**Economic Theory and Experimental Economics:**
**Confronting Theory with Experimental Data and vice versa**

**Hong Kong University of Science and Technology**
**December 2013**

**Course Description**

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## Location and time

Dec 12 09:00-12:50 LSK #G007
Dec 13 08:30-12:20 LSK #G007
Dec 13 14:00-15:20 LSK#1034
Dec 16 09:00-12:50 LSK #G007

## Course syllabus

In combining theory and experiments, we should have two objectives in mind. The first objective is to confront the theory with some data to see whether the theory is at all consistent with the behavior exhibited in the laboratory. Clearly, there is much that can be learned about the theory from the data, quite apart from any notion of "testing" the theory. We hope to learn whether the theory is useful in interpreting the data, of course, but we also expect to find out what extensions of the theory are required to make it compatible with the data.

The second objective is to confront the data with the theory. A theoretical framework is needed for two reasons. First, the data set generated by experiments can be extremely rich and the behavior predicted by the theory is sometimes complex and subtle. Any attempt to explain rich datasets in purely "behavioral" terms would require a large number ad hoc assumptions, which would render the "explanation" rather uninformative. The second reason is that, without a theoretical framework, it is impossible to draw general conclusions that go beyond the particular setting of the experiment.

The course will consist of three segments:

## I. Risk preferences

Uncertainty is endemic in a wide variety of economic circumstances so models of decision making under uncertainty play a key role in every field of economics. The standard model of decisions under uncertainty is based on von Neumann and Morgenstern (1947) Expected Utility Theory (EUT), so it is natural that experimentalists should want to test the empirical validity of the Savage (1954)

axioms on which EUT is based. Empirical violations of EUT provoke intriguing questions about the rationality of individual behavior and, at the same time, raise criticisms about the status of the Savage axioms as the touchstone of rationality. These criticisms have resulted in the development of various theoretical alternatives to EUT, and the investigation of these theories has led to new empirical regularities in the laboratory. Developing appropriate methods for appropriately confronting the theory of choice under risk (known probabilities) and ambiguity (unknown probabilities) with experimental evidence will have implications in many areas of economic theory and policy.

Readings

1. Ahn, D., S. Choi, D. Gale and S. Kariv (2013) "Estimating Ambiguity Aversion in a Portfolio Choice Experiment." Forthcoming *Quantitative Economics*.

2. Choi, S., R. Fisman, D. Gale and S. Kariv (2007) "Revealing Preferences Graphically: An Old Method Gets a New Tool Kit." *American Economic Review Papers & Proceedings* **97**, pp. 153-158.

3. Choi, S., R. Fisman, D. Gale and S. Kariv (2007) "Consistency and Heterogeneity of Individual Behavior under Uncertainty." *American Economic Review* **97**, pp. 1921-1938.

4. Choi, S., S. Kariv, W. Müller and D. Silverman (2013) "Who is (More) Rational?" Forthcoming *American Economic Review*.

Other readings

1. Camerer, C. (1995) "Individual Decision Making," in *Handbook of Experimental Economics*. J. Kagel and A. Roth, eds. Princeton U. Press.

2. Halevy, Y. (2007) "Ellsberg Revisited: An Experimental Study." *Econometrica* **75**, pp. 503-536.

3. Harless, D. and C. Camerer (1994) "The Predictive Utility of Generalized Expected Utility Theories." *Econometrica* **62**, pp. 1251-1289.

4. Hey, J. and C. Orme (1994) "Investigating Generalizations of Expected Utility Theory Using Experimental Data." *Econometrica* **62**, pp. 1291-1326.

5. Holt, C. and S. Laury (2002) "Risk Aversion and Incentive Effects." *American Economic Review* **92**, pp. 1644-1655.

6. Starmer, C. (2000) "Developments in Non-Expected Utility Theory: The Hunt for a descriptive Theory of Choice under Risk." *Journal of Economic Literature* **38**, pp. 332-382.

## II. Social preferences

Many complex social and economic behaviors invoke social preferences. Obvious examples include charitable giving, negotiations, cooperation, taxation, neighborhood effects, social learning, social capital, development, and globalization, among others. In all of these cases, understanding behavior requires understanding the distributional preferences that lie behind it. A theoretical and empirical analysis of these preferences therefore has implications not just for economic policy but also for policy in a host of other areas. Moreover, social preferences implicate many disciplines, ranging from economics, through philosophy, and even law. The techniques and intellectual frameworks of all these disciplines must be brought to bear in order properly to understand such preferences. Economic theory raises intriguing questions about the rationality of social preferences. Insofar as social preferences are rational, then the techniques of economic analysis may be brought to bear on modeling and predicting behavior governed by these preferences.

Readings

1. Fisman, R., P. Jakiela and S. Kariv (2103) "How Did Distributional Preferences Change During the Great Recession?"

2. Fisman, R., S. Kariv and D. Markovits (2007) "Individual Preferences for Giving." *American Economic Review* **97**, pp. 1858-1876.

3. Kariv, S. and W. Zame (2008) "Piercing the Veil of Ignorance."

Other readings

1. Andreoni, J. and J. Miller (2002) "Giving According to GARP: An Experimental Test of the Consistency of Preferences for Altruism." *Econometrica* **70**, pp. 737-753

2. Camerer, C. (2003) "Behavioral Game Theory: Experiments in Strategic Interaction." Princeton University Press (Ch. 2).

3. Charness, G. and M. Rabin (2002) "Understanding Social Preferences with Simple Tests." *Quarterly Journal of Economics* **117**, pp. 817-869.


## III. Social and economic network

Networks are natural tools for understanding complex social and economic phenomena such as technology diffusion, neighborhood effects, financial crises and contagion, and social learning, among others. For example, apart from centralized exchanges such as the NYSE, most financial transactions take place in networks where one or more intermediaries link the initial seller and final buyer. Financial networks, which are crucial for the allocation of resources in society, are a natural example to study, but the lessons we can learn have wider

applications because the model of financial networks has many basic elements in common with any model of exchange, whether the commodities are real or financial. The goal is to identify the impact of network architecture on the efficiency and dynamics of economic outcomes. Moreover, policy decisions by firms and governments will be improved by the theoretical and empirical analysis of networks. The study of networks also has applications beyond economics.

Readings

1. Gale, D. and S. Kariv (2004) "Bayesian Learning in Social Networks." *Games and Economic Behavior* **45**, pp. 329-346.

2. Gale, D. and S. Kariv (2007) "Financial Networks." *American Economic Review Papers & Proceedings* **97**, pp. 99-103.

3. Gale, D. and S. Kariv (2009) "Trading in Networks: A Normal Form Game Experiment." *American Economic Journal: Microeconomics* **1**, pp. 114-132.

Other readings

1. Bala, V. and S. Goyal (1998) "Learning from Neighbors," *Review of Economic Studies* **65**, pp. 595-621.

2. Jackson, M. (2008). *Social and Economic Networks.* Princeton University Press.

3. Kranton, R. and D. Minehart (2001) "A Theory of Buyer-Seller Networks." *American Economic Review* **91**, pp. 485-508.