EC941 - Game Theory

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What is Game Theory?

- Game Theory is the study of strategic interactions involving 2 or more agents.
- Each agent maximizes their payoff taking into account their opponent's strategic responses.
- Game theory has many real life applications ranging from economics to politics, to biology and computer science.

Syllabus

1. Games in Strategic Form

Definition and Solution Concepts

Applications

Readings: Chapter 2, 3, 12

2. Mixed Strategies

Nash Equilibrium and Rationalizability

Correlated Equilibrium

Readings: Chapter 4

3. Bayesian Games

Definition

Information and Bayesian Games

Cournot Duopoly and Public Good Provision

Readings: Sections 9.1 to 9.6

4. Bayesian Game Applications

Juries and Information Aggregation

Auctions with Private Information

Readings: Sections 9.7 to 9.8

5. Extensive-Form Games

   Definition

   Subgame Perfection and Backward Induction

   Applications

   Readings: Chapters 5, 6 and 7

6. Extensive-Form Games with Imperfect Information

   Definition

   Spence Signalling Game

   Crawford and Sobel Cheap Talk

   Readings: Chapter 10

7. Repeated Games

   Infinitely Repeated Games

   Nash and Subgame-Perfect Equilibrium

   Finitely Repeated Games

   Readings: Chapter 14 and 15

8. Bargaining

   Ultimatum Game and Hold Up Problem

   Rubinstein Alternating Offer Bargaining

   Nash Axiomatic Bargaining

   Readings: Section 6.2 and Chapter 16

9. Review Session

Solution of Past Exam Questions

Reference: *An Introduction to Game Theory*

Martin J. Osborne, Oxford University Press, 2003.

Assessment: Final Exam (100% of the grade)

Structure of the Lecture

- Definition of Games in Strategic Form.

- Solution Concepts
  Nash Equilibrium, Dominance and Rationalizability.

- Applications
  Cournot Oligopoly, Bertrand Duopoly, Downsian
  Electoral Competition, Vickrey Second Price Auction.