Course Plan:
Adv. Macro: Heterogeneous Agent Models

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I. Consumption-Saving

- **Lecture 1. Introduction** (JD)

  Additional material: Heathcote et al. (2009); Kaplan and Violante (2018)

- **Lecture 2. Consumption-saving models** (PM)

  Required reading: Kaplan and Violante (2014)

  Additional material: Harmenberg and Oberg (2021); Kaplan and Violante (2021)

- **Lecture 3. Deviations from full rationality** (PM)

  Required reading: Carroll et al. (2020)

  Additional material: Attanasio et al. (2020)

II. Stationary Equilibrium

- **Lecture 4. Stationary equilibrium** (JD)

  Additional material: Aiyagari (1994)

  Additional material: Nothing

- **Lecture 5. Wealth inequality** (PM)

  Required reading: Hubmer et al. (2021)

  Additional material: De Nardi and Fella (2017)

- **Lecture 6. Housing wealth** (PM)

  Required reading: Sommer and Sullivan (2018)

  Additional material: Nothing

III. Transition Path

- **Lecture 7. Transition path** (JD)

  Required reading: Documentation for GEModelTools (*except on linearized solution and simulation*)

  Additional material: Auclert et al. (2021a), Kirkby (2017)

- **Lecture 8. Indebted demand** (PM)

  Required reading: Auclert et al. (2021b)

  Additional material: Mian et al. (2021)

IV. HANK

- **Lecture 9. A baseline HANK model** (JD)

  Required reading: Auclert et al. (2021a)

  Additional material: McKay and Reis (2016); Kaplan et al. (2018); Hagedorn et al. (2019); Bayer et al. (2019); Alves et al. (2020); Auclert et al. (2020)

- **Lecture 10. Analytical HANK models** (PM)

  Required reading: Werning (2015); Auclert et al. (2018); Broer et al. (2020)

  Additional material: Nothing

- **Lecture 11. I-HANK** (Guest)

  Required reading: Druedahl et al. (2022)

  Additional material: Auclert et al. (2021c)

- **Lecture 12. HANK-SAM** (JD)

  Required reading: Broer et al. (2022)

  Additional material: Den Haan et al. (2018); Ravn and Sterk (2021)

- **Lecture 13. Global solution methods with aggregate risk** (JD)

  Required reading: Druedahl and Partsch (2022)

  Additional material: Krusell and Smith (1998); Algan et al. (2014); Maliar et al. (2021); Azinovic et al. (2022); Kase et al. (2022)

Conclusion

- **Lecture 14. Exam preparation** (JD)

References

Aiyagari, S. R. (1994). Uninsured Idiosyncratic Risk and Aggregate Saving. *The Quarterly Journal of Economics*, 109(3):659–684.

Algan, Y., Allais, O., Den Haan, W. J., and Rendahl, P. (2014). Chapter 6 - Solving and Simulating Models with Heterogeneous Agents and Aggregate Uncertainty. In Schmedders, K. and Judd, K. L., editors, *Handbook of Computational Economics*, volume 3 of *Handbook of Computational Economics Vol. 3*, pages 277–324. Elsevier.

Alves, F., Kaplan, G., Moll, B., and Violante, G. L. (2020). A Further Look at the Propagation of Monetary Policy Shocks in HANK. *Journal of Money, Credit and Banking*, 52(S2):521–559.

Attanasio, O., Kovacs, A., and Moran, P. (2020). Temptation and Commitment: Understanding Hand-to-Mouth Behavior. Working Paper.

Auclert, A., Bardoczy, B., Rognlie, M., and Straub, L. (2021a). Using the Sequence-Space Jacobian to Solve and Estimate Heterogeneous-Agent Models. *Econometrica*, 89(5):2375–2408.

Auclert, A., Malmberg, H., Martenet, F., and Rognlie, M. (2021b). Demographics, Wealth, and Global Imbalances in the Twenty-First Century. Working Paper.

Auclert, A., Rognlie, M., Souchier, M., and Straub, L. (2021c). Exchange Rates and Monetary Policy with Heterogeneous Agents: Sizing up the Real Income Channel. NBER Working Paper 28872.

Auclert, A., Rognlie, M., and Straub, L. (2018). The Intertemporal Keynesian Cross. NBER Working Paper 25020, National Bureau of Economic Research.

Auclert, A., Rognlie, M., and Straub, L. (2020). Micro Jumps, Macro Humps: Monetary Policy and Business Cycles in an Estimated HANK Model. NBER Working Paper 26647.

Azinovic, M., Gaegauf, L., and Scheidegger, S. (2022). Deep Equilibrium Nets. forthcoming in International Economic Review.

Bayer, C., Luetticke, R., Pham-Dao, L., and Tjaden, V. (2019). Precautionary Savings, Illiquid Assets, and the Aggregate Consequences of Shocks to Household Income Risk. *Econometrica*, 87(1):255–290.

Broer, T., Druedahl, J., Harmenberg, K., and Öberg, E. (2022). The Unemployment-Risk Channel in Business-Cycle Fluctuations. Working Paper.

Broer, T., Harbo Hansen, N.-J., Krusell, P., and Oberg, E. (2020). The New Keynesian Transmission Mechanism: A Heterogeneous-Agent Perspective. *The Review of Economic Studies*, 87(1):77–101.

Carroll, C. D., Crawley, E., Slacalek, J., Tokuoka, K., and White, M. N. (2020). Sticky Expectations and Consumption Dynamics. *American Economic Journal: Macroeconomics*, 12(3):40–76.

De Nardi, M. and Fella, G. (2017). Saving and wealth inequality. *Review of Economic Dynamics*, 26:280–300.

Den Haan, W. J., Rendahl, P., and Riegler, M. (2018). Unemployment (Fears) and Deflationary Spirals. *Journal of the European Economic Association*, 16(5):1281–1349.

Druedahl, J. and Partsch, E. H. (2022). Global Solutions of Heterogeneous Agent Models with Nonlinear Aggregate Dynamics. Working Paper.

Druedahl, J., Ravn, S. H., Sunder-Plassmann, L., Sundram, J. M., and Waldstrøm, N. (2022). The Transmission of Foreign Demand Shocks. Working Paper.

Hagedorn, M., Manovskii, I., and Mitman, K. (2019). The Fiscal Multiplier. NBER Working Paper 25571.

Harmenberg, K. and Oberg, E. (2021). Consumption dynamics under time-varying unemployment risk. *Journal of Monetary Economics*, 118:350–365.

Heathcote, J., Storesletten, K., and Violante, G. L. (2009). Quantitative Macroeconomics with Heterogeneous Households. *Annual Review of Economics*, 1(1):319–354.

Hubmer, J., Krusell, P., and Smith., A. A. (2021). Sources of US Wealth Inequality: Past, Present, and Future. *NBER Macroeconomics Annual*, 35:391–455. Publisher: The University of Chicago Press.

Kaplan, G., Moll, B., and Violante, G. L. (2018). Monetary Policy According to HANK. *American Economic Review*, 108(3):697–743.

Kaplan, G. and Violante, G. L. (2014). A Model of the Consumption Response to Fiscal Stimulus Payments. *Econometrica*, 82(4):1199–1239.

Kaplan, G. and Violante, G. L. (2018). Microeconomic Heterogeneity and Macroeconomic Shocks. *Journal of Economic Perspectives*, 32(3):167–194.

Kaplan, G. and Violante, G. L. (2021). The Marginal Propensity to Consume in Heterogeneous Agent Models. page 52.

Kase, H., Melosi, L., and Rottner, M. (2022). Estimating Nonlinear Heterogeneous Agents Models with Neural Networks. Federal Reserve Bank of Chicago, WP 2022-26.

Kirkby, R. (2017). Transition paths for Bewley-Huggett-Aiyagari models: Comparison of some solution algorithms. Working Paper.

Krusell, P. and Smith, A. A. (1998). Income and wealth heterogeneity in the macroeconomy. *Journal of Political Economy*, 106(5):867–896.

Maliar, L., Maliar, S., and Winant, P. (2021). Deep learning for solving dynamic economic models. *Journal of Monetary Economics*, 122:76–101.

McKay, A. and Reis, R. (2016). The Role of Automatic Stabilizers in the U.S. Business Cycle. *Econometrica*, 84(1):141–194.

Mian, A., Straub, L., and Sufi, A. (2021). Indebted Demand. *The Quarterly Journal of Economics*, 136(4):2243–2307.

Ravn, M. O. and Sterk, V. (2021). Macroeconomic Fluctuations with HANK & SAM: an Analytical Approach. *Journal of the European Economic Association*, 19(2):1162–1202.

Sommer, K. and Sullivan, P. (2018). Implications of US Tax Policy for House Prices, Rents, and Homeownership. *American Economic Review*, 108(2):241–274.

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