

ECON 87: HOW TO TAKE RISKS

Winter 2004

Tues. 8:00-9:50am
January 6, 13, 20, 27, February
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Sequoyah 244

Professor Mark
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Economics Bldg. 217

Office Hours: Thur. 8-
11,1-2

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. Risk Preferences under Objective Uncertainty
- IV. Risk and Risk Aversion
- V. Risk Preferences and Beliefs under Subjective Uncertainty
- VI. "Almost-Objective" Uncertainty
- VII. Assessing Risk Preferences and Beliefs
- VIII. Evidence on the Shape of the Utility Function
- IX. Evidence on the Underlying Assumptions of the Model
- X. Non-Expected Utility Models of Risk Preferences

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

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

ECON 87 COURSE OUTLINE – Winter 2004

I. INTRODUCTION: HOW TO REPRESENT UNCERTAINTY

a. Objective Uncertainty

Probabilities and Objective Lotteries
Convolutions of Lotteries
Compound Lotteries
Probability Mixtures of Lotteries

b. Subjective Uncertainty

States of Nature and Events
Subjective Acts
Splicing of Subjective Acts

II. SIMPLE CRITERIA FOR CHOICE UNDER OBJECTIVE UNCERTAINTY

a. First Order Stochastic Dominance Preference

b. Expected Value Criterion and the St. Petersburg Paradox

c. Mean-Variance Criterion

d. Minimax and Minimax Regret Criteria

e. “Safety-First” Criteria

III. RISK PREFERENCES UNDER OBJECTIVE UNCERTAINTY

a. Preferences over Objective Lotteries and von Neumann-Morgenstern Utility Functions

b. Properties of Expected Utility Preferences over Objective Lotteries

Completeness and Transitivity
Mixture Continuity
The Independence Axiom
Expected Utility Representation Theorem

c. The Triangle Diagram

IV. RISK AND RISK AVERSION

a. Basic Concepts

Certainty Equivalents
Risk Premiums
Attitudes Toward Risk

b. The Arrow-Pratt Measure of Risk Aversion

Comparative Risk Aversion
Risk Aversion and Wealth

c. Increasing Risk

First Order Stochastic Dominance
Mean-Preserving Spreads and Increasing Risk
Second Order Stochastic Dominance

V. RISK PREFERENCES AND BELIEFS UNDER SUBJECTIVE UNCERTAINTY

a. Preferences over Subjective Acts, von Neumann-Morgenstern Utility Functions, and Subjective Probabilities

b. Properties of Expected Utility Preferences over Subjective Acts

Completeness and Transitivity
Statewise/Eventwise Monotonicity
Weak Comparative Probability
Sure-Thing Principle (Separability across Events)

c. The Hirshleifer-Yaari Diagram

Certainty Line, Fair-Odds Lines and Indifference Curves
Marginal Rates of Substitution
Risk Neutrality and Risk Aversion in the Hirshleifer-Yaari Diagram
Uncovering Beliefs from Indifference Curves

d. Beliefs and the Hypothesis of Probabilistic Sophistication

“Separation of Preferences and Beliefs”
The Hypothesis of Probabilistic Sophistication
The Comparative Likelihood Relation

e. State-Dependent Preferences

Motivation, Examples, and Applications
Violation of Probabilistic Sophistication and Indeterminacy of Beliefs

VI. “ALMOST-OBJECTIVE” UNCERTAINTY

a. Properties of “Purely Objective” vs. “Purely Subjective” Events

b. Almost-Objective Events, Acts and Mixtures

Construction and Revealed Likelihood Properties of Almost-Objective Events
Preferences over Almost-Objective Acts and Mixtures
Why Don't We See Almost-Objective Securities?
“Objective vs. Subjective Events” rather than “Objective vs. Subjective Processes”

VII. ASSESSING RISK PREFERENCES AND BELIEFS

a. Methodological Issues and Basic Techniques

Verbal versus Choice-Based Elicitation
Elicitation of Truthful Responses
Income Effects

b. Assessing von Neumann-Morgenstern Utility Functions

Univariate Assessment Methods
Recovery from Asset Demand Functions
Multivariate Assessment Methods

c. Assessing Subjective Probabilities

Betting Odds and “Coherence”
Scoring Rules

VIII. EVIDENCE ON THE SHAPE OF THE UTILITY FUNCTION

a. Laboratory Evidence

Typical Findings
“Biases” in Utility Assessment

b. Field Evidence

Friedman-Savage Hypothesis
Skewness Preference, Decreasing Absolute/Increasing Relative
Risk Aversion
Estimates of the Magnitude of Risk Aversion

c. Asymptotic Properties of the Utility Function

IX. EVIDENCE ON THE UNDERLYING ASSUMPTIONS OF THE MODEL

a. Evidence on the Independence Axiom

“Allais Paradox” and the Common Consequence Effect
Common Ratio Effect
Oversensitivity to Changes in the Probabilities of Low
Probability Events
Utility Evaluation Effect
Evidence on Betweenness

b. Evidence on Transitivity

Threshold and Cyclic Effects

c. Evidence on the Stability of Preferences

Invariance of Risk Preferences to Initial Wealth
Framing Effects
Response Mode Effects and the Preference Reversal
Phenomenon

d. Evidence on the Existence and Use of Subjective Probabilities

Heuristics in the Manipulation of Probabilities
The Ellsberg Paradox
Newcombe’s Paradox

e. Validity of the Evidence: Objections and Responses

- f. Theoretically Induced Violations of Expected Utility**
 - Preferences over Delayed-Resolution Risks
 - Group Risk Preferences

X. NON-EXPECTED UTILITY MODELS OF RISK PREFERENCES

- a. Prospect Theory**
- b. Rank-Dependent Expected Utility**
- c. Regret Theory**
- d. Dynamic Arguments Against Non-Expected Utility Preferences**
 - Argument that Non-Expected Utility Preferences are “Dynamic: Inconsistent”
 - “Making Book” Argument against Non-Expected Utility Preferences
 - The Hidden Assumption in these Arguments: Consequentialism
- e. Probabilistically Sophisticated Non-Expected Utility Maximizers**