The Interaction between Prosocial (Giving) Behaviours and Social Cohesion

by Lorna Zischka
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Abstract

A controlled experiment establishes that differences in relational proximity can evoke or suppress a willingness to give to an unrelated cause. Four treatment groups underwent the same set of exercises but two in a closer relational environment and two in a more distant relational environment. Half of the subjects in each relational environment further received an unannounced doubling of pay. On exit, all participants had the option to give to charity. The experiment showed that the charitable giving was driven by relational factors, not by pay. We can learn that pro-social (pro-giving) inclinations interact with the wider social environment, and that these complex relational parameters may be evaluated by easy-to-measure giving patterns.

Keywords: giving; experiment; pro-social; charity; endowment; social capital
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1 Introduction

This lab-experiment tests whether adjustments to the social environment affect an individual's propensity to give to an unrelated cause. The quality of interpersonal relationships is complex and hard to evaluate (Woolcock and Narayan 2000; Sobel 2002; Guiso et al. 2004; Quibria 2003), but if we find that the aggregate effect of people being drawn together in a positive way translates directly into an individual's decision to give, then giving behaviours may offer us a tangible way of monitoring the qualities of those relationships.

Giving is a prosocial behaviour form in which a person's decisions over the way that she allocates her resources is influenced by others to result in a pro-collaborative transfer. The drivers of giving may include other-centred values and inequality aversion, but they also depend on the state of the wider social environment: the motivation of reciprocal returns from giving, concerns about reputation if a prosocial response is not forthcoming, the expectation that others are 'doing their bit' as well, and the cooperative norms signalled by others (Kolm and Ythier 2006; Konow 2010; Gui and Sugden 2010). All these social drivers are important not just to giving, but are indicative of social norms and trust levels (stimulating prosocial behaviours) that are helpful to any collaborative effort; prosocial behaviours facilitate collaboration and antisocial behaviours hinder it (Adhikari and Goldey 2010).

Prosocial behaviours not only signal trustworthiness then, they are also dependent on trust in others. There may be an interaction going on between these two: a closer, more trustworthy social environment stimulating individuals to put more weight on other people's interests or communal interests over their own private interests, and then these prosocial attitudes feeding back to sustain and improve the quality of the wider social environment. The prosocial character of this interaction between individual attitudes and the wider social environment may be possible to evaluate by the existence of giving behaviours.

The idea of an interaction between individuals and their social environment being involved in the way that social structures change over time is not new; see for example Berger and Luckman (1966) or Giddens (1984). Dasgupta (2009) also describes trust formation in this manner, highlighting how individual actions affect as well as respond to wider social norms. Krishna and Uphoff (2002) likewise distinguish between 'structural' and 'cognitive' social capital, and discuss how visible relational structures interact with individual preferences and perceptions to determine the development of future relational structures. This paper adds to
the literature by deliberately setting out to test the link between a closer relational environment and individual pro-social preferences (manifest in giving) in a lab experiment.

Previous lab experiments suggest that giving indeed responds to the immediate social context (e.g. Hoffman et al. 1996; Hornstein et al. 1975; Holloway et al. 1977; Ross and Ward 1996; DeScioli and Krishna 2013). And over time, Kosse et al. (2016) found that giving children one to one time for one year had a significant and persistent impact on the prosocial manner in which those children then went on to treat others. Our experiment adds to these findings and was novel in several ways. Firstly, instead of evoking one social context or another by the wording of the instructions, we created two different social environments by manipulating the way people were allowed to interact with their partners, and then checked whether this had an immediate impact on giving. Secondly, giving was not framed as the main decision of the game. Instead it ‘tacked on’ at the end of other tasks, and was directed towards a third party. And thirdly, we tested for social and materialistic drivers of giving in the same experiment, which allows us extra insight into what motivates giving. The impact of material incentives on giving was tested by treating half of the subjects in each relational environment to an unexpected doubling in pay. Thus the experiment comprised four groups, each containing 10 participants, who were treated as follows:

- Group 1: Close relational environment without windfall payment;
- Group 2: Close relational environment with windfall payment;
- Group 3: Distant relational environment without windfall payment;
- Group 4: Distant relational environment with windfall payment.

After this treatment we measured the effect that these differences had on mood, on desire to meet one’s partner again, and on levels of giving to charity at point of payment and exit from the experiment.

The experiment helps us to address three main issues: Firstly it tests the effect of the relational environment on an individual’s mood and on the way that individual chooses to allocate his or her own resources. If a change in the relational environment changes that individual’s decision to give, we may conclude that prosocial preferences (conducive to social cohesion) may be adjusted; social preferences are not a static endowment for which no policy can be relevant.

Secondly we want to see whether these giving behaviours are sensitive enough to the relational environment to be used as its proxy. Should we find that giving behaviours respond significantly to changes in a relational environment, then it would suggest that giving
provides us with useful information about the prosocial, cohesive qualities of relationships in the civic sector. In other words, we might evaluate the pro-sociality of the civic sector by the resources that its members are allocating to one another, quantifying a complex social stock by easy-to-measure giving patterns. Such a finding might offer decision makers a tool by which to evaluate the effect of their interventions on pro-sociality and, ultimately, on social cohesion.

Thirdly, the inclusion of an endowment differential allowed us to test whether the association between giving and the social environment is spurious. For example, people could be responsive to any kind of feel-good factor, irrelevant of whether the feel-good factor arises from relational considerations or material considerations. Certainly this is a point of contention in the literature. Giving and wealth tend to go together (The Center on Philanthropy at Indiana University in the USA 2007; Bauer et al. 2012; Holland et al. 2012; Lindsey 2012) and even in lab experiments, a higher show-up fee was linked to higher levels of giving (e.g. Chowdhury and Jeon 2014). However, a closer look reveals that richer people are not automatically more generous (Mayo and Tinsely 2009; Auten and Rudney 1990; Breeze 2006). We may question then whether giving might require both a resource endowment advantage and the relational motivation. Likewise in terms of wellbeing, Anik et al. (2009) claim that happier people are more generous, whilst Aknin et al. (2010), Dunn et al. (2008) and Andreoni (1995) claim causality also runs from generosity to happiness. To address this issue in the experimental design, we doubled pay of half the participants in each relational environment, introducing monetary considerations into an experiment that otherwise differed only in terms of the way people treat one another socially. The results will reveal whether it is principally the relational environment that affects giving behaviours, or whether making people better off materially also stimulates people to give. There may even be an interaction between money and the social environment in terms of joint impact on giving, since the endowment one party has relative to another will affect the character of that social environment (it affects a person’s sense of fair-play as well as affecting one party’s feelings towards the other as a result of their position in the social hierarchy; see Wilkinson and Pickett 2009; Bartolini et al. 2013). The results will add to our knowledge of where attention must be focussed for the increase of prosocial behaviours.

In addressing these three issues the experiment contributes to our understanding of civic sector relationships. We gain insight into whether it is possible to influence prosocial inclination. We see whether giving offers a way of evaluating the pro-sociality of civic sector relationships. And the inclusion of an endowment differential confirms whether it is really
relational factors, not just any mood-altering boost to welfare, which fosters prosocial behaviours.

2 Methodology

Fig.1 summarizes the order of events during the experiment. The participants were divided into a closer or else into a more distanced relational environment. In these environments, they completed a demographics questionnaire and then carried out a series of tasks partially in pairs. Afterwards, in an identical, non-interactive social environment, half the people in each relational environment, unbeknown to the other half, were confidentially informed of a windfall pay bonus. After these treatments (relational and material) they completed private mood surveys, a question about how much they would want to see their partner again, and were provided with the option to give to charity at pay and exit.

<table>
<thead>
<tr>
<th>Partially interactive, with differences in relational environment</th>
<th>Non-interactive and identical treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seating (in pairs) and introduction to the study</td>
<td>Half the participants confidentially informed of their windfall endowment</td>
</tr>
<tr>
<td>Individual demographics questionnaire</td>
<td>Mood survey and question on desire for meeting your partner again</td>
</tr>
<tr>
<td>Information sharing with their partner</td>
<td>Payment with option to give to charity</td>
</tr>
<tr>
<td>Non-verbal reasoning test</td>
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</tr>
</tbody>
</table>

Fig.1: Order of events

To produce the differences in the relational environment, we manipulated conditions according to the five relational parameters affecting relational proximity identified by Schluter and Lee (2009). Table 1 outlines these relational parameters and how treatment differed between the two groups.
Schluter and Lee identified these parameters primarily for the use of managers and executives in the state and market sector, but they correspond to wider research into factors affecting the proximity relationships between people:

In terms of directness and multiplexity, talking together and talking on a broad range of subjects are found to be key to creating closeness in personal relationships (Hess et al. 2007). Social structures characterised by complexity may seem superfluous to requirements in one set of circumstances, but in the event of a shock to those circumstances, such relationships prove to be more resilient and adaptable (Boyd 2014). Whilst written messages may compliment verbal communication in a close relationship, the choice of whether a person communicates information verbally or in written form corresponds precisely to the closeness of the relationship. The more distant the relationship, the more likely it is that people will write rather than talk (Tillema et al. 2010). Grootaert and Van Bastelaer (2002), Krishna (2002), Grant (2001) and many others distinguish between ‘bridging’ relational ties that cross social boundaries, and bonding ties that are close and committed. Although bridging ties are valuable in terms of accessing information and opportunities, they are often weak, uni-dimensional, specific to one particular purpose and easily broken. Bonding ties are stronger, corresponding to the more ‘direct’ and ‘multiplex’ elements in Table 5.1. They are indispensable in providing support in time of need and empowerment for a positive engagement with those in the wider social environment. Important to this work, bonding ties are closer relational ties.
And at any level, getting to know more about a person makes it easier to find common interests, and the consideration of common goals is a pre-requisite to pro-social/cooperative thinking (Bardsley 2000; Sen 2009; Grootaert and Van Bastelaer 2002). People invest most in those they identify with or whose interests they identify with (Levy-Garboua et al. 2006; Durlauf and Fafchamps 2004), making the identification of common goals essential to drawing people together.

Lack of parity between people is one of the reasons that cooperative endeavours often fail: the weaker party cannot put pressure on the stronger party to constrain their rent-seeking opportunities for the good of all, so in order to minimize unfair polarization, their strategy must be to minimise the cooperation (Adhikari and Goldey 2010; Vajja and White 2008; Du Toit 2004). Wilkinson and Pickett (2009) also show how lack of parity (inequality) leads to social distancing and eventually to an increase in antisocial behaviour.

And finally, continuity matters because when a person’s long term interests are wrapped up in a certain community of persons, then it makes sense to maintain a positive relationship with those persons (Levy-Garboua et al. 2006; Fehr and Schmidt 2006; and Durlauf and Fafchamps 2004). This is why those who are established long term in one geographical area tend to be more involved than those who move from place to place (Schneider and Weber 2013).

We may perceive that all these elements overlap to determine one factor: relational proximity. It is not usual practice to change many things at once in an experiment, but here we altered the social parameters in a unified direction to create one single factor of comparison: a ‘close’ relational environment in which the cohesive aspects of the interaction were emphasised compared to a more ‘distant’ relational environment in which barriers between people were emphasised.

The hypothesis is that the ‘closeness’ or ‘solidarity’ of a relationship may be reflected in how much one party factors the other into their decision making process – a process evident in the way an individual allocates his or her own resources into a common activity or for the benefit of other people. Thus in this experiment, we specifically test whether a change in relational proximity affects the ‘other-centred’ way in which people handle their resources. Money was given to a third party - to charity, not to other students, so the stimuli can be monitored in terms of other-centeredness in general; it is not just an in-group strategic manoeuvre. The test reveals then whether giving behaviours are a sensitive barometer of the changes in relational parameters.
In advance, students were told only that this was a 40 minute study to ‘investigate human behaviour in specific contexts’. On the consent form, it was stated that, ‘you will be asked to share some non-intrusive and non-sensitive information about yourself with another person, and then to engage in a straightforward task. You will also be required to answer two short, private questionnaires regarding a minimal of demographic information and some subjective opinion.’ To encourage participation, students were further told, ‘You will gain first-hand insight into experimental social research methods. At the end of the exercise you will be offered a more detailed account of the different elements of the study and (eventually) the results. You will also receive at least £5 cash for your participation on completion of the study.’ The study was only open to first year undergraduates and their rights to withdraw etc. were of course detailed.

Two similar classrooms in the same building were chosen for the experiment, one in which to create the close relational environment, and one for the more distant relational environment. The seating and tables were prearranged such that every person was seated next to one other person. Each individual’s place was numbered. Most of the papers for use in the experiment were already on the tables in both rooms, but face down (or enveloped) with ‘Do not turn over these papers or open any envelopes until told to do so’ printed on the top.

On presentation in the foyer outside the classrooms, student consent forms were collected. The students were then divided into alternate rooms, men in order of arrival, and women in order of arrival, 20 altogether into each room. This was to produce a split of minimal bias. Bias in the composition of the groups was also minimised by requesting people to sit male-female where possible and female-female only where necessary. We also let people choose their own seats, without their knowing that every other pair of seats (10 in each room) was pre-determined to receive a bonus payment. This randomized the allocation of windfall benefits. Electronic networking during the experiment was banned to avoid external influences. Since all participants were undergraduates in their first week of the university term, and were told to sit next to persons they did not already know, we could ensure a lack of pre-existent relationship between participants. This, plus similarities in their stage of life eliminated many possible biases between the groups. Of course a group of students is not representative of the UK’s population, but for an experiment we only need the treatment groups to be comparable, not representative. Our aim is simply to see how the treatment affects the outcome in otherwise identical conditions.
There were two invigilators in each classroom as students entered, one to speak, and the other a timekeeper. The timekeeper was to ensure that the lengths of the exercises were exactly the same in both classes, making the groups comparable. There is a risk that questions asked in the survey might set a tone, putting the respondents in mind of circumstances or ideologies that bias their giving decisions. For this reason, questions on financial situation and religion were asked right at the beginning of the experiment, and more detailed questions on ideology were avoided. Table 5.2 documents the parallel progression of events in each room, with the relational differences in treatment clearly indicated. Details of the contents of each paper and the wording of invigilator instructions may be found in the appendix.

<table>
<thead>
<tr>
<th>Stage of experiment and time allowed</th>
<th>Close relational environment</th>
<th>Distant relational environment</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrival</td>
<td>The 2 invigilators were friendly, approachable and casually dressed. As students arrived, they were encouraged to fill up from the front and according to the directions displayed on the screen. The PowerPoint slide read: University of Reading Research Study. Please put away and silence mobile devices. Please sit in twos: either male-female or female-female, no men together. Sit next to someone you do not already know.</td>
<td>The 2 invigilators were formal; distanced in demeanour and in smart dress. No smiles. As students arrived, the invigilators completely ignored them, speaking only to each-other or being engrossed in paperwork. The students therefore seated themselves randomly. Displayed on the screen was the following PowerPoint slide: University of Reading Research Study. Please put away and silence mobile devices. Please maintain complete silence throughout this exercise.</td>
<td>Pairing people male-female where possible was to minimise differences in partners in terms of gender dynamics. People were paired with strangers to exclude pre-existent or strategic relational dynamics.</td>
</tr>
<tr>
<td>When no more students arrived, the signal to start programme was given by a third invigilator</td>
<td>Silence not kept. To keep time with the other group, invigilators gave a general welcome message and introduced the experiment along the lines of information already received in the consent form. Correct seating was checked and enforced.</td>
<td>Silence kept. Invigilators finally addressed the group with, “This research study is about to begin. You need to maintain complete silence throughout this exercise. You need to sit in twos, filling up from the front. Sit next to someone you do not already know, and no two men should sit together. Keep the silence and move as quickly as possible NOW.” Students were made to quickly reseat in a way corresponding to the other group.</td>
<td>The rule of silence in the distant group excluded the most direct form of communication between student pairs, addressing the ‘directness’ element of relational dynamics. Differences in demeanour and reseating in the distant group was a power game, enforcing relational distance between invigilator and student and addressing the ‘parity’ element of relational dynamics.</td>
</tr>
<tr>
<td>Paper 1: General information. 45 seconds</td>
<td>Invigilators in each group instruct the students to turn over the first paper. Paper 1 outlined requirements like answer questions truthfully, comply with the invigilators etc. Attention was drawn to the participant’s place number which became their unique identity number. During this time a PowerPoint slide showing the consent form was projected.</td>
<td>Same paper in both groups. Silence maintained in the distant group as above.</td>
<td></td>
</tr>
</tbody>
</table>
**Paper 2:**

**Demographics questionnaire.**

1 minute

Invigilators in each group instruct the students to start on paper 2. Paper 2 comprised a confidential questionnaire of semi-sensitive demographics (age, gender, race, financial situation and religious tendencies) that might influence giving and which should therefore be controlled for.

Identical in both groups.

**Paper 3:**

3 minutes for filling in information individually, and 5 minutes for swapping that information with student partner.

Paper 3 comprised 12 non-intrusive questions about the student. In the distant group these were only about career related subjects (study, former employment or volunteering, university choices etc.). The close group included a wider range of subjects however. In the close group the information was discussed verbally in pairs. The pairs then identified and wrote down something that they had in common and could do in support of this interest. In the distant group, after completing the information sheet, the pairs swapped papers and read what the other had written about them-selves. Each partner then considered 3 ways in which they differed from the other person and recorded these differences on the other person’s paper. They then returned the information for their partner to read.

The differences in service addressed the ‘parity’ element of relational dynamics.

**Paper 4:**

Non-verbal reasoning test (used with permission from ElevenPlusExams). 10 minutes

A non-verbal reasoning test was tackled in pairs.

The same non-verbal reasoning test was carried out alone.

Students in both groups were informed that they would not be required to share their results with other students in the room.

Working in pairs versus working alone addresses the ‘commonality’ element of relational dynamics.

**PowerPoint slide projected with the answers.**

3 minutes

Pairs were allowed to talk through their answers. At the end of 3 minutes, invigilators went round taking in the marked question paper.

Individuals marked their own answers. At the end of 3 minutes, invigilators told everyone to pass the marked question papers to the front.

An attempt to avoid competitive dynamics was to let people mark their own and avoid sharing the results.

The differences in relational environment ended here. From here on, the group environment and student tasks were identical so as to avoid any biases in giving arising from ‘the power of ask’ (Bekkers and Wiepking, 2007). Invigilators were formal but polite. Students worked alone. Complete silence was maintained in both groups.

**Envelope with paper 5:**

5: Mood survey and question on desire to meet your partner again, together with windfall pay announcement for some. 3 minutes

The students opened the envelopes on their desks containing this questionnaire. Every other set of tables in each room had a paper stapled to the front of the questionnaire saying ‘Congratulations! You picked one of the lucky seats! It was decided that whoever sits at this table should get double pay! So now you will get £10 for your participation instead of £5.’ Those without this windfall however did not know that others had more than them.

The questionnaire asked: (1) the extent to which the respondent would want to meet their partner again; and (2) Their mood of the moment, as measured by a Positive and Negative Affect Schedule (PANAS).

The mood survey came at this point to check how mood and feelings towards one’s partner had been influenced by the relational treatment and the windfall bonus.

**Envelope 6:**

containing money, receipt and a charity slip. 2 minutes were allowed to complete these slips from the

A PowerPoint instruction was projected onto the screen and invigilators read it exactly.

‘Thanks for your participation. We are going to hand out the money now. The University of Reading requires that everyone signs a receipt and you will also have an opportunity to make a donation to charity should you wish. So please could you keep to see how the differences in relational treatment influenced giving, controlling for mood and for endowment.'
time the envelopes were handed out, the silence whilst the money comes round, open your envelope, and fill in the very last slips.’ In both groups, all invigilators went round handing out the pre-prepared and numbered envelopes to the right tables.

Signed receipts were then collected in and kept separately for the sake of anonymity. The participants could remove their money from the envelope (which contained a mix of small and larger denominations), leaving behind anything they wanted to donate to charity. There was also a charity slip to fill in stating whether or not people wanted to give, how much they wanted to give and who they wanted to give to (selecting from 9 widely varying but well known charities). The groups were then dismissed.

Information sheets on what the study was all about were handed out as people exited the room, and students were told they could ask any further questions in the foyer outside.

Session effects are potentially a problem, although the following four precautions had been put in place to ensure that the students did not influence each other in their decision to give: (1) No talking. Once the treatments had been completed, students had been working individually and in silence for several minutes before each getting their money and having to decide whether to give to charity; (2) The payment envelope was A5 size – large enough for people to choose coins without being seen by their partner; (3) Everyone had to fill in slips from the envelope whether they donated or not; and (4) all the envelopes had to remain behind, with only the money not being donated being handled by the students. These measures made it easy for students to donate or not to donate without anyone else being able to observe their choice.

We could also check that these measures were sufficient by observing who gave and where they were sitting, especially in terms of whether former partners were influencing one another. We found that in nine occasions neither partner gave. In eight occasions one person out of the partnership gave. And only on three occasions both persons in a partnership gave. This provides assurance that the decision to give had not been biased by people having somehow seen what their neighbour was doing and just doing the same; our observations on how giving responds to the relational environment are independent.

This is a 2x2 experiment, the key factors being differences in relational proximity and endowment. Care was taken to avoid other differences in treatment between the groups, with the tasks being of the same length and cognitive demand so as to maintain a fair basis for comparison. Competitive dynamics were also avoided, since introducing competition (market norms) in itself suppresses cooperation and giving (Ariely, 2009; Kolm and Ythier, 2006). Even with the windfall payment, the idea of ‘lucky seats’ was invoked to keep the spirit away from competition. In everything to do with money, the treatments were identical in both groups. We could check there was no bias in the composition of the groups by considering the spread of demographics such as age, race, gender, religious practice, financial pressures, life-experience, test-scores and so on between groups.
3 Results and discussion

First we consider how differences in the relational environment and monetary endowment affect giving, and then how they affect mood. The choice of charities students could opt to give to were taken from various websites citing popular charities in Britain, and selecting nine charities that represented the widest possible range of interests (Table 3).

<table>
<thead>
<tr>
<th>Charity</th>
<th>N° students donating</th>
<th>Total donated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer research</td>
<td>6</td>
<td>£11.10</td>
</tr>
<tr>
<td>NSPCC</td>
<td>2</td>
<td>£ 7.00</td>
</tr>
<tr>
<td>RSPCA</td>
<td>2</td>
<td>£ 6.00</td>
</tr>
<tr>
<td>Amnesty International</td>
<td>1</td>
<td>£ 5.00</td>
</tr>
<tr>
<td>Greenpeace</td>
<td>2</td>
<td>£ 3.00</td>
</tr>
<tr>
<td>Red Cross</td>
<td>1</td>
<td>£ 1.00</td>
</tr>
<tr>
<td>Salvation Army</td>
<td>1</td>
<td>£ 1.00</td>
</tr>
<tr>
<td>Oxfam</td>
<td>0</td>
<td>-</td>
</tr>
<tr>
<td>RNLI</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

Giving is a prosocial behaviour form in that it involves one party in a positive interaction with another party. Since giving is to a third party and not to one's partner, it offers more powerful evidence of other-centred motivations in play; there is no direct, reciprocal motivation behind the decision to give. We are measuring then whether relational proximity has an impact on prosocial motivations also towards persons outside of the experimental environment.

All results were subjected to tests of statistical significance, using a chi-squared test for proportional differences and a Mann-Whitney test for unrelated samples. OLS was used to determine the statistical significance of unrelated samples with more than two groups. Figs.2 to 5 display histograms of the choice people made about giving to charity by treatment group, and sections 3.1 to 3.4 discuss these results in more detail.
As expected, relational proximity positively influenced giving. We were also expecting that more money would stimulate more giving and would have a positive effect on mood, but neither of these expectations were met. As is described in the following sections, it turned out that these expectations were negated by the largeness of the impact of relational proximity as it interacted with these factors.

3.1 The effect of the relational environment versus endowment on giving

Figs. 6 and 7 show the proportion of individuals making donations as influenced by the relational environment and by the windfall bonus. The number of observations in each category and sub-category is shown in brackets.
From figs. 6 and 7 we see the proportion of persons donating was influenced much more by the relational environment than by payment differentials. 11 people out of 20 gave to charity following a close relational experience, and only 3 people out of 20 following a more distant relational experience. On the other hand, higher payments result in 8 persons donating to charity as opposed to 6. The difference in relational environment had a statistically significant impact on the proportion of people donating (Chi-squared test p-value 0.008), whilst the difference in payment did not have a statistically significant impact (Chi-squared test p-value 0.507) (see Table 4).
TABLE 4: The significance of the social environment versus endowment on the likelihood of giving

<table>
<thead>
<tr>
<th>Significance of social environment</th>
<th>Significance of endowment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donated</td>
<td>Donated</td>
</tr>
<tr>
<td>Distant</td>
<td>Standard</td>
</tr>
<tr>
<td>Close</td>
<td>Windfall</td>
</tr>
<tr>
<td>Total</td>
<td>Total</td>
</tr>
<tr>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>17</td>
<td>14</td>
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<tr>
<td>9</td>
<td>12</td>
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<tr>
<td>26</td>
<td>26</td>
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<tr>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>11</td>
<td>8</td>
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<tr>
<td>14</td>
<td>14</td>
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<td>Total</td>
<td>Total</td>
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<td>20</td>
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<td>20</td>
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<td>40</td>
<td>40</td>
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</tbody>
</table>

Pearson chi2(1) = 7.0330   Pr = 0.008  
Pearson chi2(1) = 0.4396   Pr = 0.507

The interaction between windfall payment and the relational environment in stimulating giving is worthy of a closer look however. Uninfluenced by any windfall payment, being in a closer relational environment increased giving from two persons making a donation to four persons making a donation, but under the influence of windfall payments, these differences became much more extreme. Thus getting more money increased giving in the close relational environment (7 out of 10 gave) and decreased giving in the more distant relational environment (such that only 1 in 10 persons gave). So it is not monetary advantage on its own that makes people give; it takes relational motivators to bring people to part with that money, and the combination of close relational environment and unequal endowment appears to be important.

It is instructive to examine also how much is given by givers. People were paid in coins such that they could give any sum in 10p intervals from 10p to their whole payment. In spite of this, all but one of the 14 givers gave between 100p and 500p, with the most common donation being 100p. (The outlier gave 10p).

Although total giving levels were 820p higher in the close relational environment than the distant, and 380p higher amongst those receiving a windfall payment compared to those who did not, these differences were due to the fact that people in the favoured groups were more likely to give, not that they gave bigger sums. This can be seen by considering the differences in average size of donation per head and per treatment group only amongst those who gave.

For givers in the close relational environment, having a windfall payment increased giving by 101p. For givers in the distant relational environment, having a windfall payment decreased giving by 200p. Although the amount of increase or decrease is not statistically significant in itself, it is interesting to note that both in terms of the likelihood of making a donation and also in terms of sums given, the relational environment reverses the giving response. In a close relational environment, the introduction of monetary advantage stimulates people to give more, whilst in a distant relational environment the introduction of monetary advantage stimulates people to give less.
But overall givers in the distant relational environment gave much more than givers in the close relational environment. They gave an average of 433p as opposed to 192p, a 241p difference. So although those in a close relational environment were more likely to give, the additional givers gave significantly less than those who gave irrespective of the relational environment (Mann-Whitney test p-value 0.031, see Table 5). Moreover, in the more distant relational environment, two of the three givers, one male and one female, gave their whole payment. No one in the close relational environment behaved in this way. This implies some internal motivation to give was present that was not related to treatment, or that was even compensating for bad treatment. (Alternatively it could be a gesture of disgust or protest; even sabotage, although this seems unlikely as the mood of both these givers was not more negative than the group average).

TABLE 5: The significance of the social environment on the sum given if a donation was made

<table>
<thead>
<tr>
<th>Social env.</th>
<th>obs</th>
<th>rank sum</th>
<th>expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distant</td>
<td>3</td>
<td>36</td>
<td>22.5</td>
</tr>
<tr>
<td>Close</td>
<td>11</td>
<td>69</td>
<td>82.5</td>
</tr>
<tr>
<td>combined</td>
<td>14</td>
<td>105</td>
<td>105</td>
</tr>
</tbody>
</table>

unadjusted variance 41.25
adjustment for ties -1.89
adjusted variance 39.26
Ho: sum given if distant social env = sum given if close social env
Mann-Whitney statistic z = 2.155 (p>|z| = 0.0312)

So we see two statistically significant influences on giving at work. Firstly the relational environment motivated more people to give, and especially in combination with the receipt of payments higher than others, although these givers did not necessarily give the biggest sums. Secondly, it would seem that a few people are motivated to give by motivations not related to how they are treated or perhaps even to compensate for how they are treated. These few, motivated to give in the face of distant treatment, gave the biggest sums.

As a further strand of evidence that the relational environment affects giving: we asked people, ‘Would you want to meet your partner again following this experiment?’ Participants could choose between five responses as shown in Table 6. Although these results are not statistically significant, the reported desirability of a continued relationship appears to correlate in the expected direction with an average willingness to donate to a third party and also to the average amount donated.
Moreover, following a close relational experience the average willingness to meet out of the 3 options was 2.35. Following the distant relational experience the average willingness to meet again was 2.2. Although these differences were not statistically significant, the results imply that the relational parameters chosen in this experiment were working in the expected direction in terms of their impact on relationship. Moreover we see that giving levels reflected the impact of the relational distancing much more sensitively than subjective questioning along the lines of, ‘would you want to meet again.’ Despite the small number of observations, giving behaviours still tracked differences in relational proximity with statistical significance.

Besides its effect on giving, another major outcome of the relational and endowment treatments is the mood of the participants. It may be argued that mood or material influences on wellbeing are the main drivers of pro-social behaviours like giving, in which case pro-social behaviour is just a side-product of a better-off society and requires no special attention to social/relational parameters. This experiment seeks to separate out these influences, to check that it really is a relational factor that motivates action towards the wellbeing of others (giving).

### 3.2 The interaction of giving with mood

Mood was measured after the relational and monetary treatments but before payment and the decision on giving. Mood was measured using the positive and negative affect schedule (PANAS), devised by Watson et al. (1988). The PANAS questionnaire consists of 20 words that describe different feelings and emotions. To each word, the respondent numbers from 1-5 the extent to which they feel that way right now in the present moment. For analytical purposes the scores of all the positive words are added up for a ‘positive affect’, and the scores of all the negative words are added for, ‘negative affect.’ Scores can range from 10-50, with higher scores indicating higher levels of positive or negative affect. In

---

1 ‘Before and after’ mood surveys might be preferable, but people may respond negatively to answering the same questions twice, and/or they may anchor their second set of responses to their first. Instead we took advantage of having multiple participants, which helps to control for confounding effects, and observe the average difference in mood between the treatment groups.
this experiment, the mean score of momentary positive affect is 27 and the mean score of negative affect is 14; similar to the average levels of positive and negative affect found in much wider studies and therefore adding credibility to the validity of these results (see Crawford and Henry (2004). Crawford and Henry also affirm that PANAS has a history of use as a research tool in group studies. Negative affect reliably indicates the activation of subjective distress and an unpleasurable engagement with the environment. Positive effect usefully indicates a pleasurable engagement with the environment.

The overall mood differentials between participants had no statistically significant impact on giving. Of particular interest to us however is whether the various treatments made mood more positive or more negative. For this we consider the average mood differences between treatment groups. Assuming that there are no significant biases in the make-up of the groups (see Section 3.3), any differences in these averages are likely to be driven by the differences in treatments. Figs. 8, 9, 10 and 11 detail how the relational environment and windfall endowments influence positive and negative affect.

**FIG.8: Positive affect by relational environment and windfall endowment**

<table>
<thead>
<tr>
<th>Average positive affect</th>
<th>Positive affect by relational environment</th>
<th>Positive affect by relational environment and endowment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of total (40) 27.0</td>
<td>Close env. (20) 28.1</td>
<td>Windfall (10) 28.8</td>
</tr>
<tr>
<td></td>
<td>Distant env. (20) 26.0</td>
<td>No windfall (10) 27.3</td>
</tr>
</tbody>
</table>

**FIG.9: Positive affect by windfall endowment and relational environment**

<table>
<thead>
<tr>
<th>Average positive affect</th>
<th>Positive affect by endowment</th>
<th>Positive affect by endowment and relational environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Of total (40) 27.0</td>
<td>Windfall (20) 27.2</td>
<td>Close env. (10) 28.8</td>
</tr>
<tr>
<td></td>
<td>No windfall (20) 26.8</td>
<td>Distant env. (10) 25.6</td>
</tr>
</tbody>
</table>

There are few statistically significant drivers in this mood data. However, we do find that in an environment uncomplicated by differences in endowment (no windfall payment) the closer relational environment saw negative affect reduce by almost three points. This just scrapes significance at a 90% confidence interval (Mann-Whitney test p-value 0.099, see Table 7), but at least it indicates that relational proximity in the absence of monetary complications makes people feel better. None of the other interactions in Figs.8-11 are statistically significant, although directionally, the effects of the relational environment on mood are positive whilst the effects of a windfall endowment on mood are clearly marginal and inconsistent.
TABLE 7: The significance of the social environment on lifting negative mood without windfall complications

<table>
<thead>
<tr>
<th>Social env.</th>
<th>obs</th>
<th>rank sum</th>
<th>expected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distant</td>
<td>10</td>
<td>126.5</td>
<td>105</td>
</tr>
<tr>
<td>Close</td>
<td>10</td>
<td>83.5</td>
<td>105</td>
</tr>
<tr>
<td>combined</td>
<td>20</td>
<td>210</td>
<td>210</td>
</tr>
</tbody>
</table>

unadjusted variance 175.00
adjustment for ties -4.87
adjusted variance 170.13

Ho: -ve affect if distant social env = -ve affect if close social env
Mann-Whitley statistic z = 1.648 (p>|z| = 0.0993)

Adding an endowment advantage into a close relational environment introduced mixed emotions. Positive affect increased by 1.5; people liked getting the windfall, but negative emotions also increased by 2.3; unequal endowments disturbed people. This is very different from the mood response to a windfall in the distant relational environment. Here people were not happier because of the extra income, but at least they were a bit less sad; negative affect reduced by 1.4. This indicates that uncomfortable emotions raised by the monetary differences only applied to people in close relationships.

Of statistical significance is that for those in a close relational environment receiving windfall endowments, the more negative affect they experienced, bigger the sum they gave to charity. This assertion is based on an OLS model with ‘sum given’ as the dependent variable and ‘positive minus negative affect score’ as the single independent variable. On average, for every point worse the participants felt, they gave 13.5p more on average to charity (standard deviation 4.3p, p-value 0.014, see Fig.12).

Note that this data was even more extreme when based only on the negative affect experienced by participants of the group. On average, for every point worse the participants felt, they gave 21p more on average to charity (standard deviation 5.8p, p-value 0.007). However with a group size of only 10 participants there is a danger that the results are influenced by one extreme case, and a visual representation would suggest that this may be an issue. The model based on positive minus negative affect appears to be more robust as Fig.12 indicates.
This influence did not apply except in the context of a close relational environment; people who felt bad in a distant relational environment were rather inclined to give less, not more. Thus it could be seen that in the close relational environment, people experiencing higher levels of negative affect were more likely to make a donation (Mann-Whitney test p-value 0.081), whilst in the distant relational environment, positive minus negative affect showed that it was the more cheerful people who made a donation (Mann-Whitney test, p-value 0.063) (see Table 8). It would seem that a closer relational environment made people more inequality averse (conform Fehr and Schmidt 1999). It sensitized people to imbalance in the relationship; imbalances which were particularly felt in the presence of endowment differentials, and that giving behaviours were a response to these concerns. People in the distant relational environment were unaffected by such concerns however, and their giving was rather responsive to feel-good factors. This is only an interpretation, but it is difficult to think of an alternative explanation for the data.

**TABLE 8:** The impact of mood on making a donation in a closer versus a more distant relational environment

<table>
<thead>
<tr>
<th></th>
<th>impact of -ve affect in a close relational environment</th>
<th>impact of +ve minus –ve affect in a distant relational environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Donated</td>
<td>obs</td>
<td>ranksum</td>
</tr>
<tr>
<td>No</td>
<td>9</td>
<td>72</td>
</tr>
<tr>
<td>Yes</td>
<td>11</td>
<td>138</td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td>210</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>unadjusted variance 173.25 adjustment for ties -6.51 adjusted variance 166.74</th>
<th>unadjusted variance 89.35 adjustment for ties -1.01 adjusted variance 88.24</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho: -ve affect if not give = -ve affect if give</td>
<td>Mann-Whitney statistic $z = -1.742$ ($p&gt;</td>
<td>z</td>
</tr>
</tbody>
</table>
The interpretation also fits with other trends in the data, even where those trends are not statistically significant. For example we could see that people in the close relational environment also became less comfortable about seeing their partner again once they had a windfall endowment. There are three categories of response to the want-to-see-partner question as shown in Table 6, with higher responses corresponding to an increased desire to meet again. In the distant relational environment, the mean response to these questions is 2.2, and it is exactly the same whether people have a windfall income or not. In the close relational environment and uninfluenced by the existence of any windfall pay-outs the mean response to these questions is 2.5; they are more likely to want to see their partners again. Having a windfall that they know others do not have however brings that average desire-to-see-one’s-partner-again right back down to 2.2; the same level expressed by those in the more distant relational environment. These differences are not statistically significant, but their direction does indicate that the disturbance has some relational motivation. The interpretation also fits with evidence from authors like Wilkinson and Pickett (2009) or Bartolini et al. (2013) who claim that uneven income distribution has negative relational consequences. But notably it is in the closer relational environment with a windfall endowment that people made the most donations to charity (7 out of 10 gave, compared to 4 in 10; 2 in 10; or 1 in 10). It would appear that people became motivated by the closer relational environment to become inequality averse (a prosocial characteristic), such that although they liked getting more money, the windfall raised concerns over unequal endowments, and prompted them to redress these concerns through giving.

If this experiment was to be run again, it might be interesting to have a third group in which everyone gets a windfall income, and to see if people feel the same urge to give money away. However, this experiment better reflects reality in that incomes do not tend to rise evenly for all, and whether or not people wish to compensate for this by redistribution is under the influence of relational components.

The effect of increasing relational proximity by manipulating Schluter and Lee’s relational parameters can be seen not only in giving, mood and a desire to see one partner again; there were also some anecdotal effects on student behaviour. As people exited the classrooms, those from the close relational environment immediately got into clusters to talk over their experiences, look at the sheet explaining what it was all about, and engage with the invigilators in conversation. Those from the distant relational environment on the other hand walked straight out and away, avoiding eye contact and discussion. Such small changes in relational parameters were alarmingly efficient.
3.3 Control for confounding effects

Endowment and relational environment are not the only factors affecting giving, so bias in these results must be tested for by checking that the composition of the groups is not weighted in favour of any other major factor of influence. Using information from the opening surveys, an analysis of gender, race, subject interest, job/volunteer involvement, financial struggles, religious involvement and age showed that the group compositions were not unduly biased; there was a good mix of these demographics found across the groups. This makes the findings with respect to the relational treatments more credible. A possible exception was the finding that there were more psychology students in the distant relational environment and economics students in the close, but looking at how people donated in the close relational environment we found that if anything students from psychology were more likely to donate than others, so the experiment was not biased such that giving was more likely to take place in the close relational environment because of the demographic distribution. Overall, it would seem that the precautions mentioned in section 2 to avoid bias in the composition of the treatment groups were effective; the controls would indicate that there is a random selection of person types spread across the groups (Table 9).

<table>
<thead>
<tr>
<th>TABLE 9: Distribution of persons between groups</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Close relational environment</td>
</tr>
<tr>
<td>---------------------------------</td>
</tr>
<tr>
<td>Gender: male (female)</td>
</tr>
<tr>
<td>Ethnicity: white-Brit (other)</td>
</tr>
<tr>
<td>Subject studied: economics</td>
</tr>
<tr>
<td>psychology</td>
</tr>
<tr>
<td>geography</td>
</tr>
<tr>
<td>other</td>
</tr>
<tr>
<td>Job or volunteer involvement: yes (no)</td>
</tr>
<tr>
<td>Finance: just get by/difficult (do alright/comfortable)</td>
</tr>
<tr>
<td>Attend religious services at least monthly: yes (no)</td>
</tr>
<tr>
<td>Birth year: academic year 1995/6 (older)</td>
</tr>
</tbody>
</table>

In terms of the influence of these demographics in themselves, although certain demographics may be associated in the literature with leaning to more or less giving, in these small samples there were no statistically significant differences except with respect to gender (women were much more responsive to changes in the relational environment than men were). But even here there was no bias since the distribution of women across the treatment groups was even. The gender differences are described in the appendix since they are interesting but not part of the primary research question. This appendix also contains a note on the interaction between test scores, mood and giving. Here the observations reinforce how giving is affected more by relational treatments than by other
influences on wellbeing, although again, the tie between performance and affect are outside the scope of this paper.

3.4 Summary of results

Table 10 summarises the major findings:

<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Independent variable</th>
<th>Test</th>
<th>P-value</th>
<th>N° obs</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Made a donation (0,1)</td>
<td>Relational environment (0,1)</td>
<td>chi-squared</td>
<td>0.008</td>
<td>40</td>
<td>A close relational environment significantly increased the likelihood of making a donation.</td>
</tr>
<tr>
<td>Made a donation (0,1)</td>
<td>Windfall endowment (0,1)</td>
<td>chi-squared</td>
<td>0.507</td>
<td>40</td>
<td>The windfall endowment did not significantly increase the likelihood of making a donation.</td>
</tr>
<tr>
<td>Negative mood if no windfall pay</td>
<td>Relational environment (0,1)</td>
<td>Mann-Whitney</td>
<td>0.099</td>
<td>20</td>
<td>A close relational environment independent of endowment complications lifts mood.</td>
</tr>
<tr>
<td>Sum given if in windfall pay in close relational environment</td>
<td>Mood (positive minus negative affect)</td>
<td>OLS coef.: -13.45 ± 4.280</td>
<td>0.014</td>
<td>10</td>
<td>The worse people feel under inequality, the bigger the sum they donate, but this only applies in a close relational environment.</td>
</tr>
<tr>
<td>Made a donation (0,1) if in distant relational environment</td>
<td>Mood (positive minus negative affect)</td>
<td>Mann-Whitney</td>
<td>0.063</td>
<td>20</td>
<td>In a distant relational environment people were more likely to give when they felt good, but this was reversed in a close relational environment. Possibly the close relational environment sensitized people to relational concerns which they then addressed in giving.</td>
</tr>
<tr>
<td>Made a donation (0,1) if in close relational environment</td>
<td>Mood (negative affect)</td>
<td>Mann-Whitney</td>
<td>0.081</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Sum given if gave at all</td>
<td>Relational environment (0,1)</td>
<td>Mann-Whitney</td>
<td>0.031</td>
<td>14</td>
<td>Those motivated to give in spite of the distant relational environment gave a larger sum per head.</td>
</tr>
</tbody>
</table>

It can be seen that changes to relational proximity significantly impacted the decision to give to charity. Monetary stimuli affecting welfare independently of a positive relational environment had no positive impact at all on giving behaviours. The importance of the relational factor in impacting giving behaviours concurs with evidence from Hornstein et al. (1975) and Holloway et al. (1977). These authors found in lab experiments that subjects hearing about other people being helpful or causing offence affected their generosity towards total strangers. Reports on helping behaviour promoted generosity, whilst reports on a murder decreased generosity. The latter authors extended this to show that reports on non-social elements did not have this effect however. They tried the same thing with varying
reports on weather ‘blessings’ or damage, but the non-social element had no impact on giving.

Having said all this, we find that a combination of a close relational environment and a windfall endowment motivated the most giving of all, with 7 out of 10 persons making a donation to charity, and studying the interaction between treatment and mood could help explain why this is. A close relational environment independent of endowment differentials significantly improved mood. Introducing the complication of bonus endowments produced surprisingly mixed emotions however, and the more disturbed a bonus winner felt in a close relational environment, the more they gave. There was no evidence of this redistributive behaviour in the face of negative emotions in the distant relational environment; only in a close relational environment. It could be then that people had become motivated by the close relational environment to think more about other people, and so they were especially sensitized to the threat posed to relationships by unequal endowments. They became inequality averse, and they responded to the imbalance by giving.

Finally it could be seen that the treatments in this experiment did not fully explain every individual’s decision to give or not to give. Moreover, we found that the sums given by the few people who were motivated to give independently of how they were treated were significantly greater than the sums given by those who were encouraged to give by the way they were treated. This suggests (conform Kolm and Ythier 2006; Dessi and Monin 2012) that giving behaviours depend partly on the relational environment (how the individual is being treated) and partly on prosocial attitudes appertaining to the individual that do not rely on the external environment.

These theories regarding motivations for giving can be contrasted to the theories put forwards by other authors. Hoffman et al (1996) argue that concerns for reputation and reciprocation motivate people to give as social distance decreases and the participants become better able to identify one another. In our experiment however, both groups interacted face-to-face such that the identification of the players and their actions was equally possible (or impossible), and yet the players in each group still acted very differently. Clearly it is more than identification of individuals alone that matters. Aguiar et al. (2008) add the dimension of moral obligation: making it more obvious that a resource transfer is appropriate motivates people to carry out this out. Whilst our experiment does not attempt to distinguish whether people fulfil moral obligations for ego-centric or other-centred reasons (both could be of influence) it does appear that our differences in treatment are sending out different signals regarding the ‘acceptable’ norms of prosocial behaviour for each group, and
that people are adjusting their decision-making patterns accordingly. Ross and Ward (1996) have also demonstrated this with a lab experiment in which a cooperative environment evoked more cooperative decision-making patterns than was the case in a competitive environment. Our experiment adds to this by demonstrating that decision-making patterns respond not only to cooperative versus competitive environments, but also to different degrees of cooperative environment. Bardsley (2000) suggests that people have the capacity to ‘team think’ (to allocate resources in the interests of the collective) provided others are doing the same since the best joint outcome can be achieved through such behaviours. We suggest that the relational environment is signalling where these prosocial/team-thinking behaviours are appropriate.

Having gathered evidence that the relational environment is indeed reflected in giving, it may be of interest to rerun the experiment testing each relational parameter separately. Looking at each parameter individually will also allay concerns that something other than relational distance is acting on giving behaviours. The sample size may also be increased, since with 40 observations only the simplest of statistical analysis could be carried out and it is possible for an outlier to influence the statistical significance of the outcomes. (Although visual representations of the data were made to check that this was not the case). A larger sample size would also allow leads on the interactions between mood, relational drivers and inequalities to be explored. Even with this small sample size however, the response of giving to the relational environment was so extreme that it still yielded some statistically significant results.

4 Conclusions

This experiment set out to discover if changes to relational parameters drove other-centred giving patterns. There were three linked issues addressed, to which this experiment gave the following answers: Firstly, we wanted to see how the relational environment and individual prosocial preferences interact, and it was found that the relational variables strongly influence an individual’s decision to give. This bears out the results of DeScioli and Krishna (2013) and also of Attanasi et al. (2013), showing that a pro-social attitude is not just a static, pre-existent, integral emotion, it can also be modified by momentary conditions.

Secondly, we wanted to see whether giving is a useful indicator of the cohesive qualities of the wider social environment, and found that giving is indeed a sensitive barometer of these qualities. Giving is indicative of individual prosocial inclination, and this prosocial inclination interacts with the nature of the wider social environment. Since giving in this experiment was
to a third party, we have evidence that changes in the social environment affect pro-social preferences generally. In other words, how people are treated affected how they went on to treat others.

And thirdly, we wanted to confirm that it really was the relational component that motivated giving, and not just a mood-altering improvement to welfare that could be achieved in other ways (a by-product of being better off). Here it was found that a welcome monetary windfall was impotent to stimulate giving by itself; it was relational proximity upon which giving behaviours pivoted, and the desire to maintain that proximity.

Although we note an interaction between individuals and their social environment, this was not a repeated experiment, so the continuity of the feedback loops are not proven. However we do have a social treatment, a social response, and an indicator of a wish for further social engagement. Moreover the donations to charity that emerge as a positive social response do not go out of the social network; they must change the social parameters experienced by the third party who receives the money, so now *their* social parameters have changed. How the treatment that third party receives goes on to affect *their* activities is beyond the scope of the experiment. What we can affirm however is that the treatment that each group and its invigilators were giving to each other systematically impacted the individual’s decision to consider the interests of a third party, bringing them to give their own money to others. This may be represented as a positive interaction between an individual and their social environment having further positive knock-on consequences to the welfare of society as a whole.

As outlined in the introduction, this interaction between individual prosocial inclinations and the wider social environment (response and counter-response) could be dictating whither the overall cohesion of these relationships is increasing or decreasing. Prosocial inclination (affecting the way a person allocates their resources to the benefit of others) can be modified by changing certain parameters of that interaction. Furthermore the prosocial qualities of this modification can be quantified changes in giving flows. There are a couple of far-reaching implications to this research.

Firstly, if relational parameters interact with individual attitudes to have such a big knock on effect on the way social cohesion develops over time, the implication is that these parameters should be carefully taken into consideration by decision-makers and development agents in their social interventions. Schluter and Lee’s mix of directness, parity, commonality, multiplexity and continuity are all malleable and may be useful points of departure to consider.
Secondly we know that relationships between people with their highly complex structural and cognitive elements are difficult to evaluate, and yet the giving behaviours that flow from the mix are easier to trace. Giving behaviours provide a useful proxy for the prosocial nature of civic sector relations in that giving is ultra-sensitive to differences in the social environment; far more sensitive than subjective responses to questions along the lines of, ‘do you want to meet again.’ Giving reflects a positive interaction between individuals and their social environment; interactions which add to social cohesion and which help to redress factors that might disturb that social cohesion. Those involved with community evaluation might therefore help themselves by asking questions about giving, and monitoring the way giving patterns change over time. In monitoring giving norms, decision-makers can evaluate the effect of various interventions on relational health, and can make adjustments that are appropriate to the cause of social cohesion.
Appendix

A note on gender and the influence of test scores

15 males took part in the experiment, and 25 females. This meant that there were 15 male-female pairs and 5 female-female pairs. The proportion of persons choosing to donate by gender and in response to treatment is shown in Appendix Table i.

**APPENDIX TABLE i: Likelihood of making a donation by gender, relational environment and windfall pay**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Proportion of males and females choosing to donate</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Close environment</td>
<td>0.29</td>
<td>0.69</td>
</tr>
<tr>
<td>Distant environment</td>
<td>0.25</td>
<td>0.08</td>
</tr>
<tr>
<td>With windfall</td>
<td>0.38</td>
<td>0.42</td>
</tr>
<tr>
<td>Without windfall</td>
<td>0.14</td>
<td>0.39</td>
</tr>
<tr>
<td>Total</td>
<td>0.27</td>
<td>0.40</td>
</tr>
</tbody>
</table>

Table Bi shows that a more positive relational environment stimulated an increase in the proportion of women giving from 0.08 to 0.69, whilst the impact of male giving was far less. Moreover a positive relational environment stimulated 0.69 of the females to donate and only 0.29 of the males. Thus we see that women’s behaviour was more sensitive to the relational environment than men’s and so women were more likely to give than men in a positive relational environment. Both these (and only these) relationships are statistically significant.

Although gender affects giving behaviours, the experiment is not biased because there was a fairly even split of males and females across the treatment groups, as shown in Appendix Table ii.

**APPENDIX TABLE ii: Gender split amongst the 4 treatment groups**

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close environment, windfall</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Close environment, no windfall</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Distant environment, windfall</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Distant environment, no windfall</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

Furthermore it is interesting to note that whilst test scores influenced mood, this non-social influence on wellbeing did not influence giving. Not surprisingly, people did significantly better in the non-verbal reasoning test when they collaborated in the close relational environment than when they worked on their own in the neutral environment. The average score in the collaborative group was 10.1 out of 12, instead of 8.3 out of 12 where people worked on their own. Even though people did not know one another’s scores, a higher than average test score was associated with lower levels of negative affect; a 2 point difference
which was statistically significant. However, these test score differences and the improved mood they generated had no impact on the giving decision. Givers in the distant relational environment had above average test scores of 10 out of 12, but givers in the close relational environment had below average test scores of 9.3 out of 12. We can conclude that improvements in wellbeing generated by higher scores were not the driving factor in the decision to give; only the social/relational differentials impacted the giving decision.
The consent form used for participants in this study

Informed Consent Form for Study Participants
Please read the following information carefully

DESCRIPTION: You are invited to participate in a research study supported by the University of Reading. Its purpose is to investigate human behaviour in specific contexts. You will be asked to share some non-intrusive and non-sensitive information about yourself with another person, and then to engage in a straightforward task. You will also be required to answer two short, private questionnaires regarding a minimal of demographic information and some subjective opinion.

BENEFITS: You will gain first-hand insight into experimental social research methods. At the end of the exercise, you will be offered a more detailed account of the different elements of the study and (eventually) the results. You will also receive at least £5 cash for your participation on completion of the study.

REQUIREMENTS: Your participation in this experiment will take approx. 40 minutes. No mobile devices may be used for the duration of the study. You must arrive on time on XXX, at XXX. You must be a new student beginning your first term at the University of Reading. The first XXX persons of the required demographics to register will be chosen. You should retain your own copy of this consent form and information. If submitting this form electronically, you will have your own electronic copy. If you just turn up on the day, additional hard copies of this information will be available.

SUBJECT'S RIGHTS: If you have read this form and have decided to participate in this project, please understand your participation is voluntary and you have the right to withdraw your consent or discontinue participation at any time without penalty. You have the right to refuse to answer particular questions. Your individual privacy will be maintained in all published and written data resulting from the study. This project has been given a favourable ethical opinion for conduct by University of Reading authorities. Further questions may be addressed to XXX.

If you agree with the above-stated conditions and are willing to participate in the experiment, please fill in the details at the bottom of this form. By submitting this form you agree that you meet the following conditions:

- This is your first term at the University of Reading.
- You have read the above information, have understood what will be required of you, have had any questions answered to your satisfaction, and agree to the arrangements described in so far as they relate to your participation.
- You have your own copy of this consent form and information.
- You agree to arrive on time at XXX.

FOR YOU TO FILL IN
I meet all the above conditions. Name:

Signature (not required for electronic submissions)

Date:

Male or female (We want an equal mix of gender):
Places on this study will be allocated on a first come, first serve basis. You can either just turn up on the day or, to secure a place in advance, send this form electronically to XXX before XXX.
Details of the experimental procedures

Two similar classrooms in the same building were chosen for the experiment, with the seating and tables prearranged in pairs and each place numbered, more tables being prepared in both rooms than students to fill them. Numbers ascended along the front row, with highest numbers at the back. Each person sitting at every other pair of tables was predestined to receive double pay, with papers appropriate to that cause ready prepared for those tables. However, no knowledge of pay differentials was available to the students as they chose their seats. The papers up to paper 5 for use in the experiment were already on the tables in both rooms, but face down with ‘Do not turn over these papers or open any envelopes until told to do so’ printed on the top. Paper 5 was also enveloped, because it contained information on the windfall payment for some and should in no way be seen before time.

On presentation in the foyer outside the classrooms, student consent forms were checked or filled in. The students were then divided into alternate rooms, men in order of arrival, and women in order of arrival. There were two invigilators in each classroom as students entered, one to speak, and the other a timekeeper. The timekeeper was to ensure that the lengths of the exercises were exactly the same in both groups, making the groups comparable.

In one room the close relational environment was created, and in the other, the distant relational environment. 20 students were sent to each room, and of those, every other pair (10 students in each group) received a windfall of double pay. The parallel progression of events in each room with the relational differences between them is shown in the Appendix Table i, with details of the contents of each paper to follow. Appendix Table i differs from Table 2 in the main text only in that it provides the exact wording the invigilators were expected to offer.
### APPENDIX TABLE i: Progression of experiment by relational environment

<table>
<thead>
<tr>
<th>Stage of experiment and time allowed</th>
<th>Close relational environment</th>
<th>Distant relational environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrival</td>
<td>The 2 invigilators were friendly, approachable and casually dressed. As students arrived, they were encouraged to fill up from the front and according to the directions displayed on the screen. The PowerPoint slide read: <em>University of Reading Research Study. Please put away and silence mobile devices. Please sit in twos: either male-female or female-female, no men together. Sit next to someone you do not already know.</em></td>
<td>The 2 invigilators were formal; distanced in demeanour and in smart dress. No smiles. As students arrived, the invigilators completely ignored them, speaking only to each other or being engrossed in paperwork. The students therefore seated themselves randomly. Displayed on the screen was the following PowerPoint slide: <em>University of Reading Research Study. Please put away and silence mobile devices. Please maintain complete silence throughout this exercise.</em></td>
</tr>
<tr>
<td>When no more students arrived, the signal to start the programme was given by a third invigilator</td>
<td>Silence not kept. To keep time with the other group, invigilators gave a general welcome message and introduced the experiment along the lines of information already received in the consent form. Correct seating was checked and enforced.</td>
<td>Silence kept. Invigilators finally looked up and the speaker addressed the group with, &quot;This research study is about to begin. You need to maintain complete silence throughout this exercise. You need to sit in twos, filling up from the front. Sit next to someone you do not already know, and no two men should sit together. Keep the silence and move as quickly as possible NOW.&quot; Students were made to quickly reseat in a way corresponding to the other group.</td>
</tr>
<tr>
<td>Paper 1: General information. 45 seconds</td>
<td>Invigilator said, &quot;Now turn over paper 1 and look through the contents&quot;. Paper 1 outlines requirements and introduced the place number as a unique identity number. During this time a PowerPoint slide showing the consent form was projected.</td>
<td>Invigilator said, &quot;Now turn over paper 1 and familiarize yourself with the contents&quot;.</td>
</tr>
<tr>
<td>Paper 2: Demographics questionnaire. 1 minute</td>
<td>Invigilators in each group said, &quot;Now turn over paper 2 and fill in the form&quot;. Paper 2 comprised a confidential questionnaire of semi-sensitive demographics.</td>
<td></td>
</tr>
<tr>
<td>Paper 3: Information sharing. 3 minutes for filling in information individually, and 5 minutes for swapping that information with student partner.</td>
<td>Invigilator said, &quot;Now turn over paper 3. Fill in the first section on your own, then discuss the contents with your partner and work out section 2 together.&quot; After 3 minutes, they were told they should be turning to section 2 if they have not already done so, and that they will have another few minutes to complete the exercise. Paper 3 comprised 12 non-intrusive questions about the student. In the close group the information was discussed verbally. In the distant group, all exchanges were written. The content differed as shown in the paper.</td>
<td>Invigilator said, &quot;Now turn over paper 3 and follow the instructions.&quot; After 3 minutes, they were told they should be swapping papers with their partners if they have not already done so and be filling in section 2 on the others person's form, and that they will have another few minutes to complete the exercise.</td>
</tr>
<tr>
<td>Paper 4: Non-verbal reasoning test</td>
<td>Invigilator said, &quot;Now turn over paper 4. This is a non-verbal reasoning task of the</td>
<td>Invigilator said, &quot;Now open envelope 4 and follow the written instructions&quot;</td>
</tr>
</tbody>
</table>

---
10 minutes

10 minutes type used in 11 plus exams. There are a series of diagrams in boxes and you have to identify the pattern and work out which option fits the missing box. Try to solve the puzzles together with your partner. After 10 minutes, for your own interest, you will be given the answers and asked to mark your own. You will not have to share your results with other students in this room.

(The same non-verbal reasoning test was carried out alone).

Checking the answers
3 minutes

Invigilator said, “Time’s up! We’ll put up the answers now, and everyone can mark their own.” PowerPoint displayed with the answers. People allowed to talk it through with their partner. At the end of 3 minutes, invigilators went round taking in the marked question papers.

Invigilator said, “Time’s up! We’ll put up the answers now, and everyone can mark their own.” PowerPoint displayed with the answers. Individuals marked their own answers. At the end of 3 minutes, invigilators told everyone to pass the marked question papers to the front.

The differences in relational environment ended here. From here on, the group environment and student tasks were identical except that paper 5 was still taken in in the close relational environment and passed to the front in the distant. Invigilators were formal but polite. Students worked alone. Complete silence was maintained in both groups.

Envelope with paper 5: Mood survey and question on desire to meet your partner again, together with windfall pay announcement for some. 3 minutes

Invigilators say, "Now the remaining papers are for your eyes only. Please do not share this information with your partner, and can we have [or: continue to maintain] complete silence for the rest of the session. You can now open envelope 5 and follow the instructions.” The students opened the envelopes on their desks containing this questionnaire. Every other set of tables in each room had a paper stapled to the front of the questionnaire announcing that they were in ‘lucky seats’ selected for double pay (£10 instead of £5). Those without this windfall however did not know that others had more than them.

Paper 5 taken in/returned to the envelope and passed to the front.

Envelope 6 containing money, receipt and a charity slip. 2 minutes for completion from the time the envelopes were handed out

A PowerPoint instruction was projected onto the screen and invigilators read it exactly. ‘Thanks for your participation. We are going to hand out the money now. The University of Reading requires that everyone signs a receipt and you will also have an opportunity to make a donation to charity should you wish. So please could you keep the silence whilst the money comes round, open your envelope, and fill in the very last slips.’

In both groups, all invigilators went round handing out the pre-prepared and numbered envelopes to the right tables.

Invigilators said, "We want to take in your signed receipts for the money now. We have to do this separately in order to retain your anonymity. So just give us the receipts as we come round, and the donation slips with any money you wish to leave for charity should be left in the envelopes on your desk.”

New PowerPoint slide displayed reading, 'Signed receipts to be collected in now. Take your money! Leave the envelope on the desk with the donation slip inside and any money you wish to donate to charity.’

All invigilators went round collecting receipts, checking they were signed as they went.

Invigilators then said, “All done? That’s it, thank-you! Take your money, leave the envelopes on the desk, and as you leave, you can collect the wider details of this study from the invigilator at the door. Someone will be available outside to explain more about the experiment if you are interested.”

One invigilator of each group then stood at the door handing out an information sheet whilst the others kept an eye on the envelopes on the desk.

---

3 This turned out to be too long. 1 or 2 minutes would have been plenty.
Unformatted copies of each paper in order of appearance

PAPER 1: General information
Research Study:
Participants are requested to answer all questions truthfully and to the best of their knowledge, and to complying with the instructions of the invigilators.
Please record your desk number here …..
You will need to write this number where requested on each subsequent paper. Retain this number in case you wish to withdraw from participation, so that we know which observation to exclude.
Please do not use any mobile devices whilst in this room.
[Distant relational environment only: Complete silence must be maintained throughout this exercise.]
A copy of the consent form is displayed in the PowerPoint. If you have not already submitted one of these, let the invigilators know and you will be brought a form to sign.

PAPER 2: Demographics questionnaire
Please fill in the following form (you will not be required to share this information with others in the room):
Desk number …..
Month and year of birth: Month: ….. Year: …..
Male or female …..
Citizenship: …..
Ethnic background (select one option)
  □ Asian
  □ Black
  □ Mixed
  □ White
  □ Other
How well do you expect to manage with the financial pressures of university life?
(select one option)
I expect to:
  □ Live Comfortably
  □ Do alright
  □ Just about get by
  □ Find it quite difficult
  □ Find it very difficult
How often, if at all, do you attend religious services?
(Select one option)
□ Once a week or more
□ Less often but at least once a month
□ Less often but at least once a year
□ Never or practically never
□ Only on special occasions like weddings, funerals etc.
PAPER 3a: Information for sharing – questionnaire for close relational environment

Record your desk number here ..... We want you to share some information about yourself with the person sitting next to you. First fill in the information in part 1, and then discuss the contents with the person sitting next to you. Work out part 2 together.

Part 1

Please give brief answers to the following questions

1. What subject are you studying at University? ..... 
2. Have you held a formal job before? ..... 
3. Have you any voluntary work experience? eg. Have you ever helped to run a group, club or organisation? ..... 
4. If applicable, how often were you involved in paid or voluntary work (Select one of the following)
   o Once a month or more
   o less than once a month but more than once a year;
   o once a year or less;
   o N/A
5. What subjects did you like at GCSE level? ..... 
6. What subjects did you dislike at GCSE level? ..... 
7. Do you live on or off campus? ..... 
8. Is your home near or far from Reading? ..... 
9. Do you have brothers and sisters or not? ..... 
10. Name two things you enjoy ..... 
11. How has someone in the past helped or encouraged you? ..... 
12. One goal for the future ..... 

Now share this information with your partner. Swap papers or tell each other how you have answered the questions. Fill in part 2 together.

Part 2:

1. Based on the answers in part 1, identify with your partner something you both have in common, and write it down here: ..... 
2. Briefly discuss something you agree could be done in support of this common interest.
PAPER 3b: Information for sharing – questionnaire for distant relational environment

Record your desk number here ..... We want you to share some information about yourself with the person sitting next to you. First fill in the information in part 1. When you have finished part 1, swap papers with the person next to you. Fill in part 2 on your partners’ paper. Do not break the silence.

Part 1

Please give brief answers to the following questions

1. What subject are you studying at University? ..... 
2. What is the length of your course? ..... 
3. Have you held a formal job before? ..... 
4. Have you any voluntary work experience? eg. Have you ever helped to run a group, club or organisation? ..... 
5. If applicable, how often were you involved in paid or voluntary work
   (Select one of the following)
   o Once a month or more
   o less than once a month but more than once a year;
   o once a year or less;
   o N/A
6. What subjects did you like at GCSE level? ..... 
7. What subjects did you dislike at GCSE level? ..... 
8. Name a subject you did at A-level (or equivalent) ..... 
9. Name something that you like in a teacher? ..... 
10. Name something that you dislike in a teacher? ..... 
11. Do you already have a career in mind? ..... 
12. How long ago did you decide to come to Reading University? ..... 

Now exchange papers with the person sitting next to you.

Read the other person’s paper and identify three ways in which you differ from them. Write down the three differences in part 2 of their paper and hand the paper back. Do not break the silence.

Part 2: (fill this section in on your partners’ form)

Based on the information above, write down three ways in which you differ from this person:

Now return this paper to its original owner, get your own paper back, and read what was written.
PAPER 4: Non-verbal reasoning task

Record your desk number here: ……

This is a non-verbal reasoning task of the type used in 11 plus exams. There are a series of diagrams in boxes and you have to identify the pattern. You circle the option you think best fits the missing box from a choice of answers. Further explanation and example answers are provided so that you know what to do.

Try to solve the puzzles together with your partner. [Distant group: Try to solve the puzzles on your own]. You have 10 minutes to complete this exercise. After 10 minutes, for your own interest, you will be given the answers and asked to mark your work. You and your partner [or: You] will not be required to share your results with other students in this room.

Thanks to ‘ElevenPlusExams’ for provision of the non-verbal reasoning questions, used with permission.
PAPER 5: Meeting again and mood questionnaire

Please fill in the confidential questionnaire below.

1. Desk number ..... 

2. Would you want to meet your partner again following this experiment?
   Tick the box that best describes your response:
   □ Definitely
   □ Might be nice
   □ Neutral
   □ Not especially
   □ Not at all

3. The words below describe different feelings and emotions. Read each item, and then list a number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment.

<table>
<thead>
<tr>
<th>Very Slightly or Not at All</th>
<th>A Little</th>
<th>Moderately</th>
<th>Quite a Bit</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interested</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Distressed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Excited</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Upset</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5. Strong</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Guilty</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>7. Scared</td>
<td></td>
<td></td>
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<tr>
<td>8. Hostile</td>
<td></td>
<td></td>
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<tr>
<td>9. Enthusiastic</td>
<td></td>
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<tr>
<td>10. Proud</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Irritable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Alert</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>13. Ashamed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Inspired</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15. Nervous</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>16. Determined</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>17. Attentive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. Jittery</td>
<td></td>
<td></td>
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<tr>
<td>19. Active</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. Afraid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thank-you for your participation - now the payment! Please maintain the silence however until the payments are completed. (Group 2 only) Return this form to the envelope before passing to the front.

[Scoring instructions (which were not included on the questionnaire paper): For Positive Affect, add the scores on items 1, 3, 5, 9, 10, 12, 14, 16, 17 and 19. For Negative Affect, add the scores on items 2, 4, 6, 7, 8, 11, 13, 15, 18 and 20]

Tacked to the front of the questionnaire of every other table pair was the following notice:

Congratulations! You picked one of the lucky seats! It was decided that whoever sits at this table should get double pay! So now you will get £10 for your participation instead of £5
Receipt:
I, the undersigned, received £5 [or £10] for participation in a University of Reading research study
Signed:
Name:
Date:
In order to retain your anonymity, this slip must be separated and handed in separately.

Charity Option:
I would/would not* be willing to make a donation to charity (*delete as appropriate)
I donate ____________ to the following charity/charities
(tick the box(es) of your choice):
- Amnesty International
- Cancer research
- Green Peace
- NSPCC (the National Society for the Prevention of Cruelty to Children)
- Oxfam
- Red Cross
- RNLI (Royal National Lifeboat Institution)
- RSPCA (Royal Society for the Prevention of Cruelty to Animals)
- Salvation Army
Please return this slip to the envelope together with any donation applicable and leave it on the desk. Take the remaining money with you! All donations will be forwarded to the selected charity (charities).
References:


Krishna, A., & Uphoff, N. (2002). Mapping and measuring social capital through assessment of collective action to conserve and develop watersheds in Rajasthan, India. In C. Grootaert & T. Van...
Bastelaer (Eds.), *The role of social capital in development: an empirical assessment* (pp. 85-124). Cambridge: Cambridge University Press.


