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### The Journal of Socio-Economics

journal homepage: www.elsevier.com/locate/soceco

# To give or not to give? Equity, efficiency and altruistic behavior in an artefactual field experiment



OCIO-CONOMICS

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#### ARTICLE INFO

Article history: Received 23 November 2012 Received in revised form 21 May 2013 Accepted 25 May 2013

JEL classification: C78 C91

*Keywords:* Altruism Equity Efficiency Field experiments

#### ABSTRACT

We investigate the relative importance of the equity and efficiency motives for altruistic behavior using an artefactual field experiment. A set of binary dictator games is implemented within a telephone survey conducted with a representative sample of adults. The results indicate that, overall, equity plays a more important role than efficiency for the decision to give. Relative to the general population, young individuals are less concerned with inequality, while individuals with higher education are more concerned with social welfare. This indicates that lab experiments, generally implemented with young and educated university students, may lead to overestimate the importance of efficiency, relative to equity, as a determinant of altruistic behavior.

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#### 1. Introduction

The widespread evidence of altruistic behavior in several economic domains, such as charitable giving, contribution to public goods and volunteering activities, is at odds with the assumption of purely self-interested agents commonly made in economic theory. In order to account for the pervasiveness of other-regarding behavior, economists have proposed several models of social preferences, in which different forms of non-selfish motivations play a role for individual decisions (e.g. Rabin, 1993; Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000; Charness and Rabin, 2002; Falk and Fischbacher, 2006). Equity, efficiency and reciprocity, in particular, have been identified as the main drivers of altruistic behavior. These motives, however, interact in a complex way and it is generally difficult to disentangle their respective roles at the empirical level (see e.g. Engelmann, 2012; Kohler, 2011).

Although a large body of experimental evidence has documented the relevance of social preferences (see Fehr and Schmidt, 2006, for a review), a relatively smaller number of studies have focused on disentangling and assessing the relative importance of

different other-regarding motives.<sup>1</sup> In a prominent paper, Charness and Rabin (2002) find that the efficiency motive has more explanatory power than equity in a wide range of simple games, concluding that the importance of inequality aversion may have been exaggerated. In closely related experiments, Charness and Grosskopf (2001), using binary choices, and Engelmann and Strobel (2004), using simple distribution experiments, also find that concerns for efficiency are more important than concerns for equality. On the other hand, Fehr et al. (2006) show that, while efficiency dominates equity for economics and business students, this is not the case for students from other disciplines and non-academic employees, who display a stronger concern for inequality. More recently, Iriberri and Rey-Biel (2009) also find that equity plays a more important role than efficiency in a series of modified dictator games.

Most of this literature, however, relies on laboratory experiments, and is therefore generally based on convenience samples of university students.<sup>2</sup> The use of student samples may undermine the external validity of laboratory experiments on social preferences for at least two reasons. First, university students differ systematically from the general population in several respects, such

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<sup>1053-5357/\$ –</sup> see front matter © 2013 Elsevier Inc. All rights reserved. http://dx.doi.org/10.1016/j.socec.2013.05.015

<sup>&</sup>lt;sup>1</sup> See e.g. Andreoni and Miller (2002), Harrison and Johnson (2006), Fisman et al. (2007), List (2007), Güth et al. (2009), Korenok et al. (2013), Blanco et al. (2011) for experimental analyses of the determinants of altruistic behavior.

<sup>&</sup>lt;sup>2</sup> Falk et al. (2011) report that 89% of experimental papers published between 2004 and 2009 in five leading field journals are based on experiments with students.

as age, education, family background and socioeconomic conditions. The non-representativeness of university students, relative to the general population, could therefore produce systematic biases when estimating the relative importance of different components of social preferences. Second, self-selection might systematically affect the measurement of social preferences. If, for example, inequality-averse individuals were more likely to self-select in laboratory experiments, this would lead to overestimate the importance of equity relative to efficiency. In order to shed light on these issues, a number of recent papers have assessed empirically the external validity of the results of laboratory experiments about social preferences.

A first group of studies has used field experiments to compare the other-regarding behavior of the typical laboratory subjects with that of the general population. List (2004) assesses the relevance of social preferences in three different field environments, finding that cooperation is positively related to age: younger agents cooperate less than older agents. Fehr and List (2004) compare the trusting behavior of chief executive officers (CEOs) and students, finding that CEOs are considerably more trusting and trustworthy than students. Bellemare et al. (2008, 2011) study a representative sample of the Dutch population, showing that other-regarding behavior significantly depends on the socioeconomic characteristics of subjects.

A second group of studies has assessed the external validity of experiments based on student subjects by bringing non-students to the lab. These studies generally find that laboratory experiments based on student samples tend to underestimate the pro-social orientation of the general population (e.g. Carpenter et al., 2008; Cappelen et al., 2010; Falk et al., 2011). Another group of studies specifically addresses the self-selection issue in laboratory experiments, generally finding no difference in the level of pro-social behavior of self-selected and randomly selected students (e.g. Anderson et al., 2013; Cleave, 2010; Falk et al., 2011).

Overall, the debate on the relative importance of the efficiency and equity motives in the general population is all but settled. In this paper, we present the results of an artefactual field experiment investigating the relative importance of the equity and efficiency motives for altruistic behavior.<sup>3</sup> Our study contributes to the empirical literature on social preferences in several respects. First, our experiment is implemented with a representative sample of subjects, rather than a sample of self-selected university students (see e.g. Fehr et al., 2003; Bekkers, 2007; Carpenter et al., 2008, for studies based on a similar approach). This attenuates the external validity problem, while also allowing us to identify the direction of the biases possibly arising when measuring social preferences in laboratory experiments based on student subjects.

Second, we use a simple experimental design that allows us to disentangle and assess the relative importance of the equity and efficiency motives for the decision to give. In order to eliminate the possible confounding effects of reciprocity, we compare a series of binary-choice dictator games. One subject has to choose between two alternative monetary allocations for himself and another anonymous subject, with one of the two allocations implying a monetary gift for the other subject. The other subject has no active role, so that expectations about her behavior cannot elicit strategic motivations for the dictator. By exogenously varying the cost of giving and the distribution of the endowments, we are able to disentangle the effects of equity and efficiency on the decision to give. It is important to observe that in our within-subjects design individuals play different versions of the baseline game in only one role. This allows us to rule out the possibility that subjects may be influenced by some form of indirect reciprocity.

Third, our survey-based experiment also provides detailed information about pro-social activities carried out by the subjects. This allows us to examine the consistency between social preferences, as revealed by experimental choices, and pro-social behavior, such as donations to charities and volunteering activities, as reported by the subjects in a post-experimental questionnaire (see e.g. Glaeser et al., 2000; Fehr et al., 2003; Sapienza et al., 2008; Capra et al., 2008, for studies adopting a similar approach; see also Loewen, 2009; Carpenter and Myers, 2010, for recent related studies).

Our results indicate that, although both equity and efficiency are relevant for the decision to give, inequality aversion plays a major role. We also find that young individuals are less concerned with inequality, while individuals with higher education level are more concerned with social welfare. This indicates that laboratory experiments implemented with university students are likely to under-estimate the importance of equity, relative to efficiency, as a determinant of altruistic behavior. Finally, our results indicate that social preferences, as revealed by the choices in the experimental treatments, are generally consistent with self-reported pro-social behavior, although their explanatory power is relatively limited.

The remainder of the paper is structured as follows. Section 2 describes the experimental design and procedures. Section 3 presents the results. Section 4 provides a discussion of the findings. Section 5 concludes.

#### 2. Methods

#### 2.1. Experimental design

The baseline experimental task is a binary-choice dictator game. One subject (*A*) has to choose between two alternative monetary allocations for himself and another subject (*B*). Therefore, in each treatment, *A* has to choose between ( $\pi_A$ ,  $\pi_B$ ) and ( $\pi'_A$ ,  $\pi'_B$ ), where  $\pi_A$  and  $\pi_B$  denote the payoffs in euros of *A* and *B*, respectively. Subject *B* has a passive role. One of the two allocations, used as a benchmark, is always equal payoffs for the two subjects (400,400). The alternative allocation is varied by the experimenter across four treatments, so that it entails a 100 euro difference for the payoff of *B* relative to the benchmark (gift size = 100). The choice between the two alternative allocations is thus between giving, or not giving, under different distributive and efficiency conditions. Fig. 1 compares the payoffs in the four treatments, with the arrows representing the choice of giving against the alternative of not giving.

Treatments T1 and T2 examine the decision to give when giving is not costly for *A*, so that self-interest does not play any role. In T1, the alternative allocation is (400,300), so that giving increases efficiency *and* decreases inequality.<sup>4</sup> The equity and efficiency motives, if present, act in the same direction. The decision not to give may be motivated only by competitive preferences. In T2, the alternative allocation is (400,500), so that giving is again costless, but there is a trade off between efficiency and inequality. This allows us to assess which of the two components is dominant when giving is not costly. Treatments T3 and T4 examine the decision to give when giving is either costly (T3) or payoff-increasing (T4) for *A*. In T3, the alternative allocation is (450,500): giving is costly and increases efficiency, while it increases inequality. In T4, the alternative allocation is (450,500): giving increases the payoff of both subjects while increasing inequality.

<sup>&</sup>lt;sup>3</sup> An artefactual field experiment is "the same as a conventional lab experiment but with a nonstandard subject pool" (Harrison and List, 2004, p. 1014). That is, an artefactual field experiment is based on abstract framing, an imposed set of rules, and a representative sample of subjects.

<sup>&</sup>lt;sup>4</sup> Note that in T1 giving means choosing the benchmark allocation (400,400).

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