Inflation Dynamics of Turkey: A Structural Estimation

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Highlights

- Is the New Keynesian Phillips Curve (NKPC):
  - Forward-looking (i.e., does inflation depend on future inflation)?
  - Hybrid (i.e., does inflation depend on past and future inflation)?
- Existing literature supports hybrid NKPC for the U.S. and Euro area countries.
  - Gali and Gertler (1999; henceforth GG)
  - Gali, Gertler, and Lopez-Salido (2001)
- This paper favors pure forward-looking NKPC using data on Turkish economy.
  - Backward-looking behavior is rejected

Methodology

- Forward-looking NKPC:

$$\pi_t = \beta E_t\left(\pi_{t+1}\right) + \lambda \widehat{mc}_t$$

where

$$\lambda = \frac{(1-\theta)(1-\beta\theta)}{\theta}$$

- Hybrid NKPC:

$$\pi_t = \gamma_f E_t\left(\pi_{t+1}\right) + \gamma_b \pi_{t-1} + \lambda \widehat{mc}_t$$

where

$$\begin{aligned}
\lambda &= \frac{(1-\omega)(1-\theta)(1-\beta\theta)}{\theta + \omega\left(1-\theta\left(1-\beta\right)\right)} \\
\gamma_f &= \frac{\beta\theta}{\theta + \omega\left(1-\theta\left(1-\beta\right)\right)} \\
\gamma_b &= \frac{\omega}{\theta + \omega\left(1-\theta\left(1-\beta\right)\right)}
\end{aligned}$$

Estimation

- The Turkish data are:
  - from the State Planning Organization of Turkey
  - cover quarterly period over the period 1988:2-2003:1
- A nonlinear GMM estimation using Limited Information ML
- The estimation results for forward-looking NKPC are:
  - $\theta = 0.41$
    - prices are fixed for 1.7 quarters for the Turkish economy
  - Compare the results with the U.S. economy (GG)
    - $\theta = 0.83$ where price are fixed for 5.9 quarters
- The estimation results for hybrid NKPC are:
  - $\theta = 0.33$
    - prices are fixed for 1.5 quarters for the Turkish economy
  - γ_b and ω are insignificant
    - backward-looking behavior is rejected
  - Compare the results with the U.S. economy (GG)
    - $\theta = 0.81$ where price are fixed for 5.3 quarters
    - γ_b and ω are significant