

ECON 87: HOW TO TAKE RISKS

Winter 2010

Professor Mark Machina

Office: Econ. Bldg. 217

Office Hours: Wed 8am-noon

Wednesdays Section A: 12:00-12:50 B: 1:00-2:50 C: 2:00-2:50 Sequoyah Hall 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**