1 Social choice

1.1 aggregating preferences and Arrow's theorem

- prerequisites economics: preferences (completeness, transitivity)

- Voting, Condorcet paradox, Borda count

- properties of Arrows' theorem

- Arrow's impossibility theorem

- reading: Jehle and Reny (2011) ch. 6.1-6.2

1.2 domain restrictions and cardinal utility

- prerequisites economics: Leontief preferences, representation of preferences by a utility function, utility functions

- prerequisites mathematics: maximization subject to equality constraint; continuity, monotonicity, linearity and concavity of real functions

- domain restrictions: single peaked preferences

- cardinal utility: utilitarianism, Rawls

- Outlook: manipulability and Gibbard Satterthwaite theorem

- reading: Jehle and Reny (2011) ch. 6.3-6.5

2 Markets

2.1 Markets and general equilibrium

- prerequisites economics: consumer problem (utility maximizing consumption choice subject to budget constraint), marginal rate of substitution

- prerequisites mathematics: theorem of the maximum, Weierstrass extreme value theorem, quasi-concavity of real functions, compactness of a set

- first fundamental theorem of welfare economics

- Edgeworth box

- policies in the light of the fundamental theorems of welfare economics

- reading Hayek (1945), Jehle and Reny (2011) ch. 5.1-5.2

3   Static Bayesian games and auctions

3.1   Decision making under uncertainty

- prerequisites maths: discrete probability distributions, expected value of a discrete random variable, concavity and convexity of real functions

- expected utility theorem

- risk preferences

- reading: Mas-Colell et al. (1995) ch. 6.A-6.C (or Jehle and Reny (2011) ch. 2.4)

3.2   BNE

1. Examples and definition

    - prerequisites economics: static games of complete information, mixed strategies, Nash equilibrium
    - prerequisites maths: probability distributions (discrete and continuous), expected value of continuous random variables
    - Bayes' rule, Venn diagram
    - examples for tests/signals and belief updating
    - games of incomplete information
    - Bayesian Nash equilibrium
    - binary public good game

3.3   Auctions

1. IPV setup and auctions

    - prerequisites maths: inverse functions and their derivative, linear differential equation of first order
    - relevance of auctions
    - 4 standard auctions

- symmetric, strictly increasing equilibrium in first price auction with uniformly distributed values
- Vickrey auction
- reading: ch.1 section 1.1 Klemperer (2004), ch. 9.1 and 9.2 in Jehle and Reny (2011)

2. Revenue equivalence theorem

- envelope theorem
- using revenue equivalence to solve for equilibria in auctions (e.g. all pay auction)
- Appendix 1.A of ch.1 in Klemperer (2004) (or ch. 9.3 in Jehle and Reny (2011))

3. auction design

- robustness to collusion vs. robustness to informational assumptions
- good auction design: stimulate entry and fight collusion
- knock out auction as collusive device
- example behavioral bidding (embarrassment from overbidding)
- risk aversion
- (almost) common value auction

4. Market power and markets as auctions

- revenue maximization by reserve price -> inefficiency due to market power
- double auction with many bidders: almost efficient mechanism in dominant strategies

3.4 Adverse selection

- asymmetric info can create market incompleteness
- countermeasures to complete the market
- reading: p.115-122 in Einav and Finkelstein (2011), Akerlof (1970)

4 Dynamic Bayesian games

4.1 wPBE

- prerequisites game theory: game trees, subgame perfect Nash equilibrium
- definition, simple discrete examples (market entry games)
- examples of Coasian dynamics and behavior based price discrimination

4.2 Signaling

- discrete signaling
- job market signaling
- simple refinement
- effect of taxes

5 tba

6 Bibliography

References

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