

106: TOPICS IN ECONOMIC THEORY, 2018

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Course Outline

This course will introduce 3 topics at a postgraduate level, all pertaining to dynamic models.

A Quick Summary.

1. Introduction to Dynamic Programming (4-5 weeks)

- Metric Spaces; Contraction Mapping Theorem; Correspondences; Theorem of the Maximum; Blackwell's conditions for a Contraction.
- Deterministic (mostly) Dynamic Programming and quick textbook applications from job search, theory of investment, growth etc.

Readings:

- Stokey and Lucas (1989), parts of chapters 3,4,5.
- Lecture notes

2. Repeated Games and Applications (6-7 weeks)

- Repeated Games with Perfect and Imperfect Monitoring.
- Applications to repeated moral hazard (and adverse selection) in 2 or 3 contexts: collusive repeated oligopoly, relational labour contracts, etc.

Readings:

- Mailath and Samuelson (2006): Chapters 2, parts of Chapters 6,7,14.
- Papers.

3. Behavioral Models of Time Discounting and Applications (4 weeks)

- Some evidence of time inconsistency. Hyperbolic Discounting model. Dual-self model.

- Applications: consumption-saving choices. Behavioral industrial organization – possibly, what contracts firms can design for consumers who lack self-control or procrastinate.

Readings:

- Dhami (2016): Selected pages from Part III.
- Papers.

Discussion

Dynamic Programming is particularly useful in infinite horizon models with stochastic elements such as productivity shocks. It is used a lot in macroeconomics, both for decision-making problems of individuals and firms, and for social planner problems in contexts where the social planner's optimum can be a decentralized competitive equilibrium. However, a 'generalization' originally due to Abreu, Pearce and Stacchetti (1990) is used a lot to study repeated games. Modules 1 and 2 look at some of this stuff and some applications.

The third module has topics from behavioral economics. We want to think about decision-making where agents may have problems of self-control, procrastination etc. The field of Behavioral industrial organization studies firm behavior when consumers have these problems.

Prerequisites: 002, 005.

A number of papers are listed, and some of them get very technical. Unlike in 2017, this year we won't have time to introduce the technical stuff from more advanced real analysis, such as measure theory and integration, convergence results etc. So, we will discuss the ideas in simpler settings. For example, in repeated games with imperfect monitoring, our signal space will be finite. Also, we will do a small subset of the papers (mostly, for the behavioral economics part), relying on the textbooks for the rest. If you want to work through the more technical papers, you will need to pick up some more machinery.

Books:

- [1] Nancy Stokey, Robert Lucas with Ed Prescott (1989): Recursive Methods in Economic Dynamics.
- [2] George Mailath and Larry Samuelson (2006): Repeated Games and Reputations.
- [3] Sanjit Dhami (2016): The Foundations of Behavioral Economic Analysis.

Papers:

- [1] Abreu (1988): On the theory of infinitely repeated games with discounting (Econometrica)
- [2] Abreu, Pearce and Stacchetti (1990): Toward a theory of discounted repeated games with imperfect monitoring (Econometrica)
- [3] Levin (2003): Relational incentive contracts (AER)
- [4] Athey, Bagwell and Sanchirico (2004): Collusion and price rigidity (REStud)
- [5] Greif (1993): Contract Enforceability and Economic Institutions (JPE)
- [6] Dellavigna and Malmendier (2004): Contract design and self-control: Theory and Evidence (QJE)
- [7] Dellavigna and Malmendier (2006): Paying not to go to the gym (AER)
- [8] Laibson (1997): Golden Eggs and Hyperbolic Discounting (QJE)
- [9] O'Donoghue and Rabin (2001): Choice and Procrastination (QJE)
- [10] Fudenberg and Levine (2006): A Dual Self Model of Impulse Control (Econometrica)