

## Research Plan – Stephen J. Cotten

My research agenda examines questions from several fields, all of which fall under the aegis of applied microeconomics. My research so far has focused largely on experimental methods, resource and environmental issues, and legal conflicts, but I have a particular interest in energy economics, and have been teaching a course of my own design on that topic over the past two years. My research strategy is to develop a theoretical model to predict behavior or explain observed behavior, and then, when possible, to test the soundness of the model in a controlled setting.

I have a fascination with problems of asymmetric information. In my dissertation, I extend previous work that models the decision to engage in accounting fraud as a function of equity compensation offered. While previous work use a principal-agent model where a firm owner hires a single manager to exert costly effort on the owner's behalf, I examine the case where a *team* of managers, heterogeneous in their disutility from sanctions, operating in concert make a decision on what earnings to report in an environment where they can "blow the whistle". Using teams adds realism to the model while incorporating whistle-blowing allows me to account for the effect of the Sarbanes-Oxley Act of 2002. I predict that fraud decreases when whistle-blowers are protected. I also predict that the presence of high-sanction managers, who are disinclined to commit fraud, will decrease the level of fraud committed by the other managers. The theoretical work is already under review. Testing the theory in the lab has begun, and early results show that the comparative static predictions of the model hold. The framework is ripe for further research in exploring the effect of different penalty regimes, contract structures, and other variations of the model, both theoretically and in the lab. I am conducting research with Michael Price on whether or not collusion can actually be strengthened when whistle-blowing is possible if the colluding parties interact with each other outside of the immediate collusive environment.

I also have research interests in the application of economic theory to the market for legal services. In my dissertation, I also examine how tort reform may change the average quality of attorneys in the market for legal services. A coauthored paper (with Todd Cherry), revised and resubmitted to *Public Choice*, examines the expenditure of resources on environmental litigation when one party is a subset of another party (e.g. a town fighting a county in court, when citizens of the town are citizens of the county, and thus taxpayers in both). Another paper we're working on extends this to examine differences in the resources used when the costs of litigation can be reimbursed.

Other work in various stages of completion covers a wide array of disciplines. I have a coauthored chapter (with Christian Vossler and Paul Ferraro) in a textbook on experimental methods showing how confusion may be guiding subject responses in voluntary contribution mechanism games and causing inflation in estimates of altruism. I am analyzing bargaining and negotiation over unitization of oil fields, for which a pilot experiment has already been conducted. I have presented a co-authored study nearing submission concerning the way in which the provision stage in common-pool resource problems may affect outcomes in the allocation stage. Extending this, I am examining how positive and negative experiences in one game may affect behavior in subsequent games, even if all parameters (including endowments) are held constant. Another co-authored paper on the cusp of submission examines the effect of heterogeneity in endowments and investment returns on behavior in a best-shot public goods game. Obtaining a better measure of willingness-to-pay for improvements in fuel economy, calculating the optimal pricing over the

course of a day for fuel stations based on traffic flow, modeling the optimal timing of transition from one energy source to another, examining the effects of fuel taxes on business activity, determining the applications of research tournaments to the development of new energy resources, and studying the incentives to engage in strategic voting in political primaries are a subset of my remaining research agenda.

I have a strong background in computer science and am able to use software packages to run econometric models (Stata, SAS), numerical simulations (MATLAB, Maple), write computerized economic experiments (Z-Tree), and build and manage an automated database of student subjects (ORSEE, Linux, PHP, MySQL). The use of experiments to test economic theory in a controlled setting provides an excellent opportunity for fostering student involvement in my research, and gives me a toolset that will be useful to other researchers wishing to use experimental data in their own work. I am a strong believer in the gains from trade, and actively seek out others to collaborate with on research.