California Institute of Technology
Foundations of Political Economy
SS210c

TTh 2:30-4:00
210 Baxter

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Spring, 2003

Dynamic Models in Political Economy

The focus of this course is dynamic models, especially as they pertain to political economy. The course will consist of a mix of lectures and student presentations of papers from the following list.

We won't be going over dynamic programming explicitly, but it is implicit in a lot of what we'll be doing. Here are a few references.

Dynamic Programming

- R. Sundaram (1996) *A First Course in Optimization Theory,* New York: Cambridge Press.
- N. Stokey and R. Lucas (1989) *Recursive Methods in Economic Dynamics,* Cambridge: Harvard Press.
- D. Blackwell (1965) "Discounted Dynamic Programming," *Annals of Mathematical Statistics,* 36: 226-235.

Our first topic is sequential voting. When more than two alternatives are involved, votes are scheduled according to an "agenda."

Sequential Voting and Binary Agendas

- R. Farquharson (1969) *The Theory of Voting,* New Haven: Yale University Press.
- R. McKelvey and R. Niemi (1978) "A Multistage Game Representation of Sophisticated Voting for Binary Procedures," *Journal of Economic Theory,* 18: 1-22.
- H. Moulin (1979) "Dominance Solvable Voting Schemes," *Econometrica,* 47: 1337-1351.

- H. Moulin (1983) *The Strategy of Social Choice,* New York: North-Holland.

- K. Shepsle and B. Weingast (1984) "Uncovered Sets and Sophisticated Voting Outcomes with Implications for Agenda Institutions," *American Journal of Political Science,* 28: 49-74.

- J. Banks (1985) "Sophisticated Voting Outcomes and Agenda Control," *Social Choice and Welfare,* 1: 295-306.

- H. Moulin (1986) "Choosing from a Tournament," *Social Choice and Welfare,* 3: 271-291

- P. Ordeshook and T. Schwartz (1987) "Agendas and the Control of Political Outcomes," *American Political Science Review,* 81: 179-199.

- J. Banks and Bordes (1988) "Voting Games, Indifference, and Consistent Sequential Choice Rules," *Social Choice and Welfare,* 5: 31-44.

- L. Marx and J. Swinkels (1997) "Order Independence for Iterated Weak Dominance," *Games and Economic Behavior,* 18: 219-245; (2000) "Corrigendum," *GEB,* 31: 324-329.

We'll also think about what happens when we endogenize the agenda. As you might expect, things get more complicated.

Endogenous Agendas

- J. Banks and F. Gasmi (1986) "Endogenous Agenda Formation in Three Person Committees," *Social Choice and Welfare,* 4: 133-152.

- D. Austen-Smith (1987) "Sophisticated Sincerity: Voting Over Endogenous Agendas," *American Political Science Reveiw,* 81: 1323-1330.

- J. Duggan (2002) "Endogenous Amendment Agendas," mimeo.

- B. Dutta, M. Jackson, and M. Le Breton (2002) "Equilibrium Agenda Formation," mimeo.

- J. Ferejohn, M. Fiorina, and R. McKelvey (1987) "Sophisticated Voting and Agenda Independence in the Distributive Setting," *American Journal of Political Science,* 31: 169-194.

- G. Kramer (1972) "Sophisticated Voting over Multidimensional Choice Spaces," *Journal of Mathematical Sociology,* 2: 165-180.

We next consider a different way to model collective choice when more than two alternatives are available. Now the "agenda," so to speak, is determined by a voter, the "proposer," and the game is infinite-horizon.

Bargaining Models with Random Proposers

- D. Baron and J. Ferejohn (1989) "Bargaining in Legislatures," *American Political Science Review,* 83: 1181-1206
- A. Merlo and C. Wilson (1995) "A Stochastic Model of Sequential Bargaining with Complete Information," *Econometrica,* 63: 371-399.
- A. Okada (1996) "A Noncooperative Coalitional Bargaining Game with Random Proposers," *Games and Economic Behavior,* 16: 97-108.
- J. Banks and J. Duggan (2000) "A Bargaining Model of Collective Choice," *American Political Science Review,* 94: 73-88.
- J. Banks and J. Duggan (2003) "A Bargaining Model of Legislative Policy-making," mimeo.
- M. Jackson and B. Moselle (2002) "Coalition and Party Formation in a Legislative Voting Game," *Journal of Economic Theory,* 103: 49-87.
- H. Eraslan (2002) "Uniqueness of Stationary Equilibrium Payoffs in the Baron-Ferejohn Model," *Journal of Economic Theory,* 103: 11-30.
- S.-J. Cho and J. Duggan (2002) "Uniqueness of Stationary Equilibria in a One-dimensional Model of Bargaining," *Journal of Economic Theory,* forthcoming.
- A. Gomes and P. Jehiel (2001) "Dynamic Processes of Social and Economic Interactions: On the Persistence of Inefficiencies," mimeo.

Some bargaining models don't fit all that well with the ones above.

Bargaining Models with Other Protocols

- A. Rubinstein (1982) "Perfect Equilibrium in a Bargaining Model," *Econometrica,* 50: 97-109.

- B. Moldovanu and E. Winter (1995) "Order Independent Equilibria," *Games and Economic Behavior,* 9: 21-34.

- E. Winter (1997) "Negotiations in Multi-issue Committees," *Journal of Public Economics,* 65: 323-342.

- H. Konishi and D. Ray (2002) "Coalition Formation as a Dynamic Process," *Journal of Economic Theory,* forthcoming.

- D. Bernheim, A. Rangel, and L. Rayo (2002) "Democratic Policy Making with Real-Time Agenda Setting, Part 1," mimeo.

In the above models, bargaining results in a once-and-for-all outcome. What happens when, after an agreement, bargaining continues indefinitely? There has been a bit of work on this.

Bargaining with an Endogenous Status Quo

- T. Romer and H. Rosenthal (1978) "Political Resource Allocation, Controlled Agendas, and the Status Quo," *Public Choice,* 33: 27-44.

- D. Baron (1996) "A Dynamic Theory of Collective Goods Programs," *American Political Science Review,* 90: 316-330.

- D. Epple and M. Riordan (1987) "Cooperation and Punishment Under Repeated Majority Voting," *Public Choice,* 51: 41-73.

- A. Kalandrakis (2003) "A Three-Player Dynamic Majoritarian Bargaining Game," mimeo.

Finally, a recent paper applies dynamic modeling techniques in the social choice framework.

Dynamic Social Choice

- D. Bernheim and S. Nataraj (2002) "A Solution Concept for Majority Rule in Dynamic Settings," mimeo.

I also list a number of papers in pure game theory. These are to serve as references — I don't think we'll have time to go through them in class.

Repeated Games

- J.-P. Benoit and V. Krishna (1985) "Finitely Repeated Games," *Econometrica,* 53: 905-922.

- D. Fudenberg and E. Maskin (1986) "The Folk Theorem in Repeated Games with Discounting or with Incomplete Information," *Econometrica,* 54: 533-554.

- D. Abreu (1988) "On the Theory of Infinitely Repeated Games with Discounting," *Econometrica,* 56: 383-396.

Games of Perfect Information

- C. Harris (1985) "Existence and Characterization of Perfect Equilibrium in Games of Perfect Information," *Econometrica,* 53: 613-628.

- M. Hellwig, W. Leininger, P. Reny, and A. Robson (1990) "Subgame Perfect Equilibrium in Contniuous Games of Perfect Information: An Elementary Approach to Existence and Approximation by Discrete Games," *Journal of Economic Theory,* 52: 406-422.

- C. Harris, P. Reny, and A. Robson (1995) "The Existence of Subgame-perfect Equilibrium in Continuous Games with Almost Perfect Information: A Case for Public Randomization," *Econometrica,* 63: 507-544.

Stochastic Games

- P. Dutta (1995) "A Folk Theorem for Stochastic Games," *Journal of Economic Theory,* 66: 1-32.

- P. Dutta and R. Sundaram (1998) "The Equilibrium Existence Problem in General Markovian Games," in Mukul Majumdar, ed., *Organizations with Incomplete Information: Essays in Economic Analysis, A Tribute to Roy Radner,* Cambridge.

Games of Imperfect Public Information

- D. Abreu, D. Pearce, and E. Stachetti (1990) "Toward a Theory of Discounted Repeated Games with Imperfect Monitoring," *Econometrica,* 58: 1041-1063.

- D. Fudenberg, D. Levine, and E. Maskin (1994) "The Folk Theorem with Imperfect Public Information," *Econometrica,* 62: 997-1039.