

Monetary Economics

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The objective of this series of lectures is to provide the fundamentals of modelling and empirical methods in modern macroeconomics used for business cycle analysis. These topics are at the core of the toolkit used by macroeconomists in central banks and by scholars in the areas of inflation dynamics, business cycle, macro-finance, macro-labor and monetary economics.

We will have lab sessions, where we will go together over **problem sets**. This should help you familiarize with solving DSGE models, interpreting their results, understanding how to build models to answer economic questions in the field of monetary economics, including issues of optimal monetary policy. To benefit fully from the lab sessions, you need to make an effort and try to solve the problem sets before coming to class. You are encouraged to solve problem sets jointly. They are also intended to suggest exercises which will train you to apply macroeconomic tools in the same way as you will be required to do in the future as researchers and professional economists.

Some of the problem sets will familiarize you with **specialized software to solve, simulate and estimate DSGE models**.

I. Money and output: real effects of monetary policy through nominal rigidities

1. NOMINAL PRICE RIGIDITIES: MODELS WITH STAGGERED PRICE ADJUSTMENT

► Flexible-price model with money in the utility function. Asset pricing conditions. Neutrality and superneutrality of money. Solution for the price level as a function of money supply. Credibility and expectations.

► One-period predetermined price model. The impact on money growth changes on real variables

► Monopolistic competition and markup variation in models with predetermined prices

2. GENERAL EQUILIBRIUM STICKY-PRICE MODELS OF THE BUSINESS CYCLE: THE NEW KEYNESIAN MODEL

► Calvo pricing

► The behaviour of the economy in response to technology and monetary shocks

► Introducing Capital and Investment

3. INFLATION DYNAMICS UNDER ALTERNATIVE MODELING ASSUMPTIONS: CONFRONTING THE DATA

► Steady state price distribution

► Structural estimation of the new Keynesian Phillips curve with GMM

► Price indexation, rule of thumbs and hybrid inflation models

4. STAGGERED WAGE SETTING

Galí, J., "New Perspectives on Monetary Policy, Inflation, and the Business Cycle," NBER Working Paper No. 8767, Feb. 2002

II. New Keynesian models of the business cycle: empirical applications

1. WHAT DRIVES INFLATION. THEORETICAL AND EMPIRICAL CONCEPTS OF THE OUTPUT GAP. RELATIONSHIP BETWEEN OUTPUT GAP, REAL MARGINAL COST, AND MARKUPS

2. THE BEHAVIOUR OF THE ECONOMY IN RESPONSE TO TECHNOLOGY AND MONETARY SHOCKS IN THE NEW KEYNESIAN MODEL

3. STRUCTURAL ESTIMATION OF THE NEW KEYNESIAN PHILLIPS CURVE WITH GMM.

4. EMPIRICAL EVIDENCE FOR ALTERNATIVE MODELS OF PRICE ADJUSTMENT: FORWARD-LOOKING INFLATION MODEL, HYBRID INFLATION MODEL WITH RULE-OF-THUMB FIRMS, HYBRID INFLATION MODEL WITH INDEXATION, LABOR-MARKET SEARCH FRICTIONS, FINANCIAL FRICTIONS.

Galí, J., "New Perspectives on Monetary Policy, Inflation, and the Business Cycle," NBER Working Paper No. 8767, Feb. 2002

Galí, Jordi and Mark Gertler, "Inflation Dynamics: A Structural Econometric Investigation," Journal of Monetary Economics, 1999, 44, 195-222.

4. TAYLOR RULE ESTIMATION WITH GMM. INSTRUMENT RULES AND OPTIMAL POLICY

Clarida, R., Gali, J. and Gertler, Mark, (2000), 'Monetary policy rules and macroeconomic stability: evidence and some theory', Quarterly Journal of Economics 115: 147-80.

III. Optimal policy and central banking

1. OPTIMAL POLICY IN THE NEW KEYNESIAN MODEL AND THE EXISTENCE OF A TRADE-OFF ACROSS POLICY OBJECTIVES

▶ Distortions and policy objectives

▶ Interpretation of 'cost-push' shocks.

▶ The condition for efficient allocation in the economy: $MPN = MRS$. Deviations from efficiency in the data.

What drives the 'labor wedge'?

▶ Cost-push shocks: sticky wage and price adjustment

▶ Cost-push shocks: a structural interpretation in a model with random matching in the labor market. Empirical evidence

IV. Open Economy and climate change trade-offs (if time allows)

1. GENERAL EQUILIBRIUM MONETARY MODELS OF A SMALL OPEN ECONOMY WITH STICKY PRICE ADJUSTMENT

2. MULTI-SECTOR OPEN ECONOMY MODELS WITH LONG-TERM NET-ZERO CARBON TRANSITION

Carl Walsh's book provides a comprehensive overview of many of the topics covered.

Walsh, C., Monetary Theory and Policy, MIT Press. Ch.5, 6, 10