Syllabus for 8185: Topics in Computational Economics

Fall 2019 Second Mini

1. Properties of Markov chains, stochastic difference equations, discrete state Markov approximations for continuous process, Kalman Filter.

References

Lars Lundquist and Thomas Sargent, Recursive Macroeconomic Theory Chapter 2

Shumway and Stoffer, Time Series Analysis and Its Applications, Chapter 6

Chris Sims, Solving Linear Rational Expectations Models

Blanchard, Olivier Jean, and Charles M. Kahn. “The Solution of Linear Difference Models under

Rational Expectations.” Econometrica, vol. 48, no. 5, 1980, pp. 1305–1311

1. Computing competitive equilibria in complete market models: We will review methods to solve complete markets models of business cycles. Applications will include the Real business cycle models extended to allow for labor market and price setting frictions

References

"Recursive Methods for Computing Equilibria in Business Cycle Models," with G. D. Hansen, Chapter 2 in T. F. Cooley, ed., Frontiers of Business Cycle Research, (Princeton University Press, 1995), 39-64.

Chari, V. V., Kehoe, P. J. and McGrattan, E. R. (2007), Business Cycle Accounting. Econometrica, 75: 781-836

John Y Campbell. Inspecting the mechanism: An analytical approach to the stochastic growth model, Journal of Monetary Economics, Volume 33, Issue 3, 1994, Pages 463-506,

Labor Markets and Business Cycles (CREI Lectures in Macroeconomics), Chapter 3

Monetary Policy, Inflation, and the Business Cycle: An Introduction to the New Keynesian Framework and Its Applications, Chapter 3

1. Computing competitive equilibria in models with incomplete markets: Mainly review algorithms to solve incomplete market models with idiosyncratic risks

References

Aiyagari, S. Rao. “Uninsured Idiosyncratic Risk and Aggregate Saving.” The Quarterly Journal of Economics, vol. 109, no. 3, 1994, pp. 659–684.

Per Krusell and Anthony A. Smith, Jr., "Income and Wealth Heterogeneity in the Macroeconomy," Journal of Political Economy 106, no. 5 (October 1998): 867-896

Reiter, Michael, 2009. "[Solving heterogeneous-agent models by projection and perturbation](https://ideas.repec.org/a/eee/dyncon/v33y2009i3p649-665.html)," [Journal of Economic Dynamics and Control](https://ideas.repec.org/s/eee/dyncon.html), Elsevier, vol. 33(3), pages 649-665,

Yann Algan, Olivier Allais, Wouter J. Den Haan, Pontus Rendahl, Chapter 6 - Solving and Simulating Models with Heterogeneous Agents and Aggregate Uncertainty, Handbook of Computational Economics 2014, Pages 277-324

Acharya, Sushant, and Keshav Dogra. 2018. Understanding HANK: Insights

from a PRANK. FRB of New York Staff Report(835):

1. Optimal Policies in Incomplete Market Models: We will review computational issues in Ramsey models of fiscal and monetary policy

References

Lucas, Robert E, and Nancy L Stokey. 1983. Optimal Fiscal and monetary

policy in an economy without capital.Journal of Monetary Economics, 12(1):

Aiyagari, S. Rao, Albert Marcet, Thomas J. Sargent, and Juha Seppala.

2002. Optimal Taxation without State-Contingent Debt Journal of Political

Economy, 110(6): 1220?1254.

Bhandari, Anmol, David Evans, Mikhail Golosov, and Thomas Sargent. Fiscal Policy and Debt Management with Incomplete Markets. Quarterly

Journal of Economics, 132(2): 617?663

Bhandari, A., D. Evans, M. Golosov, and T. Sargent, 2017, "Optimal Fiscal-Monetary Policy with

Redistribution", Mimeo

Iván Werning, Optimal Fiscal Policy with Redistribution, The Quarterly Journal of Economics, Volume 122, Issue 3, August 2007, Pages 925–967

There will be a weekly coding assignment. You can use any programming language that you prefer. For the final grade you will have to submit a term paper. You can work in groups of 2-3. The term paper will be based on an existing paper and will have two parts: i) First you will replicate results from that paper ii) and then you will add one new feature to the existing setup and extend the computations. The deadline for the final project will be decided later.