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Impure altruism or inequality aversion?: An experimental investigation based on income effects☆

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ABSTRACT

We investigate the consequences of a pure income effect on the altruistic behavior of donors. Inequality aversion theories predict either no effect or a decrease in giving, whereas impure altruism theory predicts an increase in giving with an increase in the common income of donor and receiver. Theoretical predictions being contradictory, we run a dictator game in which we vary the common show-up fee of both the dictator and the recipient, while keeping an extra amount to be shared the same. The results are in line with the prediction of the impure altruism theory.

1. Introduction

The literature on social preferences, since its inception, has displayed a significant interest in understanding altruism — defined as the principle or practice of concern for the welfare of others. Both theoretical and experimental studies continue to analyze and explain the possible components that affect altruistic decisions. It is intuitive that along with other factors, one's altruistic behavior can be influenced by income effects. Except for a few recent developments, the existing literature, however, has abstracted away from this issue. Specifically, how altruistic behavior is affected by a change in income — that has no effect on inequality — has never been investigated. In this paper we aim to fill this gap. We modify relevant existing theoretical models and run a simple dictator game to answer this question. It turns out that in cases where inequality is not salient, income effects are explained with impure altruism.

In a standard dictator game a subject (the dictator) decides how much money to allocate between himself and another passive subject (the recipient). Both the dictator and the recipient are given a show-up fee, and the dictator is then asked to divide an extra amount between himself and the recipient. It is observed that a substantial proportion of dictators allocate a non-trivial share (Kahneman et al., 1986; Forsythe et al., 1994; Camerer, 2003; List and Cherry, 2008; Oxoby and Spraggon, 2008). Since its introduction in the present form, this game has often been used to understand altruism, as the dictator does not otherwise have any incentive to share the money with the recipient. Altruism and social preference theories (Andreoni and Miller, 2002; Charness and Rabin, 2002; Fehr and Schmidt, 2006) such as pure altruism (Becker, 1974), inequality aversion (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000), impure altruism (Andreoni, 1989, 1990) and conditional altruism (Konow, 2010) explain this seemingly non-rational behavior of dictators. Whereas pure altruism assumes that the donor gets utility purely from the well-being of the receivers, inequality aversion theories hypothesize that donors incur disutility from inequality and that, in turn, motivates altruism. Impure altruism theory, on the other hand, hypothesize that donors incur utility from the wellbeing of the recipient, but also earn a 'warm-glow' utility from the giving itself. Conditional altruism theory, in addition, incorporates social norms and

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includes social preference theories. Please see Konow (2010) for a broader discussion and comparison of each of these theories.

We are interested in analyzing the relationship between a pure income effect and altruism, and in understanding the underlying theoretical mechanism behind the relationship. To study this in a dictator game, one needs to vary the common show-up fee equally for both the dictator and the recipient. Interestingly enough, the effects of show-up fees in dictator game has seldom been the focus of analyses.[1] Whereas a small number of existing studies are interested in understanding the effects of show-up fee inequality (between the dictator and the recipient) on altruism, this particular design has never been studied in the literature. In this study, in different treatments we vary a show-up fee common to both the dictator and the recipient (£0.5, £5, £10, £15, and £20), but keep an extra amount (£10) — that is to be allocated by the dictator — the same across treatments. This frame is also a stylized representation of situations in which an economic agent has the opportunity to be generous to another agent of the same social or income stratum — be it rich to rich, or poor to poor. It resembles circumstances in the field such as sending remittances to family of similar income status (Rapoport and Docquier, 2006), comparison of local charities in high income and low income geographical areas (countries or states), family transfers (Laferrere and Wolff, 2006), inter-generational benevolent behavior such as behaving in an eco-friendly manner to leave a better environment for future generations (Popp, 2001) etc.

Theoretical and behavioral predictions of this framing can be derived from the standard social preference theories and from the observations in the meta-analysis of Engel (2010). In the course of this paper we derive that the inequality aversion theories suggest a non-increasing and sometimes strictly decreasing relationship between the common show-up fee and dictator giving, whereas the impure altruism theory suggests the opposite. Combining the existing experimental studies, Engel (2010, pp. 595), in his meta-analysis, observes

> "In the standard dictator game, the recipient is poor while the dictator is rich. If the recipient also receives an endowment upfront … this strongly reduces giving… if the recipient has received a positive endowment at the start of the interaction, the reduction is almost perfectly proportional to the size of the endowment…"

Complying with the impure altruism theory, and contrasting with the inequality aversion theories (or the results stated in the meta-analysis above), we observe a monotone increase in dictator giving with an increase in the common show-up fee.

This analysis is closely related to the research by Korenok et al. (2012). They employ a strategy method in which each dictator makes eight decisions for varying show-up fees. When the show-up fee of the dictators is constant but that of the recipients' increases from zero to the same amount of thedictator's, dictators steadily decrease the amount passed to the recipients. It is concluded, hence, that the main motivation of altruism is other-regarding preferences and not warm-glow. This is extended in Korenok et al. (2013). Introducing a price of giving and an endowment to the recipient, they show that a vast majority of the behavior of the dictator can be explained with a theory of impure altruism. The current study is also related to the idea of conditional altruism (Konow, 2010) that incorporates disutility out of deviation from moral norms, and effects similar to warm-glow that relates to long term utility such as prestige or social approval. Konow (2010) employs a subsidy frame among others and shows, again, that the recipient show-up fee has significant effects on the dictator giving. He concludes support for conditional altruism.

2. Experimental design

We ran 5 treatments with 3 sessions under each treatment. 16 subjects participated in each session. All the subjects were students at the University of East Anglia, UK, recruited through the online recruitment system ORSEE (Greiner, 2004). Our design is a variant of the Forsythe et al. (1994) Dictator game. The only difference is that the subjects were given a common show-up fee and that was common and salient knowledge. The treatments differed only in the show-up fees given to the subjects. Dictators were then given an additional £10 and were allowed the choice to allocate the additional amount between him/herself and his/her co-participant (i.e., the recipient). Table 1 summarizes the treatment description.

Although our designs are similar, there also are several differences between the studies of Korenok et al. (2012) or Konow (2010) and the current study. First, the existing studies focus on the effects of the dictator–recipient show-up fee difference on dictator giving, but our focus is on the effect of the change in common show-up fee on dictator giving. Thus, whereas those frames are appropriate to study giving behavior when inequality is salient, ours is more appropriate to understand the impact of a pure income effect on altruism. We employ a between-subject design, whereas Korenok et al. (2012) use a strategy method. Our design also differs with that of Konow (2010) in terms of decision space, and we find that the experimental results can be explained by the theory of impure altruism.

In each session, subjects were randomly and anonymously placed into one of 8 pairs and were assigned the role of either a dictator or a recipient. They then received information about their show-up fees, which was the same for all participants in a particular session. Each session consisted of two parts. In the first part, dictators were asked to allocate the additional £10 between themselves and the recipient, up to a fraction of 1 penny. In the second part, recipients had to guess the amount they would receive from the dictator. The instruction of the second part was given only after the decisions of the first part were made, and it was mentioned beforehand, in the instruction of the first part, that recipient's decision is payoff irrelevant to the dictator. This was done to ensure no strategic interaction between dictators' choices with recipient's guesses. Demographic information such as age, gender, nationality, study area of each participating subjects were collected after the experiment. The experiment was run manually and each subject's decision was anonymous to the experimenters. Subjects could participate in only one session. On average, each session took about 45 min and the average earnings of subjects (dictator and recipient together) across treatments were £15.10. However, average earnings varied over treatments between £5.5 (Treatment 1) and £25 (Treatment 5). The instructions are included in Appendix B.

3. Theoretical predictions

In this section we derive analytical predictions regarding dictator giving with the theories of inequality aversion and impure altruism,

Table 1
Treatment description.

Treatment	Common show-up fee	Additional amount to be divided	Number of subjects per session	Number of sessions	Number of independent observations
Treatment 1	£0.50	£10	16	3	24
Treatment 2	£5	£10	16	3	24
Treatment 3	£10	£10	16	3	24
Treatment 4	£15	£10	16	3	24
Treatment 5	£20	£10	16	3	24

[1] Income/endowment effect in the ultimatum game (Knetsch, 1989; Bolton et al., 1998; Armantier, 2006) is well observed. In the dictator game, dictators are more self-interested if they earn the amount to be allocated, and are more generous if recipients earn it (Ruffle, 1998; Cherry et al., 2002; Oxoby and Spraggon, 2008). The stake of giving also exhibits a significant effect on giving behavior (List and Cherry, 2008; Johansson-Stenman et al., 2005; Carpenter et al., 2005). The effect of different initial split of the pie has also been investigated (starting with Bolton and Katok, 1998) and it is found that with higher initial share to the recipient, dictator giving decreases. However, only Konow (2010) and Korenok et al. (2012) explicitly introduce the saliency of show-up fees in a dictator game.