

Lectures on Learning Dynamics
Washington University
April 2-4 2007

The following two lectures are aimed at developing some of the basic tools and conceptual issues in modeling learning dynamics in modern macroeconomic models. Given these foundations the advantages and relevance of learning dynamics will be discussed in a number of applications. The lectures will be based on six key papers. Additional readings are listed for the interested researcher.

Lecture 1: Tools and Techniques

- Bullard, James and Kaushik Mitra (2002), "Learning about Monetary Policy Rules", *Journal of Monetary Economics*, 49(6), 1105-1129.
- Evans, George and Seppo Honkapohja (2001), "Learning and Expectations in Economics", Princeton University Press. Chapters 1 and 2.
- Preston, Bruce (2005), "[Learning About Monetary Policy Rules when Long-Horizon Forecasts Matter](#)", *International Journal of Central Banking*, 1, September.
- Preston, Bruce (2005), "[Adaptive Learning in Infinite Horizon Decision Problems](#)", unpublished, Columbia University.

Lecture 2: Applications

- Eusepi, Stefano and Bruce Preston (2007), "[Central Bank Communication and Expectations Stabilization](#)", unpublished Columbia University.
- Milani, Fabio (2006), "[Expectations, Learning and Macroeconomic Persistence](#)", unpublished, UC Davis, April.

Additional reading

1. Foundations and Tools

- Evans, G. and Guesnerie, R., "[Coordination on Saddle-Path Solutions: the Educative Viewpoint - Linear Multivariate Models](#)", *Journal of Economic Theory* (2005).
- *Evans, George and Seppo Honkapohja (2001), "Learning and Expectations in Economics", Princeton University Press.
- Evans, G., Honkapohja, S. and Williams, N., "[Generalized Stochastic Gradient Learning](#)", September 2005.
- McCulloch, H., "[The Kalman Foundations of Adaptive Least Squares](#)", August 2005.
- Giannitsarou, C., "[E-stability Does Not Imply Learnability](#)", *Macroeconomic Dynamics* 9, 276-287, 2005.

2. Learning Dynamics and Policy

- Berardi, M. and Duffy, J., "[The Value of Central Bank Transparency When Agents are Learning](#)", May 2006.

- Bullard, J. and Eusepi, S., "[Did the Great Inflation Occur Despite Policymaker Commitment to a Taylor Rule?](#)", *Review of Economic Dynamics* 8, 324-359, 2005.
- *Bullard, James and Kaushik Mitra (2002), "Learning about Monetary Policy Rules", *Journal of Monetary Economics*, 49(6), 1105-1129.
- Duffy, J. and Xiao, W., "[The Value of Interest Rate Stabilization Policies When Agents are Learning](#)," November 2005.
- Eusepi, Stefano, "Central Bank Transparency under Model Uncertainty," working paper, FRBNY, January 2005.
- Eusepi, Stefano and Bruce Preston (2007), "Central Bank Communication and Expectations Stabilization", unpublished Columbia University.
- Eusepi, Stefano and Bruce Preston (2007), "Expectations Driven Business Cycles and Stabilization Policy", unpublished Columbia University.
- *Evans, George and Seppo Honkapohja (2003), "Expectations and the Stability Problem for Optimal Monetary Policies", *Review of Economic Studies*, 70(4).
- Evans, G. and Honkapohja, S., "[Policy Interaction, Learning and the Fiscal Theory of Prices](#)", June 2005.
- *Gaspar, Vitor, Frank Smets and David Vestin, (2005): "[Optimal Monetary Policy under Adaptive Learning](#)", unpublished manuscript.
- Gaspar, Vitor, Frank Smets and David Vestin, (2006): "[Adaptive Learning, Persistence and Optimal Monetary Policy](#)", *Journal of the European Economic Association Papers and Proceedings*.
- *Preston, Bruce (2005), "[Learning About Monetary Policy Rules when Long-Horizon Forecasts Matter](#)", *International Journal of Central Banking*, 1, September.
- Preston, Bruce (2006), "[Adaptive Learning, Forecast-based Instrument Rules and Monetary Policy](#)", *Journal of Monetary Economics*, 53
- Honkapohja, S. and Mitra, K., "[Performance of monetary policy with internal central bank forecasting](#)", *Journal of Economic Dynamics and Control*, Volume 29, Issue 4, April 2005, Pages 627-658.
- *Molnar, K. and S. Santoro (2005): "Optimal [Monetary Policy When Agents Are Learning](#)", unpublished Universitat Pompeu Fabra.
- Tetlow, Robert J., and Peter von zer Muehlen, "Robustifying Learnability," FEDS paper no. 2005-58, November 2005.

3. Asset Pricing

- Adam, K, Marcet A. and Juan P. Nicolini, "Stock Market Volatility and Learning", [Details to be provided]
- Carceles-Poveda, E. and Giannitsarou, C., "[Asset Pricing with Adaptive Learning](#)", May 2006.
- Dewachter, H., and M. Lyrio, (2006): "[Learning, Macroeconomic Dynamics and the Term Structure of Interest Rates](#)", unpublished Warwick Business School.

4. Escape Dynamics and Large Deviations

- *Cho, In-Koo, Noah Williams and Thomas J. Sargent (2002), "Escaping Nash Inflation", *Review of Economic Studies*, 69(1), 1-40.

- Kasa, K., "Learning, Large Deviations, and Recurrent Currency Crises", *International Economic Review* 45, 141-173, 2004.
- Kolyuzhkov, Dmitri, Anna Bogomolova, and Sergey Slobodyan, "Escape Dynamics: A Continuous-Time Approximation," working paper, CERGE-EI (Prague), January 2006.

5. Business Cycles and Empirical Modeling

- Collard, Fabrice and Harris Dellas (2004), "[The New Keynesian Model with Imperfect Information and Learning](#)", unpublished manuscript University of Bern.
- Edge, R., Laubach, T. and Williams, J., "[Learning and Shifts in Long-Run Productivity Growth](#)", Federal Reserve Bank of San Francisco Working Paper 04-04, March 2004.
- Lansing, Kevin J. (2006), "Time-Varying US Inflation Dynamics and the New Keynesian Phillips Curve," FRBSF working paper 2006-15, April
- *Milani, Fabio (2006), "[Expectations, Learning and Macroeconomic Persistence](#)", unpublished, UC Davis, April.
- Orphanides, Athanasios, and John C. Williams (2005), "Imperfect Knowledge, Inflation Expectations and Monetary Policy," in B.S. Bernanke and M. Woodford, eds., *The Inflation Targeting Debate*, U. of Chicago Press.
- *Primiceri, Giorgio (2005), "[Why Inflation Rose and Fell: Policymakers' Beliefs and US Postwar Stabilization Policy](#)", unpublished Northwestern University.
- *Sargent, Thomas J., Noah Williams and Tao Zha (2005), "[Shocks and Government Beliefs: The Rise and Fall of American Inflation](#)", NBER Working Paper 10764.
- Sargent, Thomas J., Noah Williams and Tao Zha (2006), "The Conquest of South American Inflation," working paper, NYU, August