Research Statement

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I use theory and experiments to study how limited cognition and psychological motives influence economic behavior across strategic and non-strategic settings. I accomplish this by integrating ideas from cognitive science and psychology into existing economic frameworks such as game theory and models of social preferences. In doing so, my work not only innovates upon existing theory but also directly tests the implications of the new hypotheses I develop.

Job Market Paper

In my job market paper, "*Rationally Inattentive and Strategically (un)Sophisticated: Theory and Experiment*," I study how the strategic sophistication of a player affects how their acquisition of information in strategic settings. While the rational inattention literature initially focused on how individuals gather pay-off relevant information when doing so is costly in decision-making settings, there has been a recent proliferation of research that applies the theory to strategic settings as well. However, while these papers allow for agents to be limited in their ability to acquire information, they assume that agents are fully strategically sophisticated, which means they can fully model and predict the information acquisition of their opponents. My paper integrates the theoretical concept of strategic sophistication into this literature, and tests predictions developed by this theory in an experiment.

The game studied is intentionally simple for use as a direct test of players' ability to acquire information strategically. There are two players—Red and Blue—who decide to accept or reject a deal represented by some predetermined but random state—*Red* or *Blue*. If both players accept a *Red* deal, the Red player benefits and the Blue player loses, with a *Blue* deal being analogous. If either or both parties reject a deal, they receive an outside option. *Red* and *Blue* deals are equally likely, and each player can acquire any possible information structure at cost, before deciding to accept or reject the deal. I derive the best responses for each player in terms of State Dependent Stochastic Choice (SDSC) data—the probability a player will accept a deal of each color—as a function of their beliefs of their opponent's SDSC. A Nash equilibrium is then a fixed point in the above best responses. To generate non-equilibrium predictions, I utilize Level-K theory, which categorizes players according to their level of strategic sophistication. A Level-0 player does not acquire any information and accepts deals unconditionally. A Level-1 player is rationally inattentive and assumes their opponent is Level-0, and a Level-2 player is rationally inattentive and assumes their opponent is rationally inattentive Level-1 player. The above theories generate predictions for how players should behave in games when (1) their cost of information changes and (2) their opponent's cost of information changes. The SDSC of a low-sophistication player does not vary on the information costs of their opponent, while higher sophistication opponents focus attentional efforts on reducing the error of accepting unfavorable deals when their opponent has lower costs.

I then test the above predictions in a lab experiment. The purpose of the lab experiment is

to see to what extent players can (1) predict the information acquisition of their opponents and (2) best respond to these predictions in their information acquisition strategies. Each subject plays a series of rounds of the above game where they face either high or low costs of information, and their opponent faces either high or low costs of information. The state is determined by whether there are more red or blue dots on a grid of red and blue dots; subjects are shown the grid and therefore must pay a cost of effort to determine the state. The cost of information is manipulated exogenously through two variants of this task, where one is significantly harder than the other. Before each round, subjects are told their task difficulty level and the task difficulty level of their opponent. By exposing subjects to these combinations of tasks in different rounds, I test whether subjects adjust their information acquisition in response to their opponent's cost.

The findings are an almost universal lack of strategic sophistication, with players being essentially non-responsive to the task of their opponent. Through elicited beliefs and regression analysis, I find that this is driven largely by the cognitive difficulties of predicting opponent information. A follow-up experiment further tests this mechanism by having players play against computer opponents who transparently and exactly mimic the behavior of an average participant. When the opponent's information strategy is known in this manner, subjects significantly adjust their information acquisition strategies to respond to the abilities of their opponent. These results suggest a necessary integration of the theories of rational inattention and cognitive uncertainty in strategic settings.

Empathy, Social Pressure, and Avoidance in Charitable Giving

In a working paper "*Out of Sight, Out of Mind: An Experimental Study of Empathy and Social Pressure,*" I study the effects that the psychological forces of social pressure and empathetic appeals have on behavior in charitable giving settings. This paper speaks to the literature on charitable giving in field experiments that has shown that (1) people give substantially more when asked and (2) people tend to avoid the ask if possible. The literature posits two possible mechanisms to explain this behavior. A theory of social pressure posits that people do not enjoy giving, but dislike saying "no". The theory of empathy claims that the ask causes people to have more altruistic preferences, and thus people may avoid the ask as a self-control device. To analyze these two explanations, I formulate empathy as an effect triggered by the giver seeing the ask itself, and social pressure as triggered by the recipient seeing how the giver responds.

While these two forces are naturally difficult to separate in the field, I was able to test both directly in an online lab experiment. In the experiment, subjects are assigned to be either solicitors for a charity or to be potential donors for that charity. Solicitors wrote messages encouraging their partners to donate to their charity. I varied (1) whether donors are shown the message and (2) whether solicitors see how much their donor gives. I argue the first of these effects largely affects empathetic concern, while the second largely affects social pressure. I also allow subjects to attempt to avoid these effects, with a probabilistic device that allows me to see the counterfactual giving behavior of subjects who chose to avoid each effect.

Subjects chose to avoid social pressure at a much higher rate than empathy. However, subjects give similarly higher amounts when exposed to either, compared to a control. In addition, it is exactly those who chose *not* to avoid social pressure that give significantly more when seen by the solicitor. This suggests that, in online environments, there are social image seekers and social pressure avoiders. Those who seek to be seen enjoy showing their generosity, while those who prefer to avoid social pressure would not necessarily give either way, but likely incur psychological costs of being seen as not charitable. Further, despite most people being "vulnerable" to empathetic stimulation, it is not something that people wish to avoid as hypothesized in the previous literature.

Research in Progress and Future Work

In a work in progress, "*Optimal Obfuscation*," joint with Srijita Ghosh, we study theoretically how a perfectly informed sender should optimally obfuscate the costly information gathered by a rationally inattentive receiver. The sender's garbling of the receiver's information affects the learning strategy chosen by the receiver, with more obfuscation leading to lower levels of learning due to dampened payoffs. This generates a bound on the possible level of obfuscation for the seller. Future experimental work is planned to test the predictions of this experiment in the lab.

Another work in progress, "*Equilibria in Simultaneous Information Acquisition Games*," serves as a companion paper to my job market paper. This theoretical paper studies Nash equilibrium in games where both agents acquire costly information simultaneously. Typical methods of proving the existence of Nash equilibria in such games do not apply due to the complex nature of rational inattention theory. I introduce a novel method for finding and analyzing Nash equilibria in such games.

I look forward to pursuing future research within the research agenda described above, and to exploring new topics outside of this agenda. These future avenues include further integrating theories of costly strategic sophistication and information acquisition, experimentally studying information acquisition in a variety of strategic setups, and examining the role costly information plays in charitable giving.