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Class of 2013

Project Name: The Development of a Web-Based Experimental and Teaching Game Facility with Stress on Theory and Experimentation  
Professor Martin Shubik

This project represents a continuation of investigations into experimental game theory. By utilizing a web-based experimental game facility, the goal of this project is to reconcile game theoretic solution concepts, including Nash equilibrium, with how games are actually played by experimental participants, studied from the point of view of social psychology. In total, there are 144 strategically different 2x2 ordinal matrix games; experiments this summer consisted mainly of the subset of these games characterized by symmetry, two pure strategy Nash equilibria, or Nash equilibria only in mixed strategies. Using these games, the project seeks to test the validity of several hypotheses. These hypotheses include, but are not limited to, whether individuals actually implement the lottery required by mixed strategy Nash equilibrium, whether the non-cooperative equilibrium in the prisoner's dilemma is played, whether symmetric games are played symmetrically by row and column players, and whether the cooperative equilibrium is played in games of coordination with two pure strategy equilibria.

This summer my responsibilities included verifying the properties of the 144 strategically different ordinal games and calculating data needed for the publication of a discussion paper. Additionally, I was primarily responsible for setting up games on the web-based experimental gaming platform, beta-testing games that were set up, troubleshooting experimental participants' technical problems, and analyzing results in both test runs of the games and actual experiments. More experiments will be run early this semester as well, and I will participate in the analysis of these results.

This project helped me better appreciate experimental game theory both in terms of its interactions with theoretical game theory and how the field is likely to shape game theory in the future, especially as it pertains to solution concepts. Additionally, this project has given me a better understanding of the importance of mass experiments in economics and the social sciences, in general, and how the uncertainty of human behavior shapes, and is shaped by, economics.

My experience with the Summer Research Opportunity was quite positive. I particularly enjoyed how the project allowed me to reconcile what I have learned in the classroom over the last few years with actual economics research. It was a great honor to work alongside one of the most influential game theorists and I thank him for his patience, his willingness to discuss and expound upon economic ideas, and his kind words of encouragement. I am also grateful for his instruction in the fundamentals of economic gaming (including experimental setup) and for exposing me to current research in economics.