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Would the right social preference model please stand up!

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ABSTRACT

A number of competing social preference models have been developed inspired by the evidence from economic experiments. We test the relative performance of some of these models using an experimental design that is aimed at capturing pure distributional concerns in a multi-person setting. We find that the individuals in this study are heterogeneous, and that they do not follow any single notion of fairness or inequality aversion. In addition, the results suggest that efficiency concerns are not confined to students of economics, but are important to students of all disciplines.

1. Introduction

A number of social preference models have been developed in an effort to explain and organize the evidence from economic experiments. It has been found that people share with others in dictator games, reject offers in ultimatum games, cooperate in public good games, etc., all of which is in direct conflict with traditional microeconomic utility theory.

Fehr and Schmidt (2003) distinguish between two approaches used when explaining the behaviour observed in experiments. The first assumes that some agents have social preferences such that their utility depends not only on their own material payoff, but also on how much the other players receive. The second approach deals with "intention based reciprocity", where it is assumed that the player cares about the intention of her opponent. Although there is much evidence that perceived intentions are often important, this paper focuses solely on the former. Thus, the experiments designed here aim to capture "pure" social preferences, i.e. the nature of distributional concerns rather than strategic or retaliatory preferences. Consequently, this study examines how people respond to unfair outcomes rather than unfair intentions. More specifically, the purpose of this paper is to test the performance of some of the better known social preference theories of difference aversion, maximin preferences and efficiency concerns using real money distributional experiments.

One category of social preference models is difference aversion models such as those put forward by Loewenstein et al. (1989), Fehr and Schmidt (1999) and Bolton and Ockenfels (2000). These models presume that individuals are averse to differences in relative payoffs and would therefore never sacrifice from their own payoff or reduce the payoff of others if

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the action resulted in a less equitable outcome. An alternative to the difference aversion models is social-welfare models that combine distributional concerns with preferences for efficiency (surplus maximization). The Quasi-maximin model by Charness and Rabin (2000) is one of the more prominent social-welfare models where Rawlsian maximin preferences are integrated with efficiency concerns.

The various social preference models provide different explanations for the experimentally observed behaviour, but it is sometimes possible to explain the same experimental data using different models. For example, sharing in dictator games is explained by Andreoni and Miller (2002) as being due to maximin preferences while the same results can be explained by difference aversion according to Bolton and Ockenfels (2000) and Fehr and Schmidt (1999). Similarly, rejections in ultimatum games and cooperation in prisoner's dilemma games are ascribed to difference aversion by Bolton and Ockenfels (2000) and Fehr and Schmidt (1999) while Rabin (1993) interprets such behaviour as reciprocity.

A number of studies have examined and tested various social preference models including those discussed above. The difference aversion models do not incorporate efficiency but there is evidence indicating that efficiency is an important component in preferences. Studies by Charness and Grosskopf (2001), Kritikos and Bolle (2001), Andreoni and Miller (2002), Charness and Rabin (2000, 2002), as well as Engelmann and Strobel (2004) found that a majority of participants are efficiency, rather than equity, orientated. Furthermore, Andreoni and Miller (2002) construe participants who equalize payoffs as exhibiting what Charness and Rabin (2000) describe as social-welfare preferences, rather than difference aversion. Engelmann and Strobel compared the performance of the Bolton–Ockenfels and Fehr–Schmidt models and found a clear influence of efficiency and maximin preferences. Overall, they found that the Fehr–Schmidt model fared better than the Bolton–Ockenfels model, but only when predicting the same choices as the Rawlsian principle. The jury is still out on this issue however. Fehr et al. (2006) found that efficiency was of little concern when they replicated the experiments of Engelmann and Strobel using non-economist respondents. Furthermore, the authors raised doubts regarding the relevance of the Rawlsian motive in strategic games based partly on the experiments by Güth and Van Damme (1998), as well as those by Frechette et al. (2003), where little concern was shown for the lowest payoffs suggesting that maximin preferences are of little importance in strategic interactions. Further support for the difference aversion theory is given by Güth et al. (2003), who found that fairness concerns dominate efficiency concerns in dictator dilemma experiments where there is a trade-off between fairness and efficiency.[1] The experiments by Güth and Van Damme (1998) and Bolton et al. (1998), amongst others, are used by Bolton and Ockenfels (2008) to support the theory of self-centred fairness that is embodied in their model. These results were not supported by Charness and Rabin (2000, 2002),[2] who found that individuals did indeed care about the distributions of payoffs among other parties. Kagel and Wolfe (2001) designed a three-person modification of the ultimatum game in order to test the Fehr–Schmidt and Bolton and Ockenfels models.[3] Their results show insensitivity to third party allocations and reject both the difference aversion models; furthermore, their results even fail to support social-welfare preferences.

The lack of concurrence regarding the empirical evidence motivates further study into the nature of distributional concerns. This paper tests the relative performance of some of the more prominent social preference theories of difference aversion, maximin preferences and efficiency concerns in distributional experiments using an approach that is somewhat different to previous studies. Firstly, within the standard approach experiments are conducted using two or three players and it is therefore of interest to observe if there is any strong correspondence to any of the social preference models when there are more players involved. In addition, the parameters of the models are rarely estimated in previous studies, as the structures of these games do not usually provide sufficient information because they yield outcomes from choices that result in the highest utility for the individuals (dictator games, ultimatum games, binary choices between distributions, etc.), rather than indifference between choices. Finally and most importantly, the results from previous experiments do not always allow us to discriminate between the different models as the results are often consistent with more than one model. In this paper the experiments are conducted in groups of 11 individuals, where each subject is required to state what we call their "equality equivalence" for an unequal distribution for the group. We define equality equivalence as the value of the egalitarian payoff for which the individual is indifferent between the unequal and the egalitarian outcome.[4] As will be shown, the individuals' responses classify them into one of the different models, and the design of the experiment is such that membership in one of the models is mutually exclusive.

The rest of the paper is organized as follows. Section 2 provides a description of the experimental design and procedure, followed by an overview of the different social preference models in Section 3. The results from the study are presented in Section 4, followed by the conclusions in Section 5.

[1] In dictator dilemma games, the recipient receives more than the dictator donates.

[2] The authors designed an experiment with a direct test of Bolton and Ockenfels hypothesis that individuals are unconcerned about the allocation among other parties. The results reject the Bolton and Ockenfels model, but are consistent with both the social welfare and Fehr–Schmidt models.

[3] In this game, one person allocates a sum of money to two others, one of which is randomly chosen to accept or reject the offer. Rejection gives both the responder and the proposer zero income, but a positive consolation prize is given to the non-responder. The results show little reduction in rejection rates, holding offers constant, with and without consolation prizes, contrary to the prediction of both difference aversion models.

[4] According to Rabin (1993), as well as Dufwenberg and Kirchsteiger (2004), intentions play a role when individuals are motivated by reciprocity considerations. If so, the individuals in this study, believing that the other respondents would base their choices out of "kindness" would wish to reciprocate this unselfish action. However, this study disregards such effects assuming that the individuals' responses reflect only their distributional concerns.