"How does monetary policy change? Evidence on inflation targeting countries"

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Disclaimer: The views expressed are those of the discussant and do not necessarily reflect those of my colleagues or the official views of Norges Bank

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Brief recap of the Taylor rule literature

- r_t depend on a small set of observable variables
- Generalized TR type function with constant parameters:
- $r_t = (1-\rho)\left[\alpha + \beta(\pi_{t+i} - \pi^*) + \gamma y_t + \delta x_t\right] + \rho r_{t-1} + \varepsilon_t$
- $\alpha = \pi^* + r r^*$
- data uncertainty (latent variables, measurement errors), e.g. $\pi_t^{core}?, y_t?, x_t?$
- model uncertainty (specification issues), functional form, parameter space $\theta = [\alpha, \beta, \gamma, \delta, \rho]$, e.g. degree of interest rate smoothing ρ?
- parameter uncertainty (estimation issues), e.g. endogeneity of π_{t+i}, y_t ?
- identifiability and determinacy under discretion and commitment ?
- implications of (Knightian) uncertainty for monetary policy ?

Key research questions in BHV's paper

- Have monetary policy rules changed over the past two decades?
- In particular, has the degree of interest rate smoothing (ρ) changed?
- Do interest rate responses to inflation (β) change over time? And how?
- Focus on five pioneering IT countries NZ, CAN, UK, SWE, AUS from 1990 to 2010

The strategy of the paper

- Adopts the TVP approach proposed by Nelson and Kim (2006, JME) NK hereafter, BUT with a different estimation method:
- $r_t = (1-\rho_t)\left[\alpha_t + \beta_t(\pi_{t+i}) + \gamma_t y_t + \delta_t x_t\right] + \rho_t r_{t-1} + \varepsilon_t$
- where $\theta = \theta_t = [\alpha_t, \beta_t, \gamma_t, \delta_t, \rho_t]$ are independent RW processes,
- and endogenous regressors π_{t+i}, y_t are handled using instruments Z_t
- $\pi_{t+i} = \xi_{\pi,t} Z_t + \eta_{\pi,t}$
- $y_t \quad = \xi_{y,t} Z_t + \eta_{y,t}$

The strategy of the paper (cont'd)

- Recap of NK (2006, JME) on US monetary policy 1970-2000:
  - allows for nonlinearity ($\rho_t = 1/(1+\exp(-\xi_t))$ as well as heteroscedasticity (GARCH(1,1)) in ε_t
  - Step I: MLE using Harvey et al's (1992) modified Kalman filter
  - Step II: MLE estimation of an extended (bias corrected) Taylor rule via the Kalman filter controlling for (standardized) residuals $\eta^*_{\pi,t}, \eta^*_{y,t}$
  - ensuring that orthogonality conditions hold

NK's main findings

- monetary policy in the US has indeed changed over time
- handling endogeneity *matters*
- three distinct subperiods (the 1970s, the 1980s, and 1990s)

1970s FED mainly focused on stabilizing the real economy (misperceiving the output gap) (β_t around 1.3, γ_t around 0.5)

1980s FED mainly focused on stabilizing inflation (higher β around 1.5, lower γ_t around 0.2)

1990s FED could (again) pay more attention to stabilizing real economic activity (γ_t increases to 1)

All periods High degree of interest rate smoothing (high ρ around 0.8 (except mid-70s))

BHV's main findings

- Note: Parameters are estimated using the two-step method with a Varying Coefficients method (Schlicht and Ludsteck, 2006) minimizing a weighted sum of squared residuals with weights inversely proportional to to the variance of the innovations to the RW processes
- monetary policy in the five IT countries has indeed changed over time
- handling endogeneity *matters*

NZ β_t fluctuates below 1, (insign) γ_t around 0, low ρ_t
AUS β_t rising then declining below 0.5, (insign) γ_t around 0, low ρ_t
CAN β_t rising then declining to 0.8, γ_t around 0.4, low ρ_t around 0
UK β_t declines in 1990s towards 0, low (insign) γ_t around 0.2, low ρ_t around 0.3
SWE β_t declines in 1990s, low (insign) γ_t, higher ρ_t around 0.5

Questions and Comments

- Can we trust these estimates of the central banks' reaction pattern?
- Are the results robust .... ?

Q1 Change due the estimation method ? $\longrightarrow$ compare with Nelson and Kim on US data ?

Q2 Generally low estimates β_t, discuss *active* vs *passive* interest rate rule (Taylor's principle)?

Q3 What explains the lower degree of interest rate smoothing in BHV vs NK (who report ρ_t around 0.8 for US) ?

Q4 Are results robust to different specifications, e.g. different conditioning sets?

Q5 Unclear argument about committee structure and the degree of interest rate smoothing ? Is the Riksbank as collegial as claimed ?

Q6 What can we infer from these exercises? Limited insights about structure (may be)? What about predictive performance (a better mousetrap)?

Wrapping up

- This is a nice, yet somewhat unpolished paper with useful empirical evidence about topics of relevance for policymakers,
- providing convincing evidence that monetary policy has indeed changed over time.
- Differences between the results reported in BHV and NK need some clarification, claims about committee differences need to be substantiated,
- the jury is (still) out on pinning down how we can reconcile the empirical findings with the actual conduct of central banks and
- many questions remain for future research
- Thank you for your attention!