Aiming for the bull's eye: Uncertainty and inertia in monetary policy

by Maria Demertzis and Nicola Viegi
discussion by Kristoffer Nimark

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What the paper does

- Demertzis and Viegi (DV) derive a policy procedure in a forward looking New-Keynesian type model

- 2 twists:
  - Parameter uncertainty: The slope of the short run Phillips curve is unknown
  - Expectations are subject to differential information as in Morris and Shin (2006) which introduces inflation inertia

The set up

$$\begin{aligned} \pi_t &= \beta E_t \pi_{t+1} + \alpha y_t + \varepsilon_t \\ y_t &= E_t y_{t+1} - \gamma \left(i_t - \beta E_t \pi_{t+1} \right) + \xi_t \end{aligned}$$

$$\begin{aligned} \alpha &\sim N\left(\overline{\alpha}, \sigma_\alpha^2\right) \\ L &= \left[(\pi_t - \pi^*)^2 + y_t^2 \right] \end{aligned}$$

Brainard's (1967) result applies: Policy "caution" is increasing in variance of α

Expectations

DV appeal to Morris and Shin (2006)

- Only a fraction μ of price setters receive information about the CB's target level of inflation π_t^*

- This is used to motivate $E_t\pi_{t+1} = \pi_{t-1}$ in numerical simulations

The results

DV derive a two-step procedure that yields certainty equivalent policy recommendation

- More aggressive/certainty equivalent policy results in smaller losses than Brainard type policy

- What's going on?

New Dynamics

$$\pi_t = \beta\pi_{t-1} + \alpha y_t + \varepsilon_t \tag{1}$$

- We are in Soderstrom (SJE 2002): Discretionary policy is now a dynamic problem
- No analytical solution to optimal policy if CB care about both inflation and output gap volatility
- No particular reason to believe that either Brainard or TS will be optimal
- Soderstrom finds that if inflation follows (1), then the intuition of Brainard still holds.

Using Morris and Shin (2006) in a NK setting

Morris and Shin's set up is highly stylized:

$$\begin{aligned} a_{it} &= \gamma E_{it}\theta_t + \beta E_{it} a_{t+1} \\ a_t &= (1-\beta)\overline{E}_t\theta_t + \overline{E}_t \beta a_{t+1} \end{aligned} \tag{2}$$

- Limit case for $\beta \to 1$ perhaps not the most interesting or realistic

- State only affect outcomes through expectations

  - Otherwise a simple observation of a_t would reveal that the state has changed

- NK Phillips curve does not have the form (2)

Suggestions

- Be more careful when transplanting Morris and Shin type information set up into the model
- Start from the price setting problem of the firm, define information sets and a process for CB's inflation target
- Solve the dynamic optimization problem of the central bank
- Interesting interactions between caution and learning about target?