Research Statement

My research is primarily focused on the fields of contract theory and behavioral economics, and revolves around studying how theory can be brought closer to practice. In contract theory, this entails studying settings in which the person faces realistic barriers to contracting, such as the inability to make payments or commit to future actions. In behavioral economics, I confront models’ predictions with evidence directly, studying which model is the most useful to understand an individual’s behavior.

Barriers to Contracting

My job market paper, *Delegation with Continuation Values*, studies the setting in which the person writing the contract, or principal, can control what choices are available to the other party, but cannot incentivize those choices with payments or charges. Instead, the principal can make promises about her future behavior, such as making more options available in the future or requiring both parties to use resources inefficiently.

I characterize the solution to the contracting problem in a general setting, and then show how the results apply to two canonical settings: delegating multiple decisions dynamically, and delegation with “money burning,” or simultaneous wasting of resources. When delegating two decisions sequentially, the principal makes more or fewer options available in the second period, depending on what the agent chose in the first period. This eliminates pooling in the first period and leads to better choices from the point of view of the principal, but involves the principal making costly and inefficient promises for the future. In the delegation with money burning setting, I show a case in which the principal uses these measures to incentivize the agent not to take biased actions, and then give general conditions for when the principal does not use this option, and instead simply delegates an interval of choices to the agent.

Another factor which has proven important in the theory of contracts is the principal’s ability to commit. In *Repeated Contracting without Commitment*, I study a classic setting: a monopolist making dynamic sales to consumers with private valuations, when the monopolist can’t necessarily fully commit to future prices. I compare the fully committed monopolist to one who can commit but will renegotiate, and to one who can only sign spot contracts. In the repeated setting, a patient enough principal who can’t commit can attain the same outcomes a committed principal could. Furthermore, I show that commitment in the repeated game is not necessarily monotonic in exogenously provided commitment: for some parameter combinations, a monopolist who can only sign one period contracts can implement the full
commitment outcome in equilibrium, while a monopolist that can sign long term contracts that are renegotiated cannot.

In future work, I plan on continuing my study of the delegation problem. The dynamic delegation problem mentioned above was a specific one, but the mathematical techniques apply more broadly. Thus, it would be valuable to understand the general principles of how a principal sequentially delegates decisions. One obvious problem with solutions to delegation problems with continuation values is that contracts often will not be renegotiation proof, so another natural question is how contracts are different when they can be renegotiated.

Behavioral Economics

Experiments are well positioned to select between models of behavior. To do this, much experimental work has focused on testing models, including expected utility, exponential discounting, and other standard models used by theorists. It’s not surprising that with sufficient experimental data these models are rejected, as the models themselves are best thought of as simplifications of behavior, and few would believe that their specific predictions would hold for actual decision makers. As an alternative, in Prediction and Model Selection in Experiments, I take models’ predictive power as the basis for comparison. In particular, I estimate several models’ parameters on subsets of subjects’ data, and I predict the remainder of their choices, a well known cross validation technique. Obviously, adding parameters and estimating more general models allows for more flexibility, but this may lead to overfitting and poor predictive power. For preferences over risk, with the exception of very small sample sizes, allowing the estimation procedure to select between constant relative risk aversion and constant absolute risk aversion improves prediction beyond that of a single model. Moreover adding a behavioral parameter such as loss aversion improves prediction further. This contrasts with time preferences, where adding the present bias parameter $\beta$ worsens prediction for all sample sizes, despite improving fit significantly.

The methodology is easy to implement and interpret, and the results are broadly useful. I show that using cross validation can strengthen the conclusions of one’s own experiment, and that it can also provide useful results for other experimentalists and applied modelers. In particular, the results act as an implicit power calculation for measuring someone’s preferences from an experiment, and comparing models in this way allows for applied modelers to select those models that seem to be most relevant in a particular domain.

Motivated by these results over time preferences, I’ve begun separate work with Matthew Gibson and Jeffrey Shrader, in which we are running a study to adjudicate between two alternative models that explain time inconsistent behavior: naive quasi-hyperbolic (or beta-delta) preferences and optimistic expectations about time use. For either of these models, individuals can exhibit dynamically inconsistent choices over, for instance, the timing of real effort tasks. In the case of hyperbolic preferences, this is because the costs associated
with doing the task are discounted differentially if the person is deciding whether to do it in
the near or far future. If the individual is optimistic about her schedule, she might believe
that she will be able to do a task at a given time when that time is far in the future, but
when the event arrives, she finds that she is busier than expected. We have designed and
piloted an experiment that identifies which of these two models is causing time inconsistency
for a given individual. The key difference we exploit is that when given information about
their behavior, the hyperbolic discounter will have additional demand for costly commit-
ment devices while the optimistic person will have lower demand. Pilot results support the
optimism model as the dominant model of behavior in this case.

Working with experimental data has left me with a number of questions which I intend
to explore in future research. There are clear points at which observing subjects making more
decisions doesn’t allow one to predict their future decisions any better. A natural question
to ask is whether one can learn as much about subjects’ preferences with fewer decisions if
the choices they are given are optimally designed. To that end, Jim Andreoni and I have
designed an experimental procedure which is intended to answer this question.