UNIVERSITÀ DEGLI STUDI DI MILANO

UNIVERSITÀ DI PAVIA

Ph.D. in ECONOMICS – Universities of Milan and Pavia

Choice Under Risk

Academic year 2025-26 – Second Term

Antonio Filippin, University of Milan
Office: Department of Economics Management and Quantitative Methods, Room 23
Via Conservatorio 7, Milan
Tel +39 02 503 21536
E-mail: antonio.filippin@unimi.it
Office hours: by appointment

Course description:
This course provides an in-depth exploration of decision-making under risk, bridging theoretical, experimental, and behavioral perspectives. It begins with the foundations of Expected Utility Theory and its axiomatic basis, before addressing classic experimental violations such as the Allais paradox and Rabin's calibration theorem. The course then reviews models that enhance descriptive accuracy, including Rank-Dependent Utility and Prospect Theory. The course will then review the empirical challenges of measuring individual risk preferences (the so-called risk elicitation puzzle). The final part of the course introduces two frontier approaches: cognitive imprecision, which attributes observed behavior to noisy cognition rather than preferences, and a new framework aiming to reconcile economists' definition of risk with the subjective perception by decision-makers.

Learning objectives

At the end of the course the students are expected to have acquired the tools necessary to:

- Understand the theoretical foundations of decision-making models under risk.
- Critically assess empirical evidence on the measurement of risk preferences.
- Engage with current theoretical developments that refine the notion of risk preferences

Learning Outcomes

At the end of the course the students should be able to:

- Formally derive and compare the predictions of classical and behavioral models of risk.
- Design and critically evaluate experiments on individual decision-making under risk.
- Understand the recent debate on the nature of risk preferences and whether they play a genuine role.

UNIVERSITÀ DEGLI STUDI DI MILANO

UNIVERSITÀ DI PAVIA

Course prerequisites
Basic principles of Microeconomics; Utility maximization.

Course organization: 20 hours of lectures

Course Assessment:
Written exam

Syllabus

1. Foundations of Choice under Risk; Expected Utility Theory (EUT)
2. Empirical Challenges to EUT
3. Beyond EUT: Rank-Dependent Utility; Prospect Theory
4. Measuring Risk Preferences
5. The risk elicitation puzzle
6. Cognitive imprecision models
7. Different representations of risk

References

- Mas-Colell, A., Whinston, M. D., & Green, J. R. (1995). Microeconomic Theory. New York: Oxford University Press. Chapter 6 – Choice under Uncertainty.
- Tversky, A., & Kahneman, D. (1992). Advances in Prospect Theory: Cumulative Representation of Uncertainty. Journal of Risk and Uncertainty, 5(4), 297–323
- Quiggin J. (1982) A theory of anticipated utility. John Quiggin. Journal of Economic Behavior & Organization, 1982, vol. 3, issue 4, 323-343.
- Crosetto, P., & Filippin, A. (2016). A theoretical and experimental appraisal of four risk elicitation methods. Experimental Economics, 19(3), 613-641
- Khaw, M. W., Li, Z., & Woodford, M. (2021). Cognitive imprecision and small-stakes risk aversion. The Review of Economic Studies, 88(4), 1979–2013.
- Lecture notes and additional readings specified during the course