

**Russell Ackoff Doctoral Student Fellowships for Research on
Human Decision Processes and Risk Management 2009**

Applicant Information

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The Generality of Group Cooperativeness under Uncertainty

Motivation

The current project involves three components that are essential to many social dilemmas: cooperation, uncertainty, and group decision. Although most research on social dilemmas has been conducted in the certainty domain, the outcomes of those dilemmas are often of probabilistic in nature, such as *potential* effects of pollution or *likelihood* of global warming.

Similarly, group decision is an important but largely ignored topic among researchers on social dilemmas. Traditional game theoretical models focus on individuals choosing between alternatives, even though in many real-life situations, the decision makers are nations, firms, or families (Bornstein et al., 2004). It has long been known that we cannot infer group behavior directly from individual-level studies, and groups behave differently from individuals with regard to a variety of issues (see Davis, 1992 for a review).

Previous Research

Earlier research has reported an “interindividual–intergroup discontinuity effect”: interactions between groups are generally more competitive and less cooperative than individual interactions in the context of mixed-motive matrix game, usually the prisoner’s dilemma game (Insko et al., 1987, 1990; Wildschut et al., 2003).

In a recent study, Gong et al (2008) replicated the discontinuity effect in the deterministic prisoners’ dilemma (DPD), but found a reversed discontinuity effect in a stochastic version of the game: groups become more cooperative than individuals when uncertain outcomes are introduced to the game. In the stochastic prisoner’s dilemma, cooperation from one player reduces both players’ probabilities of suffering a loss and mutual cooperation eliminates the uncertainty. Two explanations are provided for why groups cooperate more than individuals under uncertainty: safety oriented decision and social pressure to be nice.

Present Project

The present project follows Gong et al (2008) to test the generality of the group cooperativeness under uncertainty. For that purpose, we will conduct a series of studies in various scenarios.

So far, we have conducted 3 new studies for the present project. The group cooperativeness under uncertainty has been replicated in both loss and gain domains, and in a stochastic prisoner’s dilemma and in a stochastic coordination game with two Nash equilibriums. But the group cooperativeness disappears if the uncertainty in the game becomes irremovable by mutual cooperation.

I plan to conduct two more studies to complete the generality study of group cooperativeness under uncertainty. Study 4 tests whether the number of players matters: Do multiple groups cooperate more than multiple individuals? Study 5 exams whether the group cooperativeness under uncertainty can be generalized to groups with intragroup conflicts. That is, besides intergroup cooperation and competition, members from the same group have both shared and conflicted interests.

Reference

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