Lectures in Monetary Economics

Lecture 1: Summary

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December 9, 2009

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The lectures will offer:

- An introduction to the basic NK model: Its key features (the RBC model with nominal rigidity and imperfect competition), properties and main policy implications (price stability, inflation targeting).
- An evaluation of its empirical performance (rather poor: It has trouble generating inertia in output and inflation, plausible interest rate behavior, . . .).

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- A discussion and evaluation of extensions (the DSGE model) that have been proposed in order to improve its performance: Real rigidities and various ad hoc price setting schemes (backward indexation, myopia,..). They work better empirically but are conceptually unsatisfactory (plus other problems).
- A presentation of alternative, competing models, such as the sticky information model or models with learning (which seem to work better).

We conclude that the NK model may not have lived up to expectations.

Course contents

The New Keynesian (NK) model provides a theoretical framework for studying inflation and the business cycle. It is nowadays the main vehicle for the analysis of monetary policy.

Course objective: Discussion and evaluation of the NK model

Section 1: *Introduction to the RBC model*

- Main features and properties

Section 2: *A. Introduction to the baseline NK model*

- Key features? Main properties?
- What are its main policy implications?
  - What should the objectives of monetary policy be?
  - How should policy be conducted in order to attain these objectives?

B. Evaluation of its theoretical underpinnings and its empirical performance

Should the model be taken seriously as a laboratory for the study of real world issues? How satisfying are its assumptions? How well does it fit the data?

Section 3: Extensions of the basic NK model (the DSGE model)

- Abandonment of rationality-rational expectations in price setting
  - Myopic firms/agents
  - Backward indexation
- Introduction of real rigidities (investment adjustment costs, habit persistence, variable capital utilization, strategic complementarities, ...)

Evaluation of the extended NK (DSGE) model: How satisfying are its assumptions? How well does it fit the data?

Section 4: *The main rival to the NK model*: The sticky information model

- Key features and main properties.
- Empirical performance.
- Evaluation.

Section 5:
Another rival: A model with signal extraction problems and learning.
Section 6:
Recent developments 1: Fiscal policy in the NK model.
Section 7:
Recent developments: NK models with financial frictions. The financial accelerator.

Course overview

1. **The Real Business Cycle (RBC) model**: A DSGE model

Key properties:

- Money neutrality due to price flexibility and the absence of informational problems à la Lucas, 1973.
- Optimality of business cycles.
- Dominance of the supply side.

Methodology

Successes and failures

A very difficult question: Are prices (wages) sticky? Is money non-neutral?

If your answer is affirmative then proceed further.

2. **The baseline NK model** (Galí, 2007).
It borrows the theoretical framework of the RBC model but introduces nominal rigidities and imperfect competition.

Key properties:

- Money matters (non-neutrality).
- Demand shocks may be a more important source of macroeconomic fluctuations than supply shocks (Galí, 1999).

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Main policy implications:

- The objective of a welfare maximizing central bank should be -fairly strict- price (or inflation) stability in order to limit variability in markups.
- Price (inflation) stability *often* brings about also output stability. Output stability is defined in relation to the efficient level of output, not some trend output.
- The policy objectives can be achieved employing simple operational policy rules such as variants of the Taylor rule.
- These rules must possess certain properties in order to enable the central bank to achieve its objective and eliminate self-fulfilling runs of inflation.

When there is a trade off between price and output stability: Following a rule (policy commitment) is welfare superior to policy discretion because it allows for the management of inflation expectations in a stabilizing fashion.

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Empirical evaluation:
"It is a very nice model. The only problem is that it does not work" (Mankiw).

Unconditional moments:
OK. Main problem is the implied behavior of interest rates.

It generates a purely forward looking Phillips curve that does not agree with estimated Phillips Curves (PC). Estimated PCs typically exhibit a significant dependence of the current rate of inflation on past inflation (inertia).

Conditional moments, IRFs:

- Dynamics of inflation and output following policy interventions.
  - The model does not generate sufficient inertia.
  - It cannot account for credible disinflation episodes (Ball, 1993).
  - It has difficulty generating a liquidity effect.
- Its implied Euler interest rate is negatively related to the FFR (Canzoneri et al., 2007).
- It implies that fiscal shocks have a negative effect on consumption.

3. The extended NK (DSGE) model Main features

- The effective abandonment of rationality-rational expectations: Myopia (Galí 2007), backward indexation (Christiano et al., 2005).
- Real rigidities: habit persistence, investment adjustment costs, predetermined expenditure, variable capital utilization,..

An example: The ECB DSGE model. It contains numerous (ad hoc) features and frictions.

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Performance:

- The model has become the workhorse of central banking modelling.
- It has good dynamic properties (inertia).
- It can generate a liquidity effect.
- But it inherits most of the other empirical problems of the baseline version: It cannot account for credible disinflation episodes, its implied Euler equation interest rate is negatively related to the FFR, it implies that fiscal shocks have a negative effect on consumption and so on.
- Its theoretical foundation is questionable.
- Its critical assumptions do not seem consistent with the empirical evidence (it requires too much nominal rigidity, its price setting assumptions are implausible, etc.).

Assessment of the NK (NNS-DSGE) model:

4. The main rival of the NK model: The sticky information (SI) model of Mankiw and Reis, 2002.

Agents do not observe accurately the current state of the world. Exogenous learning.

Better theoretical properties. But it does not have good empirical properties unless under some very special assumptions.

5. Models with signal extraction

Agents do not observe accurately the current state of the world (measurement errors, confusion between idiosyncratic and aggregate shocks, etc). Endogenous learning.

Good empirical properties (inertia, liquidity effects, etc.) without controversial assumptions. It can also produce realistic responses to fiscal shocks.

The recent debate between sticky price vs sticky info models as a deja vu of the debate between mis-perceived vs unanticipated money models of the 70s (Lucas-Barro vs Fischer-Taylor).

6. Conclusion

The NK model represents a positive development in macroeconomic theory. It has expanded and deepened our understanding of the money and economic activity nexus. Nonetheless, it has not provided yet a fully satisfactory framework for the study of monetary policy because of its many, serious theoretical and empirical flaws.