Session 2: Model development needs – themes and priorities

SUERF WORKSHOP IN COOPERATION WITH ECB, BOF AND BDI
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Model Development Needs (Incomplete list)

- Limited scope of remarks, complement previous excellent remarks by discussing 4 issues:
  1. Forward guidance puzzle,
  2. Phillips curves and expectations formation,
  3. UMP tools,
  4. Open economy issues.
1. Addressing the FG Puzzle
Addressing the FG Puzzle

- I think most CB macro models agree that the FG puzzle needs to be addressed somehow.
  - Growing literature studies alternative way to do so.
- An important question is policy implications of alternative approaches.
  - Erceg, Jakab, Linde (JEDC) paper: Address the FG puzzle by allowing for deviations from rational expectations (RE) in the spirit of Gabaix (2019).
  - EJL’s behavior model offers an alternative interpretation of the Debortoli-Gali (2019, NBER MA) evidence: output and inflation costs of ZLB very modest.
  - Balance between fixing FG puzzle and policy implications delicate.
EJL Analysis of FG Puzzle

- No Discounting (RE)

- Discounting in demand bloc
EJL Analysis of FG Puzzle Cont.

- Discounting in demand bloc only

- Discounting in both demand and pricing blocs
2. Phillips Curves and Expectations Formation
Phillips Curve Forward-looking and Flat

- Benchmark Phillips curve in SW model

\[ \hat{\pi}_t - \lambda_p \hat{\pi}_{t-1} = \beta (E_t \hat{\pi}_{t+1} - \lambda_p \hat{\pi}_t) - \kappa_{mc} \hat{m}_t + \hat{\varepsilon}_t \]

- Estimates typically highly forward looking (low \( \lambda_p \)) and low slope (\( \kappa_{mc} \))
  - Pre GFC: \( \lambda_p = 0.22, \kappa_{mc} = 0.008 \)
  - Pre COVID: \( \lambda_p = 0.26, \kappa_{mc} = 0.004 \)
  - Until 2021Q4: \( \lambda_p = 0.36, \kappa_{mc} = 0.007 \)

- Although estimates move in the right direction when extending the sample, it is difficult to reconcile a standard forward-looking flat sloped Phillips curve with the recent surge in US core inflation.
Historical Decomposition of U.S. Core PCE Inflation (APR) 1985Q1-2021 in SW Model
Role of Inflation Expectations

- In our models inflation expectations are generally well anchored around the CBs target by autopilot (CB doing its job).
- While this is generally a nice feature, there is an issue if we want to embed it by autopilot in our models.
  - Should persistent energy price shocks be able to move expectations persistently? Distinction household vs. market expectations?
  - Standard SW model typically do not predict persistent inflation spirals – see forecast plot.
Nonlinearities may help Explaining Inflation Dynamics

- If not linearized, SW model implies “Banana shaped” Phillips curves (see e.g. Harding-Linde-Trabandt, 2021) which offers on possible rationale to explain inflation surge and how inflation expectations can be more sensitive to shocks.
3. UMP Tools in Monetary Models
UMP tools in Monetary Models

- How to introduce UMP tools in monetary policy models?
  - Establish benchmark framework to think about UMP tools.
  - Models should be able to motivate why UMP tools are needed (not for ensuring financial stability, but for boosting the recovery).
  - Should we have rule for the short-term policy rate and UMP tools as exogenous instruments, or try to establish rules for all policy levers?

- Important when communicating scenarios to policy makers and providing alternative scenarios in monetary policy reports.

- In this context let me mention a perennial question: How to best model CB behavior?
  - Merits of simple instrument rules vs. loss-function based approaches...
4. Some Open Economy Issues
Accounting for Comovement and Spillovers

How to account for open economy spillovers? We know since work of Justiniano and Preston (2009) that this is a challenging task (both real and nominal).

- Between advanced economies (today, pressing issue is inflation spillovers).
- From advanced to emerging market spillovers.

A couple of examples of how strong these spillovers are:

- EA – Sweden: Infl (YoY) 0.44; GDP gr (YoY) 0.80; Pol Rates 0.94;
- US – Canada: Infl (YoY) 0.61; GDP gr (YoY) 0.86; Pol Rates 0.94;

In addition, impact is quantitatively large, beta of SWE on EA GDP gr rate equals 1.5. So not just correlation, but also comovement.
Thank you!