Heterogeneous Agents New Keynesian Models

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This short course is a primer to 'HANK' models, i.e. macroeconomic models which combine heterogeneous households and incomplete markets on the household side with a standard New-Keynesian block. I will discuss (a) the main economic mechanisms at work in this framework, (b) some key methodological aspects of their numerical computation, and (c) how to perform quantitative analysis with them. Particular emphasis will be put on the effects of conventional and unconventional monetary policy.

The course is organized as follows. Monday 27 & Tuesday 28: Classes 10:00-11.30 am and 1:00-2.30 pm. Virtual meetings 3:00-5:00 pm. Wednesday 29: Classes 9:00-10.30 am and 2:00-3.30 pm. Virtual meetings 4:00-6:00 pm.

The rest of the syllabus contains the key topics that will be covered together with some references. This is a preliminary outline, subject to adjustments (most likely the duration of the course will not allow me to get through all this material).

0. **Background readings**

   - Jonathan Heathcote, Kjetil Storesletten, and Gianluca Violante (2009). Quantitative Macroeconomics with Heterogeneous Households, *Annual Review of Economics*

   - Guvenen, Fatih (2012). Macroeconomics with Heterogeneity: A Practical Guide, *Richmond Fed Quarterly Review*

   - Quadrini, Vincenzo and Jose-Victor Rios-Rull (2014). Inequality in Macroeconomics, *Handbook of Income Distribution*, chapter 14

   - Stavros Panageas (2020). The Implications of Heterogeneity and Inequality for Asset Pricing. Mimeo. UCLA.

   - Kaplan, Greg and Gianluca Violante (2018). Microeconomic Heterogeneity and Macroeconomic Shocks. *Journal of Economic Perspectives*

1. **The Marginal Propensity to Consume**

   - Jappelli, Tullio and Luigi Pistaferri (2014). The consumption response to income changes. *Annual Review of Economics*

   - Carroll, Christopher, Jiri Slacalek, Kiichi Tokuoka, and Matthew N. White (2017). The Distribution of Wealth and the Marginal Propensity to Consume. *Quantitative Economics*

- Kaplan, Greg, Gianluca Violante, and Justin Weidner (2014). The Wealthy Hand-to-Mouth. *Brookings Papers on Economic Activity*

- Kaplan, Greg and Gianluca Violante (2014). A Model of the Consumption Response to Fiscal Stimulus Payments. *Econometrica*

- Kaplan, Greg and Gianluca Violante (2014). A Tale of Two Stimulus Payments: 2001 vs 2008. *American Economic Review PP*

- Aguiar, M., M. Bils, and C. Boar (2020). Who are the hand-to-mouth?. Mimeo. Princeton.

2. **Tractable HANK Models**

- Werning, I. (2015). Incomplete Markets and Aggregate Demand. NBER Working Paper 21448

- Acharya, Sushant and Keshav Dogra (2018). Understanding HANK: Insights from a PRANK. *Econometrica*

- Bilbiie, F. (2017): The New Keynesian Cross. *Discussion paper, CEPR.*

- Bilbiie, F., D. Kanzig and P. Surico (2019). Capital, Income Inequality, and Consumption: the Missing Link. *CEPR DP Nov. 2019*

- Bilbiie, F. (2019). Monetary Policy and Heterogeneity: An Analytical Framework.

- Ravn, Morten and V. Sterk. (2108). Macroeconomic Fluctuations with HANK & SAM: An Analytical Approach. Mimeo UCL.

- De Bortoli, D. and J. Gali (2017). Monetary Policy with Heterogeneous Agents: Insights from TANK models. Discussion paper, CREI.

- Broer, T., N.-J. Harbo Hansen, P. Krusell, and E. Öberg (2016). The New Keynesian Transmission Mechanism: A Heterogeneous-Agent Perspective.

3. **Monetary Policy in HANK**

- Kaplan, Greg, Ben Moll, and G.L. Violante (2017). Monetary Policy According to HANK.

- Patterson, C. (2019). The Matching Multiplier. Mimeo, MIT.

- Alves, F., Kaplan, G., B. Moll, and G. L. Violante (2019). A Further Look at the Propagation Mechanism of Monetary Policy Shocks in HANK.

- Luetticke, R. (2018). Transmission of Monetary Policy with Heterogeneity in Household Portfolios. Discussion paper, UCL.

- McKay, A., E. Nakamura, and J. Steinsson (2015). The Power of Forward Guidance Revisited. NBER Working Papers 20882

- Gali, J. (2018). The state of New Keynesian Economics: A Partial Assessment. *Journal of Economic Perspectives*

- Hagedorn, J. Luo, I. Manovskii, K. Mitman (2019). Forward Guidance. *Journal of Monetary Economics*

- Cui, C. and V. Sterk (2020). Quantitative Easing. Mimeo. UCL.

- Kekre, R. and M. Lenel (2020). Monetary Policy, Redistribution, and Risk Premia. Mimeo. U of Chicago.

4. **Computation of Heterogeneous Agents Models in Continuous Time**

- Achdou, Yves, Jiequn Han, Jean-Michel Lasry, Pierre-Louis Lions and Ben Moll (2017). Income and Wealth Distribution in Macroeconomics: A Continuous-Time Approach.

- Ahn, SeHyoun, Greg Kaplan, Thomas Winberry and Christian Wolf (2018). When Inequality Matters for Macro and Macro Matters for Inequality, *NBER Macroeconomics Annual*.

- Auclert, A., B. Bardoczy, M. Rognlie, and L. Straub (2019). Using the Sequence-Space Jacobian to Solve and Estimate Heterogeneous-Agent Models.

5. **Redistributional Effects of Monetary Policy: Evidence from Micro Data**

- Auclert, A. (2014): Monetary Policy and the Redistribution Channel. *American Economic Review*

- Slacalek, J. O. Tristani, and G.L. Violante (2019). Household Balance Sheet Channels of Monetary Policy: A Back of the Envelope Calculation for the Euro Area. *Journal of Economic Dynamics and Control*

- Di Maggio, M., Amir Kermani, B. J. Keys, T. Piskorski, R. Ramcharan, A. Seru and V. Yao. (2017). Interest Rate Pass-Through: Mortgage Rates, Household Consumption and Voluntary Deleveraging. *American Economic Review*.

- Floden, M., M. Kilstrom, J. Sigurdsson, and R. Vestman (2016). Household Debt and Monetary Policy: Revealing the Cash-Flow Channel.

- Cloyne, J., C. Ferreira, and P. Surico (2015). Monetary Policy when Households Have Debt: New Evidence on the Transmission Mechanism. *Review of Economic Studies*

- Almgren, N., J. Gallegos, J. Kramer, R. Lima (2018). Monetary Policy and the Wealthy Hand-to-Mouth. Mimeo. IIES, Stockholm.

- Crawley, E., A. Kuchler (2918). Consumption Heterogeneity: Micro Drivers and Macro Implications. Mimeo Fed Board.

- Holm, M., P. Paul, A. Tischbirek (2020). The Transmission of Monetary Policy under the Microscope. Mimeo. Statistics Norway.

6. **Optimal Monetary Policy in HANK**

- Gornemann, Nils, Keith Kuester and M. Nakajima (2016). Doves for the Rich, Hawks for the Poor? Distributional Consequences of Monetary Policy. Mimeo. Philadelphia Fed.

- Bhandari, A., D. Evans, M. Golosov, and T. Sargent (2018). Inequality, Business Cycles and Monetary-Fiscal Policy.

- Legrand, Francois, and Xavier Ragot (2017). Managing Inequality over the Business Cycles: Optimal Policies with Heterogeneous Agents and Aggregate Shocks.

- Acharya, S., E. Challe and K. Dogra (2019). Optimal Monetary Policy According to HANK.