

# Topics in Macroeconomics IV: Economic Fluctuations

2025-2026 Academic Year

Master of Research in Economics, Finance and Management

## 1. Description of the subject

- Topics in Macroeconomics III Code: 32082
- Total credits: 3 ECTS Workload: 75 hours
- Term: 2nd
- Type of subject: Optative
- Department of Economics and Business
- Teaching Team: Jordi Galí and Mishel Ghassibe

## 2. Teaching guide

### Introduction

Part I (taught by Jordi Galí) will cover several extensions of the New Keynesian framework and will provide an overview of the related recent literature.

Part II (taught by Mishel Ghassibe) centers around network interconnectedness and granularity: how shocks and frictions originating at the level of individual firms and sectors can have aggregate consequences. The course first derives key theoretical aggregation results, which relate changes in macroeconomic aggregates to microeconomic shocks and frictions. The key theoretical principles are then applied to questions of origins of business cycles and optimal monetary policy.

Students taking the course must have completed successfully the Advanced Macro sequence (or a similar sequence if they are visiting students).

### Contents

#### **PART I: Extensions of the New Keynesian Framework (Jordi Galí)**

In addition to the readings listed below for each topic, the following textbooks provide useful background reading for the course:

Benigno, Pierpaolo (2024): Monetary Economics and Policy. A Foundation for Modern Currency Systems. Princeton University Press (Princeton, NJ), forthcoming.

Galí, Jordi (2015): Monetary Policy, Inflation and the Business Cycle. An Introduction to the New Keynesian Framework, Second edition, Princeton University Press (Princeton, NJ).

Walsh, Carl E. (2017): Monetary Theory and Policy, Fourth edition, MIT Press (Cambridge, MA)

Woodford, Michael (2003): Interest and Prices: Foundations of a Theory of Monetary Policy, Princeton University Press (Princeton, NJ).

#### 1. Open Economies

Clarida, Richard, Jordi Galí, and Mark Gertler (2002): "A Simple Framework for International Monetary Policy Analysis," *Journal of Monetary Economics*, vol. 49, no. 5, 879-904.

Corsetti, Giancarlo, Luca Dedola, and Sylvain Leduc (2011): "Optimal Monetary Policy in Open Economies," in B. Friedman and M. Woodford (eds.) *Handbook of Monetary Economics*, vol 3B, 861-934.

Engel, Charles F. (2011): "Currency Misalignments and Optimal Monetary Policy: A Reexamination", *American Economic Review* 101, 2796-2822.

Egerov, Konstantin and Dmitry Mukhin (2021): "Optimal Policy under Dollar Pricing," unpublished manuscript.

De Paoli, Bianca (2009): "Monetary Policy in a Small Open Economy: the Role of the Asset Market Structure," *Journal of Money, Credit and Banking* 41(7), 1301-1330.

Galí, Jordi, and Tommaso Monacelli (2005): "Monetary Policy and Exchange Rate Volatility in a Small Open Economy," *Review of Economic Studies*, vol. 72, issue 3, 2005, 707-734

Gopinath, Gita, Emine Boz, Camila Casas, Federico J. Díez, Pierre-Olivier Gourinchas, Mikkel Plagborg-Møller (2020): "Dominant Currency Paradigm," *American Economic Review* 110 (3), pp. 677-719

Itskhoki, Oleg and Dmitry Mukhin (2021): "Mussa Puzzle Redux," unpublished manuscript.

Itskhoki, Oleg and Dmitry Mukhin (2022): "Optimal Exchange Rate Policy," unpublished manuscript.

Auer, Raphael, Ariel Burstein and Sarah Lein (2021): "Exchange Rates and Prices: Evidence from the 2015 Swiss Franc Appreciation," *American Economic Review* 111(2), 652-686.

Gopinath, Gita (2016): "The International Price System," *Jackson Hole Symposium Proceedings*, Federal Reserve Bank of Kansas City, 71-122.

Benigno, Pierpaolo (2004): "Optimal Monetary Policy in a Currency Area," *Journal of International Economics*, vol. 63, issue 2, 293-320.

Galí, Jordi, and Tommaso Monacelli (2008): "Optimal Monetary and Fiscal Policy in a Currency Union," *Journal of International Economics*, vol. 76, 116-132

Engel, Charles (2014): "Exchange Rates and Interest Parity," *Handbook of International Economics* vol. 4, 453-522.

Engel, Charles (2016): "Exchange Rates, Interest Rates and the Risk Premium," *American Economic Review* 106(2), 436-474.

Galí, Jordi (2020): "Uncovered Interest Parity, Forward Guidance and the Exchange Rate," *Journal of Money, Credit and Banking*, 52(S2), 465-496

Itskhoki, Oleg and Dmitry Mukhin (2021): "Exchange Rate Disconnect in General Equilibrium," *Journal of Political Economy* 129(8), 2183-2232.

## 2. Heterogeneity: HANK and TANK Models

Galí, Jordi (2018): "The State of New Keynesian Economics: A Partial Assessment," *Journal of Economic Perspectives* 32(3), 87-112.

Aiyagari, Rao (1994): "Uninsured Idiosyncratic Risk and Aggregate Savings," *Quarterly Journal of Economics*, Volume 109, Issue 3, 1 August 1994, 659--684

Bewley, Truman (1983): "A Difficulty with the Optimum Quantity of Money", *Econometrica*, 51(5), 1485-1504.

Huggett, Mark (1993): "The Risk Free Rate in Heterogeneous Agent Incomplete Insurance Economies," *Journal of Economic Dynamics and Control* 17 (5-6), 953-969.

Krusell, Per and Anthony A. Smith (1998): "Income and Wealth Heterogeneity in the Macroeconomy," *Journal of Political Economy*, 106 (5), 867--896.

Acharya, Sushant and Keshav Dogra (2020): "Understanding HANK: Insights From a PRANK," *Econometrica*, 88 (3), 1113--1158.

Auclert, Adrien (2019): "Monetary Policy and the Redistribution Channel," *American Economic Review*, 109 (6): 2333--67.

Auclert, Adrien, Matthew Rognlie and Ludwig Straub (2018): "The Intertemporal Keynesian Cross," *Journal of Political Economy*, forthcoming.

Kaplan, Greg, Benjamin Moll, and Giovanni L. Violante, (2018): "Monetary Policy According to HANK," *American Economic Review*, 108 (3), 697--743.

Berger, David, Luigi Bocola, and Alessandro Dovis (2022): "Imperfect Risk Sharing and the Business Cycle," *Quarterly Journal of Economics*, forthcoming.

Debortoli, Davide and Jordi Galí (2024): "Idiosyncratic Income Risk and Aggregate Fluctuations," *American Economic Journal: Macroeconomics*.

Werning, Iván (2015): "Incomplete Markets and Aggregate Demand," Working Paper 21448, National Bureau of Economic Research.

Broer, Tobias, Niels-Jakob Harbo Hansen, Per Krusell, and Erik Oberg (2020): "The New Keynesian Transmission Mechanism: A Heterogeneous-Agent Perspective," *The Review of Economic Studies*, 87 (1), 77--101.

Bilbiie, Florin O. (2008): "Limited Asset Markets Participation, Monetary Policy and (Inverted) Aggregate Demand Logic," *Journal of Economic Theory*, 140 (1), 162--196.

Bilbiie, Florin O. (2021): "Monetary Policy and Heterogeneity: An Analytical Framework," mimeo.

Campbell, John Y. and N. Gregory Mankiw (1989): "Consumption, Income, and Interest Rates: Reinterpreting the Time Series Evidence," *NBER Macroeconomics Annual*, 4, 185-216.

Debortoli, Davide and Jordi Galí (2024): "Heterogeneity and Aggregate Fluctuations: Insights from TANK Models," *NBER Macroeconomics Annual*, forthcoming.

Galí, Jordi, David López-Salido and Javier Vallés (2007): "Understanding the Effects of Government Spending on Consumption," *Journal of the European Economic Association*, 5 (1), 227--270.

Nisticó, Salvatore (2016): "Optimal Monetary Policy and Financial Stability in a non-Ricardian Economy," *Journal of the European Economic Association*, 14(5), 1225-1252.

### 3. Zero Lower Bound

Krugman, Paul (1998): "It's Baaaack: Japan's Slump and the Return of the Liquidity Trap," *Brookings Papers on Economic Activity*, vol. 2, 137-187.

Eggertsson, Gauti, and Michael Woodford (2003): "The Zero Bound on Interest Rates and Optimal Monetary Policy," *Brookings Papers on Economic Activity*, vol. 1, 139-211.

Jung, Taehun, Yuki Teranishi, and Tsutomu Watanabe, (2005): "Optimal Monetary Policy at the Zero Interest Rate Bound," *Journal of Money, Credit and Banking* 37 (5), 813-835.

Christiano, Lawrence, Martin Eichenbaum and Sergio Rebelo (2011): "When is the Government Spending Multiplier Large?," *Journal of Political Economy* 119(1), 78-121.

Eggertsson, Gauti (2011): "What Fiscal Policy is Effective at Zero Interest Rates?" *NBER Macroeconomics Annual* 2010, 59-112.

Adam, Klaus and Roberto Billi (2006): "Optimal Monetary Policy under Commitment with a Zero Bound on Nominal Interest Rates," *Journal of Money, Credit and Banking* 38, 1877-1905.

Adam, Klaus and Roberto Billi (2007): "Discretionary Monetary Policy and the Zero Bound on Nominal Interest Rates," *Journal of Monetary Economics* 54 (3), 728-752.

Nakata, Taisuke and Sebastian Schmidt (2014): "Conservatism and Liquidity Traps," *Journal of Monetary Economics* 104, 37-47.

Nakov, Anton (2008): "Optimal and Simple Monetary Policy Rules with a Zero Floor on the Nominal Interest Rate," *International Journal of Central Banking* vol 4(2), 73-127.

Billi, Roberto, Jordi Galí, and Anton Nakov (2021): "Optimal Monetary Policy with  $r^* < 0$ ," unpublished manuscript.

Benhabib, Jess, Stephanie Schmitt-Grohe, and Martin Uribe (2001): "The Perils of Taylor Rules," *Journal of Economic Theory* 96, 40-69.

Benhabib, Jess, Stephanie Schmitt-Grohe, and Martin Uribe (2001): "Avoiding Liquidity Traps," *Journal of Political Economy* vol. 110, no. 3, 535-563.

Nakata, Taisuke and Sebastian Schmidt (2021): "Expectations-driven Liquidity Traps: Implications for Monetary and Fiscal Policy" *American Economic Journal: Macroeconomics*, forthcoming.

Mertens, Karel and Morten Ravn (2014): "Fiscal Policy in an Expectations-Driven Liquidity Trap," *Review of Economic Studies* 19(2), 109-127

Benigno, Gianluca and Luca Fornaro (2018): "Stagnation Traps," *Review of Economic Studies* 85(3), 1425-1470.

Del Negro, Marco, Marc P. Giannoni, and Christina Patterson (2015) "The Forward Guidance Puzzle," mimeo

McKay, Alisdair, Emi Nakamura and Jon Steinsson (2016): "The Power of Forward Guidance Revisited," *American Economic Review*, 106(10), 3133-3158

Coibion, Olivier Yuriy Gorodnichenko, and Johannes Wieland (2012): "The Optimal Rate of Inflation in New Keynesian Models: Should Central Banks Raise their Inflation Target in Light of the Zero Lower Bound," *Review of Economic Studies*, vol 20, 1-36.

Dordal-i-Carreras, Marc, Olivier Coibion, Yuriy Gorodnichenko, and Johannes Wieland (2016): "Infrequent but Long-Lived Zero-Bound Episodes and the Optimal Rate of Inflation," *Annual Review of Economics* 8, 497-520.

Andrade, Philippe, Jordi Galí, Hervé Le Bihan, and Julien Matheron (2020): "The Optimal Inflation Target and the Natural Rate of Interest," *Brookings Papers on Economic Activity*, Fall issue, 173-230

Andrade, Philippe, Jordi Galí, Hervé Le Bihan, and Julien Matheron (2020): "Should the ECB Adjust its Strategy in the Face of a Lower  $r^*$ ?" *Journal of Economic Dynamics and Control*, Fall issue, 173-230

## **PART II: Granularity, Production Networks and Monetary Policy (Mishel Ghassibe)**

### **1. Micro to Macro I: Linear aggregation**

Hulten, C. (1978). Growth Accounting with Intermediate Inputs. *The Review of Economic Studies*, 45(3), 511-518.

Baqae, D. and Farhi, E. (2020). Productivity and Misallocation in General Equilibrium. *The Quarterly Journal of Economics*, 135(1), 105-163.

Bigio, S. and La'O, J. (2020). Distortions in Production Networks. *The Quarterly Journal of Economics*, 135(4), 2187-2253.

Baqae, D. and Rubbo, E. (2023). Micro Propagation and Macro Aggregation. *Annual Review of Economics*, 15(1), 91-123.

### **2. Micro to Macro II: Non-linear aggregation**

Baqae, D. and Farhi, E. (2019). The Macroeconomic Impact of Microeconomic Shocks: Beyond Hulten's Theorem. *Econometrica*, 87(4), 1155-1203.

Baqae, D. and Rubbo, E. (2023). Micro Propagation and Macro Aggregation. *Annual Review of Economics*, 15(1), 91-123.

Dew-Becker, I. (2023). Tail Risk in Production Networks. *Econometrica*, 91(6), 2089-2123.

### 3. Application I: Network origins of aggregate fluctuations

Gabaix, X. (2011). The Granular Origins of Aggregate Fluctuations. *Econometrica*, 79(3), 733-772.

Acemoglu, D., Carvalho, V.M., Ozdaglar, O. and Tahbaz-Salehi, A. (2012). The Network Origins of Aggregate Fluctuations. *Econometrica*, 80(5), 1977-2016.

Carvalho, V.M. and Gabaix, X. (2013). The Great Diversification and Its Undoing. *American Economic Review*, 103(5), 1697-1727.

Acemoglu, D., Akcigit, U. and Kerr, W. (2016). Networks and the Macroeconomy: An Empirical Exploration. *NBER Macroeconomics Annual*, 30(1), 273-335.

Carvalho, V.M., Nirei, M., Saito, Y.U. and Tahbaz-Salehi, A. (2021). Supply Chain Disruptions: Evidence from the Great East Japan Earthquake. *The Quarterly Journal of Economics*, 136(2), 1255-1321.

Pasten, E., Schoenle, R. and Weber, M. (2024). Sectoral Heterogeneity in Nominal Price Rigidity and the Origin of Aggregate Fluctuations. *American Economic Journal: Macroeconomics*, 16(2), 318-352.

### 4. Application II: Monetary policy and production networks

Rubbo, E. (2023). Networks, Phillips Curves and Monetary Policy. *Econometrica*, 91(4), 1417-1455.

La'O, J. and Tahbaz-Salehi, A. (2022). Optimal Monetary Policy in Production Networks. *Econometrica*, 90(3), 1295-1336.

Ghassibe, M. (2021). Monetary Policy and Production Networks: An Empirical Investigation. *Journal of Monetary Economics*, 119, 21-39.

Pasten, E., Schoenle, R. and Weber, M. (2020). The Propagation of Monetary Policy Shocks in a Heterogeneous Production Economy. *Journal of Monetary Economics*, 116, 1-22.

Carvalho, C., Lee, J. W. and Park, W.Y. (2021). Sectoral Price Facts in a Sticky-Price Model. *American Economic Journal: Macroeconomics*, 13(1), 216-256.

Afrouzi, H. and Bhattarai, S. (2024). Inflation and GDP Dynamics in Production Networks: A Sufficient Statistics Approach, Working Paper.

Ghassibe, M. (2024). Endogenous Production Networks and Non-Linear Monetary Transmission, Working Paper.

Ozdogli, A. and Weber, M. (2023). Monetary Policy through Production Networks: Evidence from the Stock Market, Working Paper.

### 5. Looking ahead: large shocks, endogenous price rigidity and networks

Nakamura, E., and Steinsson, J. (2010). Monetary Non-Neutrality in a Multisector Menu Cost Model. *The Quarterly Journal of Economics*, 125(3), 961-1013.

Karadi, P., and Reiff, A. (2019). Menu Costs, Aggregate Fluctuations, and Large Shocks. *American Economic Journal: Macroeconomics*, 11(3), 111-146.

Ferrari, A. and Ghassibe, M. (2025). A Disaggregated Economy with Optimal Pricing Decisions, Working Paper.

Ghassibe, M. and Nakov, A. (2025). Business Cycles with Pricing Cascades. Working Paper.

Blanco, A., Boar, C., Jones, C. J., and Midrigan, V. (2024). Non-Linear Inflation Dynamics in Menu Cost Economies. Working Paper, National Bureau of Economic Research (No. w32094).

Blanco, A., Boar, C., Jones, C. J., and Midrigan, V. (2025). The Inflation Accelerator. Working Paper, National Bureau of Economic Research (No. w32531).

Gagliardone, L., Gertler, M., Lenzu, S. and Tielens, J. (2025). Micro and macro cost-price dynamics in normal times and during inflation surges. Working Paper, National Bureau of Economic Research (No. w33478)

### **3. Teaching methodology**

The course will be based on lectures that will convey the core knowledge for each topic, to be supplemented by reading of key articles by students. The

### **4. Assessment and grading system**

The course grade will be based on two short reviews of two recent papers included in the reading list, one from each part of the course. The subset of papers eligible for review is to be provided by the lecturers. Each review should have a maximum of 5 pages and should include a short proposal of at least one page of a non-trivial extension or follow-up paper.

Deadline: end of June 2026.