Discussion of Athey, Atkeson and Kehoe

The Optimal Degree of Discretion in Monetary Policy

by Larry Christiano
• Research on Monetary Policy Rules Tends to Focus on ‘Simple’ Rules
  – Simplicity Promotes ‘Transparency’
  – Transparency Facilitates Monitoring of Central Bank
  – Central Bank Needs to Be Monitored, to Prevent Cheating

• Problem that Simplicity of Rule is Meant to Solve Rarely Made Explicit
  – But, Solution Likely to Be Sensitive to Details of Problem!

• AAK Take Step in Right Direction:
  – Describe Environment That Captures What Some People Have in Mind Who Worry About Transparency
  – Compute Optimal Policy in Simple Example (Barro-Gordon)
  – Nature of Optimal Policy is Surprising
Basic Model Environment

- Barro-Gordon (Kydland-Prescott) Model
- Legislature: ‘Principal’
- Central Bank: ‘Agent’
- Policy: ‘Contract’ Between Principal and Agent
• Private Expectation About Inflation:

\[ x = E\mu(\theta), \]

• Central Bank Preferences:

\[ -\frac{(U + x - \mu)^2}{2} - \frac{(\mu - \theta)^2}{2} \]
Candidate Contacts

- Ramsey Contract
  - Won’t Work. CB Has Private Information on \( \theta \). Would always cheat and announce high values of \( \theta \).

- No Contract: Nash
  - Get ‘Slope’ of Policy Right
  - But, On Average Inflation Too High

Money Growth, $\mu$

Nash

Ramsey

$-\theta$

$\theta$
• Optimal Contract: Mechanism Design Approach
  – Set up a ‘Revelation Game’
  – Perfect Bayesian Equilibrium:

\[
\hat{\theta}_t = h(\theta_t, \text{history of past messages}) \\
\mu_t = \mu(\text{history of messages}) \\
x_t(\text{history of messages}) = E_t \mu(\theta_t, \text{history of messages}) \\
\hat{\theta}_t = \theta_t.
\]
• Implementation: Rule: $\mu_t \leq \bar{\pi}$ for each $t$
Money Growth, $\mu$

Optimal AAK Equilibrium

- $-\theta$

$\theta$
Surprise: Optimal Cap Has No Memory

- In Many Other Economic Environments: Can Achieve Better Outcomes By Exploiting Memory
  - Folk Theorem: Can Sometimes Sustain Very Good Outcomes With Trigger Strategies
  - Bill Rogerson: Principal-Agent Problem
  - Atkeson-Lucas
• Atkeson-Lucas and AAK:
  – Hurt Central Bank Tomorrow, if it Choose High Inflation Today
    * Average Inflation Target
    * Cap Decreasing Function of Past Money Growth
  – AAK Show this Type of Policy Does Not Work in Their Environment.
Two-Period Example

- Type of Cap Equilibrium:
  - In First Period, $\mu_1 \leq \tilde{\pi}$
  - In Second Period, $\mu_2 \leq a + b\mu_1$

- Two-Point Distribution of Shocks
  - $\text{Prob}(\theta = -\bar{\theta}) = \text{Prob}(\theta = \bar{\theta}) = 1/2$

- Numerical Finding:
  - Optimal $\tilde{\pi}, a, b : \tilde{\pi} = a = \bar{\pi}, b = 0$
  - $\bar{\pi} \sim \text{‘static best’}$

- Numerical Finding When $\theta$ Not iid
  - Optimally, $b \neq 0$
Does the Fed Have Private Information?

- Several Recent Studies Suggest That Fed Does Not Possess Private Information

- Not a Problem for AAK:
  - No Private Information in Equilibrium in Perfect Bayesian Equilibrium
  - According to AAK, Society only ‘Asks’ Central Bank to Do Things That Are Consistent With Truthful Revelation.

- This is a Problem for Models of Private Information When Information Not Revealed In Equilibrium
Conclusion

• Contribution of Paper:
  – Show How to Compute Optimal Monetary Policy in Environment Where Fed Has Incentive to ‘Cheat’
  – Solution in Barro-Gordon Model -
    * Optimal Policy: Inflation Cap
    * No Memory

• Details of Optimal Policy in AAK Model Not Likely to Be Robust to Changes in Environment
  – This is Precisely Why it is Important to Study this Problem
  – Shock Not IID : Cap Likely to Be History Dependent
  – Private Information in Equilibrium? (Looks Like Stein’s ‘Cheap Talk’ Environment.)

• Researchers Concerned About Transparency, Should Follow AAK
  – Feasibility an Issue?