

Game Theory. Program

International Doctorate in Economic Analysis (IDEA)

Universitat Autònoma de Barcelona (UAB)

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0 Choice under Uncertainty

- 0.1.- Choice under Certainty
- 0.2.- Basic Lotteries
- 0.3.- Composed Lotteries
- 0.4.- Preferences on Risky Alternatives
- 0.5.- Expected Utility Property
- 0.6.- Expected Utility Theorem: Discussion
- 0.7.- Monetary Lotteries
- 0.8.- Risk Aversion

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1 Introduction to Game Theory and Some Examples

- 1.1.- Aim of Game Theory
- 1.2.- Decision Theory (one agent)
- 1.3.- Decision Theory (two players): Game Theory
- 1.4.- History of Game Theory
- 1.5.- Non-cooperative *versus* Cooperative Games
- 1.6.- Examples

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2 Games in Normal Form

- 2.1.- Definition and Examples
- 2.2.- Nash Equilibrium
- 2.3.- Interpretation of Nash Equilibrium
- 2.4.- The Mixed Extension
- 2.5.- Computing Nash Equilibria
- 2.6.- General Existence Theorem
- 2.7.- Two-person Zero-sum Games: The Minimax Theorem
- 2.8.- Fictitious Play

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3 Games in Extensive Form

3.1.- Preliminaries

3.2.- Perfect Information

3.3.- Nash Equilibrium: Backwards Induction and Kuhn’s Theorem

3.4.- Imperfect Information

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4 Nash Equilibrium and Related Issues

- 4.1.- Introduction
- 4.2.- Dominant Strategies
- 4.3.- Elimination of Dominated Strategies
- 4.4.- Subgame Perfect Equilibrium
- 4.5.- Trembling-hand Perfect Equilibrium
- 4.6.- Perfect Equilibrium in the Normal Form
- 4.7.- Perfect Equilibrium and Undominated Strategies
- 4.8.- Proper Equilibrium
- 4.9.- Correlated Equilibrium

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5 Repeated Games

5.1.- Introduction

5.2.- Strategies

5.3.- Payoffs

5.4.- "Folk" Theorems

5.5.- Stochastic Games

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6 Games of Incomplete Information

- 6.1.- The Harsanyi Solution
- 6.2.- Bayesian-Nash Equilibrium
- 6.3.- Sequential Equilibrium
- 6.4.- Using Bayesian-Nash Equilibria to Justify Mixed Equilibria
- 6.5.- Signalling Games and Forward Induction

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7 Bargaining Theory

- 7.1.- Bargaining Theory
- 7.2.- The Bargaining Problem
- 7.3.- The Nash Bargaining Solution
- 7.4.- The Kalai-Smorodinsky Solution
- 7.5.- Strategic Bargaining

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8 Cooperative Games

- 8.1.- Preliminaries.
- 8.2.- Core
- 8.3.- Stable Sets
- 8.4.- Bargaining Sets
- 8.5.- Shapley Value
- 8.6.- Nucleolus

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