

Comments on 'Structural breaks in  
inflation and causality in  
international transmission of price  
shocks' by Bataa, van Dijk, Osborn,  
Sensier

Tony Yates, prepared for 8th EABCN workshop,  
Paris, September 2007

# 1 Recap

- $Y_t = A_{1,t}Y_{t-1} + A_{2,t}Y_{t-2} + \dots + H_tU_t$
- $Y_t = [\pi_{Fr,t}, \pi_{It,t}, \dots, \pi_{n,t}]'$
- $H_t = B_1H_{t-1} + B_2H_{t-2} + \dots$
- Granger causality in means: whether off diagonal elements in  $A_i \neq 0$ .
- Causality in variances: whether off diagonal elements in  $B_i \neq 0$ .
- Findings: some patterns of uni and bidirectional causality in means and variances.
- What economic issue would be illuminated by these facts?

## 2 Economic interest in univariate time series properties of inflation

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$$\pi_t = \rho_t \pi_{t-1} + h_t \varepsilon_t$$

- Explaining the great moderation:
- Good luck = variations in  $h_t$ ; good policy = variations in  $\rho_t$
- Evaluating DSGE models with hard-wired nominal rigidities:
- Fluctuations in  $\rho_t$  point to policy-induced persistence.

- Authors search for discrete regimes for  $\rho$
- US:  $\rho \uparrow$  (no post-Volcker fall); EA:  $\rho \uparrow, \downarrow$  (contrasts with Rudd and Whelan); UK:  $\rho \uparrow, \downarrow$ .
- Empirics agnostic about economic structure but help adjudicate on some economic controversy.

### 3 Possible issues in open economy inflation dynamics

- Authors interested in ‘international transmission of price shocks’ (??); identifying leader-follower relationships in a currency union.
- Impact of increasing openness, or EMU
- Changes in tradable sector price-setting behaviour.
- Changing contribution of exchange rate and/or tradable sector volatility to output and inflation volatility
- Contribution of foreign monetary and fiscal policies to reduction in domestic inflation volatility?

- Estimate VAR with  $Y_t = [\pi_t, x_t, i_t, e_t]'$ , perhaps distinguish between  $x_T, x_{NT}$
- If going beyond univariate analysis, ensure elements of  $Y_t$  span reduced form of plausible model of the open economy.

## 4 Contrasting models of structural change

- Allow for breaks in means, propagation, volatility
- Unmodelled switches between finite number of regimes
- Let data determine breaks
- But there are contrasting approaches....
- Use prior information about regime changes
- Posit stochastic, parametric process for regime changes

- Continuous rather than discretised number of regimes
- Non-parametric, Kernel estimation?
- Which approach is the most appropriate?

## 5 Conclusions

- Univariate analysis of inflation dynamics appeals to debate about origins of nominal rigidity, and on the causes of the great moderation.
- What economic debate is illuminated by the analysis of Granger-causality in means and variances?
- Without a clear economic question, how to motivate the particular choices made here about how to describe structural change (finite regimes, unmodelled switching)?
- An investigation of changes in open economy inflation dynamics would proceed by positing a VAR with  $Y_t = [\pi_t, x_{t,T}, x_{t,NT}, i_t, e_t]'$