Inflation Dynamics and International Linkages:
A Model of the United States, the Euro Area and Japan

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Outline

- Very interesting and ambitious paper
- Key findings

- Specification: Inflation dynamics and aggregate demand
- Estimation methodology
- Model evaluation

- International linkages

- Data

- Summary

Key findings

1. **Inflation dynamics**:
   (a) Japan (?) and Euro area described by Taylor-type contracts;
   (b) US described by Fuhrer-Moore contracts;
   (c) Calvo-type price setting uniformly rejected

2. **International linkages:**
   (a) Ignoring exchange rate fluctuations leads only to a small change in 'welfare' loss.

Inflation dynamics – specification

- How important is the assumed proportionality between the output gap and marginal costs?
    - ✓ Measurement errors;
    - ✓ Theoretical arguments: 'efficient output'; variable capital;
    - ✓ Counterfactual prediction of the inflation response to MP

- Gali and Gertler (1999) and Sbordone (2001) for the US
- Gali, Gertler, and Lopez-Salido (2001) for the euro area

$$\pi_t = \kappa E_t[\pi_{t+1}] + \gamma \hat{v}_t$$

Figure 1 from Sbordone

Aggregate demand and policy rule specification

- Standard monetary policy reaction function

- Semi-structural approach to aggregate demand:

$$q_t = \delta(L)q_{t-1} + \phi(r_{t-1} - r^*) + \psi e_t^w + \sigma_{\varepsilon_d}\varepsilon_{d,t}$$

- Why not the 'IS curve' from the optimizing model?

$$q_t = E_t[q_{t+1}] - \sigma(i_t - E_t\pi_{t+1})$$

Estimation methodology

NK Phillips curve: Indirect inference (MSM)

Aggregate demand: GMM [exchange rate as instrument?]

Policy rule: GMM

Why different approaches?
Are results different if NKPC is estimated by GMM?
Why not GMM applied to a system?

Model evaluation

Current: Correlograms for shocks and autocorrelation functions for output and inflation

Additional:
  Inflation implied by the NKPC
  Implied optimal interest rates
  Impulse responses;
  Stability – parameters and the VCV matrix

International Linkages

1. Comparison of impulse responses under Taylor rule

2. Reaction function parameters under interest rate volatility restriction and minimized loss function with and without exchange rate feedback

What is the role of exchange rates in a reaction function?

What is the role of foreign interest rate in a reaction function?

Data

Using the euro area data

The real exchange rate

Figure 5

Summary

- Consistent derivation of the AS and AD blocks

- Consistent estimation methodology

- Extended model evaluation