ECON 87: HOW TO TAKE RISKS

Fall 2009

Professor Mark Machina Office: Econ. Bldg. 217 Office Hours: Wed 8am-noon

Seminar days (Tuesdays & Thursdays): September 24, 29, October 1, 6, 8, 13, 15, 20, 22, 27

Section A: 8:00-8:50 in Sequoyah 244 Section B: 9:00-9:50 in Sequoyah 244

This seminar will discuss how one should formulate risky choices, make intelligent decisions in the face of uncertainty, and avoid common pitfalls. We will also compare and contrast the economic and the psychological theories of risky choice.

List of Topics

I. Introduction: How To Represent Uncertainty

II. Simple Criteria for Choice under Objective Uncertainty

III. Expected Utility Preferences over Objective Lotteries

IV. Attitudes Toward Risk and the Shape of the Utility Function

V. Comparative Risk Aversion

VI. Increasing Risk

VII. Risk Preferences and Beliefs under Subjective Uncertainty

VIII. Demand for Insurance

IX. Evidence on the Underlying Assumptions of the Model

X. Alternative Models of Risk Preferences and Beliefs

READINGS AND PRACTICE PROBLEMS: I will distribute custom-designed hand-outs and practice problems throughout the course.

EXAMS: The course is Pass/No Pass. There will be a Midterm and a Final Exam.

ECON 87: HOW TO TAKE RISKS

I. INTRODUCTION: HOW TO REPRESENT UNCERTAINTY

a. Objective Uncertainty

Probabilities and Objective Lotteries
Compound Lotteries and Probability Mixtures

b. Subjective Uncertainty

States of Nature and Subjective Events
Subjective Bets

II. SIMPLE CRITERIA FOR CHOICE UNDER OBJECTIVE UNCERTAINTY

a. Stochastic Dominance

b. Expected Value and the St. Petersburg Paradox

c. Mean-Variance

d. Minimax and Minimax Regret

e. The "Safety-First" Principle

III. EXPECTED UTILITY PREFERENCES OVER OBJECTIVE LOTTERIES

a. Utility Functions and Expected Utility

b. Properties of Expected Utility Risk Preferences

Mixture Continuity
The Independence Axiom
Rationality and Dynamic Consistency

c. Assessing a Person's Utility Function

IV. ATTITUDES TOWARD RISK AND THE SHAPE OF THE UTILITY FUNCTION

a. Basic Concepts

Certainty Equivalents
Risk Premiums
Attitudes toward Risk

b. Field Evidence

Friedman-Savage Hypothesis
Skewness Preference
Risk Aversion and Wealth

V. COMPARATIVE RISK AVERSION

a. Arrow-Pratt Measure of Risk Aversion

b. How Risk Attitudes Vary with Wealth

VI. INCREASING RISK

a. Mean-Preserving Spreads

b. Shifting Cumulative Distribution Functions

c. Addition of a Random Variable

d. Unanimous Agreement of all Risk Averters

VII. RISK PREFERENCES AND BELIEFS UNDER SUBJECTIVE UNCERTAINTY

a. **States of Nature and Subjective Bets**

b. **Subjective Probability and Subjective Expected Utility**

c. **The Hirshleifer-Yaari Diagram**

d. **Assessing Subjective Probabilities**

e. **State-Dependent Preferences**

VIII. DEMAND FOR INSURANCE

a. **Demand for Coinsurance**

b. **Demand for Deductible Insurance**

c. **Markets for Insurance**

IX. EVIDENCE ON THE UNDERLYING ASSUMPTIONS OF THE MODEL

a. **Evidence on the Independence Axiom**
   The Allais Paradox
   The Common Consequence Effect
   The Common Ratio Effect

b. **Evidence on the Existence and Use of Subjective Probabilities**
   The Ellsberg Paradox
   Newcombe's Paradox

c. **Reference Point Effects**

d. **Framing Effects**

X. ALTERNATIVE MODELS OF RISK PREFERENCES AND BELIEFS

a. **Prospect Theory**

b. **Rank-Dependent Expected Utility**

c. **Regret Theory**

d. **Non-Additive Subjective Probability**