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Does competition inhibit fairness and altruism?☆

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ABSTRACT

In many business situations, one party makes an offer (e.g., broker offers a commission to client) that can either be accepted or rejected by the other party. If it is rejected, both gain nothing. Common sense, business experience and theory suggest that the proposer would partition the sum so that the other party receives a minimal amount. However, experiments have shown that the offer is more equitable, and behavioralists explain this as altruism. In this paper, we reconcile these two conflicting conclusions by introducing multiple proposers and an important element that is present in most business situations: competition for gains among those proposing. We find that this element of competition restores the theoretical expectation of a purely monetary self-interest decision, and reduces the role for altruism. Our results suggest that while behavioral altruism/fairness considerations are dominant in isolated experiments, the competitiveness of business situations tends to marginalize these factors, and renders business decisions closer to the pure self-interest model.

1. Introduction

One of the most fundamental problems in bargaining involves two entities, the proposer and respondent. The proposer has the opportunity to divide a sum of money (say $ 100 in dollar increments) into a portion for himself, with the remainder designated for the respondent, who can either accept or reject the arrangement. If the responder accepts, both entities receive the designated amounts. If he declines, then both receive nothing. Classical economics clearly stipulates that the responder will accept any non-zero sum as he will self-optimize. Knowing this, the proposer will self-optimize by offering only $1, with rest for himself.

When this bargaining model (known as the "ultimatum game") was tested in controlled laboratory experiments, the results differed very significantly from the classical expectation. For example, the results by Plott and Smith (1978), Guth et al. (1982) and Forsythe et al. (1998) showed that in these experiments, the majority of offers are about 40%–50% of the sum. This ratio persisted even when experiments were conducted in countries where the offered amount was significant in comparison to monthly incomes (Roth et al. (1991)). Also contradicting the self-optimization result is the fact that responders typically reject offers of less than 20 percent (see Roth (1995) for a thorough survey).

The stark difference between the theory and experiment poses an important challenge to economics. But the dichotomy is further complicated by observations in the business world, which one might assume would be closer to the experimental setting. However, many business situations, as discussed below, remain close to the classical expectations: the proposing party retains the bulk of the sum to be divided. This presents an additional puzzle, suggesting that the typical ultimatum model that has been studied neglects an important factor that is present in much of the world of business.

Our central thesis is that this missing factor is the competition among the group of entities that are proposing the division. Consider a typical business setting of a brokerage firm in which there are several brokers, A_1, A_2, …, at the same level. Each one must make an offer of a commission rate to his client, B_i, that can vary from the full rate to a minimal rate which is close to the rate that the broker can execute trades for his own family members. The broker is aware that at the full commission rate, the client is unlikely to have a net profit. At the minimal rate, the broker and his firm would not have much profit. Rational self-interest involving a purely pecuniary utility function would, of course, suggest the full commission. Analyzing the problem with a utility function with a term that favors equality or altruism, the broker's utility would be maximized with a commission rate somewhere

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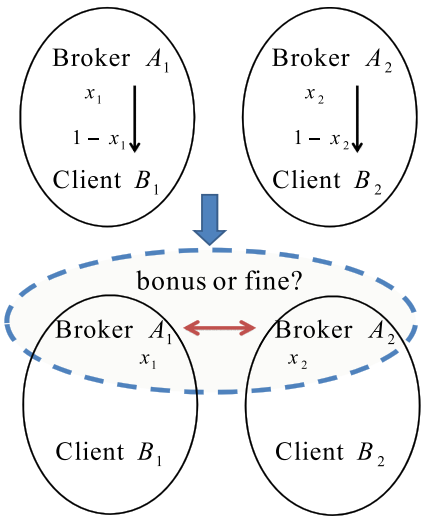

Fig. 1. Group competition in a brokerage firm.

between the full and minimal rates. However, the broker A_i must also take into consideration that the other brokers, A_j ($j \neq i$), may be less generous to their clients, B_j. Thus, by being more generous, the broker, A_i, could rank very low in terms of net commission revenue, which may reduce his year-end bonus and promotion opportunities. Thus, the broker A_i must have, as part of his utility function, a term that is an increasing function of the average rate offered by all brokers minus his offer. He is then far more likely to impose the maximum commission that usually prevail among full service brokers. Other examples involving academia, medicine, law and governments are provided in Section 4 (see Fig. 1).

The discrepancy between theory and experiment has been studied, and an effort has been made to reconcile the two. As discussed below, the investigations attempt to explain the paradox by introducing altruism as a factor in the utility of the proposers that balances their monetary goals. Our approach is different in that we stipulate group competition as an incentive. We investigate the effects of group competition in the bargaining processes in three steps. We first assume that proposers are fully altruistic and responders are fully self-interested. This scenario helps us understand how proposers trade-off between their altruistic motivations and the competition incentives in experiments such as Shogren et al. (2006), Baik et al. (1999), Shogren (1997) and Mcintosh et al. (2009). Next, we consider the general case where both proposers and responders can be self-interested or altruistic. Participants' altruistic preferences are private information. With this setup, we can address three issues. (1) By introducing responders' altruistic preferences, we can explain the experimental evidence that responders tend to reject more often than a self-interested participant would do. (2) We examine how different types of proposers (self-interested or altruistic) are affected by the presence of altruistic responders. (3) With this general setting, we are able to explore the cross-group impacts of group competition. Finally we assume that proposers' types are private information but responders are self-interested, and we consider that there is a small chance that responders reject nonnegative offers irrationally (see Titmuss, 1970; Mellstrom and Johannesson, 2008;Goette and Stutzer, 2008; Lacetera et al., 2012).

While proposers' desire to be altruistic and fair are likely present in the experiments, it is not clear why they should be absent in the business world. The concept of competition that we introduce serves to interpolate between the preferences for altruism and fairness, and the need to succeed in competition. In particular, it is true that a person offering more than the minimal will lose something by that act alone. However, in a competitive environment, such as the broker example, he may lose everything (i.e., his job) by being too generous.

Our results show that: (1) If only proposers are altruistic, then depending on the proposer's altruistic incentive and the benefit of excelling at the competition, the equilibrium can be either the rational outcome with zero offers or the equity outcome with one-half offers. That is, even if the proposer has a utility function with a strong altruism component, the competition (or tournament) with respect to the parallel games being played will restore the purely monetary self-interest decision. Experimental evidence also shows that adding tournament incentives into classic gaming experiments may result in more rational gaming behaviors. We observe more self-interested bargains, more subgame perfection outcomes in endogenous timing contests, and more sincere bidding behavior in second-price auctions (e.g., Shogren et al., 2006; Baik et al., 1999; Shogren, 1997; Mcintosh et al., 2009).

(2) When there is private information on each player's altruistic preference, we characterize the symmetric and asymmetric perfect Bayesian equilibria. We show that tournament incentives have a greater impact on altruistic proposers, while the self-interested proposers are mostly affected by the incomplete information about the responders' preferences. There will be equilibria where the altruistic responders strategically choose a rejection threshold such that self-interested proposers' offers are rejected in equilibrium. This result not only explains why rejections are often observed in experiments (Fehr and Schmidt, 1999; Bolton and Ockenfels, 2000), but also provides an interpretation for the observed sabotage in tournaments. More interestingly, there are also asymmetric equilibria where, when one group's altruistic proposer offers more, the altruistic proposer in another group will offer less. This provides a possible interpretation for the evidence that when providing extrinsic incentives to blood donation, there can be a negative impact on voluntary (altruistic) contribution, thus resulting in a reduction of the population who wish to donate (see Titmuss, 1970; Mellstrom and Johannesson, 2008; Goette and Stutzer, 2008; Lacetera et al., 2012). The experiment by Ariely et al. (2009) showed similarly that monetary incentives for pro-social behaviors work better when contributions to the public goods are not as visible than when they are visible and presumably done partly due to image concerns.

(3) Finally, when there is a small and increasing chance that responders may reject nonnegative offers irrationally, we find that this slight chance will turn the self-interested proposers' increasing payoff function into a decreasing one, thus despite of extrinsic tournament incentives, the self-interested proposers will lose their motivations to win the tournament. This demonstrates that the extrinsic tournament incentives cannot surmount the slightly irrational decisions by members within the same group. However, when considering a constant rejection probability, we discover that the two irrational setups lead to totally different decisions for the *self-interested* proposers, while on the other hand, they do not cause a significantly qualitative change to the *altruistic* proposers' decisions. Recall our earlier result that tournament incentives actually have greater impacts on the altruistic proposers, while the self-interested proposers are mostly influenced by his incomplete information about responders' preference. Our result provides justification for the finding by Dawling and Falk (2011), who studied the impact of incentives on worker self-selection in a controlled laboratory experiment and concluded that multi-dimensional ranking should be provided to systematically attract people with different individual characteristics.

The rest of the paper is organized as follows. Section 1.1 contains the related literature. We describe the general tournament between two groups in Section 2. As an illustration, we start in Section 3.1 by characterizing the equilibrium for a linear tournament return. Later in Section 3.2, we characterize the perfect Bayesian equilibrium for a more general setup. We consider responders' irrational behaviors in Sections 3.3 and in Section 4, we provide practical implications with discus-