need in this country. They were asked to select answers for what they believed was the first and second most important reasons, with options for "Don't know" and "None of these'. Although the majority (59.53%) chose "because there is injustice in our society" for one of their two choices, 10.32% chose "because of laziness and lack of willpower" – however it is worth noting that only 1 of the 16 subjects who selected this response chose it as their first option (see Figure 4).

Question 2 asked for the subjects' views on how much the government does for those in poverty. The majority of respondents believed that the government does too little, with very few "too much" responses (see Figure 5).

Questions 3 and 4 asked for a response on a scale of 1 to 10, in line with the presentation of the questions in the World Values Survey 2012. Question 3 asked respondents to choose on a scale of 1-10 between "Incomes should be made more equal" and "we need larger income differences as incentives for individual effort"(see Appendix C). There was a slight clustering of responses near the middle – views which were more moderate. The results were similar for Question 4. Question 4 was a scale between "hard work doesn't usually bring a better life, it's more a matter of luck and connections" and "in the long run hard work usually brings a better life". There was a slight skew towards the latter but then with many less responses at 9 and 10 – indicating that extreme

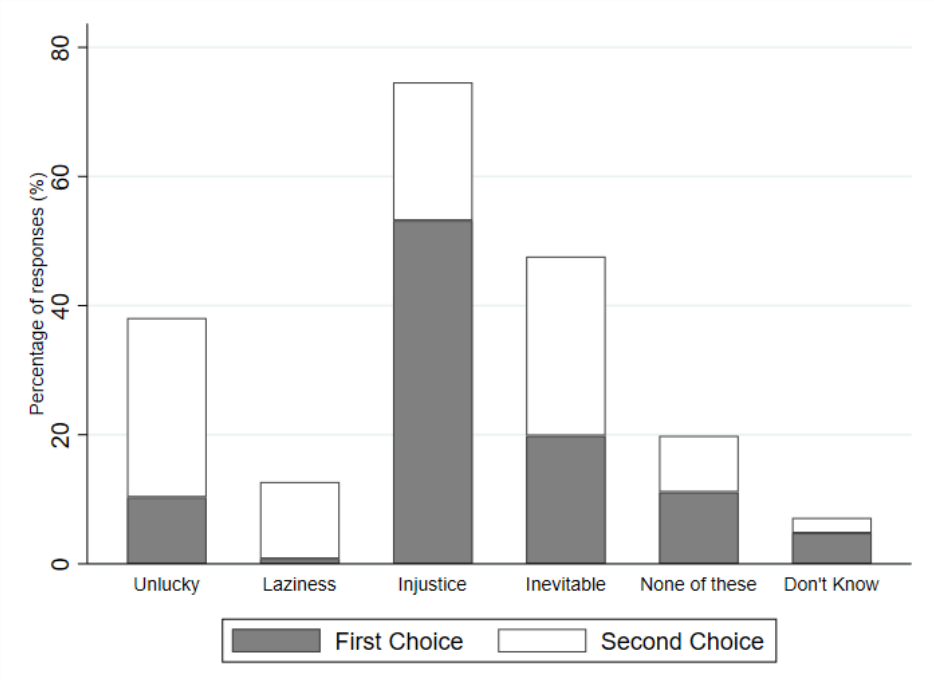

Figure 4: Responses to Question 1:"Why are there people in this country who live in need?"

The full responses to this question were: 'Because they are unlucky', 'Because of laziness and lack of willpower', 'Because there is injustice in our society', 'It is an inevitable part of modern progress', 'None of these', 'Don't know.'

views were not preferred. Bar graphs showing the responses to Questions 3 and 4 can be found in Appendix D.

The final question was not a beliefs question, but a question of the level of familiarity the subject had with the cause. The majority of the participants knew the FoodBank very well or a little, but a significant number had not heard of it at all. The responses can be seen in Appendix D

5 Results

5.1 Main Results

The main treatment effect was estimated using two dependent variables measuring the level and rate of donations.

Result 1. *Worthiness framing does not affect the overall donation level.*

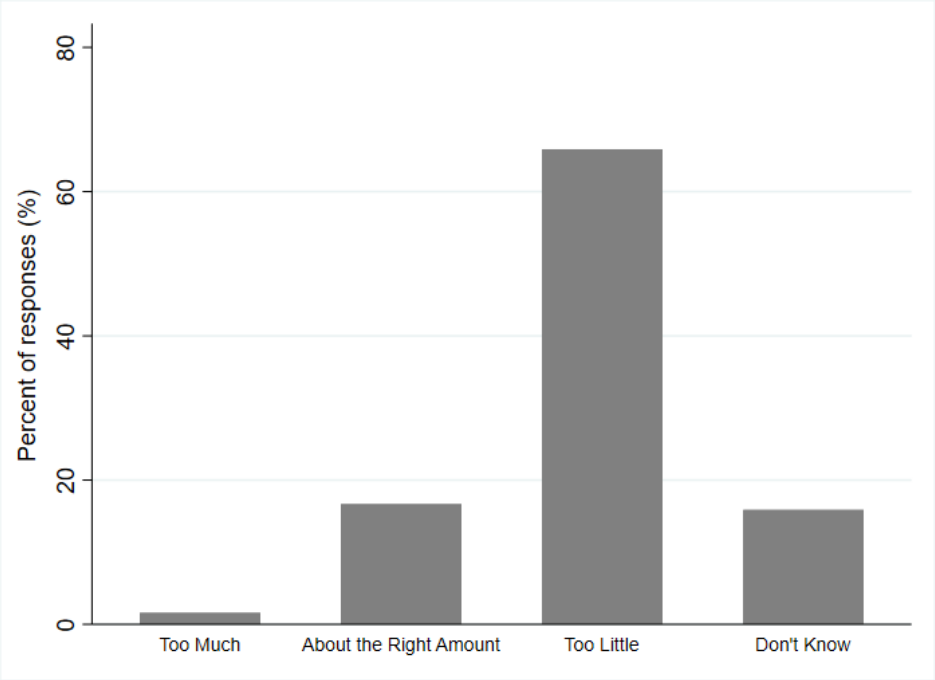

Figure 5: Responses to Question 2: "Do you think that what the government is doing for people in poverty in this country is too much, about the right amount, or too little?"

Support: We estimate the Tobit model:

$$Y_{\mathrm{a}} = \alpha + \beta_L L + \beta_{LE} LE + \theta \bullet \mathbf{V} + \beta_F F + \gamma \bullet \mathbf{C} + \varepsilon, \tag{1}$$

where Y_a is the amount donated which is naturally censored at £0 (no donation) and £15 (the entire earnings from the RET), L is the Luck treatment and LE is the Luck + Effort treatment. $\mathbf{V}$ is the vector of coded responses to the beliefs survey, each a binary variable and F signifies whether the subject had heard of the FoodBank before. $\mathbf{C}$ is the vector of demographic controls.

Despite donation rates being higher in the E and E+L treatments, we are unable to find evidence that there is a statistical difference between the three treatments' mean donation levels. When looking only at subjects who made a donation, the mean donation in the unframed baseline is higher than in the framed treatments – in the opposite direction to the hypothesis. This however, is also not statistically significant. A Mann-Whitney test for the equality of distributions shows that there is not statistical difference between the treatments, even when looking only at non-zero donations.

The regression results confirm this – the treatments do not have a statistically significant effect in any specification of the model (see Table 5). This is not in line with the stated hypothesis.

Result 2. *Worthiness framing may increase the donation rate.*

Table 5: Tobit regression results on the amount donated.

VARIABLES	Model 1	Model 2	Model 3	Model 4
Luck Treatment	14.61	5.429	8.631	11.18
	(38.09)	(36.44)	(36.55)	(37.82)
Effort and Luck Treatment	0.378	-1.818	0.441	18.15
	(39.88)	(38.17)	(37.93)	(38.24)
Holds 1+ 'unworthiness' beliefs		-63.92 **		
		(31.18)		
Laziness Belief (1)			-108.7**	-139.8**
			(50.98)	(53.43)
Government Belief (2)			-49.84	-38.74
			(42.45)	(42.15)
Effort Belief (3)			1.506	-5.805
			(46.20)	(45.19)
Hard Work Belief (4)			-47.56	-43.51
			(34.14)	(34.75)
Has heard of the Foodbank		72.55**	73.71***	55.49*
		(26.43)	(26.49)	(28.22)
Competition Treatment				7.866
				(31.41)
Demographic Controls included	No	No	No	Yes
var(e.amount)	30,498***	27,184 ***	26,351***	24,866***
	(4,631)	(4,473)	(3,978)	(3,748)
Constant	100.2***	23.54	22.65	-90.39
	(26.51)	(49.96)	(49.36)	(91.22)
Observations	126	126	125	125
Adjusted R-Squared	0.000138	0.00339	0.0132	0.0186

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

'Belief' variables are dummy variables which are coded 1 if the subject gave a response associated with believing the origin of inequality to be within the control of the poor. The number of the belief refers to the question number in the survey. Controls include gender, age, year of study, subject studied and nationality. The number of observations is less in model 3 and 4 due to non-completion of the survey by one subject.

Support: The overall frequency of donation was 76%. The donation rate was higher in the framed messages (80.8% v 68.6%), This is in line with the hypothesis but is not statistically significant using a test of proportions.

We estimate the Probit model:

$$Y_{\mathrm{r}} = \alpha + \beta_L L + \beta_{LE} LE + \theta \bullet \mathbf{V} \; + \beta_F F + \gamma \bullet \mathbf{C} \; + \varepsilon, \tag{2}$$

Where Y_r is the donation rate. When looking at the entire sample, Treatment L has weakly significant effect on the likelihood of donation, but Treatment LE does not have any statistically significant effect (Table 6).

Result 3. *Donation level and rate are lower in donors who believe that "Laziness" is why there are people in this country who live in need.*

Support: Question 1 asked for the participant's views on why people live in need in this country. The selection of the 'laziness' option correlated strongly with donation rate: only 43.75% of these individuals made a donation, in comparison to 80.90% of the rest of the respondents. This was statistically significant using a test of proportions. However, when looking at donation level – adjusting for only those who donated – the mean amount donated was almost equal to those who did not choose this option (171.4p v 171.8p). In Table 5, the regression results show that there is a statistically significant coefficient on the variable indicating if the subject chose "laziness" as an answer to Question 1 – indicating they believe that those in poverty may be responsible for their own situation. The coefficient represents a reduction in donation amount of -108.7 pence, *ceteris paribus*. The Table 6 Probit regression on the propensity to donate also indicated that holding this view in Question 1 is statistically significant in the expected direction. The marginal effect of this coefficient implies that holding this view reduces the probability of donating by 0.315 [4].

Result 4. *Donation level and rate do not appear to depend on whether donors believe the government does "Too Much or About the right amount" for people in this country in poverty.*

Support: Question 2 of the beliefs survey asked participants if they thought how much the government does for the poor was 'too much', 'too little' or 'about right'. There was not a statistically significant correlation found with donation rate or level, likely due to the low number of "Too much" responses (2 subjects, both of whom did not make a donation)(see Table 5 and Table 6). The coefficient for the amount donated is large and negative (see Table 5), which gives some reason to believe that this may lead to a significant result if there was a greater sample size with a greater number of subjects who held the 'too much' belief.

[4] Calculated using the marginal effects command after a regression in Stata 16

Table 6: Probit regression results on the donation rate.

VARIABLES	Model 1	Model 2	Model 3	Model 4
Luck Treatment	0.479	0.511	0.668*	0.701*
	(0.298)	(0.312)	(0.345)	(0.373)
Effort and Luck Treatment	0.276	0.289	0.364	0.498
	(0.300)	(0.304)	(0.317)	(0.332)
Holds 1+ 'unworthiness' beliefs		-0.408		
		(0.258)		
Laziness Belief (1)			-1.193***	-1.529***
			(0.381)	(0.442)
Government Belief (2)			0.159	0.225
			(0.376)	(0.391)
Effort Belief (3)			-0.247	-0.339
			(0.371)	(0.384)
Hard Work Belief (4)			-0.348	-0.287
			(0.282)	(0.309)
Has heard of the Foodbank		0.123	0.163	0.112
		(0.220)	(0.231)	(0.250)
Competition Treatment				0.155
				(0.286)
Demographic Controls included	No	No	No	Yes
Constant	0.489***	0.532	0.499	-0.504
	(0.189)	(0.416)	(0.423)	(1.361)
Observations	126	125	125	125
Adjusted R-Squared	0.0196	0.0478	0.131	0.169

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

'Belief' variables are dummy variables which are coded 1 if the subject gave a response associated with believing the origin of inequality to be within the control of the poor. The number of the belief refers to the question number in the survey. Controls include gender, age, year of study, subject studied and nationality. The number of observations is less in model 3 and 4 due to non-completion of the survey by one subject.

Result 5. *Believing "we need larger income differences as incentives for individual effort" does not affect donation level or rate.*

Support: There is no statistically significant effect of holding the Question 3 belief on either donation amount or donation rate. However, in a robustness check we changed the level at which a response is coded as an 'unworthiness belief'. When the boundaries at which these responses were coded to include only the strongest views (these questions were answered using a scale of 1-10), there was still no significant effect on the donation amount. The regression results can be found in Table 7. The re-coded variable could not be used in the Probit model as it perfectly predicted donation: that is that none of the participants who held this view donated. However, this cannot be shown with any statistical significance due to the low sample size of those holding this strong belief.

Result 6. *Donation level and rate may not be different for donors who answer "in the long run hard work usually brings a better life".*

Support: Table 6 and Table 5 both show no statistically significant effect of holding this (Question 4) belief. However, using the re-coded beliefs variables as explained above, the coefficients do become significant in the expected direction as shown in models 1 and 2 in Table 7. This implies that donation level and rate are affected only in those with the strongest views. This is logical given beliefs are stronger at the upper end of the scale, whereas a lower threshold includes some moderate views as well, for which we would not expect so strong an effect on donation level or rate. However, this result is not robust to the inclusion of all controls (Model 3). There is still no effect on donation rate when using the re-coded variables.

Result 7. *The treatment effect interacts with the beliefs held: worthiness framing leads to higher donation rates in those with 'unworthiness' views about the poor.*

*Support:*We estimate the OLS model:

$$Y_{\mathrm{r}} = \alpha + \beta_L L + \beta_{LE} LE + \theta \bullet \mathbf{V} \; + \beta_F F + \gamma \bullet \mathbf{C} \; + \varepsilon, \tag{3}$$

and find that the estimates are similar to those found in the Probit model in direction and significance as can be seen in Table 9.

We therefore use interaction effects in the OLS model:

$$Y_{\mathrm{r}} = \alpha + \beta_L L + \beta_{LE} LE + \mu N + \beta_1 L \bullet N + \beta_2 LE \bullet N + \beta_{\mathbf{F}} \mathbf{F} + \gamma \bullet \mathbf{C} \; + \varepsilon, \tag{4}$$

where N is a binary variable indicating if one or more of the views indicated were 'unworthiness' beliefs towards the poor. β_1 and β_2 estimate the interaction effect between treatment and views.

Table 7: Tobit regression on amount donated using re-coded variables for Question 3 and 4.

VARIABLES	Model 1	Model 2	Model 3
Luck Treatment	8.801	9.247	10.19
	(35.90)	(35.94)	(37.19)
Effort and Luck Treatment	-9.230	-8.490	8.319
	(37.78)	(37.88)	(38.09)
Laziness Belief (1)	-89.52*	-89.13*	-119.9**
	(51.67)	(51.72)	(54.63)
Government Belief (2)	-61.35	-61.54	-49.33
	(42.96)	(42.96)	(42.48)
Effort Belief (3) (recoded)	100.6	98.44	97.65
	(84.37)	(84.69)	(82.93)
Hard Work Belief (4) (recoded)	-89.45*	-88.83*	-84.47
	(48.87)	(48.93)	(51.51)
Has heard of FoodBank	68.27***	67.64**	52.41*
	(26.06)	(26.15)	(27.55)
Competitive Treatment		8.784	7.970
		(30.17)	(31.29)
Demographic Controls	No	No	Yes
var(e.amount)	25,813***	25,809***	24,410***
	(3,892)	(3,891)	(3,675)
Constant	27.41	23.42	-71.30
	(48.92)	(50.84)	(91.52)
Observations	125	125	125
Adjusted R-Squared	0.0150	0.0151	0.0201

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

'Belief' variables are dummy variables which are coded 1 if the subject gave a response associated with believing the origin of inequality to be within the control of the poor. The number of the belief refers to the question number in the survey. Controls included are age, gender, year of study, field of study and nationality.

Table 8: Probit regression on donation rate using re-coded variables for Question 4.

VARIABLES	Model 1	Model 2	Model 3
Luck Treatment	0.713**	0.708**	0.740**
	(0.345)	(0.345)	(0.368)
Luck and Effort Treatment	0.354	0.362	0.500
	(0.317)	(0.318)	(0.333)
Laziness Belief (1)	-1.161***	-1.144***	-1.512***
	(0.385)	(0.387)	(0.452)
Government Belief (2)	0.148	0.129	0.216
	(0.375)	(0.375)	(0.389)
Effort Belief (3)	-0.242	-0.258	-0.333
	(0.371)	(0.371)	(0.385)
Hard Work Belief (4) (re-coded)	-0.417	-0.403	-0.330
	(0.376)	(0.377)	(0.423)
Has heard of FoodBank	0.137	0.116	0.0953
	(0.230)	(0.234)	(0.248)
Competitive Treatment		0.145	0.154
		(0.270)	(0.285)
Demographic Controls	No	No	Yes
Constant	0.473	0.432	-0.501
	(0.420)	(0.428)	(1.420)
Observations	125	125	125
Adjusted R-Squared	0.129	0.131	0.167

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

'Belief' variables are dummy variables which are coded 1 if the subject gave a response associated with believing the origin of inequality to be within the control of the poor. The number of the belief refers to the question number in the survey. The recoded Question (Belief) 3 variable was not used as it perfectly predicted donation rate. Controls included are age, gender, year of study, field of study and nationality.

Table 9: Probit and OLS comparison on donation rate

VARIABLES	Probit Model	OLS Model
2.Treatment	0.701*	0.174*
	(0.373)	(0.0934)
3.Treatment	0.498	0.161*
	(0.332)	(0.0930)
neg1	-1.529***	-0.456***
	(0.442)	(0.123)
neg2	0.225	0.0442
	(0.391)	(0.103)
neg3	-0.339	-0.107
	(0.384)	(0.109)
neg4	-0.287	-0.0978
	(0.309)	(0.0841)
Q5c	0.112	0.0335
	(0.250)	(0.0686)
3.Etreatment	0.155	0.0533
	(0.286)	(0.0774)
British	-0.297	-0.116
	(0.405)	(0.101)
ECO	-0.308	-0.103
	(0.337)	(0.0931)
Male	0.200	0.0447
	(0.290)	(0.0756)
Age	0.0496	0.00636
	(0.0551)	(0.00902)
Year	0.0724	0.0174
	(0.110)	(0.0295)
Constant	-0.504	0.598**
	(1.361)	(0.229)
Observations	125	125
R-squared		0.188
Adjusted R-Squared	0.169	

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Using these variables, it was possible to isolate the treatment effect given these perceptions about the origin of inequality. This gives arguably the most interesting result in this study in which there was a positive effect of the treatment in the expected direction, but only on those who held 'unworthiness' perceptions about the origin of inequality as defined from our coding. In these regressions using interaction terms between the treatment and beliefs, holding a 'unworthiness' coded belief was strongly statistically significant at the 1% level in all specifications of the model, for both donation rate and level (see Table 10).

The 'unworthiness belief' variable, as previously mentioned, has a negative effect on donation amount. However, the interaction term with both treatments are positive. This is statistically significant for Treatment LE in all specifications, between 5 and 10% significance. The coefficient is of a similar size to the effect of holding an unworthiness coded belief. This result can be interpreted as that holding an unworthiness belief reduces your donation amount, but there is a positive effect of being in the two treatment groups on donation amount for those that hole one or more of these beliefs. The net effect of holding an unworthiness belief in the Treatment L framing is -44.5 pence reduction in the donation amount, *ceteris paribus*. In Treatment LE the net effect is positive: holding an unworthiness view in this framing leads to a 33 pence increase in donations *ceteris paribus*. This effect, although small in scale could have large implications and represents an increase of 42% in donation size compared to those with negative views in the control treatment.

The picture is the same when a Probit regression is used to estimate the propensity to donate Table 11: holding a unworthiness belief is statistically significant with a large negative coefficient, and the interaction term with treatment LE is also statistically significant. The size of the interaction coefficient is larger than the size of the coefficient for holding a unworthiness belief. However, the Treatment L interaction effect is not significant, and nor are the treatment effects on their own.

We gain further evidence for this result from regression results in Appendices **??** and 13, using the combined treatment L and LE variable (both of the worthiness framing treatments). There is a statistically significant interaction effect and unworthiness coded belief effect found in the Tobit regression on the amount donated. However, in the Probit regressions on the rate of donation only the unworthiness coded belief was statistically significant. It seems that the framing leads to subjects donating a higher amount if their prior beliefs are challenged by the framing but it may not make them more likely to donate.

6 Discussion and Conclusion

The data suggests that overall, worthiness framing does not affect the donation level but may affect the donation rate. We found that beliefs about why people live in need had the strongest correlations with donation behaviour for both donation level and rate. Our study shows that fa-

Table 10: Tobit regressions on donation amount with interaction terms

VARIABLES	Model 1	Model 2	Model 3	Model 4
Treatment L	-46.70	-43.49	-43.75	-51.42
	(49.13)	(47.51)	(47.50)	(47.97)
Treatment LE	-99.40	-85.56	-84.31	-76.84
	(60.27)	(58.42)	(58.48)	(58.42)
Holds 1+ 'unworthiness' beliefs	-156.8***	-140.7***	-140.3***	-140.7***
	(50.98)	(49.70)	(49.71)	(49.74)
Treatment L × Beliefs	112.3	107.3	109.6	106.8
	(74.36)	(72.85)	(73.06)	(72.33)
Treatment LE × Beliefs	189.8**	150.2*	149.4*	151.8*
	(79.08)	(78.08)	(78.08)	(77.50)
Has heard of the Foodbank		61.61**	60.79**	49.24*
		(26.61)	(26.68)	(28.18)
Competitive Treatment			12.36	14.65
			(30.40)	(31.58)
Controls Included	No	No	No	Yes
var(e.amount)	28,152***	26,337***	26,320***	25,174***
	(4,260)	(3,980)	(3,977)	(3,801)
Constant	179.9***	78.83	73.07	-27.64
	(35.62)	(55.89)	(57.68)	(95.05)
Observations	126	125	125	125
Adjusted R-Squared	0.00791	0.0118	0.0119	0.0156

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Using interaction terms between beliefs and treatments. Controls included are age, gender, year of study, field of study and nationality.

Table 11: OLS regressions on donation rate with interaction terms

VARIABLES	Model 1	Model 2	Model 3	Model 4
Treatment L	0.0939	0.0948	0.0928	0.0684
	(0.121)	(0.120)	(0.120)	(0.126)
Treatment LE	-0.134	-0.131	-0.126	-0.119
	(0.145)	(0.145)	(0.145)	(0.150)
Holds 1 'negative' views	-0.266**	-0.262**	-0.261**	-0.270**
	(0.121)	(0.121)	(0.121)	(0.126)
Treatment L/Views interaction	0.0520	0.0914	0.102	0.103
	(0.178)	(0.180)	(0.181)	(0.186)
Treatment LE/Views interaction	0.400**	0.390**	0.387**	0.402**
	(0.188)	(0.191)	(0.192)	(0.197)
Has heard of the Foodbank		0.0171	0.0127	0.0144
		(0.0656)	(0.0661)	(0.0714)
Controls Included	No	No	No	Yes
Competitive Treatment			0.0513	0.0733
			(0.0756)	(0.0808)
Constant	0.826***	0.798***	0.776***	0.745***
	(0.0870)	(0.139)	(0.143)	(0.250)
Observations	126	125	125	125
R-squared	0.085	0.086	0.089	0.104

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Using interaction terms between views and treatment. Controls included are age, gender, year of study, field of study and nationality.

miliarity with a cause can lead to large increases in the amount donated, but may not increase the rate of donation. Our analysis confirms that worthiness framing can change the behaviour of those with particular beliefs about the origin of inequality. Additionally, the study demonstrates a weak correlation between competitive outcomes and donation behaviour.

Initial results were surprising in the lack of a clear overall treatment effect, contrary to our hypothesis. However, when controlling for beliefs, it became clear that the treatment effect could only be observed on those whose views about the origins of inequality were most challenged. This makes sense, as the context remains unchanged for those who already believe those in poverty are unlucky and hardworking. For those who do not already consider the poor worthy, reframing the recipients as worthy changes the context in which they make their donation decision. Our results provide some evidence that beliefs correlate with donation levels, in agreement with previous literature on distributive preferences (Almås et al., 2020; Alesina and Angeletos, 2005; Benabou and Tirole, 2006). This is despite the treatment being designed to increase donations, which would reduce variation in donation levels by belief. Looking only at subjects in the unframed control treatment, beliefs about the causes of inequality (Question 1) held their significance in predicting both whether a donation was made and how much was donated.

One possible confounding factor could be that beliefs were asked for after the donation was made. The treatment was designed to affect only the context not the overall set of beliefs or preferences, but seeing the words 'unlucky' and 'hardworking' could have had a priming effect. An analysis of the responses by treatments show that there is no significant difference in the distribution of responses (or number of unworthiness beliefs held), which is evidence that, as intended, the treatment did not affect reported beliefs. However, for Questions 3 and 4 there is greater correlation for donation rate and level within the reduced sample (the unframed treatment) than in the whole sample. This could suggest that there was a priming effect on answers. We were limited in the methodology to asking only 4 questions in our survey, but given the opportunity it would have been preferable to administer an exit survey to determine how well the manipulation had worked: did subjects perceive the recipients as worthy? It is possible that we succeeded in changing the context for the subjects, but this did not instigate a donation or change in donation amount.

Despite the result in which framing was effective on those who had 'unworthiness' views about the context of inequality, there was still no overall treatment effect on those who did not. One possible reason for this could be that those who would already donate do not want to be persuaded further and did not like the emphasis on worthiness. This could be due to over-solicitation (Bekkers and Wiepking, 2011). It is also prudent to keep in mind that a limiting factor in this research is the sample used. The 'WEIRD' [5] student sample resulted in few participants who held strongly meritocratic or 'just-world' beliefs which are associated with more conservative populations. This

[5]Western, educated, industrialized, rich and democratic (WEIRD), (Henrich et al., 2010)

resulted in a smaller sample than was hoped for when trying to find interaction effects between the treatment and beliefs.

Where Fong (2007) did not find that beliefs could be overridden by new information, this study finds the opposite. A treatment effect was found only for those who had certain 'anti-poor' beliefs about the causes of poverty, whereas Fong found a treatment effect only on those who are high scorers on the Humanitarian-Egalitarian (HE) scale. This was a surprising result for Fong, as it was expected that this type of person would donate irrespective of the worthiness information. Fong (2007, p.1009) gives an alternative hypothesis: "One possible explanation is that the attitudinal measure of unconditional altruism may be correlated with missing variables that may explain the results.". It is possible that the survey questions from the WVS that were asked in this experiment offer a more specific idea of the perceptions held about the origin of poverty than the HE scale.

These results highlight the importance of making the distinction between magnitude and incidence of donation when trying to increase donations. Though the treatments may have had a positive effect on those with unworthiness beliefs, increasing the rate of their donation, they had no statistically significant effect on the other subjects. These results should be taken into account when considering how an organisation could try to manipulate beliefs in such a way: they should be cautious to target their messaging effectively.

The reliability of these results is impacted by potential confounding factors in the competition element of the RET. However, the distribution of beliefs is not statistically significantly different between groups. Our results cannot confirm if the results found would be the same for other 'unworthy' causes. The issues around strong stereotypes might be more or less pronounced for a different demographic. Future studies should take into account the familiarity of a cause when designing their studies – this was shown to have a large statistically significant effect on donation level and rate. An anonymised cause could eliminate this variation and may lead to clearer treatment effects. Though this experiment was not designed to understand the process through which competitive results can influence generosity, the data suggests there could be differences between how people behave after winning or losing, even if a competition does not have pecuniary repercussions. Further research is needed to establish if this is a replicable result, and to understand the channel through which this operates. This experiment took place in 2018. Since then, demand for food banks has continued to rise. At the point of writing during the Covid-19 pandemic, large increases in unemployment and a corresponding rise in demand for unemployment benefits have led to a further unprecedented demand on UK food banks. This has led to a huge rise in first-time users of the food banks (The Trussel Trust, 2020*a*). It is too early yet to say what effect this may have on future donation rates, or any effect this may have on long-term attitudes and beliefs about the origin of inequality – but this experience could potentially influence the beliefs of a generation in relation to support for redistributive welfare policies.

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Appendix A Cubicle Set-Up

Figure 6: The cubicle set up in the experimental lab, showing computer, donation box and envelope.

Appendix B Denominations of Payment

Figure 7: The denominations of cash given to participants

This totalled £15 and enabled the donation of any amount between 0 and £15 in 10p increments. The coin envelope displayed contains the same denominations inside.

Appendix C Beliefs Questionnaire Scale

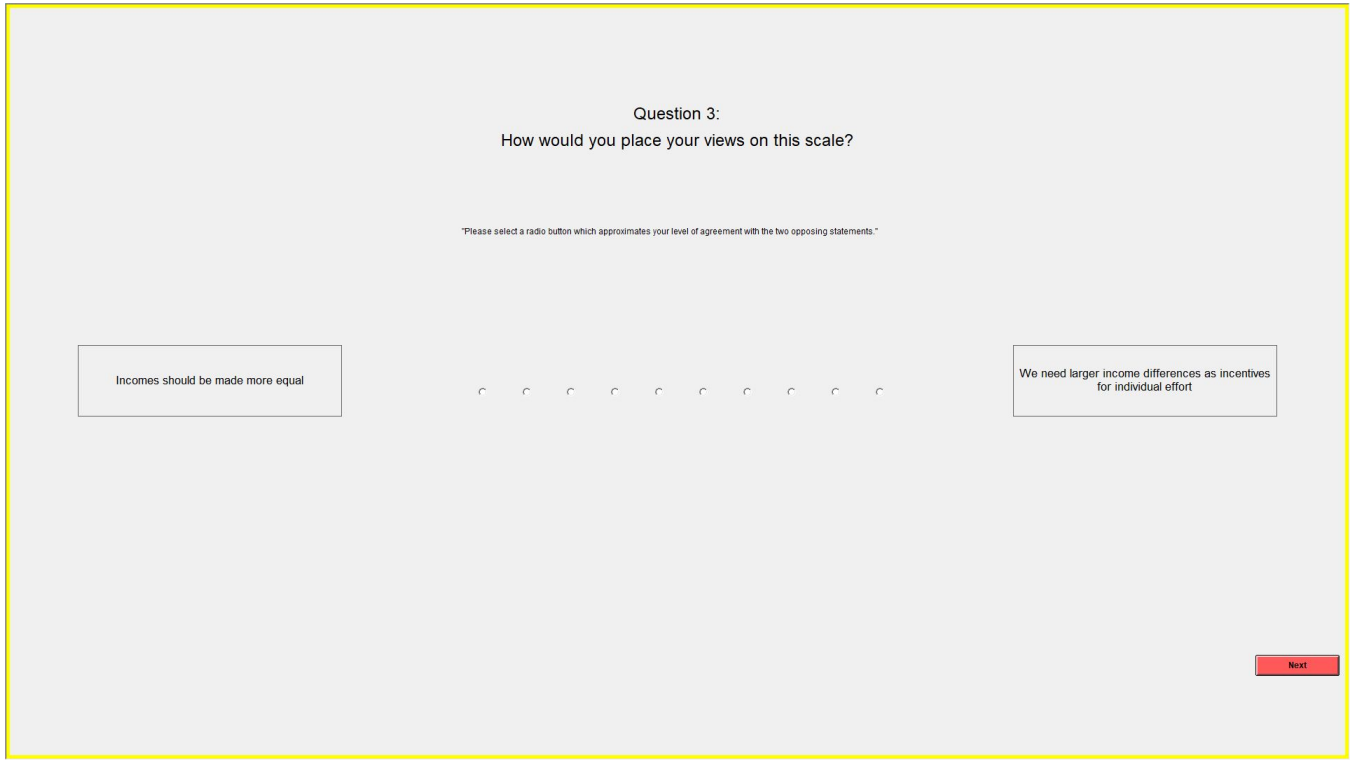

Figure 8: Screenshot of the presentation of Questions 3 and 4.

Appendix D Responses to Beliefs Survey

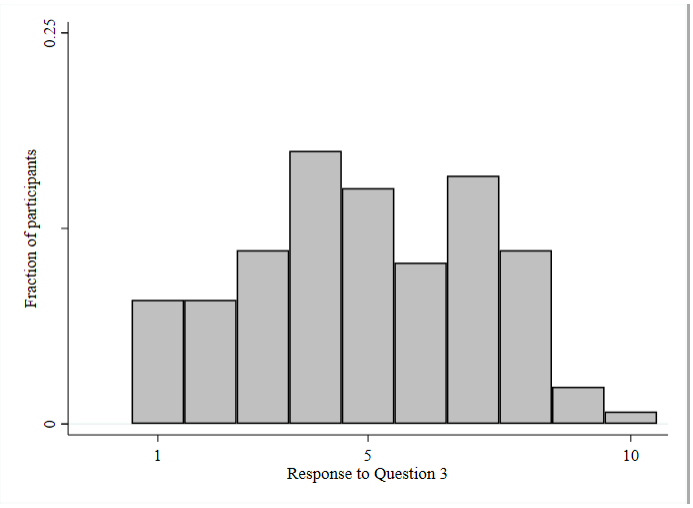

Figure 9: Bar graph showing responses to Question 3.

1 = Incomes should be made more equal, 10 = We need larger income differences as incentives for individual effort.

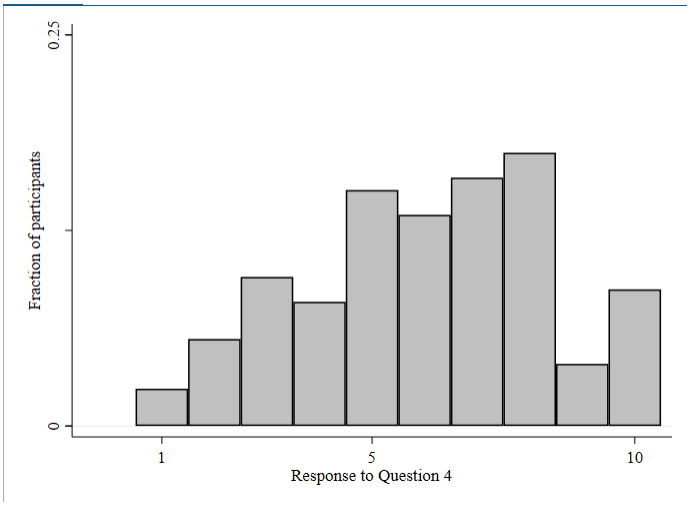

Figure 10: Bar graph showing responses to Question 4.

1 = In the long run, hard work usually brings a better life, 10 = Hard work doesn't generally bring success it's more a matter of luck and connections.

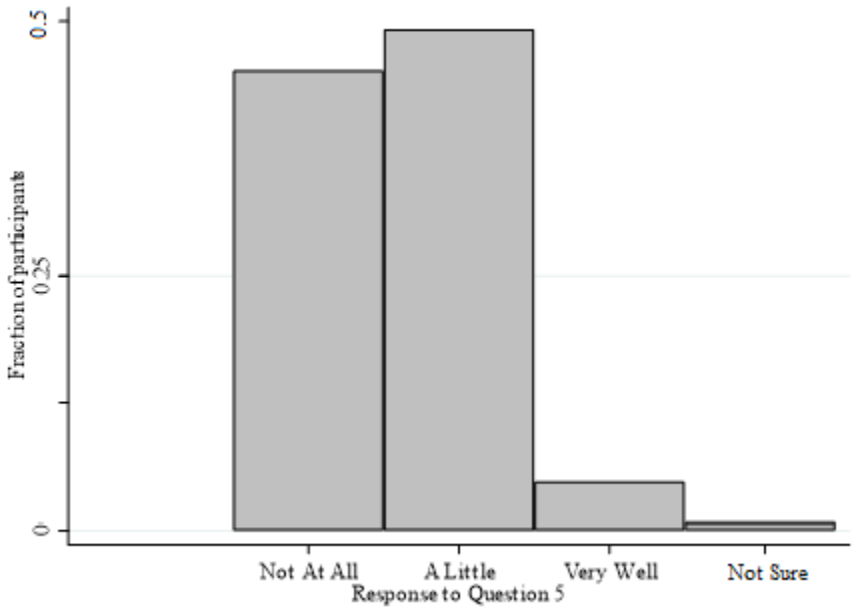

Figure 11: Bar graph showing responses to Question 5.
How well did you know the FoodBank before today?

Appendix E Robustness Checks

As a robustness check, we ran analysis in which the two treatments L and LE were combined into one 'Worthiness Framing' variable (Appendices **??** and 13) (and the standard coding for unworthiness beliefs). We find further evidence that the coefficient on holding one or more unworthiness beliefs is negative, at the 1% level of confidence for all specified Tobit models on the donation amount. For donation rate, the models give statistical significance to this coefficient at the 10% level at a minimum in all specifications, unlike in the non-combined treatments. This is in support of our previous results.

When using the binary variable "Holds 1+ 'unworthiness' beliefs" and Model 2 in Table 5, to indicate if one or more of the views reported in the questionnaire was coded 'an unworthiness belief', there is a statistically significant negative effect on the amount donated. The estimates can be interpreted as a reduction in donations of around 64-68 pence if the subject holds one or more unworthiness beliefs, *ceteris paribus*. These estimates were robust to the inclusion of all controls. This pattern was not seen in the Probit regression on donation rate (Model 2 in Table 6). Though the coefficients were negative as expected, it was predominantly not significant in the models specified.

Table 13: Combined Treatment Probit Regressions

VARIABLES	Model 1	Model 2	Model 3	Model 5
Worthiness Framing	-0.0726	-0.0823	-0.107	-0.224
(L+LE Treatments)	(0.274)	(0.278)	(0.291)	(0.299)
Laziness Belief (1)			-1.047***	-1.319***
			(0.371)	(0.421)
Government Belief (2)			0.0720	0.201
			(0.367)	(0.387)
Effort Belief (3)			-0.342	-0.407
			(0.361)	(0.376)
Hard Work Belief (4)			-0.410	-0.408
			(0.276)	(0.295)
Has heard of the FoodBank		0.147	0.189	0.162
		(0.217)	(0.226)	(0.244)
Holds 1+ 'unworthiness' beliefs		-0.446*		
		(0.255)		
Competitive Treatment				0.192
				(0.282)
British				-0.228
				(0.392)
ECO				-0.449
				(0.325)
Male				0.153
				(0.283)
Age				0.0484
				(0.0509)
Year				0.0214
				(0.104)
Constant	0.765***	0.804*	0.854*	0.0811
	(0.233)	(0.463)	(0.472)	(1.261)
Observations	126	125	125	125
Adjusted R-Squared	0.000511	0.0276	0.102	0.142

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

'ECO' is a binary variable for if the participant was a student in the School of Economics. 'Year' refers to year of study.

Table 14: Competitive Outcomes Regressions: Probit

VARIABLES	Model 1	Model 2	Model 3
Luck Treatment	0.986**	1.035**	1.202**
	(0.500)	(0.515)	(0.610)
Effort Treatment	0.714	0.766	0.931*
	(0.464)	(0.470)	(0.537)
Win Win	0.887*	0.939*	0.699
	(0.481)	(0.490)	(0.547)
Lose Lose	0.930*	0.893*	0.530
	(0.493)	(0.501)	(0.549)
Holds 1+ 'unworthiness' views		-0.426	-0.665
		(0.404)	(0.470)
Has heard of the FoodBank			0.719
			(0.444)
British			-0.712
			(0.692)
ECO			-0.721
			(0.576)
Male			-0.450
			(0.485)
Age			0.0285
			(0.0910)
Year			0.0253
			(0.177)
Constant	-0.288	-0.0702	-0.615
	(0.359)	(0.418)	(2.347)
Observations	58	58	58

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Win Win and Lose Lose refer to subjects who were in the competitive RET, who either won twice or lost rtwice out of two rounds. Payoffs were not influenced by this outcome.

6 Extensions

Result 8. *Outcomes of a competitive RET may affect donation level and rate.*

Support: In the RET, there was a treatment which included feedback on a competitive outcome. Figure 12 shows the mean amount donated, by competitive outcome. It shows that there is a statistically significant difference between the mean donated of those who won twice (WW) and those who lost then won (LW), with WW donating more. Compared to those who lost then won (LW) those who lost twice (LL) also donated statistically significantly more. These results were found using t-tests for equality of means. Figure 13 shows the proportion of people who donated, by competitive outcome. Again, those who both won twice and lost twice were more likely to make a donation than someone who did not have a clear competitive outcome, that is by winning one and losing one round.

We estimated models which controlled for whether the individual had had an experience of winning or losing which could have influenced their behaviour. Regression analysis on the amount donated shows that winning twice (WW) may upwardly affect the donation level. This is significant at the 10% level but does not retain significance when other control variables are included (see Appendix 7). We get a comparable result when looking at the likelihood of donation, where the coefficient is positive and significant at 10% but not robust to the inclusion of controls (see Appendix 14). For these Probit regressions, losing twice (LL) also becomes significant at the 10% level, and has a positive coefficient, but loses its significance when other controls are introduced. These regressions were run with the reduced sample of those who participated in the CT version of the RET.

To investigate if this finding could be due to a coincidental correlation between beliefs and winning outcomes, tests were run on the means and distributions of answers to the survey between these groups. No statistical difference was found. It is difficult to separate the effect of the treatment, the views held, and the competitive outcomes in their effect on the donation level and rate. The sample size for the regressions in this part of the analysis is small (n=58) so caution must be used when interpreting the significance of these results. We include the competitive treatment dummy variable for the RET in our main analysis as a control, and it does not significantly change our results. It therefore appears that having a competitive experience in of itself does not affect the situation, but the outcome may have an effect.

Result 9. *Familiarity with a cause leads to larger donations.*

Support: In the majority of the models used to estimate a treatment effect, the variable "Has heard of the FoodBank" leads to larger donations (Table 5), if not more frequent (Table 6). Having heard of the FoodBank does not make you more likely to donate, but it does increase the donation you make.

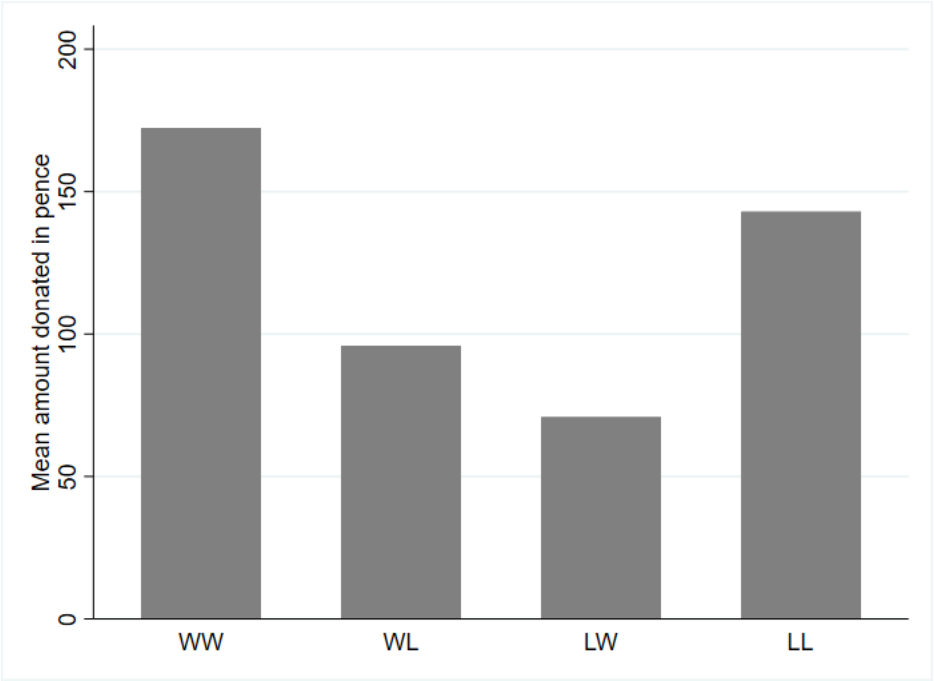

Figure 12: Bar graph showing the mean amount donated in pence by competitive outcome

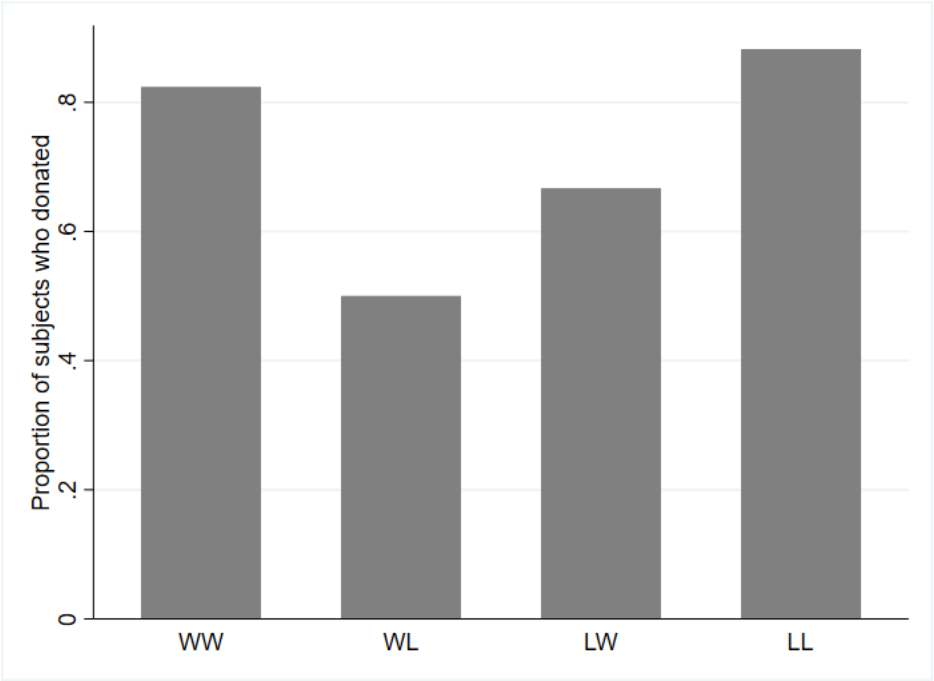

Figure 13: Bar graph showing the proportion of subjects who donated by competitive outcome

7 Competitive Outcomes Regressions: Tobit

Table 15: Tobit model for competitive outcomes

VARIABLES	Model 1	Model 2	Model 3
Luck Treatment	71.17	52.64	73.73
	(56.03)	(53.75)	(57.26)
Effort and Luck Treatment	48.41	29.20	59.29
	(56.55)	(55.26)	(54.67)
Win Win	128.2**	103.2*	74.19
	(56.11)	(55.27)	(53.09)
Lose Lose	93.25	59.09	33.92
	(55.89)	(54.49)	(53.25)
Holds 1+ 'unworthiness' beliefs		-76.18	-84.51*
		(45.68)	(45.52)
Has heard of the FoodBank		86.61**	89.74**
		(42.18)	(42.51)
British			-39.88
			(56.59)
ECO			-71.89
			(63.64)
Male			-2.983
			(46.34)
Age			10.66*
			(5.905)
Year			11.15
			(17.42)
var(e.amount)	28,014***	25,162***	22,030***
	(6,342)	(5,670)	(4,944)
Constant	-5.364	-68.85	-267.4*
	(49.61)	(71.42)	(157.4)
Observations	58	58	58

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Win Win and Lose Lose refer to subjects who were in the competitive RET, who either won twice or lost twice out of two rounds. Payoffs were not influenced by this outcome.'ECO' is a binary variable for if the participant was a student in the School of Economics. 'Year' refers to year of study.