

## **Econ 236B Advanced Macroeconomics II**

**Contact information:** Email – chen\_lian@berkeley.edu

**Time:** Weekly 2-hour lecture; Monday 2:10-4pm (start at 2:10pm sharp, per Berkeley tradition).

**Location:** Evans 560.

**Office hour:** After the lecture and by appointment.

### **Course objectives**

This course focuses on modern macroeconomic theory and quantitative methods. The course is designed to familiarize graduate students in economics and other related fields with essential tools to conduct macroeconomic research.

### **Tentative course outline and schedule**

Monetary and Fiscal Policy (6 lectures):

Lecture 1 and Lecture 2. Optimal Fiscal and Monetary Policy in a Neoclassical Economy

Lecture 3. Neoclassical Heterogeneous-agent Models with an Incomplete Market

Lecture 4. Topics in RANK: Monetary Policy and Fiscal Policy

Lecture 5. Monetary and Fiscal Policy in Analytical HANK

Lecture 6. Monetary and Fiscal Policy in Quantitative HANK

Bounded Rationality and Incomplete Information in Macroeconomics:

Lecture 7. Noisy information models and rational inattention

Lecture 8. Survey evidence on expectations formation

Lecture 9. Dampening general equilibrium: models of imperfect coordination

Lecture 10. Macroeconomics with imperfect coordination

Lecture 11. Confidence, sentiments, and animal spirits

## Lecture 12. Student Presentation

### **Prerequisites**

Economics 201A/202A/201B/202B or their equivalents.

Admission will be automatic for regular Berkeley PhD students. Undergraduate and master students who have an interest in economics graduate studies are also encouraged to consider taking the course, but with my consent.

Berkeley PhD students are welcome to audit the class.

### **Course website**

I will post lecture slides and assignments on bCourse. You should submit all assignments through bCourse.

### **Problem sets**

There will be three problem sets assigned throughout the course of the semester. You are encouraged to work together on problem sets, but you must write up your solutions independently and indicate whom you worked with on the top of the relevant assignments.

The deadline of problem sets submission:

Theoretical problem set 1 due on Mar 8 (15% of the final grade)

Computational problem set due on Mar 29 (15% of the final grade)

Theoretical problem set 2 due on April 19 (15% of the final grade)

### **Grading and course requirements**

The course requirements are the completion of three problem sets (45% in total) and a replication exercise/final presentation (50%), and participation (5% total).

The **replication exercise** will focus on replicating the quantitative analysis of a recent macroeconomic research paper. I will provide a list of papers for students to choose through a class email. Students can propose other papers to replicate too.

This exercise consists of a presentation (final class on April 28) and a report (due on May 8).

In the presentation, you should summarize the economic environment of the paper, the numerical method, compare your replication results with the paper's results.

In the report (10-15 pages), again you should summarize the economic environment of the paper, the numerical method, compare your replication results with the paper's results. Students are expected to submit their codes along with the report.

The emphasis will be focusing on the quantitative analysis (instead of the empirical analysis) of a recent paper. Students are expected to replicate the main analysis/figures but not all robustness checks.

Please see the following link for a list of papers, and write down your name and selected paper in the Google Doc. The deadline is February 8.

[https://docs.google.com/document/d/1t\\_K9aUrBj7ocfGVCLfHvTpSFYJSxKvHtm2zXAJZylg/edit?usp=sharing](https://docs.google.com/document/d/1t_K9aUrBj7ocfGVCLfHvTpSFYJSxKvHtm2zXAJZylg/edit?usp=sharing)



## Readings (subject to change)

The readings for this course are journal articles and unpublished papers. I've organized the readings by lecture topic below. The \* papers are the ones I plan to focus on, and are recommended, though not fully required, reading.

*Block 1:* Deviations from the Full Information Rational Expectations (FIRE) benchmark and Expectations formations

## Lecture 1 - 2: Optimal Fiscal and Monetary Policy in a Neoclassical Economy

- \*Ljungqvist, L., & Sargent, T. J. (2018). Recursive Macroeconomic Theory. MIT press. Chapter 16 and Chapter 27.
- \*Barro, R. J. (1979). On the determination of the public debt. *Journal of Political Economy*, 87(5), 940-971.
- \*Lucas Jr, R. E., & Stokey, N. L. (1983). Optimal fiscal and monetary policy in an economy without capital. *Journal of Monetary Economics*, 12(1), 55-93.
- \*Chari, V. V., Christiano, L. J., & Kehoe, P. J. (1996). Optimality of the Friedman rule in economies with distorting taxes. *Journal of Monetary Economics*, 37(2), 203-223.
- \*Chari, V. V., & Kehoe, P. J. (1999). Optimal fiscal and monetary policy. *Handbook of Macroeconomics*, 1, 1671-1745.
- \*Straub, L., & Werning, I. (2020). Positive long-run capital taxation: Chamley-Judd revisited. *American Economic Review*, 110(1), 86-119.
- Judd, K. L. (1985). Redistributive taxation in a simple perfect foresight model. *Journal of Public Economics*, 28(1), 59-83.
- Chamley, C. (1986). Optimal taxation of capital income in general equilibrium with infinite lives. *Econometrica*, 54(3), 607-622.
- Chari, V. V., Christiano, L. J., & Kehoe, P. J. (1994). Optimal fiscal policy in a business cycle model. *Journal of Political Economy*, 102(4), 617-652.
- Aiyagari, S. R. (1995). Optimal capital income taxation with incomplete markets, borrowing constraints, and constant discounting. *Journal of Political Economy*, 103(6), 1158-1175.
- Aiyagari, S. R., Marcet, A., Sargent, T. J., & Seppälä, J. (2002). Optimal taxation without state-contingent debt. *Journal of Political Economy*, 110(6), 1220-1254.
- Angeletos, G. M. (2002). Fiscal policy with noncontingent debt and the optimal maturity structure. *Quarterly Journal of Economics*, 117(3), 1105-1131.
- Benigno, P., & Woodford, M. (2003). Optimal monetary and fiscal policy: A linear-quadratic approach. *NBER Macroeconomics annual*, 18, 271-333.
- Schmitt-Grohé, S., & Uribe, M. (2004). Optimal fiscal and monetary policy under sticky prices. *Journal of Economic Theory*, 114(2), 198-230.
- Domeij, D., & Heathcote, J. (2004). On the distributional effects of reducing capital taxes. *International economic review*, 45(2), 523-554.
- Conesa, J. C., Kitao, S., & Krueger, D. (2009). Taxing capital? Not a bad idea after all!. *American Economic Review*, 99(1), 25-48.

- Bhandari, A., Evans, D., Golosov, M., & Sargent, T. J. (2017). Fiscal policy and debt management with incomplete markets. *Quarterly Journal of Economics*, 132(2), 617-663.
- Bhandari, A., Evans, D., Golosov, M., & Sargent, T. J. (2021). Inequality, Business Cycles, and Monetary-Fiscal Policy. *Econometrica*, 89(6), 2559-2599.
- Debortoli, D., Nunes, R., & Yared, P. (2021). Optimal fiscal policy without commitment: Revisiting Lucas-Stokey. *Journal of Political Economy*, 129(5), 1640-1665.
- Dávila, E., & Schaab, A. (2023). Optimal monetary policy with heterogeneous agents: A timeless ramsey approach. NBER Working Paper.
- Dávila, E., & Schaab, A. (2025). Welfare assessments with heterogeneous individuals. *Journal of Political Economy*, 133(9), 2918-2961.
- Auclert, A., Cai, M., Rognlie, M., & Straub, L. (2024). Optimal long-run fiscal policy with heterogeneous agents. Working Paper.

### **Lecture 3. Neoclassical Heterogeneous-agent Models with an Incomplete Market**

- \*Ljungqvist, L., & Sargent, T. J. (2018). *Recursive Macroeconomic Theory*. MIT press. Chapter 17 and 18.
- \*Aiyagari, S. R. (1994). Uninsured idiosyncratic risk and aggregate saving. *Quarterly Journal of Economics*, 109(3), 659-684.
- \*Krusell, P., & Smith, Jr, A. A. (1998). Income and wealth heterogeneity in the macroeconomy. *Journal of Political Economy*, 106(5), 867-896.
- \*Kaplan, G., & Violante, G. L. (2014). A model of the consumption response to fiscal stimulus payments. *Econometrica*, 82(4), 1199-1239.
- \*Kaplan, G., & Violante, G. L. (2022). The Marginal Propensity to Consume in Heterogeneous Agent Models. *Annual Review of Economics*, 14, 747-775.
- \*Auclert, A., Bardóczy, B., Rognlie, M., & Straub, L. (2021). Using the sequence-space Jacobian to solve and estimate heterogeneous-agent models. *Econometrica*, 89(5), 2375-2408.
- Hall, R. E. (1978). Stochastic implications of the life cycle-permanent income hypothesis: theory and evidence. *Journal of Political Economy*, 86(6), 971-987.
- Kimball, M. S. (1990). Precautionary Saving in the Small and in the Large. *Econometrica*, 58(1), 53-73.
- Huggett, M. (1993). The risk-free rate in heterogeneous-agent incomplete-insurance economies. *Journal of Economic Dynamics and Control*, 17(5-6), 953-969.
- Rouwenhorst, K. G. (1995). Asset Pricing Implications of Equilibrium Business Cycle Models. In *Frontiers of Business Cycle Research* (pp. 294-330). Princeton University Press.
- Carroll, C. D. (1997). Buffer-stock saving and the life cycle/permanent income hypothesis. *The Quarterly Journal of Economics*, 112(1), 1-55.
- Aiyagari, S. R., & McGrattan, E. R. (1998). The optimum quantity of debt. *Journal of Monetary Economics*, 42(3), 447-469.

- Quadrini, V. (2000). Entrepreneurship, saving, and social mobility. *Review of Economic Dynamics*, 3(1), 1-40.
- Chamberlain, G., & Wilson, C. A. (2000). Optimal intertemporal consumption under uncertainty. *Review of Economic Dynamics*, 3(3), 365-395.
- Castaneda, A., Diaz-Gimenez, J., & Rios-Rull, J. V. (2003). Accounting for the US earnings and wealth inequality. *Journal of Political Economy*, 111(4), 818-857.
- De Nardi, M. (2004). Wealth inequality and intergenerational links. *The Review of Economic Studies*, 71(3), 743-768.
- Carroll, C. D. (2006). The method of endogenous grid points for solving dynamic stochastic optimization problems. *Economics Letters*, 91(3), 312-320.
- Blundell, R., Pistaferri, L., & Preston, I. (2008). Consumption inequality and partial insurance. *American Economic Review*, 98(5), 1887-1921.
- Reiter, M. (2009). Solving heterogeneous-agent models by projection and perturbation. *Journal of Economic Dynamics and Control*, 33(3), 649-665.
- Heathcote, J., Storesletten, K., & Violante, G. L. (2009). Quantitative Macroeconomics with Heterogeneous Households. *Annual Review of Economics*, 1(1), 319-354.
- Kaplan, G., & Violante, G. L. (2010). How much consumption insurance beyond self-insurance?. *American Economic Journal: Macroeconomics*, 2(4), 53-87.
- Jappelli, T., & Pistaferri, L. (2010). The consumption response to income changes. *Annual Review of Economics*, 2(1), 479-506.
- Attanasio, O.P. and Weber, G. (2010). Consumption and Saving: Models of Intertemporal Allocation and Their Implications for Public Policy. *Journal of Economic Literature*. 48(3):693-751
- Krueger, D., Mitman, K., & Perri, F. (2016). Macroeconomics and household heterogeneity. In *Handbook of Macroeconomics* (Vol. 2, pp. 843-921). Elsevier.
- Boppart, T., Krusell, P., & Mitman, K. (2018). Exploiting MIT shocks in heterogeneous-agent economies: the impulse response as a numerical derivative. *Journal of Economic Dynamics and Control*, 89, 68-92.
- Kaplan, G., & Violante, G. L. (2018). Microeconomic heterogeneity and macroeconomic shocks. *Journal of Economic Perspectives*, 32(3), 167-94.
- Ahn, S., Kaplan, G., Moll, B., Winberry, T., & Wolf, C. (2018). When inequality matters for macro and macro matters for inequality. *NBER Macroeconomics Annual*, 32(1), 1-75.
- Bayer, C., Lüttinge, R., Pham-Dao, L., & Tjaden, V. (2019). Precautionary savings, illiquid assets, and the aggregate consequences of shocks to household income risk. *Econometrica*, 87(1), 255-290.
- Bayer, C., & Luettinge, R. (2020). Solving discrete time heterogeneous agent models with aggregate risk and many idiosyncratic states by perturbation. *Quantitative Economics*, 11(4), 1253-1288.
- Carroll, C. D., Holm, M. B., & Kimball, M. S. (2021). Liquidity constraints and precautionary saving. *Journal of Economic Theory*, 195, 105276.

- Fuster, A., Kaplan, G., & Zafar, B. (2021). What would you do with \$500? Spending responses to gains, losses, news, and loans. *The Review of Economic Studies*, 88(4), 1760-1795.
- Fagereng, A., Holm, M. B., Moll, B., & Natvik, G. (2021). Saving behavior across the wealth distribution: The importance of capital gains. NBER Working Paper.
- Achdou, Y., Han, J., Lasry, J. M., Lions, P. L., & Moll, B. (2022). Income and wealth distribution in macroeconomics: A continuous-time approach. *The Review of Economic Studies*, 89(1), 45-86.
- Aguiar, M., Bils, M., & Boar, C. (2025). Who are the Hand-to-Mouth?. *Review of Economic Studies*, 92(3), 1293-1340.

#### **Lecture 4. Topics in RANK: Monetary Policy and Fiscal Policy**

- \*Woodford, Michael. "Simple analytics of the government expenditure multiplier." *American Economic Journal: Macroeconomics* 3.1 (2011): 1-35.
- \*Werning, I. (2012). Managing a liquidity trap: Monetary and fiscal policy. NBER Working Paper.
- \*Galí, J. (2015). Monetary policy, inflation, and the business cycle: an introduction to the new Keynesian framework and its applications. Princeton University Press. Chapter 3-5.
- Kydland, F. E., & Prescott, E. C. (1977). Rules rather than discretion: The inconsistency of optimal plans. *Journal of Political Economy*, 85(3), 473-491.
- Barro, R. J. (1981). Output effects of government purchases. *Journal of Political Economy*, 89(6), 1086-1121.
- Barro, R. J., & Gordon, D. B. (1983). Rules, discretion and reputation in a model of monetary policy. *Journal of Monetary Economics*, 12(1), 101-121.
- Aiyagari, S. R., Christiano, L. J., & Eichenbaum, M. (1992). The output, employment, and interest rate effects of government consumption. *Journal of Monetary Economics*, 30(1), 73-86.
- Taylor, J. B. (1993). Discretion versus policy rules in practice. In *Carnegie-Rochester conference series on public policy* (39), 195-214.
- Baxter, M., & King, R. G. (1993). Fiscal policy in general equilibrium. *The American Economic Review*, 315-334.
- Ramey, V. A., & Shapiro, M. D. (1998, June). Costly capital reallocation and the effects of government spending. In *Carnegie-Rochester Conference Series on Public Policy* (Vol. 48, pp. 145-194). North-Holland.
- Clarida, R., Gali, J., & Gertler, M. (1999). The science of monetary policy: a new Keynesian perspective. *Journal of Economic Literature*, 37(4), 1661-1707.
- Clarida, R., Gali, J., & Gertler, M. (2000). Monetary policy rules and macroeconomic stability: evidence and some theory. *The Quarterly Journal of Economics*, 115(1), 147-180.
- Blanchard, O., & Perotti, R. (2002). An empirical characterization of the dynamic effects of changes in government spending and taxes on output. *Quarterly Journal of Economics*, 117(4), 1329-1368.

- Woodford, M. (2003). *Interest and prices: Foundations of a Theory of Monetary Policy*. Princeton University Press.
- Eggertsson, G. B. (2003). Zero bound on interest rates and optimal monetary policy. *Brookings Papers on Economic Activity*, 2003(1), 139-233.
- Burnside, C., Eichenbaum, M., & Fisher, J. D. (2004). Fiscal shocks and their consequences. *Journal of Economic Theory*, 115(1), 89-117.
- Christiano, L. J., Eichenbaum, M., & Evans, C. L. (2005). Nominal rigidities and the dynamic effects of a shock to monetary policy. *Journal of Political Economy*, 113(1), 1-45.
- Smets, F., & Wouters, R. (2007). Shocks and frictions in US business cycles: A Bayesian DSGE approach. *American Economic Review*, 97(3), 586-606.
- Galí, Jordi, J. David López-Salido, and Javier Vallés. (2007). "Understanding the effects of government spending on consumption." *Journal of the European Economic Association* 5.1 (2007): 227-270.
- Ramey, V. A. (2011). "Can government purchases stimulate the economy?" *Journal of Economic Literature*, 49(3), 673-85.
- Christiano, L., Eichenbaum, M., & Rebelo, S. (2011). When is the government spending multiplier large?. *Journal of Political Economy*, 119(1), 78-121.
- Eggertsson, G. B. (2011). What fiscal policy is effective at zero interest rates?. *NBER Macroeconomics Annual*, 25(1), 59-112.
- Eggertsson, G. B., & Krugman, P. (2012). Debt, deleveraging, and the liquidity trap: A Fisher-Minsky-Koo approach. *The Quarterly Journal of Economics*, 127(3), 1469-1513.
- Auerbach, A. J., & Gorodnichenko, Y. (2012). Measuring the output responses to fiscal policy. *American Economic Journal: Economic Policy*, 4(2), 1-27.
- Correia, I., Farhi, E., Nicolini, J. P., & Teles, P. (2013). Unconventional fiscal policy at the zero bound. *American Economic Review*, 103(4), 1172-1211.
- Mertens, K. R., & Ravn, M. O. (2014). Fiscal policy in an expectations-driven liquidity trap. *The Review of Economic Studies*, 81(4), 1637-1667.
- Nakamura, E., & Steinsson, J. (2014). Fiscal stimulus in a monetary union: Evidence from US regions. *American Economic Review*, 104(3), 753-92.
- Del Negro, M., Giannoni, M. P., & Patterson, C. (2015). The Forward Guidance puzzle. *FRB of New York Staff Report*.
- Farhi, E., & Werning, I. (2016). Fiscal multipliers: Liquidity traps and currency unions. In *Handbook of Macroeconomics* (2), 2417-2492. Elsevier.
- McKay, A., & Reis, R. (2016). The role of automatic stabilizers in the US business cycle. *Econometrica*, 84(1), 141-194.
- Cochrane, J. H. (2017). "The new-Keynesian liquidity trap," *Journal of Monetary Economics*, 92, 47-63.
- Leeper, E. M., Traum, N., & Walker, T. B. (2017). Clearing up the fiscal multiplier morass. *American Economic Review*, 107(8), 2409-54.
- Galí, J. (2018). The state of New Keynesian economics: a partial assessment. *Journal of Economic Perspectives*, 32(3), 87-112.

- Ramey, V. A., & Zubairy, S. (2018). Government spending multipliers in good times and in bad: evidence from US historical data. *Journal of Political Economy*, 126(2), 850-901.
- Wieland, J. F. (2019). Are negative supply shocks expansionary at the zero lower bound?. *Journal of Political Economy*, 127(3), 973-1007.
- Angeletos, G. M., & Lian, C. (2023). Determinacy without the Taylor principle. *Journal of Political Economy*, 131(8), 2125-2164.

### **Lecture 5 and 6. Monetary and Fiscal Policy in HANK**

- \*Werning, I. (2015). Incomplete markets and aggregate demand. NBER Working Paper.
- \*Kaplan, G., Moll, B., & Violante, G. L. (2018). Monetary policy according to HANK. *American Economic Review*, 108(3), 697-743.
- \*Acharya, S., & Dogra, K. (2020). Understanding HANK: Insights from a PRANK. *Econometrica*, 88(3), 1113-1158.
- \*Angeletos, G. M., Lian, C., & Wolf, C. K. (2024). Can Deficits Finance Themselves?. *Econometrica*, 92(5), 1351-1390.
- \*Auclert, A., Rognlie, M., & Straub, L. (2024). The intertemporal keynesian cross. *Journal of Political Economy*, 132(12), 4068-4121.
- \*Auclert, A., Rognlie, M., & Straub, L. (2024). Fiscal and monetary policy with heterogeneous agents. NBER Working Paper.
- Bilbiie, F. O. (2008). Limited asset markets participation, monetary policy and (inverted) aggregate demand logic. *Journal of Economic Theory*, 140(1), 162-196.
- McKay, A., Nakamura, E., & Steinsson, J. (2016). The power of forward guidance revisited. *American Economic Review*, 106(10), 3133-58.
- Hagedorn, M., Manovskii, I., & Mitman, K. (2019). The Fiscal Multiplier. NBER Working Paper.
- Auclert, A. (2019). Monetary policy and the redistribution channel. *American Economic Review*, 109(6), 2333-67.
- Hagedorn, M., Luo, J., Manovskii, I., & Mitman, K. (2019). Forward guidance. *Journal of Monetary Economics*, 102, 1-23.
- Auclert, A., & Rognlie, M. (2020). Inequality and aggregate demand. National NBER Working Paper.
- Broer, T., Harbo Hansen, N. J., Krusell, P., & Öberg, E. (2020). The New Keynesian transmission mechanism: A heterogeneous-agent perspective. *The Review of Economic Studies*, 87(1), 77-101.
- Auclert, A., Rognlie, M., & Straub, L. (2020). Micro jumps, macro humps: Monetary policy and business cycles in an estimated HANK model. NBER Working Paper.
- Fagereng, A., Holm, M. B., & Natvik, G. J. (2021). MPC heterogeneity and household balance sheets. *American Economic Journal: Macroeconomics*, 13(4), 1-54.
- Ravn, M. O., & Sterk, V. (2021). Macroeconomic fluctuations with HANK &

- SAM: An analytical approach. *Journal of the European Economic Association*, 19(2), 1162-1202.
- Holm, M. B., Paul, P., & Tischbirek, A. (2021). The transmission of monetary policy under the microscope. *Journal of Political Economy*, 129(10), 2861-2904.
  - Kekre, R. (2023). Unemployment insurance in macroeconomic stabilization. *Review of Economic Studies*, 90(5), 2439-2480.
  - Acharya, S., Challe, E., & Dogra, K. (2023). Optimal monetary policy according to HANK. *American Economic Review*, 113(7), 1741-1782.
  - Patterson, C. (2023). The matching multiplier and the amplification of recessions. *American Economic Review*, 113(4), 982-1012.
  - Dávila, E., & Schaab, A. (2023). Optimal monetary policy with heterogeneous agents: Discretion, commitment, and timeless policy. NBER Working Paper.
  - Wolf, C. K. (2024). Interest rate cuts vs. stimulus payments: An equivalence result. *Journal of Political Economy*.
  - Debortoli, D. and Galí, J. (2024). Heterogeneity and Aggregate Fluctuations: Insights from TANK Models. NBER Macroeconomics Annual.
  - Bilbiie, F. O. (2024). Monetary policy and heterogeneity: An analytical framework. *Review of Economic Studies*.
  - McKay, A., & Wolf, C. K. (2024). Optimal Policy Rules in HANK. NBER Working Paper.
  - Auclert, A., Rognlie, M., & Straub, L. (2025). Fiscal and monetary policy with heterogeneous agents. *Annual Review of Economics*.
  - Kaplan, G. (2025). Implications of Fiscal-Monetary Interaction from HANK Models. NBER Working Paper.

### **Lecture 7: Noisy information models and rational inattention**

- \*Gabaix, X. (2014). A sparsity-based model of bounded rationality. *The Quarterly Journal of Economics*
- \*Sims, C. A. (2003). Implications of rational inattention. *Journal of Monetary Economics*,
- \*Mackowiak, B., & Wiederholt, M. (2009). Optimal sticky prices under rational inattention. *American Economic Review*.
- \*Gabaix, X. (2019). Behavioral inattention. *Handbook of Behavioral Economics: Applications and Foundations*.

Theoretical and psychological foundations:

- Sims, C. A. (2010). Rational inattention and monetary economics. In *Handbook of Monetary Economics*. Vol. 3.
- Anderson, J. R. (2014). *Cognitive psychology and its implications* (8th Edition). Chapter 3.
- Caplin, A., & Dean, M. (2015). Revealed preference, rational inattention, and costly information acquisition. *American Economic Review*.
- De Oliveira, H., Denti, T., Mihm, M., & Ozbek, K. (2017). Rationally inattentive

- preferences and hidden information costs. *Theoretical Economics*.
- Maćkowiak, B., Matějka, F., & Wiederholt, M. (2018). Dynamic rational inattention: Analytical results. *Journal of Economic Theory*.
  - Caplin, A., Dean, M., & Leahy, J. (2022). Rationally inattentive behavior: Characterizing and generalizing Shannon entropy. *Journal of Political Economy*, 130(6), 1676-1715.
  - Afrouzi, H., & Yang, C. (2021). Dynamic Rational Inattention and the Phillips Curve. Mimeo.
  - Woodford, M. (2019). Modeling Imprecision in Perception, Valuation, and Choice. *Annual Review of Economics*.
  - Kőszegi, B., & Matějka, F. (2020). Choice simplification: A theory of mental budgeting and naive diversification. *The Quarterly Journal of Economics*, 135(2), 1153-1207.
  - Hébert, B., & Woodford, M. (2021). Neighborhood-based information costs. *American Economic Review*, 111(10), 3225-3255.
  - Khaw, M. W., Li, Z., & Woodford, M. (2021). Cognitive imprecision and small-stakes risk aversion. *The Review of Economic Studies*.
  - Miao, J., Wu, J., & Young, E. R. (2022). Multivariate rational inattention. *Econometrica*, 90(2), 907-945.
  - Frydman, C., & Jin, L. J. (2022). Efficient coding and risky choice. *Quarterly Journal of Economics*.
  - Denti, T. (2022). Posterior separable cost of information. *American Economic Review*, 112(10), 3215-3259.
  - Pomatto, L., Strack, P., & Tamuz, O. (2023). The cost of information: The case of constant marginal costs. *American Economic Review*, 113(5), 1360-1393.
  - Dean, M., & Neligh, N. (2023). Experimental tests of rational inattention. *Journal of Political Economy*, 131(12), 3415-3461.
  - Hébert, B., & Woodford, M. (2023). Rational inattention when decisions take time. *Journal of Economic Theory*.

#### Applications:

- Van Nieuwerburgh, S., & Veldkamp, L. (2009). Information immobility and the home bias puzzle. *The Journal of Finance*.
- Van Nieuwerburgh, S., & Veldkamp, L. (2010). Information acquisition and under-diversification. *The Review of Economic Studies*.
- Maćkowiak, B., & Wiederholt, M. (2015). Business cycle dynamics under rational inattention. *The Review of Economic Studies*.
- Matějka, F., & McKay, A. (2015). Rational inattention to discrete choices: A new foundation for the multinomial logit model. *American Economic Review*.
- Kacperczyk, M., Van Nieuwerburgh, S., & Veldkamp, L. (2016). A rational theory of mutual funds' attention allocation. *Econometrica*.
- Matějka, F. (2016). Rationally inattentive seller: Sales and discrete pricing. *The Review of Economic Studies*.

- Flynn, J. P., & Sastry, K. (2024). Attention cycles. NBER Working Paper.
- Afrouzi, H., Flynn, J. P., & Yang, C. (2024). What Can Measured Beliefs Tell Us About Monetary Non-Neutrality? NBER Working Paper.

### **Lecture 8. Survey evidence on expectations formation**

- \*Coibion, O., & Gorodnichenko, Y. (2012). What can survey forecasts tell us about information rigidities?. *Journal of Political Economy*.
- \*Coibion, O., & Gorodnichenko, Y. (2015). Information rigidity and the expectations formation process: A simple framework and new facts. *American Economic Review*.
- \*Bordalo, P., Gennaioli, N., Ma, Y., & Shleifer, A. (2020). Over-reaction in macroeconomic expectations. *American Economic Review*.
- \*Angeletos, G. M., Huo, Z., & Sastry, K. A. (2020). Imperfect macroeconomic expectations: Evidence and Theory. *NBER Macroeconomics Annual*.

#### Theory:

- Evans, G. W., & Honkapohja, S. (2001). *Learning and expectations in macroeconomics*. Princeton University Press.
- Mankiw, N. G., & Reis, R. (2002). Sticky information versus sticky prices: a proposal to replace the New Keynesian Phillips curve. *The Quarterly Journal of Economics*.
- Carroll, C. D. (2003). Macroeconomic expectations of households and professional forecasters. *The Quarterly Journal of Economics*.
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