

## Macroeconomics 3: *Heterogeneity in Macroeconomics*

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### GOAL AND SCOPE OF THE COURSE

The course is meant as an introduction to the contemporaneous general-equilibrium approach to modelling heterogeneity in macroeconomics. In particular, it aims at providing the essential theoretical and quantitative tools needed to master some of the current workhorse models. Furthermore, a relatively broad overview of the most interesting and relevant contributions is provided.

### DETAILED PROGRAM

**Lecture 1: Cross-sectional facts for macroeconomists.** References: Slide set #1\*, Krueger et al. (2010)\*, Guvenen and Kaplan (2017), Guvenen, Karahan, et al. (2015), Song et al. (2019), Guvenen, Ozkan, and Song (2014), Saez and Zucman (2016), Piketty and Saez (2003), Heathcote, Perri, and Violante (2010), Jappelli and Pistaferri (2010), Stone et al. (2018), and D'Alessio (2012).

**Lecture 2: Aggregation.** References: Slide set #2\*, Section 1\* in Guvenen (2011), Section 5.2\* in Acemoglu (2008) (download from [http://press.princeton.edu/chapters/s5\\_8764.pdf](http://press.princeton.edu/chapters/s5_8764.pdf)), L. Maliar and S. Maliar (2003)\*, and Kirman (1992)\*.

**Lecture 3: Heterogeneity under complete markets.** References: Slide set #3\*, Chatterjee (1994)\*, Obiols-Homs and Urrutia (2005), and Carroll and Young (2009)\*.

**Lecture 4: Income fluctuations - Part I.** References: Slide set #4\*, Sections 5.2-5.4\* (skip 5.4.3) in Krueger (2016), and Sections 18.3-18.5\* in Ljungqvist and Sargent (2012).

**Lecture 5: Income fluctuations - Part II.** References: Slide set #5\*, Sections 5.4\* (skip 5.4.3) and 5.5\* (skip Remark 35) in Krueger (2016), and Section 18.14 in Ljungqvist and Sargent (2012).

**Lecture 6: Markov chains.** References: Slide set #6\*, Section 2.2\* in Ljungqvist and Sargent (2012), Tauchen (1986)\* (skip Section 3).

**Lecture 7: Occasionally binding constraints - Part I.** References: Slide set #7\*, Sections 4.2-4.5\* in Ljungqvist and Sargent (2012).

**Lecture 8: Occasionally binding constraints - Part II.** References: Slide set #8\* and Rendahl (2015).

**Lecture 9: Bewley-type models - Part I.** References: Slide set #9\*, Section 18.2\* in Ljungqvist and Sargent (2012), Huggett (1993), Aiyagari (1994), Section 3 in Guvenen (2011).

**Lecture 10: Bewley-type models - Part II.** References: Slide set #10\*.

**Lecture 11: Bewley-type models - Part III.** References: Slide set #11\*, Section 7.3 (in particular 7.3.3\*) in Krueger (2016), and Section 4 in Guvenen (2011).

**Lecture 12: The Krusell-Smith model.** References: Slide set #12\*, Section 18.15\* in Ljungqvist and Sargent (2012), Sections 7.4.1-7.4.5 in Krueger (2016), and Sections 5-6 in Guvenen (2011).

The asterisk identifies the **absolutely essential** readings. The slides used in class will be made available online, and should be considered a study guide designed to help students find their way through the material.

## References

- Acemoglu, Daron (2008). *Introduction to Modern Economic Growth*. Princeton University Press.
- Aiyagari, S. Rao (Aug. 1994). “Uninsured Idiosyncratic Risk and Aggregate Saving”. In: *The Quarterly Journal of Economics* 109.3, pp. 659–84. DOI: 10/c7v554. JSTOR: 2118417.
- Carroll, Daniel R. and Eric R. Young (July 2009). “The Stationary Distribution of Wealth under Progressive Taxation”. In: *Review of Economic Dynamics* 12.3, pp. 469–78. DOI: 10/b239vc.
- Chatterjee, Satyajit (May 1994). “Transitional Dynamics and the Distribution of Wealth in a Neoclassical Growth Model”. In: *Journal of Public Economics* 54.1, pp. 97–119. DOI: 10/fjcs4t.
- D’Alessio, Giovanni (Feb. 2012). *Wealth and Inequality in Italy*. Questioni di Economia e Finanza (Occasional Papers) 115. Bank of Italy, Economic Research and International Relations Area. URL: [http://ideas.repec.org/p/bdi/opques/qef\\_115\\_12.html](http://ideas.repec.org/p/bdi/opques/qef_115_12.html).
- Guvenen, Fatih (2011). “Macroeconomics with Heterogeneity: A Practical Guide”. In: *Federal Reserve Bank of Richmond Economic Quarterly* 97.3, pp. 255–326.
- Guvenen, Fatih and Greg Kaplan (2017). “Top Income Inequality in the 21st Century: Some Cautionary Notes”. In: *Quarterly Review* (October), pp. 2–15. URL: <https://ideas.repec.org/a/fip/fedmqr/00003.html> (visited on 02/04/2019).

- Guvenen, Fatih, Fatih Karahan, et al. (Jan. 2015). *What Do Data on Millions of U.S. Workers Reveal about Life-Cycle Earnings Risk?* NBER Working Paper 20913. URL: [https://fguvenendotcom.files.wordpress.com/2019/02/gkos\\_2017\\_rev3\\_submit.pdf](https://fguvenendotcom.files.wordpress.com/2019/02/gkos_2017_rev3_submit.pdf).
- Guvenen, Fatih, Serdar Ozkan, and Jae Song (May 2014). “The Nature of Countercyclical Income Risk”. In: *Journal of Political Economy* 122.3, pp. 621–660. DOI: 10/gfq95b.
- Heathcote, Jonathan, Fabrizio Perri, and Giovanni L. Violante (Jan. 2010). “Unequal We Stand: An Empirical Analysis of Economic Inequality in the United States: 1967-2006”. In: *Review of Economic Dynamics* 13.1, pp. 15–51. DOI: 10/d9hjn8.
- Huggett, Mark (Sept. 1993). “The Risk-Free Rate in Heterogeneous-Agent Incomplete-Insurance Economies”. In: *Journal of Economic Dynamics and Control* 17.5-6, pp. 953–69. DOI: 10/fn753d.
- Jappelli, Tullio and Luigi Pistaferri (Jan. 2010). “Does Consumption Inequality Track Income Inequality in Italy?” In: *Review of Economic Dynamics* 13.1, pp. 133–153. DOI: 10/cgkhnr.
- Kirman, Alan P. (1992). “Whom or What Does the Representative Individual Represent?” In: *The Journal of Economic Perspectives* 6.2, pp. 117–136. DOI: 10/gfgw6f.
- Krueger, Dirk (Mar. 2016). “An Introduction to Macroeconomics with Household Heterogeneity”. manuscript.
- Krueger, Dirk et al. (Jan. 2010). “Cross-Sectional Facts for Macroeconomists”. In: *Review of Economic Dynamics* 13.1, pp. 1–14. DOI: 10/bgrdwd.
- Ljungqvist, Lars and Thomas J. Sargent (Jan. 2012). *Recursive Macroeconomic Theory, Third Edition*. Vol. 1. MIT Press Books 0262018748. The MIT Press. URL: <http://ideas.repec.org/b/mtp/titles/0262018748.html>.
- Maliar, Lilia and Serguei Maliar (Apr. 2003). “The Representative Consumer in the Neoclassical Growth Model with Idiosyncratic Shocks”. In: *Review of Economic Dynamics* 6.2, pp. 368–80. DOI: 10/btt5gj.
- Obiols-Homs, Francesc and Carlos Urrutia (Feb. 2005). “Transitional Dynamics and the Distribution of Assets”. In: *Economic Theory* 25.2, pp. 381–400. DOI: 10/c6ttsq.
- Piketty, Thomas and Emmanuel Saez (Feb. 2003). “Income Inequality in the United States, 1913-1998”. In: *The Quarterly Journal of Economics* 118.1, pp. 1–41. DOI: 10/fwfp83.
- Rendahl, Pontus (June 2015). “Inequality Constraints and Euler Equation-Based Solution Methods”. In: *The Economic Journal* 125.585, pp. 1110–1135. DOI: 10/gbf67s.
- Saez, Emmanuel and Gabriel Zucman (2016). “Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data”. In: *The Quarterly Journal of Economics* 131.2, pp. 519–578. DOI: 10/f8wtcf.
- Song, Jae et al. (Feb. 1, 2019). “Firming Up Inequality”. In: *The Quarterly Journal of Economics* 134.1, pp. 1–50. ISSN: 0033-5533. DOI: 10/gft5nt.
- Stone, Chad et al. (Dec. 11, 2018). *A Guide to Statistics on Historical Trends in Income Inequality*. Center on Budget and Policy Priorities. URL: <https://www.cbpp.org/research/poverty-and-inequality/a-guide-to-statistics-on-historical-trends-in-income-inequality>.
- Tauchen, George (1986). “Finite State Markov-Chain Approximations to Univariate and Vector Autoregressions”. In: *Economics Letters* 20.2, pp. 177–181. DOI: 10/ffgrfc.