Econ 9431: Central Banking Policies, Part 1
University of Missouri-Columbia

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Class Meets: Tues-Thurs, 11:00-12:15
Middlebush 205
Office Hours Tuesday 2:00-3:30 and by appointment

The course will cover advanced topics in empirical macro.

Grades will be determined by take-home assignments (50% of grade), presentations (25% each of grade), and a final exam (25% of grade).

Course Outline

Students present * papers.

1) Dynamic Factor Models

Origins:
Sargent, Thomas J and Christopher Sims, 1977, Business Cycle Modeling Without Pretending to Have Too Much A Priori Economic Theory, Minneapolis Fed working paper.

International Business Cycles:
Kose, M. Ayhan Christopher Otrok, and Charles H. Whiteman, 2003, "International Business Cycles: World, Region, and Country-Specific Factors," *American Economic Review*.

Kose, M. Ayhan Christopher Otrok, and Eswar Prasad, 2012, "Global Business Cycles: Convergence Or Decoupling," *International Economic Review*.

Bayesian vs. Frequentists approaches:
Jackson, Laura E., M. Ayhan Kose, Christopher Otrok and Michael T. Owyang, 2016, "Specification And Estimation Of Bayesian Dynamic Factor Models: A Monte Carlo Analysis With An Application To Global House Price Comovement" *Advances in Econometrics*.

Monetary Policy:
*Bernanke, Benjamin, Jean Boivin, Piotr Eliasz 2005, Measuring The Effects Of Monetary Policy: A Factor-Augmented Vector Autoregressive (Favar) Approach," *Quarterly Journal of Economics*.

Housing and Monetary Policy:
Del Negro, Marco and Christopher Otrok, 2007, "99 Luftballons: Monetary policy and the house price boom across U.S. states," *Journal of Monetary Economics*.

Structural Dynamic Factor Models
*Stock, James and Mark Watson, 2016, "Factor Models and Structural Vector Autoregressions in Macroeconomics," *Handbook of Macroeconomics*.

With Stochastic Volatility:
*Stock, James, and Mark Watson, 2015, "Core Inflation and Trend Inflation," NBER Working paper.

Clustered Factor model Selection
*Francis, Neville, Michael T. Owyang and Özge Savascin, 2017, "An Endogenously Clustered Factor Approach to International Business Cycles," *Journal of Applied Econometrics*.

Implementation: http://www.runmycode.org/companion/view/1442

Homework 1: Estimate a multifactor model on interesting data of your choice. Interpret the results economically. Turn in a 3-5 page write up of your results. Model description should be very brief. Provide plots of factors and variance decompositions and interpret the results.

2) Regime Switching DSGE models

*Bianchi, Francesco, 2013, "Regime Switches, Agents Beliefs, and Post-World War II U.S. Macroeconomic Dynamics," *Review of Economic Studies*.

*Bianchi, Francesco, Leonardo Melosi, 2018, "The Dire Effects of the Lack of Monetary and Fiscal Coordination," *Journal of Monetary Economics*.

*Foerster, Andrew, 2015, "Financial crises, unconventional monetary policy exit strategies, and agents' expectations," *Journal of Monetary Economics*.

Foerster Andrew, Juan Rubio-Ramirez, Daniel Waggoner, Tao Zha, 2016, "Perturbation methods for Markov-switching dynamic stochastic general equilibrium models," *Quantitative Economics*.

*Liu, Zheng, Daniel Waggoner, Tao Zha, "Sources Of Macroeconomic Fluctuations: A Regime-Switching DSGE Approach," *Quantitative Economics*.

Maih, Junior, 2015, "Efficient Perturbation Methods for Solving Regime-Switching DSGE Models," Norges Bank Working Paper.

Implementation using Junior Maih's RISE toolbox:
https://github.com/jmaih/RISE_toolbox/blob/master/README.md

Homework 2: Identify a paper in the literature that would be better modeled as a regime switching model. This could be a linear model, or one that was modeled with time varying volatility. Solve the model. Your should turn in 2-5 page write up with the model, description of why it is economically interesting, and then the solved model. Focus on the on how impulse response functions vary across regimes. What did you learn with regime switching that you didn't in the non-markov model?

3) Introduction to small open economy models

Mendoza, Enrique, 1991, "Real Business Cycles in a Small Open Economy," *American Economic Review*.

Schmitt-Grohé, Stephanie and Martín Uribe, 2003, "Closing small open economy models," *Journal of International Economics*.

4) Nonlinear solution and estimation of DSGE models

Particle filter:

Fernandez-Villaverde, Jesus and Juan F. Rubio-Ramirez, 2007 "Estimating Macroeconomic Models: A Likelihood Approach," *Review of Economic Studies*.

Sigma Point filters:

Andrew Binning Junior Maih, 2015, "Sigma point filters for dynamic nonlinear regime switching models," Norges Bank Working paper.

Noh, Sanha, 2018, Posterior Inference on Parameters in a Nonlinear DSGE Model via Gaussian-Based Filters, Working paper.

Implementation using Dynare and RISE Toolbox:

http://www.dynare.org

https://github.com/jmaih/RISE_toolbox/blob/master/README.md

Homework 3: Estimate your model from homework 2. Use the RISE toolbox with sigma point filters and a first order solution. Write up a 2-5 page write up of your results describing

5) Financial Constraints, Optimal Policy, Empirics in Emerging Markets

Mendoza, Enrique, 2010, "Sudden Stops, Financial Crises, and Leverage," *American Economic Review*.

Korinek, Anton and Damiano Sandri, 2016, "Capital controls or macroprudential regulation?" *Journal of International Economics*.

Benigno, Gianluca, Huigang Chen, Christopher Otrok, Alessandro Rebucci, Eric Young, 2013, "Financial crises and macro-prudential policies," *Journal of International Economics*

Benigno, Gianluca, Huigang Chen, Christopher Otrok, Alessandro Rebucci, Eric Young, 2016, "Optimal capital controls and real exchange rate policies: A pecuniary externality perspective," *Journal of Monetary Economics*.

Benigno, Gianluca, Huigang Chen, Christopher Otrok, Alessandro Rebucci, Eric Young, 20?? "Optimal Policy for Macro-Financial Stability"

Benigno, Gianluca, Andrew Foerster, Christopher Otrok, Alessandro Rebucci, 2019, "Estimating Macroeconomic Models of Financial Crises: An Endogenous Regime Switching Approach" Draft

*Fernadez, Andres and Adam Gulan, 2015, "Interest Rates, Leverage, and Business Cycles in Emerging Economies: The Role of Financial Frictions," *American Economic Journal-Macroeconomics*.

*García-Cicco, Javier, Roberto Pancrazi, and Martín Uribe 2010, "Real Business Cycles in Emerging Countries?" *American Economic Review*.

*Mendoza, Enrique and Eugenio I. Rojas, 2018, "Positive And Normative Implications Of Liability Dollarization For Sudden Stops Models Of Macroprudential Policy" NBER working paper 24336.