The Effect of Anchors and Social Information on Behaviour

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Abstract

We use a ‘multi-player dictator game’ (MDG) with ‘social information’ about the contribution decision about a previous dictator to examine whether average contributions as well as the behavioural strategy adopted are affected by the first amount presented (the ‘anchor’) using a sequential strategy elicitation method. We find that average contributions are positively affected by the anchor. The anchor is also found to influence the behavioural strategy that individuals adopt, such that low anchors significantly increase the likelihood that players will adopt unconditional self-interested strategies, whereas high anchors increase the likelihood of adopting giving strategies. The distribution of strategies – and hence, the distribution of behavioural ‘types’ - is therefore affected by the initial conditions of play, lending support to the notion that behavioural strategies are context dependent.

Keywords: anchoring; social information; dictator game; heterogeneity; redistribution

Acknowledgments: we acknowledge the Earth Institute Postdoctoral Fellowship programme at Columbia University for funding this study. We also acknowledge Roger Fouquet, Praveen Kujal, Daniele Nosenzo, Natalia Jimenez and Valerio Capraro for valuable comments on this paper. Finally, we wish to thank colleagues at Middlesex Behavioural Economics Group as well as members of the LSE Behavioural Economics group for providing useful feedback on an earlier version of this paper.
1. INTRODUCTION

This paper reports results of an experiment that examines the impact of an initial piece of information - or ‘anchor’ - on redistribution choices in response to social information.

Anchoring is a well-established cognitive phenomenon describing the tendency of individuals to make judgments that are biased towards the first piece of information they receive (Tversky & Kahnemann, 1974; Mussweiler & Strack, 2001). Most anchoring studies have examined the impact of anchors on numerical judgments (e.g. Tversky & Kahneman, 1974), beliefs (e.g. Chapman & Johnson, 1999; Joireman, Truelove & Duell, 2010), and elicited preferences (e.g. Ariely, Loewenstein & Prelec, 2003; Green et al., 1998). Far less research has been conducted on how anchors affect actual behaviour; of these studies, most analyse and find anchoring effects (although none use this term) of reference prices on consumer bidding behaviour in online auctions (e.g. Dolakia & Simonson, 2005; Wolk & Spann, 2008). Additionally, Wansink, Kent & Hoch (1998) examine (and find) anchoring effects on consumer purchases.

In the only identified study to examine the impact of anchors on actual distribution choices, Raihani & McAuliffe (2014) found that numerical anchors (based on player’s ages) had no effect on contributions in a dictator game. However, we note that the treatments Raihani & McAuliffe analysed for anchoring were intended as control treatments and were not designed to elicit an anchoring effect. Specifically, participants chose how to distribute $1 to a recipient and the anchoring treatments mentioned people of 20 years of age or 50 years of age. Anchors designed to potentially elicit anchoring effects would be within the range of choice options ($0-$1). Furthermore, they framed the high and low anchor differently (“at least 20 years old” and “no more than 50 years old”) which may reasonably affect results1.

1 In fact, they found that players were more likely to give $0.50 or more in the ‘at least 20 years old’ control condition (48.4%) than in the ‘no more than 50’ treatment (37.7%), and this difference was statistically significant (Chi-squared test: $\chi^2=4.18$, df=1, p=0.04). This suggests that the treatments had an effect, which was driven not only by the numerical anchors but how the sentences in which they were embedded were worded.
We aim to add to this limited literature, by asking the following questions: firstly, can an initial piece of information alter the amount that an individual redistributes? And if so, might this also affect how the individual perceives the situation and hence, their behavioural strategy?

The behavioural strategies that people adopt in economic experiments are often used to classify people into social ‘types’, such as ‘conditional co-operators’ or ‘free-riders’ (e.g. Burlando & Guala, 2005; Fischbacher, Gachter & Fehr, 2001). The general understanding is that these different behavioural strategies reflect underlying social preferences, such as ‘altruism’, ‘reciprocity’ or ‘warm glow’. For example, redistribution behaviour in economic experiments is often considered indicative of altruistic preferences (Eckel & Grossman, 1996), while contributions to the public good are considered to reflect reciprocity or conformity (Bardsley and Sausgruber, 2005).

However, a growing number of studies are finding that the specific behavioural strategies that individuals adopt - and hence the distribution of ‘types’ – are susceptible to contextual factors, such as the frame (e.g. Gachter, Kolle & Quercia, 2017), and how choices are elicited (e.g. Dariel, 2018; Fosgaard & Piovesan, 2015). For example, Dariel (2018) found that changing the way in which conditional strategies were elicited in a public goods game radically changed the proportions of conditional co-operators and free-riders. This suggests that the behavioural strategies that individuals adopt may context-dependent, as noted by Konow (2001).

To address this question, we examine the behavioural strategies that individuals adopt in response to social information. The effect of social information on redistribution decisions has been extensively explored (e.g Krupka & Weber, 2009; Shang & Croson, 2009; Frey & Meier, 2004), and the general finding is that on average, people positively condition the amounts they give to the amounts given by others. However, there is heterogeneity in how individuals respond to social information, with some people positively conditioning their choices to those of others, some negatively conditioning their choices and others unaffected (Gachter, Gerhards & Nosenzo, 2017; Panchanathan, Frankenhuys & Silk, 2013). We ask whether the distribution of behavioural types in this context is sensitive to anchoring effects. Should we find this to be the case, this would suggest that the choice of behavioural strategies is also affected by normatively irrelevant contextual factors, such as anchors.
To this end, we use a ‘multi-player dictator game’ (MDG), in which there is a first-mover (FM) who makes an initial visible monetary transfer to recipients in the group, and second-movers (SM) who make transfer choices in response to all possible FM choices using a sequential strategy method\(^2\). Individual ‘types’ are classified based on the full vector of responses to FM contributions, as either: ‘conformists’ (positive relationship), ‘compensators’ (negative relationship), ‘self-interested’ (fixed zero transfer) or ‘unconditional givers’ (fixed positive transfer) types. The impact of anchors on the distribution of types is ascertained by randomly presenting different SMs with different starting values in the sequential strategy elicitation exercise and examining whether this initial amount affects the distribution of SM types.

Overall, we show clear evidence of an anchoring effect, with average transfers influenced by the initial amount presented to second-movers. We also find that the anchors affect the distribution of ‘types’, such that the likelihood of choosing a self-interested strategy is greater in response to low value anchors than high value anchors. This suggests that there may be malleable motivations for self-interested behaviour, with some individuals selecting this response strategy mainly as a result of contextual factors.

We consider this to be an important investigation for various reasons. Firstly, individuals are regularly faced with new redistribution decisions, for example, in the form of charitable appeals. If the initial piece of information determines the entire strategies adopted by potential donors, then it suggests that initial information may determine all outcomes that follow, in what is essentially a path dependent process. Additionally, from a theoretical perspective, the behavioural strategy that an individual adopts is expected to reflect preferences. Assuming preferences to be stable and well-defined, if anchors cause a change in the distribution of behavioural strategies, this may suggest that such strategies (such as ‘self-interest’ or ‘conformity’) are not fixed and may actually reflect motivations that are malleable and potentially affected by anchors (noted in Blanco et al., 2011).

\(^2\) The strategy method involves players providing contingent responses to a range of possible actions by a peer.
This rest of paper is organised as follows: Section 2 presents the experimental design and summarises the data collection; Section 3 presents the results, and Section 4 presents the discussion and conclusions.

2. EXPERIMENT

To explore the influence of first-mover (FM) monetary transfers on second-mover (SM) redistribution behaviour we used Amazon Mechanical Turk to recruit participants (for evidence of methodological validity see Rand et al., 2012; Horton et al., 2011). Data was collected from a total of 118 groups of subjects, with eight in each group (four allocators and four recipients). Due to drop-outs (n=39) the final sample consists of 433 allocators (109 first-movers, 324 second-movers) distributed unevenly among groups. Given that we are interested in individual decisions rather than aggregate group decisions, we opt to use the full dataset rather than exclude incomplete groups – we do this because group members did not interact in any way other than by viewing the FM’s decision hence drop-outs were not observed. After providing informed consent, participants were presented with the experimental instructions, followed by two questions testing comprehension. Participants who correctly answered both questions then proceeded to complete the experiment, described below. The sample was composed of 43% females; the average age was 33 years and median annual income was $45,000.

2.1. Multiplayer Dictator Game

Participants who correctly answered both questions were randomly assigned to groups, half of which were randomly assigned to the role of allocator (i.e. ‘dictator’) and half to the role of recipient. Allocators received an endowment of $2 per person and were then informed that that

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3 There are 86 complete groups.
4 It was explained that continued participation in the experiment depended on correctly answering both questions.
one of them would be randomly selected “by the computer” to make the first contribution and that this amount would be communicated to the other allocators in the group. The instructions specifically read:

“As the computer will now randomly select one of you to make a transfer before anyone else. This person will be referred to as the ‘first-mover’. The transfer made by the first-mover will be made visible to all the other participants.”

The first-mover (FM) could select one of the following amounts from their endowment to transfer to the recipients: [0, $0.10, $0.25, $0.50, $0.75, $1]. Meanwhile, SMs were informed that the FM had been given the choice of transferring one of the six aforementioned amounts. Using the strategy method, SMs were then asked to indicate how much they would contribute conditional on each of these possible FM transfers. The experimental text specifically read:

“Before seeing what the first-mover has transferred, please indicate what you will contribute in response to each of these possible first-mover transfers. These transfer decisions are binding. Once you have indicated how much you will transfer given all possible first-mover transfers, you will find out how much the first-mover has actually transferred. Then the corresponding amount that you indicated you would transfer in response to this first-mover transfer will be implemented.”

Each possible FM transfer was presented to SM’s sequentially on separate screens. Before SMs made their decisions, they were told that their stated contributions in response to each of the possible FM transfers were binding; in other words, once the FM had made their choice, the corresponding contribution indicated by the SM would be deducted from the SM’s endowment. All transfers by FMs and SMs were divided up equally among the recipients in the group. This procedure was communicated in advance to all players, including the recipients. Once the SMs had provided a full vector of responses to each possible FM transfer, the FM’s choice was communicated to the SMs.

After completing the MDG, participants were asked to provide an open-ended explanation for their decision – specifically, the question read: “‘How did you decide on the amount that you contributed?’ Although this qualitative data lacks the clarity of quantitative measures of social influence on redistribution, it can be used to assess the robustness of the SM classification.
process (described in Section 4.3.1). Participants were then asked to provide basic socio-economic information, including their gender, age and income. We expect that redistribution behaviour will be positively influenced by female gender (e.g. Mesch et al., 2011; Eckel & Grossman, 1998) and income (due to the income effect).

A custom, web application was used to allow participants to play the game interactively with the other members of their group at the same time. This is a fairly novel development in studies using Mechanical Turk subjects (other examples include Arechar, Gacheter and Molleman, 2018). Typically, group-based studies using MTurk subjects do not provide interactive platforms for players to play simultaneously with each other. The design in the present study adds realism and urgency to the player’s actions, which enhances the validity of group-based decisions.

The experimental instructions can be found in the Online Appendix. In addition, a recording of the interactive platform can be found in the following link: [link removed for review as it contains author details].

2.2. Identifying Anchoring Effects

To identify anchoring effects with respect to the initial amount (IA) presented, the order in which the hypothetical FM transfers were presented to SMs was randomized, thus resulting in six anchors (treatments); hence we obtained vectors of responses (SM strategies) for each of these six possible anchors. Table 1 shows the sample size for each anchor.

Table 1. Summary Sample Size by Anchor

| Anchor value (IA) | Sample Size |
|-------------------|-------------|
| $0                | 55          |
| $0.10             | 40          |
| $0.25             | 60          |
| $0.50             | 51          |
| $0.75             | 64          |
| $1                | 54          |
Based on general findings in the literature on anchoring, we hypothesize that SM contributions will be biased towards the IA (the anchor) (e.g. Ariely et al., 2003). We do not aim to identify the precise psychological or cognitive mechanism underlying this anticipated anchoring effect. There are different explanations for anchoring, namely ‘anchoring-and-adjustment’ (Tversky & Kahneman, 1974), ‘selective accessibility’ (Mussweiler & Strack, 1999a, 1999b) and a close variant of this, ‘query theory’ (Weber & Johnson, 2011). The first of these proposes that individuals use the initial information provided as a starting point (anchor) and reach their final judgment through a process of marginal but insufficient adjustments from this anchor (Tversky & Kahneman, 1974). ‘Selective accessibility’ and ‘query theory’ models however suggest that when individuals receive an initial piece of information, they engage in an internal assessment of the validity of this information. Greater weight is placed on the initial information provided resulting in judgments converging on this initial piece of information.

However, we do not propose to identify which of these might explain our findings. The main purpose of the present study is firstly to identify firstly, whether the initial piece of information impacts the giving behaviour of individuals in response to social information; and secondly, whether the behavioural strategy that individuals adopt are affected by anchors. The first question has only been addressed by one other study, as noted in the introduction (by Raihani & McAuliffe, 2014) whereas the second question is novel and has not been addressed previously.

On the one hand, it is possible that all we observe is a magnitude effect – by which subsequent choices are simply adjusted upwards or downwards in response to the initial decision, but no changes in actual strategy occur. Thus, for example, if this were to occur, conformists would positively condition their choices to the social information provided, albeit with an upward (downward) shift in overall transfers in response to a higher (lower) IA. Similarly, compensators and unconditional givers would also be expected to continue behaving in line with their type, but with similar upwards (downwards) adjustments. Self-interested contributors however would not be expected to adjust, assuming that they have pure self-interested preferences.
On the other hand, it is possible that the reasoning an individual engages in when faced with different anchors affects how they perceive the decision, which could potentially lead to changes in adopted strategy. As noted, this is an exploratory question, and we have no expectations for the pattern of an effect in this regard.

3. RESULTS

3.1. Overview of Data

We start by examining the data at aggregate level, presenting an overview of peer effects on redistribution decisions. As noted previously, the experiment elicited SM transfers in response to each of six possible FM transfers that were presented sequentially [$0, $0.10, $0.25, $0.5, $0.75, $1]. Mean SM transfers in response to each of these FM transfers are shown in Figure 1. The distribution of SM contributions in response to each possible FM contribution can be found in Online Appendix A.

Mean SM transfers in Figure 1 increase modestly with FM transfers. Results of a repeated measures ANOVA (with SM contributions as the dependent variable and FM transfers as the independent variable) indicate that there is a significant influence of FM transfers on SM contributions (F(5,1615)=7.82, p<0.001). In sum, at the aggregate level it appears that social information has a positive effect on second-mover contributions. In the following section, using regression analyses, we confirm that the positive relationship between SM and FM transfers observed in Figure 1 is robust, when controlling for socio-economic factors and anchoring.

5 Additional pairwise paired t-tests and non-parametric Wilcoxon signed-rank tests between mean SM responses are found in Online Appendix B.
Figure 1. Aggregate SM Responses to FM Contributions. We do not present standard error bars in this figure as these are calculated on between-subject data, whilst the data presented here involves repeated observations per subject (i.e. within-subject’s data).

3.2. Anchoring Effects on Average Contributions

To identify whether there is an anchoring effect, we start by presenting mean SM contributions at each possible FM contribution level disaggregated by IA (Figure 2). Visually, anchoring effects are apparent, with mean transfers varying by anchor and not converging for some of the values. Thus, although there is convergence (overlap) between mean contributions in response to anchors of $0.10 and $0.25, these do not converge with mean contributions in response to anchors of $0.50 and $0.75 (which overlap with each other).

However, the anchoring effect is not linear: the highest SM transfers overall occur when the first choice offered in the strategy set is $0.50; the lowest SM transfers overall occur when the IA is $0.10. Interestingly, contributions in response to the lowest and highest anchors ($0 and $1) converge in the middle; this suggests that the extreme anchors lead to more moderate responses. In their review of anchoring studies, Furnham and Boo (2011) report mixed findings regarding the impact of extreme anchors, with some studies finding extreme anchors generating strong

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anchoring effects (e.g. Mussweiler & Strack, 1999a) and others finding exactly the opposite (e.g. Wegener, 2001). Our results agree with the latter findings that extreme anchors have weaker anchoring effects.

**Figure 2. SM responses to FM transfers disaggregated by Initial Amount.** This figure shows average SM responses categorized by different FM initial amounts. In these averages we include all SM responses to FM amounts seen categorized by very first amount each SM saw and responded to.

There also appears to be a modest interaction between the IA and the FM transfer amount, with the IA of $0.50 leading to a fairly flat relationship between IA and FM amount while other IAs suggest positive relationships. Another observation is that the divergence between SM contributions disaggregated by IA is greatest in response to FM transfers of $0, and the
divergence decreases as FM transfers increase\(^6\). This suggests that the differential impact of the anchor varies with the FM contribution, such that the anchor has the greatest effect when SMs are responding to selfish FM contributions, and the weakest effect at the most generous FM transfers.

To verify if the visually apparent differences in average responses to FM transfers by anchor are meaningful, we carry out mixed effects regression analyses on the full data set of SM strategy-method contributions. Our reason for using mixed effects linear regressions is that we have repeated observations (six) per SM, hence it is appropriate to model anchoring effects in which SMs are treated as random effects\(^7\). We include FM transfer in the models, as well as key socio-economic influences on behaviour (age, gender and income). Additionally, we include a variable representing the order in which FM transfers were presented (first through sixth), to account for possible effects of time or repetition on stated contributions. Brañas-Garza et al. (2013) and Brosig (2007) find that individuals playing sequential dictator games decrease their contributions round by round, hence we wish to control for this possible source of variation here.

We examine the potential anchoring of contributions to the initial amount (IA) presented to SMs, using dummies for all possible anchors (with IA of $0.50 as the reference) so as to identify specific impacts of each anchor on transfers and non-linearities. We also use a dichotomous version of the anchoring variable (where 1=IA≥$.50 and 0=IA<$0.50)\(^8\). Finally, given the apparent interaction between anchor and FM transfer, we also present models with interaction effects. Regression results are presented in Table 2.

\(^6\) It is important to note that FM contributions that were presented to SMs in random order, hence the convergence that one can observe in Figure2 does not suggest that anchoring is losing its effect over time (i.e. as SM’s provide responses to FM contributions).

\(^7\) We do not cluster at the group level as there is no interaction between group members during the strategy data collection stage, so there is no reason that there should be group-level effects.

\(^8\) This reflects the apparent dichotomised response to the anchors, evident in the Online Appendix C.
Table 2. **Regressions on Second-Mover Transfers.** The dependent variable is cents transferred to the recipients.

|            | (1)                      | (2)                      | (3)                      | (4)                      |
|------------|--------------------------|--------------------------|--------------------------|--------------------------|
| IA=$0      | -11.092*                 | -14.323**                |                         |                         |
|            | (6.638)                  | (6.780)                  |                         |                         |
| IA=$0.10   | -12.392*                 | -16.645**                |                         |                         |
|            | (7.319)                  | (7.474)                  |                         |                         |
| IA=$0.25   | -15.420**                | -19.021***               |                         |                         |
|            | (6.605)                  | (6.744)                  |                         |                         |
| IA=$0.75   | -3.122                   | -6.852                   |                         |                         |
|            | (6.428)                  | (6.563)                  |                         |                         |
| IA=$1      | -8.165                   | -13.214*                 |                         |                         |
|            | (6.811)                  | (6.953)                  |                         |                         |
| IA dichotomous (where 1≥$0.50, 0<$0.50) | 9.284**                  | 9.944**                  |                         |                         |
|            | (3.851)                  | (3.937)                  |                         |                         |
| Order in which FM transfer presented | -0.283                   | -0.283                   | -0.285                   | -0.319                   |
|            | (0.191)                  | (0.191)                  | (0.196)                  | (0.196)                  |
| FM transfer (cents) | 0.051***                 | 0.051***                 | -0.026                   | 0.059***                 |
|            | (0.009)                  | (0.009)                  | (0.023)                  | (0.013)                  |
| Female     | 12.999***                | 12.960***                | 12.999***                | 12.960***                |
|            | (3.937)                  | (3.941)                  | (3.937)                  | (3.941)                  |
| Age        | 0.477***                 | 0.458**                  | 0.477***                 | 0.458**                  |
|            | (0.181)                  | (0.181)                  | (0.181)                  | (0.181)                  |
| Income (divided by 1000) | -0.084                   | -0.094                   | -0.084                   | -0.094                   |
|            | (0.058)                  | (0.057)                  | (0.058)                  | (0.057)                  |
| **Interactions** |                         |                          |                          |                          |
| IA=$0*FM transfer | 0.075**                  |                          |                          |                          |
|            | (0.032)                  |                          |                          |                          |
| IA=$0.10*FM transfer | 0.098***                 |                          |                          |                          |
|            | (0.035)                  |                          |                          |                          |
| IA=$0.25*FM transfer | 0.083***                 |                          |                          |                          |
|            | (0.031)                  |                          |                          |                          |
| IA=$0.75*FM transfer | 0.086***                 |                          |                          |                          |
|            | (0.031)                  |                          |                          |                          |
| IA=$1*FM transfer | 0.117***                 |                          |                          |                          |
|            | (0.032)                  |                          |                          |                          |
| IA dichotomous*FM transfer | -0.015                  |                          |                          |                          |
|            | (0.019)                  |                          |                          |                          |
| Constant   | 19.257**                 | 7.382                    | 22.567***                | 7.166                    |
|            | (8.009)                  | (7.221)                  | (8.068)                  | (7.226)                  |
| n          | 1884                     | 1884                     | 1884                     | 1884                     |
| Wald chi2  | 64.92***                 | 62.81***                 | 80.62***                 | 63.48***                 |

Missing data from 10 respondents on income, age and gender (refusal to answer)
Standard errors in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. 

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Results in model 1 in Table 2 show that – compared the reference of $0.50 (representing half of the “fair” amount) – lower IAs (anchors) have negative influences on overall transfers, whereas IAs over $0.50 do not lead to significantly different SM transfers. In model 2, the dichotomous version of the IA variable has a positive influence on SM contributions, somewhat confirming results in model 1. In addition, results also show that FM transfers have a positive effect on SM transfers overall, thus suggesting that at the aggregate level, SMs condition their contributions positively to those of FM’s. However, the slope is quite modest: for each unit increase in the FM’s transfer, SMs increase the amount they transfer by about 5% of the FM’s transfer.

Models 3 and 4 include additional terms for interactions between FM transfer and anchors (hence allowing for different slopes). Interaction terms in model 3 show that all the slopes are positively and significantly different from the slope for the anchor of $0.50, confirming what we can observe in Figure 2. Ex post tests of the equality of slopes also confirm that all the slopes (except for the anchor of $0.50) are not significantly different to each other. When modelled as dichotomous (model 4), there is no interaction effect. This can be observed visually quite clearly in the figure in the Online Appendix D, which shows SM contributions disaggregated by the dichotomous IA variable.

Finally, female gender and age positively influence SM contributions, such that older females give more. The positive effect of gender on donations has been found in numerous studies (e.g. Eckel & Grossma, 1998; Mesch et al., 2011).

Overall, results indicate that average SM contributions are influenced by the initial FM choice presented to them using the sequential strategy method, thus indicating the presence of an anchoring effect. In addition, the general pattern of SM responses (to the first amount seen and in response to all possible FM contributions) suggests a positive relationship between FM contributions and SM contributions (which could be indicative of conformity) - although we do not observe this for the IA of $0.50, for which we observe no relationship between FM and SM contributions. In the following section, we will examine the extent to which the anchor influences the response strategy selected by individual SM.
3.3. Influence of Anchor on Individual Strategies

SMs were categorized by fitting a linear model (using ordinary least squares) predicting the SM strategy transfer amount by the FM transfer (similar to the approach used in Fischbacher and Gachter, 2008 and Panchanathan et al, 2013). After fitting a linear model to the data from each participant we categorized them into four main groups, as outlined in Table 3. The classification was guided by theoretical expectations regarding the potential response of individuals to redistribution choices made by others (Shang & Croson, 2009). Briefly, these expectations derive from two broad classes of social preference model; in the first type of model, contributions by others are perceived as complements to one’s own contributions due to a desire to conform (Bernheim, 1994; Andreoni & Bernheim 2009); in the second type of model, contributions by others are seen as substitutes for one’s contributions because one mainly cares about recipients’ final earnings (e.g. Fehr & Schmidt, 1999).

Thus, SMs were classed into four main categories: SMs whose transfers are positively correlated with FM transfers are termed ‘conformists’⁹, whilst those whose transfers are negatively related to those of FM’s are termed ‘compensators’. In addition, taking into account that SMs may not condition their responses to FM choices, SMs may also be ‘self-interested’ (zero contribution over all possible FM transfers) or ‘unconditional givers’ (positive contribution, no relationship with FM transfers).

The distribution of SM types by each of the six anchors can be found in Table 4. A Pearson Chi² test of the difference in proportions confirms that the proportions of SM types differ significantly between anchors (p=0.026). This suggests that there are players whose redistribution strategies are susceptible to the anchor. Given the small sub-samples of SM types

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⁹ We recognize that a positive association between others and one’s own contributions may be attributed to other motivations, such as reciprocity, but in this case we are using the definition of conformity as “the act of changing one’s behaviour to match the responses of others” (Cialdini & Goldstein, 2004 p606). This definition accounts for any positive conditioning of one’s behaviour on the behaviour of others.
responding to each anchor, we also present distributions of SM types according to ‘low’ and ‘high’ anchors (Figure 3), where ‘low’ anchors are those IAs that have a value of less than $0.50 and ‘high’ anchors have a value of $0.50 or more. This figure is intended to complement Table 4 by providing a visual overview of the impact of anchors on the distribution SM types.

Table 3. Classification Scheme

| Type | Classification       | Quantitative criteria                                                                 |
|------|----------------------|----------------------------------------------------------------------------------------|
| 1    | Conformist           | Significantly positive beta; y-intercept irrelevant.                                    |
| 2    | Compensator          | Significantly negative beta; y-intercept irrelevant.                                    |
| 3    | Unconditional giver  | Beta not significant; y-intercept significantly positive; average transfer>$0.05.       |
| 4    | Self-interested      | Beta not significant, y-intercept not significantly different from zero; average transfer<$0.05 |
| 5    | All other            | R squared less than or equal to 0.20                                                   |

Table 4. Percentage Distribution of SM Types by Anchor

| SM Type         | $0    | $0.10 | $0.25 | $0.50 | $0.75 | $1   | Overall |
|-----------------|-------|-------|-------|-------|-------|------|---------|
| Conformists     | 10.91 | 17.50 | 11.67 | 11.76 | 18.75 | 20.37| 15.12   |
| Compensators    | 1.82  | 7.50  | 0     | 15.69 | 3.13  | 3.70 | 4.94    |
| Unconditional givers | 23.64 | 15.00 | 25.00 | 29.41 | 32.81 | 22.22| 25.31   |
| Selfish         | 47.27 | 55.00 | 48.33 | 31.37 | 39.06 | 37.04| 42.59   |
| Other           | 16.36 | 5.00  | 15    | 11.76 | 6.25  | 16.67| 12.04   |
| Sample size     | 55    | 40    | 60    | 51    | 64    | 54   | 324     |

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Results in Figure 3 show a higher proportion of self-interested players (49.7%) when the IA is low, compared to the proportion of such players (36%) when the IA is ‘high’; a two-sample test of proportions indicates that the difference is statistically significant (p=0.0135). In addition, the proportion of ‘compensators’ increases from 2.58% (n=4) to 7.10% (n=12); a Pearson Chi² test indicates this is weakly significant (p=0.061).

At a broader level, results in Table 4 (last column) and Figure 3 show that the majority of SMs did not adjust their transfers in response to different hypothetical transfers by FMs. This is true for all anchor values. Without disaggregating by anchor, we thus find that 42.59% of all SMs are classed as self-interested and 25.31% classed as unconditional givers. Of those SMs that do adjust their transfers in response to different FM transfers, the majority those we class as ‘conformist’ (15.12% overall) and 4.94% are classed as ‘compensators’ (who decrease giving as peer contributions increase). These results contrast with the findings reported in the only other two identified studies that also use dictator games to explore the impact of within-group peer
choices on redistribution behaviour\textsuperscript{10}. In the first of these, Gachter, Gerhards & Nosenzo (2017) find that the largest proportion of SMs (39\%) are ‘compensators’ (i.e. decrease their contributions as FM contributions increase). The other paper, by Panchanathan, Frankenhuis & Silk (2013), reports similar results. However, both of these studies use 3-player games with two dictators and a single recipient. Behaviour in this setting may differ from behaviour in the present study, in which there are multiple agents on both sides of the ‘redistribution equation’.

Finally, we ran a multinomial logit regression on the SM types to assess the impact of the IA on SM type, controlling for the main socio-economic characteristics. Given our small sample size (with even smaller subsample sizes for each player type by anchor), we opt to use the dichotomous version of the IA variable to represent the anchor in our model (where 1=IA≥$0.50, and 0<$0.50). A regression using the individual dummies shows similar results (found in Online Appendix E). The reference category used in the regression is ‘self-interested’. Hence, all results (presented in Table 5) are interpreted in comparison to this category.

Results in Table 5 show that the IA has a significantly positive effect on the likelihood of engaging in a compensating strategy, compared to the likelihood of adopting a self-interested strategy. However, inspection of the full model in Online Appendix E shows that this anchoring effect is driven by the IA of $0.50, such that for some players, a compensating strategy is most likely when the anchor is $0.50 and a self-interested strategy more likely in response to other IAs. This finding thus indicates that the redistribution strategy adopted is affected by the initial information presented to players, with lower anchors in general activating self-interested motivations in SMs, and moderate anchors (of $0.50) activating more compensating strategies; lower anchors also positively (but only weakly) influence the likelihood of adopting conformist and unconditionally giving strategies.

\textsuperscript{10} There are a number of experimental studies that explore the relationship between others’ behaviour and aggregate redistribution behaviour (e.g. Shang and Croson, 2009; Krupka & Weber 2009; Bicchieri & Xiao, 2009; Potters, Sefton and Vesterlund, 2007; List & Lucking-Reiley, 2002). However, in almost all these studies, information is provided about the redistribution choices by members of other groups; hence, there is no potential substitution effect between others’ and one’s own contribution, only a potential conformity effect.
Finally, we also observe that females are more likely to adopt conformist or unconditional giving strategies, compared to self-interested strategies; this confirms findings that women are more altruistic (e.g. Eckel & Grossman, 1998), and adds to the mixed evidence on how conformity relates to gender (e.g. Fosgaard, Hansen & Piovesan, 2013; Eagly, 1983).

### Table 5. Multinomial Logit Model of Determinants of SM Type (ref cat: self-interested)

|                  | Conformist | Compensator | Unconditional | Other |
|------------------|------------|-------------|---------------|-------|
| IA (anchor)      | 0.647*     | 1.612**     | 0.541*        | 0.213 |
| presented to SM  | (0.350)    | (0.670)     | (0.293)       | (0.371)|
| (where 1=IA≥$0.50, 0=IA<0.5) |           |             |               |       |
| Income (div by 1000) | 0.005     | 0.000       | -0.007        | -0.004|
|                  | (0.005)    | (0.008)     | (0.005)       | (0.006)|
| Age              | 0.015      | -0.022      | 0.024*        | -0.014|
|                  | (0.016)    | (0.031)     | (0.013)       | (0.020)|
| Female           | 0.907***   | 0.673       | 0.820***      | 0.584 |
|                  | (0.355)    | (0.564)     | (0.298)       | (0.381)|
| Constant         | -2.541***  | -2.789**    | -1.627***     | -0.892|
|                  | (0.663)    | (1.193)     | (0.550)       | (0.729)|
| N                | 314        |             |               |       |
| chi2             | 35.76***   |             |               |       |

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

*Missing data from 10 respondents on income, age and gender (refusal to answer)

#### 3.3.1.1. **Comment: SM Expectations**

Throughout this paper, we’ve assumed that SMs either disregard the potential responses of other second-movers to FM contributions, or expect non-responsive or conformist behaviour of other SMs with respect to FM contributions. However, if the *expected* behaviour of other SMs is negatively correlated with FM contributions, and if SMs mainly condition their responses on their expectations on how other SMs will behave, then this could lead to complications in interpreting SM responses and the classification of redistribution strategies in subsequent sections. However, our analysis of expectations shows that – broadly – SMs consider other SMs
to positively condition their contributions to FM contributions. This is true across all SM types. In other words: all SM types expect other SMs to ‘conform’ to FM contributions, regardless of whether this is the strategy they use or not. We also note that if we control for ‘expectations’ in the regressions in Table 2, results are unchanged with the exception that expectations are positively and significantly correlated with SM contributions in all models. However, we do not include these models in the main text because the expectations question was not incentivised. As a result, we cannot be sure whether stated expectations influenced contributions, or whether players answered the expectations question in such a way to justify the contributions choices they made in the game. Given this potential problem and the fact that expectations do not affect other variable influences, we opt to omit the expectations variable from the analyses presented in this paper (however, they are available upon request).

4. Discussion & Conclusions

In this study, we used a multiplayer dictator game to identify how redistribution behaviour is influenced by what others do. Specifically, we examined how second-movers (SM) responded to contributions by first-movers (FM), using a strategy game, in which SMs provided a vector of responses to a range of possible FM decisions, ranging from selfish (zero contributions by FM) to a fair split (half of the endowment).

We found that at the aggregate level SM behaviour was positively associated with FM behaviour in both experiments, and that SM contributions elicited via a sequential strategy method were positively influenced by the initial amount presented (the anchor). Analysis of SM redistribution choices thus confirm that SMs condition their transfer amounts on the initial FM transfer presented to them in the strategy experiment. While anchoring effects are well-established and have been extensively documented in the empirical literature (see Furnham & Boo, 2011 for a review), this is the first study to show evidence of anchoring effects influencing monetary transfer decisions. The past literature on anchoring and adjustment has mostly focused on the effect of anchors on judgments, with only a few studies examining the impacts of anchors.
on behaviour, and only one study - by Raihani & McAuliffe (2014) - examining anchoring effects on giving behaviour. Hence, our finding that anchoring effects extend to monetary contribution decisions is very interesting.

We also find that the size of the anchor influenced the distribution of behavioural ‘types’ in our experiment. In particular, the impact on the distribution of self-interested individuals appears to be most evident, with higher anchors leading to significantly fewer self-interested players. This adds to the literature showing that the distribution of ‘types’ may be context-dependent; our focus on how anchors influence behavioural strategies is novel and thus a major contribution.

Overall, these findings imply that ‘types’ may be malleable, and the selection of behavioural strategy may be context dependent. In particular, we note that self-interested types become less frequent with higher anchors. This suggests there may not just be of one ‘type’ of self-interested agent. Ubeda (2014) notes that there are two motivations underlying observed self-interested behaviour: on the one hand there is a purely self-interested motivation, in which only one’s earnings influence choices, and on the other hand, there are more complex, self-serving motivations, in which there is a tension between pure self-interest and the desire to maintain a positive self-image. An individual of the second type might seek self-justification for selfish behaviour; this justification may be provided in the form of a low IA observed during the initial stages of play. However, if the initial conditions of play involve high anchors, then such a player might struggle to justify a selfish strategy if they also seek to maintain a positive self-image.

Indeed, analysis of open-ended explanations (see Online Appendix F) shows that fewer SMs with self-interested strategies explain their decisions in terms of greed/self-interest under a high anchor (IA ≥ $0.50) (52.46% of self-interested subsample), compared to a low anchor (66.23% of self-interested subsample) – although a test of two proportions indicates this is not statistically significant (p=0.1008). However, these findings can be taken as broadly indicating the possibility that positive self-image is less of a concern among self-interested SMs who received a low anchor.

Further research could examine this apparent switching behaviour among those classed as having self-interested strategies and confirm whether this is only induced by the size of the
anchor or whether this occurs in response to other factors. Additionally, it would be valuable to explore in greater detail the cognitive mechanisms underlying self-interested strategies.

We note that Gunthorsdottir et al. (2007) find that initial cooperative disposition is a good indicator of subsequent behaviour in an experimental setting – in our case we observe that initial contextual factors may influence an individual’s initial disposition as well as the subsequent redistribution strategies of individuals. Thus, not only is individual redistribution behaviour observed to be path dependent, but initial conditions strongly determine the path. If this is indeed the case, it suggests a very fruitful avenue for future research, in which the path dependency of different behaviours in a range of collective decision settings is examined as a function of the initial conditions of play. The outputs from this research may provide critical input into the understanding of how people choose to behave, and the types of citizen that individuals choose to be. It also holds some promise with regards to the potential for self-interested individuals to be ‘nudged’ towards positive redistribution strategies at critical junctures in time.

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Online Appendices

Appendix A: Distribution of SM Responses to Each Possible FM Contribution

The modal contribution is $0, accounting for 48.5% of all SM contributions. There is no significant difference between the proportion of zero contributions made in response to any of the FM transfers. The next most common transfer is $1, making up 11.4% of all SM contributions. transferring this amount.
Appendix B: Comparing mean SM transfers in response to different FM transfers

| Hypotheses being tested | Paired pairwise 2-tailed t-test (p-value) | Wilcoxon Signed Rank test (p-value) |
|-------------------------|------------------------------------------|-------------------------------------|
| SM response to $0 = SM response to $0.10 | 0.2087                                   | 0.5991                              |
| SM response to $0 = SM response to $0.25 | 0.6584                                   | 0.3999                              |
| SM response to $0 = SM response to $0.50 | 0.3485                                   | 0.1567                              |
| SM response to $0 = SM response to $0.75 | 0.1285                                   | 0.1138                              |
| SM response to $0 = SM response to $1   | 0.0030***                                | 0.0023***                           |
| SM response to $0.10 = SM response to $0.25 | 0.3072                                   | 0.0048***                           |
| SM response to $0.10 = SM response to $0.50 | 0.0100*                                  | 0.0029***                           |
| SM response to $0.10 = SM response to $0.75 | 0.0023***                                | 0.0065***                           |
| SM response to $0.10 = SM response to $1   | 0.0000***                                | 0.0008***                           |
| SM response to $0.25 = SM response to $0.50 | 0.0199**                                  | 0.0929*                             |
| SM response to $0.25 = SM response to $0.75 | 0.0094***                                | 0.0396**                            |
| SM response to $0.25 = SM response to $1   | 0.0001***                                | 0.0014***                           |
| SM response to $0.50 = SM response to $0.75 | 0.1457                                   | 0.0971*                             |
| SM response to $0.50 = SM response to $1   | 0.0004***                                | 0.0012***                           |
| SM response to $0.75 = SM response to $1   | 0.0094***                                | 0.0002***                           |
Appendix C: SM Responses to the Initial Amount (the anchor)

The figure below shows how SM’s responded to the initial stated contribution provided by each FM, i.e. the contribution stated in response to the initial amount (IA) presented to them. This provides an indication of the initial impact of different social information values. Thus, the results presented entail one observation per SM. A one-way ANOVA test shows a statistically significant difference between mean contributions in response to each anchor (F(5,318)=2.99, p=0.0117). Additional parametric and non-parametric pairwise tests comparing SM contributions to IAs can be found in the table below.

### SM Response to Initial Amount Presented in Strategy Experiment

As can be observed, the initial contribution in response to the IA is less ‘temperate’ than the vector of contributions provided in response to all possible six FM contributions (Figure 1 in main text). Compared to the modest slope observed in Figure 1, there is a sharp discontinuity between responses to IA <$0.5 and responses to IA≥$.50, with the increase occurring somewhere in the range $0.25<IA≤$0.50. We also note no significant variation in SM responses within the intervals $0<IA<$0.5, and $0.50≤IA≤$1. The difference in the pattern of responses to the IA

Electronic copy available at: https://ssrn.com/abstract=3442224
versus the full strategy data may reflect different thinking processes; for example, emotions might play a larger role in determining responses to the first amount seen (Brandts & Charness, 2011) compared to subsequent amounts. We cannot however confirm whether this is the case, as we did not elicit emotions-based data.

Comparing SM transfers in response to initial amount presented *(one observation per SM)*

| Hypotheses being tested | T-test (2-tailed) (p-value) | Mann-Whitney (p-value) |
|-------------------------|-----------------------------|------------------------|
| SM response to $0 = SM response to $0.10 | 0.2856 | 0.8791 |
| SM response to $0 = SM response to $0.25 | 0.3460 | 0.8847 |
| SM response to $0 = SM response to $0.50 | 0.1406 | 0.0643* |
| SM response to $0 = SM response to $0.75 | 0.1565 | 0.0617* |
| SM response to $0 = SM response to $1 | 0.2129 | 0.0719* |
| SM response to $0.10 = SM response to $0.25 | 0.9386 | 0.4611 |
| SM response to $0.10 = SM response to $0.50 | 0.0174** | 0.0233** |
| SM response to $0.10 = SM response to $0.75 | 0.0187** | 0.0211** |
| SM response to $0.10 = SM response to $1 | 0.0278** | 0.0239** |
| SM response to $0.25 = SM response to $0.50 | 0.0051*** | 0.0192** |
| SM response to $0.25 = SM response to $0.75 | 0.0057*** | 0.0197** |
| SM response to $0.25 = SM response to $1 | 0.0098*** | 0.0244** |
| SM response to $0.50 = SM response to $0.75 | 0.8754 | 0.8952 |
| SM response to $0.50 = SM response to $1 | 0.7749 | 0.8305 |
| SM response to $0.75 = SM response to $1 | 0.8876 | 0.9307 |
Appendix D: SM Responses to FM contributions disaggregated by IA (dichotomous)

![Graph showing the relationship between FM contributions and Mean SM contributions, with two anchor points: Low anchor (IA < $0.50) and High anchor (IA >= $0.50).](https://ssrn.com/abstract=3442224)
Appendix E: Multinomial Logit Model of Determinants of SM Type. Individuals dummies for each anchor (reference category: self-interested)

|          | Conformist | Compensator | Unconditional | Other |
|----------|------------|-------------|---------------|-------|
| IAn=$0   | -0.592     | -2.601**    | -0.615        | -0.083|
|          | (0.670)    | (1.111)     | (0.514)       | (0.621)|
| IAn=$0.10| -0.333     | -1.710**    | -1.102*       | -1.364|
|          | (0.676)    | (0.862)     | (0.602)       | (0.884)|
| IAn=$0.25| -0.427     | -15.629     | -0.435        | -0.146|
|          | (0.650)    | (67.235)    | (0.602)       | (0.634)|
| IAn=$0.75| 0.178      | -1.869**    | 0.002         | -0.876|
|          | (0.610)    | (0.857)     | (0.483)       | (0.724)|
| IAn=$1   | 0.327      | -1.527*     | -0.399        | 0.364 |
|          | (0.627)    | (0.874)     | (0.546)       | (0.641)|
| Income (div by 1000) | 0.005      | 0.001       | -0.007        | -0.006|
|          | (0.005)    | (0.008)     | (0.005)       | (0.006)|
| Age      | 0.014      | -0.022      | 0.025*        | -0.018|
|          | (0.016)    | (0.032)     | (0.014)       | (0.020)|
| Female   | 0.905**    | 0.719       | 0.820***      | 0.537 |
|          | (0.355)    | (0.578)     | (0.301)       | (0.386)|
| Constant | -2.058***  | -0.340      | -1.024*       | -0.344|
|          | (0.765)    | (1.126)     | (0.615)       | (0.812)|
| Chi2     | 57.901***  |             |               |       |
| N        | 311        |             |               |       |

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

*Missing data from 10 respondents on income, age and gender (refusal to answer)
Appendix F: Analysing Open-Ended Explanations for Transfer Decision

The robustness of the classification scheme can be informally assessed by analysing responses to an open-ended follow-up question that asked participants “How did you decide on the amount that you contributed?” Almost every player (n=304) answered this question. Reasons were coded manually using a coding frame that was designed to identify a) whether the SM explained their decision with reference to other players (FM, other SMs, or recipients), b) whether they explain their decision in terms of other motivations such as ‘greed’, ‘fairness’ or empathy, and c) whether they explain their strategy (conformism versus compensation versus other). Coding was conducted independently by three individuals initially; there was a high level of agreement between codes (agreement for 82% of all items across all three researchers) and final codes were agreed on through a process of discussion. Results of the classification are presented below.

Results (see Figure below) suggest a high level of agreement between the answers provided to the open-ended questions and the classification results. Thus, we can observe that the 30.61% of conformists explain their decision in terms of a wish to conform to the FM (or to the FM and expectations of how the other SMs will behave). Examples of such reasons given:

“I wanted to give the others some amount and I was willing to match the first mover up to $1.”

“I chose to transfer whatever the first mover decided on”

Fairness/justice is another frequent explanation given by conformists (18.37%); fairness/justice is also frequently mentioned by compensators (31.25%), although their most frequently mentioned explanation is explicitly about compensation (37.5%). Examples of such statements include:

“The more the first mover was to transfer, the less I was willing to transfer and vice versa. I didn't want the non-selectees to be left with nothing, but if they were already getting a good amount I didn't feel the need to transfer much to them out of my own pocket.”

“If they contributed a lot, then I wanted to contribute just a little bit. And if they contributed just a bit, then I contributed just a little more.”

Fairness is the main reason provided by unconditional givers (53.66%), as expected. Examples of statements referring to fairness include:
“The only fair thing to do was to transfer half of what I received to those who did not receive anything. I would do this no matter what I believed the first mover was going to do.”

“I thought .25 a fair amount to give, given the circumstances and what other people gave was of no significance to me.”

And as we can observe, a great many (60.14%) self-interested SMs were quite content to explain their decision in very blunt terms, for example:

“I simply decided that in order for me to gain the most out of the study, I should not transfer my money no matter what.”

“I'm selfish and want the most money.”

**Distribution of Open Ended Explanations Given by SM Type**

[Graph showing distribution of explanations by SM type]
Results also indicate that, overall, 26% of SMs listed as ‘other’ explain their decisions explicitly in terms of mixed strategies. Examples of these explanations include:

“I mostly decided to simply match what the First Mover picked. The only exceptions is if it went beyond $0.25. I felt that was a fair amount.”

“I would match it up to 99c. if they chose a dollar, I would send nothing”

Interestingly, 16% and 13% of conformists and compensators respectively explain their decisions in terms of mixed strategies.
EXPERIMENTAL INSTRUCTIONS
Note: a recording of the interactive platform can be found in the following link: [LINK REMOVED FOR REVIEW]

Screen 1 (All)

Thank you for participating in this study. The aim of this research is to explore decision-making behavior. Please note that there are no “right” or “wrong” choices.

You will earn $0.75 for completing the survey. You will also have the chance of earning more money. The extra amount earned will depend on the choices that you and other participants make during the survey.

Please do not use the 'Back' and 'Forward' buttons in your browser.

We also kindly ask that you do not complete this survey on your i-phone due to compatibility issues with some of the question formats.

Please only participate in this study if you can commit about 10 minutes to it.

When you are ready, please move to the next page to start the survey.

Screen 2 (All)

Please read the following instructions carefully. The rest of the survey depends on your comprehension of these instructions.

For the purpose of this study, you will be randomly assigned to a group of 8 Mechanical Turk participants (including yourself) who will also be taking part in this study.

The computer will randomly select half of the participants within your group to receive a $2 bonus each.

The remaining participants in your group will not receive this extra $2.

If you are randomly selected to receive $2, you will have an opportunity to transfer some of this $2 to those who were not randomly selected for payment. You will then earn the portion of the $2 that you did not transfer (plus your $0.75 participation fee).

If you are not randomly selected to receive the $2, then the total amount transferred by those who receive the bonus will be divided up equally among those of you who were not selected for payment.
In other words: if 4,8 of you (including yourself) are not randomly selected to receive the bonus, then you will each receive one quarter of the total amount transferred. You also, of course, receive the $0.75 for participation.

Please ensure that you have read and understood these instructions.

The following questions are designed to test whether you have read and understood the above scenario.

You MUST answer the next two questions correctly to receive your bonus!

Q1. If you have been randomly selected to receive the $2 bonus and you decide to transfer some of this to the participants who were not randomly selected for extra payment, how much will you receive at the end of this study (including the participation payment)?

| Amount                                      | Check one only |
|---------------------------------------------|----------------|
| $2.75                                       |                |
| $0.75 plus the amount I transferred to the other participants |                |
| $0.75 plus the amount left over from what I transferred to the other participants |                |
| $0.75 plus the amount the other participants transferred to me |                |
| $2 plus what I transferred to the other participants |                |

Q2. If you have been not been randomly selected to receive an extra $2, how much will you receive at the end of this study (including the participation payment)?

| Amount                                      | Check one only |
|---------------------------------------------|----------------|
| The total amount that the other participants have transferred |                |
| $0.75 plus an equal share of the total amount transferred |                |
| $2.75                                       |                |
| $2                                          |                |
| $0.75                                       |                |
Screen 3 (All)

Great!

As mentioned on the previous page, you will be randomly assigned to a group of 8 MTurk participants (including yourself) who will also be taking part in this study.

*You and all the participants in your group will be participating in this study simultaneously.*

This means that you may have to wait a few minutes until enough participants have accepted to complete this study and have been randomly assigned to the same group as you.

You will see the other participants at the top of the page as they join the group.

Once your group of 8 participants is complete, we will begin the study. This should only take a few minutes.

You will never know who the participants are in your group. The group composition is secret for every participant.

Screen 6 (All)

Your group of 8 is now complete! You are now ready to continue with this study.

The computer will **randomly** select half of the participants within your group to receive a $2 bonus each.

The remaining participants in your group will **not** receive this extra $2.

Any amounts that are transferred will be divided up between the participants who did not get randomly selected for payment. Should you require written confirmation that all transfers have been allocated correctly, please contact [STUDY AUTHOR].

Please note: you MUST complete the entire study to receive your participation payments and any earned bonus payments.

Please move to the next page to determine whether you have been selected to receive $2 or not.
Screen 7 (Allocators)

Remember that you have been randomly assigned to a group of 8 participants (including yourself).

In your group, you and 3 other participants have been randomly selected to receive the $2 bonus.

The remaining 4 participants in your group have not been selected to receive this bonus payment.

You will now have the chance to transfer some of the $2 to the participants who have not been selected for payment. The other participants who have randomly received $2 will also have the chance to transfer money.

However, before we proceed, the computer will now randomly select one of you to make a transfer before anyone else.

This person will be referred to as the ‘first-mover’. The transfer made by the first-mover will be made visible to all the other participants.

After the first-mover has made a decision, and this has been made visible to the rest of the group, all the remaining participants who received $2 may make their transfers. These transfers will not be made visible to other participants.

Please move to the next page to determine whether you have been selected to be the ‘first mover’.

Screen 9a (First-Movers)

You have been randomly-selected selected to be the first-mover.

You will now have the chance to transfer some of your $2 to the participants who have not been selected for payment. As the first-mover, you will make your decision before anyone else.

All other participants in your group will see the amount that you transfer.

After seeing this, those who also received $2 will have the chance to transfer some of their bonus to the 4 participants who received nothing.

You may transfer as much or as little as you like.
Q3. Please indicate how much of your $2 you would like to transfer to the other participants in your group who have not been randomly selected for payment:

Select amount from below options:
[$0] [$0.10] [$0.25] [$0.50] [$0.75] [$1]

Screen9b (Second-movers)

You have not been randomly-selected selected to be the first-mover.

Please wait a few moments whilst the randomly-selected first-mover makes their transfer.

Once the first-mover has made a decision, you will see how much they have chosen to transfer.

Then you and all the other participants who have received $2 will have the chance to transfer some of your bonus to the 4 participants who have not been selected for payment.

The first-mover has been given the choice of transferring one of the following amounts:

[$0] [$0.10] [$0.25] [$0.50] [$0.75] [$1]

The selected amount will be distributed amongst the four participants who did not receive the $2 bonus, and shared equally among them.

Before seeing what the first-mover has transferred, please indicate what you will contribute in response to each of these possible first-mover transfers.

These transfer decisions are binding.

Once you have indicated how much you will transfer given all possible first-mover transfers, you will find out how much the first-mover has actually transferred. Then the corresponding amount that you indicated you would transfer in response to this first-mover transfer will be implemented.

Remember: the decisions you make now are binding.

RANDOMLY VARY ORDER OF PRESENTATION:
If the randomly-selected transfer is $0 I will transfer [enter amount: ...........]
If the randomly-selected transfer is $0.10 I will transfer [enter amount: ...........]
If the randomly-selected transfer is $0.25 I will transfer [enter amount: ...........]
If the randomly-selected transfer is $0.50 I will transfer [enter amount: ...........]

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If the randomly-selected transfer is $0.75 I will transfer [enter amount: ...........]
If the randomly-selected transfer is $1 I will transfer [enter amount: ...........]

Please move to the next page to how much the first-mover decided to transfer.

Screen 11 (Follow-up questions)

Thank you!
Now a few questions about your choice:

Q4. Can you explain in a few sentences how you decided upon the amount to transfer?



Screen 10 (All allocators)

Q6. How many of the other participants who were selected for payment in your group do you think made a transfer to the participants who received nothing?

ENTER NUMBER HERE: [ .................]

Q7. Thinking only about those participants that you believe made a positive transfer: how much money do you think that each of them transferred on average?

ENTER AMOUNT HERE: $[ .................]

Screen 15 (Socioeconomic questions)

Thank you! Now a few final questions about yourself.

Q14. Are you..?

Tick one only
[ ] female
[ ] male
[ ] other

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Q15. In what year were you born?

................

Q16. What is the highest level of education you have received?

Tick one only

[ ] Less than high school
[ ] High school/ GED
[ ] 2-year college degree
[ ] 4-year college degree
[ ] Master’s degree
[ ] Doctoral degree
[ ] Professional degree (JD, MD)

Q17. What is your combined annual household income, before tax?

Please remember that all answers are confidential. Income is a very useful measure for research purposes.

Check one only

[ ] Less than $30,000
[ ] $30,000-$39,999
[ ] $40,000-$49,999
[ ] $50,000-$59,999
[ ] $60,000-$69,999
[ ] $70,000-$79,999
[ ] $80,000-$89,999
[ ] $90,000-$99,999
[ ] $100,000-$124,999
[ ] $125,000-$149,999
[ ] $150,000 or more

Q18. How many children under 16 years old live in your household?

Check one only

[ ] 0
[ ] 1
[ ] 2
[ ] 3
[ ] 4 or more
Q19. Do you consider yourself to be a Democrat, Republican, Independent or Other?

*Check one only*

[ ] Democrat  
[ ] Republican  
[ ] Independent  
[ ] Other  

**Screen 17 (World Values Survey Trust Q)**

Q20. Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people? (select one answer):  
[ ] Most people can be trusted.  
[ ] Need to be very careful.

**Screen 18 (End of Survey)**

Thank you for your time!

You have earned $0.75. Any extra earning will be credited into your account when the study is complete.

*If you would like to add any further comments please use the space below:*

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