



The impact of social comparison of ability on pro-social behaviour[☆]



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ABSTRACT

We experimentally investigate the impact of social comparison of ability on pro-social behaviour. Randomly-selected participants were required to perform a task to earn money. Subsequently, they had to decide how much of the money to transfer to a recipient. In our baseline treatment, allocators were not informed of their relative performance (ability) ranking on the task. In another treatment, allocators were provided with such information. We found that the amount of giving to unknown recipients decreased significantly when allocators were socially aware of their relative ability. This result is robust to a variation in the format of the allocation game employed in the experiment.

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1. Introduction

Laboratory experiments on dictator game have shown that subjects typically give about 10–30% of their endowment away to their counterparts (Camerer, 2003). Theories of social preferences have been suggested to account for the findings. They argue that giving by a dictator is a utility-maximizing behaviour stemming from his or her pure and impure altruistic motivation (Becker, 1974; Andreoni, 1990; Andreoni and Miller, 2002) or aversion to payoff differences (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000). Recent results from the neuroeconomics literature also find evidence of brain activities triggered by inequality-aversion motives (Tricomi et al., 2010).

The vast majority of these dictator game experiments, however, were conducted in an isolated paired-interaction between a

dictator and a recipient. The dictator makes the decision on the basis of the recipient's initial income or endowment as his or her only reference point, which is typically set to zero. Such a setting is rarely observed in real life, however. Humans are social beings and often deeply care about their own relative standing in comparison to their peers (Frank, 1985). In particular, people may show insatiable desires to know about others' income, popularity, personal achievements, decisions, etc. In such a setting, the question of the extent that the availability of such information affects people's reference point formation and pro-social behaviours becomes interesting.

Recently, there have been a growing number of laboratory and field experimental studies that deal with the effect of peer comparison on individual decision making. Typically, in these studies, subjects were given information about other subjects' earlier decisions concerning, among others; how much money others have shared with unknown recipients in a class of allocation games that include the dictator game, the ultimatum game, and the charity game (Cason and Mui, 1998; Bohnet and Zeckhauser, 2004; Frey and Meier, 2004; Chen et al., 2010; Shang and Croson, 2009; Duffy and Kornienko, 2010); how much contribution group members have made in a voluntary contribution game (Nikiforakis, 2010); and how high are the wages earned by co-workers in a labour market game (Charness and Kuhn, 2007; Gächter et al., 2012) and Gächter and Thöni (2010). Equipped with the information on other subjects' earlier decisions, experiment participants would be able

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to draw some inferences on, for instance, whether to reject the proposers' offers in an ultimatum game, how much money to offer to recipients in various allocation games, how much money to contribute to the group account in voluntary contribution games, how hard employees should work to reciprocate the generosity extended by their employers, and how willing employees should be to help fellow employees.

It is not difficult to imagine that social comparison based on others' observable past decisions (actions) can provide participants with important psychological cues for the right decisions to make. For example, in a dictator game context, a dictator's allocation decision is influenced by other dictators' past allocation decisions (Cason and Mui, 1998; Duffy and Kornienko, 2010). However, when the only available information is not related to dictators' past allocation decisions, but rather it is related to dictators' personal attributes such as relative ability and income, it is not clear whether such information would exert any behavioural influence on dictators' allocation decision towards their paired recipient. To the best of our knowledge, this has been relatively unexplored in the literature.

This paper delves further into this issue using two real-effort allocation game experiments, namely a dictator game experiment and a charity game experiment. It evaluates the impact of social comparison of ability and income among a group of allocators on their incentive to engage in pro-social behaviour towards an unknown recipient outside of their peer group. The design of experiments consists of two stages. In the first stage, a group of allocators have to perform a task to earn money. The amount of money endowment earned depends on their individual performance on the task. From this stage, we would be able to rank allocators on the basis of their test scores and determine their income. Higher scores lead to higher individual income. Subsequently, in the second stage, allocators decide on the amount to give to unknown recipients who do not take part in the preceding task-execution stage.

For the purpose of our analysis, we ran two experimental treatments. In our baseline treatment, we did not disclose the allocators' relative ranking of performance on the task among all allocators. Each allocator was only given information about his or her own performance. In our second treatment, we disclosed the individual ranking of performance on the task to each allocator before he or she proceeded to the allocation stage. Consequently, before making allocation decision, each allocator would know his or her own performance and relative location in the overall distribution of performance. The availability of the information about performance distribution thus imposed a social comparison of ability and income among allocators.

Note that in our experiments, the allocation games take the form of a one-shot interaction played by paired allocators and recipients simultaneously and independently. As allocators cannot observe allocation decisions made by other allocators, social comparison of ability and income should not provide them with any psychological cues for the right decisions to take. Consequently, giving behaviours should not differ in the two treatments regardless of whether the social comparison among allocators is present.

Similar inference could also be drawn in the light of the theories of social-preferences based on pure altruism (Becker, 1974) or impure altruism (Andreoni, 1990; Andreoni and Miller, 2002). Suppose allocators are inherently altruistic (Becker, 1974), what matters to their allocation decisions is the recipients' initial welfare. In our dictator game experiment, all recipients are homogeneous in the allocators' eyes and have the same endowment to begin with. In our charity game experiment, all allocators give to a common recipient. Therefore, any difference in allocation decisions can only be attributed to differences in allocators' individual pro-social preferences. Those who care more about others would

naturally give more. As allocators in our two treatments have relatively identical distribution of ability and are drawn from the same population, consequently we should expect that allocators in both treatments to have qualitatively the same degree of social concerns towards recipients. Hence, there should be no statistical difference in their contribution rates in the two treatments. Similar argument should also apply if allocators are motivated by impure altruism, i.e. warm-glow feeling accrued from the act of giving to recipients (Andreoni, 1990; Andreoni and Miller, 2002).

Based on the above reasoning, the presence of information about other allocators' ability should not make any difference to each subject's allocation decisions towards recipients. That is, their pro-social behaviour towards unknown recipients should, in principle, not be affected by the availability of information about other allocators' relative ability.

Interestingly, our experimental result shows that allocators exhibited significantly less pro-social behaviour in an environment with social comparison. There are some possible explanations to this result. First, suppose allocators exhibit aversion to income inequality in the same manner as in Fehr and Schmidt (1999) or Bolton and Ockenfels (2000), their perceived reference income should guide their allocation decisions (McDonald et al., 2013; Kahneman and Tversky, 1979; Firebaugh and Tach, 2013; Neumark and Postlewaite, 1998). More specifically in our experiment, when the social comparison of ability is absent, allocators only know their own income and that of their matched recipient which is set at zero. The latter would become their reference income. However, when such comparison is present, other allocators' income would form part of their reference income. Since the average income of other allocators accrued from the real-effort task is significantly higher than that of recipients, hence allocators' reference point would be higher than that in the treatment without such information. Consequently, the difference between the reference income and own endowment income becomes narrower. This should reduce allocators' perceived income inequality and would result in lower contribution rates.

Essentially, we posit that information on peer allocators' ability and income constitute as an essential component in the formation of allocators' reference point.¹ Indeed, in his seminal paper on social comparison, Festinger (1954) suggests that people's reference group can come from peers of similar ability. Specifically, he writes that

"Given a range of possible persons for comparison, someone closed to one's own ability or opinion will be chosen for comparison. (Corollary III.A. pp.121)"

Recent experimental evidence also lends supports to this view (McDonald et al., 2013). In an ultimatum game experiment, three subjects first exert effort in a task execution stage. The winner takes the role of proposer. The role of responder is randomly assigned to one of the other two non-winners. Their exact performance rankings are not disclosed and thus these two non-winners have similar perceived ability. The person who is not selected as the responder is assigned the role of non-responder and acts as a passive recipient in a dictator game played between himself (herself) and the experimenter. The non-responder would thus act as a third-party outside the ultimatum game played between the proposer and the responder. Before the ultimatum game takes place, the non-responder's payoff is made known to both the proposer and the responder. Interestingly, the authors show that the non-responder's payoff would form part of the responder's reference point and significantly

¹ In their inequity aversion model, Fehr and Schmidt (1999) suggest that "the determination of the relevant reference group and the relevant reference outcome for a given class of individuals is ultimately an empirical question" (pp. 821).

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