ECON4310
Consumption, investment and pensions

Kaiji Chen Espen Henriksen

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1 Objective

This course gives an introduction to basic tools of modern dynamic macroeconomic theory. It is based on general equilibrium theory and consists of several self-contained modules. The focus will be on real, frictionless economies, and the aim is to apply the theoretical tools of dynamic macroeconomics to data.

We start with the two workhorse models in dynamic macroeconomic theory: the representative agent model and the overlapping generation model. We then move on to the recursive specification of the neoclassical growth model (in both deterministic and stochastic environments) and relevant techniques that are used to solve this class of models. Finally, we study a set of important applications of these tools – (real) business cycle theory, asset pricing (c-capm), and dynamic fiscal policy, including social security.

There will be both theoretical exercises and numerical assignments.

2 Content

1. Basic general equilibrium tools:
   (a) Representative agent model
   (b) Overlapping generations model
   (c) Recursive formulation and stochastic extensions
2. Topics:
   (a) Stochastic growth and business cycle theory
   (b) Asset pricing
   (c) Fiscal policy and public provision of insurance

3 Administrative

3.1 Web-page

http://www.uio.no/studier/emner/sv/oekonomi/ECON4310/h05/

3.2 Lectures – time and place

Fridays 12:15-14:00, Auditorium 4 Eilert Sundts hus, A-blokka.

3.3 Term paper (compulsory)

Will be made available: October 14th. Must be submitted by: November 1st.

3.4 Final exam

December 7th, 14:30-17:30 (3 hours).[1]

3.5 Office hours

By appointment. Please contact Kaiji Chen at kaiji.chen@econ.uio.no or Espen Henriksen at espen.henriksen@econ.uio.no.

4 Software for numerical exercises

In order to enhance the understanding of the theory and apply the the concepts to interesting dynamic macroeconomic questions, our ambition is to use numerical tools extensively. Students who are familiar with programming and have access to C, C++, Fortran or Matlab might use either of these. For students with less exposure to programming we recommend Matlab or GNU Octave.

Matlab can be accessed on the cluster computers on the fourth floor of Eilert Sundts hus. Further instructions are posted on the course web-page.

GNU Octave, http://www.octave.org/, is a free high-level language, resembling Matlab, primarily intended for numerical computations. It provides a convenient command line interface for solving linear and nonlinear problems numerically.

SourceForge download page:
http://prdownloads.sourceforge.net/octave/octave-2.1.50a-inst.exe

Matlab tutorials at uio.no

- http://www.fi.uib.no/Fysisk/Teori/KURS/WRK/mat/singlemat.html
- http://folk.uio.no/awahlin/matlabcourse/

[1] Please note that you are responsible for keeping track of any changes in the examination date, time or place.

5 Syllabus

Our main text will be Stephen Williamson's *Notes on Macroeconomic Theory*. These will be extensively supported by several outstanding sets of lecture notes written by Per Krusell and Dirk Krueger, a few articles, and additional lecture notes published on the course web page. Parts of David Romer's textbook might also provide additional perspectives on the material.

All pages of all these texts will *not* be required readings for the final exam. The required readings will be marked * in the `Lecture Plan`. In addition, all material explicitly covered during the lectures will also be expected known before the final exam.

Please note that the set of required readings might be modified during the semester, in which case we will update this document on the course web-page.

5.1 Books and prepared lecture notes

- Stephen Williamson: *Notes on Macroeconomic Theory*.
  `http://www.biz.uiowa.edu/faculty/swilliamson/courses/2001/notes01.pdf`
  A version with figures is available from Tony Smith's web-page:
  `http://www.econ.yale.edu/smith/econ510a/notes99.pdf`

- Per Krusell: *Lecture Notes for Macroeconomics*.
  `http://www.econ.yale.edu/smith/econ510a/newbook.pdf`

  Per Krusell: *Asset pricing*
  `http://www.econ.yale.edu/smith/econ510a/book9.pdf`

- Dirk Krueger: *Consumption and Savings: Theory and Evidence* (ref: Krueger-CS)
  `http://www.wiwi.uni-frankfurt.de/professoren/krueger/consbookdirk.pdf`

- Dirk Krueger: *Macroeconomic Theory* (ref: Krueger-MT)
  `http://www.econ.upenn.edu/~dkrueger/PhdLecture.pdf`

- Dirk Krueger: *Dynamic Fiscal Policy* (ref: Krueger-DFP)
  `http://www.wiwi.uni-frankfurt.de/professoren/krueger/GoetheFiscalTotal.pdf`

- Dirk Krueger: *Quantitative Macroeconomics* (ref: Krueger-QM)
  `http://www.wiwi.uni-frankfurt.de/professoren/krueger/QuantMacro.html`

- David Romer (latest edition): *Advanced Macroeconomics*. McGraw-Hill. Available at Akademika (Older versions of this book can be used).

5.2 Articles

- Fernando Alvarez and Urban Jerman "Using Asset Prices to Measure the Persistence of the Marginal Utility of Wealth"
  `http://finance.wharton.upenn.edu/~jermann/bound-jan-02-web.pdf`

- Gadi Barlevy, "The cost of business cycles and the benefits of stabilization", http://www.chicagofed.org/publications/economicperspectives/ep_1qtr2005_part3_barlevy.pdf
- Robert Barro (1974), "Are Government Bonds Net Worth", *Journal of Political Economy,* 82, 1095-1117
- George M. Constantinides (2005) "Understanding the Equity Risk Premium Puzzle" http://econ.ucsb.edu/conferences/equity05/papers/ConstantinidesEssay.pdf
- Thomas F. Cooley (1997) "Calibrated Models" http://pages.stern.nyu.edu/~tcooley/PhDCourse/calibrate.pdf
- Peter Diamond (1977), "A Framework for Social Security Analysis", *Journal of Public Economics*, 8, 275-298
- Martin Feldstein (2005), "Structual reform of Social Security", *Journal of Economic Perspective,* 19, 33-55
- John Geanakoplos, Oliver Mitchell and Stephen Zeldes (1998), "Would a Privatized Social Security Really Pay a Higher Rate of Return", http://papers.nber.org/papers/w6713.pdf
- Ravi Jagannathan Ellen R. McGrattan and Anna Scherbina, "The Declining U.S. Equity Premium ", http://minneapolisfed.org/research/QR/QR2441.pdf
- Narayana Kocherlakota (1996) , "The equity premium: It's still a puzzle," *Journal of Economic Literature*, 1996.
- Finn Kydland and Ed Prescott (1990) "Business Cycles: Real Facts and a Monetary Myth", *Minneapolis Fed Quarterly Review.* http://research.mpls.frb.fed.us/research/qr/qr1421.html
- Assar Lindbeck and Mats Persson "Gains from Pension Reform", http://folk.uio.no/kjstore/teaching/4310/Lindbeck_Persson_JEL2003.pdf
- Robert E. Lucas (1978) "Asset prices in an exchange economy". *Econometrica*, **46**(6).
- Raijnish Mehra and Ed Prescott (1985) "The equity premium: A puzzle." *Journal of Monetary Economics* **15**
- Raijnish Mehra and Ed Prescott (2003) "The equity premium in retrospect " http://www.academicwebpages.com/preview/mehra/pdf/epp_retrospect.pdf (alt. link: http://papers.nber.org/papers/w9525.pdf)
- Edward Prescott (1986), "Theory ahead of Business-Cycle Measurement," Carnegie-Rochester Conference Series on Public Policy, 25.11-44

6 Lecture Plan

1. **Friday August 26, 2005 – Henriksen**

   Simple Representative Agent Models, Consumption and Savings decisions

   - Williamson Chapter 1*
   - Krusell Chapter 1, 2*, 3.1*
   - Krueger-MT, Chapters 1-3.
   - Romer: Chapter 1, Chapter 2.1-2.9 (Part A), Chapter 7.1-7.4.

2. **Friday September 2, 2005 – Henriksen**

   Simple Representative Agent Models, Consumption and Savings decisions

   – same as above

3. **Friday September 9, 2005 – Chen**

   Growth With Overlapping Generations

   - Williamson Chapter 2*.
   - Krueger-DFP Chapter 2*, 3.
   - Krusell Chapter 7.
   - Krueger-MT Chapter 8
   - Romer: Chapter 2.10-2.14 (Part B), Chapter 7.1-7.4.

4. **Friday September 16, 2005 – Chen**

   Growth With Overlapping Generations

   – same as above

5. **Friday September 23, 2005 – Henriksen**

   Neoclassical Growth and Dynamic Programming

   - Williamson Chapter 3*
   - Krusell Chapter 3.2*, 3.3*, 5*
   - Krueger-MT Chapter 5

6. **Friday September 30, 2005 – Henriksen**

   Choice Under Uncertainty

   - Williamson Chapter 5*
   - Krusell Chapter 6*

- Krueger-MT Chapter 6

7. **Friday October 7, 2005 – Chen**

   Stochastic Growth and Real Business Cycle

   - Krueger-QM Chapter 9* and 10*
   - Kydland and Prescott (1990)*
   - Prescott (1986)
   - Romer Chapter 4.2-4.4

8. **Friday October 14, 2005 – Chen**

   Real Business Cycle, Calibration

   - Krueger-QM Chapter 8* and 11*
   - Cooley Notes for Calibration*
   - Romer Chapter 4.7

9. **Friday October 21, 2005 – Henriksen**

   Asset Pricing

   - Williamson Chapter 6*
   - Krusell Asset Pricing Chapter*
   - Kocherlakota (1996)*
   - Lucas (1978)
   - Mehra and Prescott (1985)
   - Romer Chapter 7.5-7.6.

10. **Friday October 28, 2005 – Henriksen**

    Asset pricing puzzles and Hansen-Jagannathan bounds

    - Williamson Chapter 6*
    - Krusell Asset Pricing Chapter*
    - Mehra and Prescott (2003)*
    - Constantinides (2005)
    - Romer Chapter 8.1-8.6
    - Alvarez and Jerman (2002)

11. **Friday November 4, 2005 – Chen**

    Ricardian Equivalence and Consumption, Labor and Capital Taxation

    - Krueger-DFP Chapter 1* and 4*
    - Williamson 1.3
    - Romer, Chapter 11
    - Barro (1974)

12. **Friday November 11, 2005 – Chen**

    Social Security: Theoretical Analysis

    - Krueger (DFP) 5*
    - Lindbeck and Persson
    - Geanakoplos, Mitchell and Zeldes
    - Feldstein (2005)
    - Diamond (1977)

13. **Friday November 18, 2005 – Chen and Henriksen**

    Q&A, Literature overview

    - Kydland and Prescott (1990)*
    - Barlevy (2005)
    - Mehra and Prescott (2003)*
    - Lindbeck and Persson
    - Geanakoplos, Mitchell and Zeldes

7 Seminar Schedule

1. **Representative Agent Models, Consumption and Savings Decisions Introduction to Octave/MatLab**

   (a) Seminar 1: Wednesday September 7th 12:15 -14:00

   (b) Seminar 2: Tuesday September 6th 12:15 -14:00

   Recitation leader: Henriksen

2. **The Overlapping Generations Model**

   (a) Seminar 1: Wednesday September 21st 12:15 -14:00

   (b) Seminar 2: Tuesday September 20th 12:15 -14:00

   Recitation leader: Chen

3. **Stochastic extensions and computational methods**

   (a) Seminar 1: Wednesday October 5th 12:15 -14:00

   (b) Seminar 2: Tuesday October 4th 12:15 -14:00

   Recitation leader: Henriksen

4. **Real Business Cycles**

   (a) Seminar 1: Wednesday October 19th 12:15 -14:00

   (b) Seminar 2: Tuesday October 18th 12:15 -14:00

   Recitation leader: Chen

5. **The Term Paper**

   (a) Seminar 1: Wednesday November 2nd 12:15 -14:00

   (b) Seminar 2: Tuesday November 1st 12:15 -14:00

   Recitation leader: Henriksen

6. **Asset Pricing / Fiscal Policy**

   (a) Seminar 1: Wednesday November 16th 12:15 -14:00

   (b) Seminar 2: Tuesday November 15th 12:15 -14:00

   Recitation leader: Chen