Macroeconomics Term 1

Part 1: Franck Portier

I follow closely Lars Ljungqvist and Thomas Sargent textbook Recursive Macroeconomic Theory, Cambridge, Mass.: MIT Press, fourth edition.

Office hours: Wednesday, 16:00-17:00, Office 311

- Lecture 1 : Complete Markets (Chapter 8 in L&S)
- Lecture 2 : OLG Models (Chapter 9 in L&S)
- Lecture 3 : Ricardian Equivalence (Chapter 10 in L&S)
- Lecture 4 : Fiscal Policies in a Growth Model (Chapter 11 in L&S)
- Lecture 5 : Optimal Taxation with Commitment (Chapter 16 in L&S)

Part 2: Lukasz Rachel

References and readings:

- Lars Ljungqvist and Thomas Sargent, Recursive Macroeconomic Theory, Cambridge, Mass.: MIT Press, third edition. (LS)
- Nancy Stokey, Robert E. Lucas, and Edward C. Prescott, Recursive Methods in Economic Dynamics, Cambridge, Mass.: Harvard Univer sity Press, 1989. (SLP)
- Daron Acemoglu, Introduction to Modern Economic Growth, Princeton University Press, 2009. (A)

Preliminary list of topics:

Much of the material covered in the course is based on Ljungqvist and Sargent, fourth edition. Acemoglu is a particularly useful reference for continuous time analysis. Stokey, Lucas, Prescott offers a more rigorous and technical treatment.

Week 1: Introduction and key concepts; sequential problem (LS1, SLP 3; A 6.1 & 6.6)

Week 2: Dynamic programming (LS 3, 4, 6; SLP 4.1-4.2, 9.1-9.2; A 6.2 & 6.3)

Week 3: Optimization in continuous time (A7)

Week 4: Income fluctuations problem (LS17)

Week 5: GE with incomplete markets (LS18)

ECON0107 – Spring Term 2025 (1st half)

Instructor

Klaus Adam

Weekly class meetings: **Thursdays 13:00-14:15 and 14:30-15:45**

1st half of class: January 16 until February 13 (including)

Location & Room: Euston Road 222 G01

Grading

Students have to hand in weekly problem sets (group answers are allowed for groups up to a max of 3 people).

Problem sets have to be **handed to the TA by Wednesday 6pm, before the TA session** that takes place on Thursday morning. **Hand-in of the problem sets is mandatory** for passing the course!

Subject to having handed in the problem sets, the course grade will be determined by the final exam. In marginal cases when students are between two grades, the problem sets might determine which grade will be assigned.

Course content

Macroeconomics is about constructing, solving and estimating intertemporal models describing the evolution of the aggregate economy over time. Macroeconomists focus on general equilibrium settings and are concerned with explaining observed aggregate behavior and with evaluating the welfare and allocational implications of alternative policy choices.

This course introduces some of the fundamental techniques for constructing and solving dynamic stochastic equilibrium models. It also discusses basic approaches for conducting policy experiments and for evaluating their welfare consequences. Additionally, it outlines some fundamental connections between the solution of dynamic equilibrium models and econometric time series models.

Course Outline

Weeks 1+2: Linear Dynamic Rational Expectations (RE) Models

- social planning problems and market outcomes
- linearizing dynamic economic models
- determinacy and indeterminacy of RE equilibria, 'sunspot' equilibria
- solving linear RE models:
    - undetermined coefficients approach
    - QZ decomposition
- solving the stochastic real business cycle model

Required readings on solution techniques:

Stockey and Lucas, chapter 6.1-6.3
Blanchard and Kahn (1980)
Sims (2002)

Required readings on applications to business cycle modeling (for week 2):

Barro and King (1984)
Jaimovich and Rebelo (2009)

Week 3: Linear RE Models and Vector Auto-Regressions (VARs)

- state space representation of economic models
- VAR representation of observables, invertibility problems
- identification of economic shocks
- Kalman filtering

Required reading

Fernández-Villaverde et al (2005)
Fisher (2006)

Week 4: Linear Quadratic (LQ) Dynamic Programming

- solving LQ problems: Ricatti equation, invariant subspace methods
- stochastic problems and certainty equivalence
- linear quadratic approximation to optimal policy models

Required reading:

Ljungqvist and Sargent (2004), chapter 5

Week 5: Introduction to the New Keynesian Model and its Linear-Quadratic Form

Required reading:

Chapter 2 in Galí (2008)

Woodford (2011)

References

Anderson, Gary (2006), 'Solving Linear Rational Expectations Models: A Horse Race', FEDS working paper No. 2006-26

Barro, R. J., and R. G. King (1984), 'Time-separable Preferences and Intertemporal-Substitution Models of Business Cycles'. Quarterly Journal of Economics, 99(4), 817-839.

Blanchard, Olivier J. and Charles M. Kahn (1980), The Solution of Linear Difference Models under Rational Expectations, Econometrica, Vol 48, pp.1305-1312

Fernández-Villaverde, Jesús, Juan Rubio-Ramírez, and Thomas J. Sargent (2005) 'A, B, C's (and D)'s for Understanding VARs', NBER Technical Working Paper 308, http://www.nber.org/papers/T0308

Fisher, Jonas D.M (2006), 'The Dynamic Effects of Neutral and Investment-Specific Technology Shocks', Journal of Political Economy, Vol. 114(3), pp. 413 - 451

Galí, Jordi (2008), Monetary Policy, Inflation and the Business Cycle, Princeton University Press.

Hansen, Lars P. and Thomas J. Sargent (undated), Notes on Linear Control Theory

Jaimovich, Nir and Sergio Rebelo (2009),'Can News about the Future Drive the Business Cycle?', American Economic Review, Volume 99, Number 4, pp. 1097-1118

Judd, Kenneth L. (1998), Numerical Methods in Economics, MIT Press

Ljungqvist, Lars and Thomas J. Sargent (2004), Recursive Macroeconomic Theory, 2nd edition, MIT Press

Sims, Christopher A. (2002), Solving Linear Rational Expectations Models, Princeton University mimeo

Stokey , Nancy L. and Robert E. Lucas (1989), Recursive Methods in Economic Dynamics, Harvard University Press

Woodford , Michael (2011), Optimal Monetary Stabilization Policies, chapter in B.M. Friedman and M. Woodford (eds.), *Handbook of Monetary Economics,* vol. 3B.

Course Outline, Term 2, Weeks 6-10, ECON0107, Graduate Macroeconomics

Topic 1: Empirical Macroeconomics

- Christina Romer and David Romer, 1989, "Does Monetary Policy Matter? A New Test in the Spirit of Friedman and Schwartz," **NBER Macroeconomic Annual**.
- Christina Romer and David Romer, 2004, "A New Measure of Monetary Policy Shocks: Derivation and Implications," **American Economic Review** 94(4), 1055-84.
- Valerie Ramey, 2016, "Macroeconomic Shocks and Their Propagation," NBER Working paper 21978.
- Marek Jarocinski and Peter Karadi, 2020, "Deconstructing Monetary Policy Surprises: The Role of Information Shocks." **American Economic Journal: Macroeconomics.**
- Uribe, Martin, 2019, "The Neo-Fisher Effect: Econometric Evidence from Empirical and Optimizing Models," NBER working paper.
- Karel Mertens and Morten O. Ravn, 2013, "The Dynamic Effects of Personal and Corporate Income Tax changes in the United States," **American Economic Review**.
- Ramey, 2016, "Macroeconomic Shocks and Their Propagation", **Handbook of Macroeconomics**, available at http://econweb.ucsd.edu/~vramey/research/Shocks_HOM_Ramey.p
- Ramey and Zubairy, 2018, "Government Spending Multipliers in Good Times and in Bad: Evidence from US Historical Data," **Journal of Political Economy**.
- James Stock and Mark Watson, 2018, "Identification and Estimation of Dynamic Causal Effects in Macroeconomics Using External Instruments", **Economic Journal**. https://scholar.harvard.edu/files/stock/files/working_idandestimation_jan2018.pdf

Topic 2: Standard Models of Aggregate Fluctuations

- Bloom, Nicholas , 2009, "The Impact of Uncertainty Shocks", **Econometrica**, May vol. 77, pp. 623-685.

- Bloom, Nicholas, Floetotto, Max, Jaimovich, Nir, Saporta-Eksten, Itay and Stephen Terry, 2018: "Really Uncertain Business Cycles", **Econometrica**.
- Chari, Kehoe and McGrattan, 2008, "Are Structural VARs with Long-Run Restrictions Useful in Developing Business Cycle Theory?", **Journal of Monetary Economics**.
- Jaimovich, Nir and Sergio Rebelo, 2009, "Can News About the Future Drive the Business Cycle?", **American Economic Review** 99, 1097-1118.
- Paul Beaudry and Franck Portier, 2006, "Stock Prices, News and Business Cycles", **American Economic Review** 96, 1293-1307.
- Paul Beaudry and Franck Portier, 2007. "When can changes in expectations cause business cycle fluctuations in neo-classical settings?," Journal of Economic Theory, vol. 135(1), pages 458-477, July.
- Schmitt-Grohe, Stephanie and Martin Uribe, 2012, "What's News in Business Cycles", **Econometrica**, November vol.80, 2733-64.
- Edmonds, Chris, Virgiliu Midrigan, Daniel Xu, 2023, "How Costly Are Markups?," **Journal of Political Economy**, 131(7), 1619-75.
- Basu, Susanto, and John Fernald, "Returns to Scale in U.S. Production: Estimates and Implications," **Journal of Political Economy**, 105(2), 249-283.
- Fernald, John, "A Quarterly Utilization-Adjusted Series on Total Factor Productivity," Federal Reserve Bank of San Francisco WP 2012-19.

Topic 3: Models with Frictions

- Burnside, Eichenbaum and Rebelo, 1996, "Factor Hoarding and the Propagation of Business-Cycle Shocks," **American Economic Review**, 86(5), 1154-74.
- Burnside, Eichenbaum and Rebelo, 1993, "Labor Hoarding and the Business Cycle," **Journal of Political Economy**, 101(2), 245-73.
- Gali, Smets and Wouters, 2012, "Unemployment in an Estimated New Keynesian Model," NBER Macro Annual 2011.
- Blanchard and Gali, 2010, "Labor Markets and Monetary Policy," **AEJ: Macro** 2(2), 1-30.

Topic 4: Incomplete Markets

- Kaplan, Greg, and Gianluca Violante, 2014, "A Model of the Consumption Response to Fiscal Stimulus Payments," **Econometrica** 82(4), 1199-1239.
- Kaplan, Greg, Gianluca Violante, and Justin Weidner, 2018, 2014, "The Wealthy Hand-to-Mouth," **Brookings Papers on Economic Activity**, spring.
- Kaplan, Greg, Benjamin Moll and Gianluca Violante, 2018, "Monetary Policy According to HANK," **American Economic Review**.
- Ravn, Morten O. and Vincent Sterk, "Job Uncertainty and Deep Recessions", **Journal of Monetary Economics**, October 2017.
- Ravn, Morten O. and Vincent Sterk, 2021, "Aggregate Fluctuations with HANK&SAM: An Analytical Approach", **Journal of the European Economic Association**.
- Faccini, Renato, Seungcheol Lee, Ralph Luetticke, Morten O. Ravn, and Tobias Renkin, 2025, "Financial Frictions: Micro vs. Macro Volatility," forthcoming, **American Economic Review**.