An Experimental Study on Learning about Own Payoff Functions

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Abstract: In behavioral game theory, "what game do people think they are facing?" is one of the most important open research questions (Camerer, 2003), but experimental analysis on learning about strategic situations is rare. To consider a situation where subjects have to learn about their true payoff functions, one has to design an experiment in which subjects do not see their own payoffs immediately. To achieve this goal, we designed an experiment in which subjects have to choose an apportionment of votes in weighted majority voting mechanisms.

Each session of the experiment consists of two stages: In the first stage, subjects decide about how to allocate the votes among members, and in the second stage, given the allocation of votes determined in the previous stage, subjects propose and vote on how to allocate a fixed amount of resources among themselves. The second stage follows the experimental design of Montero et al. (2008). There is no monotonic relationship between the numbers of vote subjects see in the first stage and the expected true payoff they obtain in the second stage. Our preliminary questionnaire studies for one session show that most of the subjects will not see the relationship between the number of votes and the associated voting power in the group decision-making, so that they chose the "wrong" choice in the first stage from the viewpoint of expected payoff maximization. Many subjects could, however, eventually learnt about their true payoff functions, when they play this game repeatedly (20 sessions in this experiment). We analyze the process of their learning and discuss the bargaining outcomes.

Keywords: experiment, learning, games, voting power, bargaining
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