

Syllabus Macroeconomics - Part III (instructor Riccardo M. Masolo)

This module will offer an introduction to modern heterogeneous-agent models, with a particular emphasis on a Saver-Spender model and on a tractable model with uninsurable individual risk. We will put an emphasis on analytical tractability and intuition, resorting to Dynare when needed.

The module will comprise five three-hour lectures and two problem sets.

- a. **Introduction to Heterogeneity in Macroeconomics** (1 hour).
- b. **Saver-Spender model** (4 hours) We consider agents differing by their degree of patience (or subjective discount factor), e.g. F. O. Bilbiie (2008). We will investigate the effects of this form of heterogeneity on borrowing and saving behavior, and on marginal propensities to consume. We will compare and contrast this Two-Agent New-Keynesian model (TANK) to its Representative Agent (RANK) counterpart.
- c. **Optimal Monetary Policy: the effects of heterogeneity** (4 hours) We will derive the quadratic approximation to the social welfare function, illustrate how it differs from that from a RANK model, and study optimal policy under commitment.
- d. **Individual risk** (5 hours) We will consider an economy in which agents face a form of unemployment risk that they cannot fully insure against. We will derive what this implies in terms of marginal propensities to consume and on the implications for stabilization policies. We will then focus on a specific Tractable Heterogeneous-Agent New Keynesian model with frictional (search-and-matching) labor market (THANK-SAM).
- e. **HANK literature overview** (1 hour) The THANK-SAM model presented above does a reasonable job at matching the dynamics of macro aggregates. Other strands of the heterogeneous literature focus more on matching up to cross-sectional moments. We will make a quick reference to that literature and the data that informs it. Time permitting, we will also have a quick overview of papers studying optimal monetary policy in HANK.

Provisional Schedule

Monday June 5, 2pm-5pm

Wednesday June 7, 2pm-5pm

Monday June 12, 2pm-5pm

Wednesday June 14, 2pm-5pm

Monday June 19, 2pm-5pm

Office hours: Wednesdays 5pm to 7pm.

Readings

Teaching notes will be provided after class as a complement to (but not a replacement for) class notes.

Provisional Essential Bibliography

For the Saver-Spender model: F. O. Bilbiie (2008), Eggertsson and Krugman (2012), Debortoli and Gali (2018), Broer et al. (2020), Masolo (2023).

For Optimal Policy: Masolo (2023).

For the THANK-SAM model: Ravn and Sterk (2021).

Overview of the HANK literature and marginal propensities to consume: Kaplan, Moll, and Violante (2018), Auclert, Rognlie, and Straub (2020), F. Bilbiie (2021), Cantore and Freund (2021), Kaplan and Violante (2022), Dávila and Schaab (2022).

Auclert, Adrien, Matthew Rognlie, and Ludwig Straub. 2020. "Micro Jumps, Macro Humps: Monetary Policy and Business Cycles in an Estimated HANK Model." *National Bureau of Economic Research*, 1–85. <https://doi.org/10.3386/w26647>.

Bilbiie, Florin. 2021. "Monetary Policy and Heterogeneity: An Analytical Framework." *Mimeo*, 73.

Bilbiie, Florin O. 2008. "Limited Asset Markets Participation, Monetary Policy and (Inverted) Aggregate Demand Logic." *Journal of Economic Theory* 140 (1): 162–96. <https://doi.org/10.1016/j.jet.2007.07.008>.

Broer, Tobias, Jeppe Druedahl, Karl Harmenberg, and Erik Oberg. 2020. "Labor-Market Hysteresis and Persistent Paradox-of-Thrift Recessions." *Mimeo*.

Cantore, Cristiano, and Lukas B. Freund. 2021. "Workers, Capitalists, and the Government: Fiscal Policy and Income (Re)distribution." *Journal of Monetary Economics* 119 (April): 58–74. <https://doi.org/10.1016/j.jmoneco.2021.01.004>.

Dávila, Eduardo, and Andreas Schaab. 2022. "Optimal Monetary Policy with Heterogeneous Agents: A Timeless Ramsey Approach," 110.

Debortoli, Davide, and Jordi Gali. 2018. "Monetary Policy with Heterogeneous Agents: Insights from TANK Models." *Mimeo*. https://crei.cat/wp-content/uploads/2020/05/dg_tank_july2018-1.pdf.

Eggertsson, Gauti B, and P. Krugman. 2012. "DEBT, DELEVERAGING, AND THE LIQUIDITY TRAP: A FISHER-MINSKY-KOO APPROACH." *The Quarterly Journal of Economics*, 1469–1513. <https://doi.org/10.1093/qje/qjs023>. Advance.

Kaplan, Greg, Benjamin Moll, and Giovanni L. Violante. 2018. "Monetary Policy According to HANK." *American Economic Review* 108 (3). <https://doi.org/10.1257/aer.20160042>.

Kaplan, Greg, and Giovanni L Violante. 2022. "The Marginal Propensity to Consume in Heterogeneous Agent Models." *NBER Working Paper*.

Masolo, Riccardo M. 2023. "Heterogeneity and the Equitable Rate of Interest." *UCSC Working Paper*, no. 128.

Ravn, Morten O., and Vincent Sterk. 2021. "Macroeconomic Fluctuations with HANK & SAM: An Analytical Approach." *Journal of the European Economic Association* 19 (2): 1162–202. [https://doi.org/10.1130/0016-7606\(1979\)90<232:PSMRAS>2.0.CO](https://doi.org/10.1130/0016-7606(1979)90<232:PSMRAS>2.0.CO).