Macroeconomic Stabilization via Fiscal Policy?

Narayana Kocherlakota

University of Rochester

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Goal of Slides/Talk

• I pose a question about fiscal policy.

• I illustrate the question through a simple example model.
  – “Fragility …” paper illustrates question more generally.

• Goal: Broad dialog among conference participants about question.
Basic Question

- Suppose mon. pol. is passive (as near effective lower bound).

- Issue: current outcomes are highly sensitive to shocks to expectations about LR.
  
  - Purely real models ignore this issue.
  
  - BUT: sensitivity is nearly infinite for models in which prices are nearly fully flexible.

- Question: How can fiscal policy eliminate this kind of instability?
Illustration: Simple NK Model

- Consider the following New Keynesian model.

- Same as standard except:
  - “inflexible” firms set prices equal to last period price level.
  - the resulting NK Phillips curve is myopic
  - finite \((T)\) period economy.
Exogenous Parameters

• $\sigma^{-1}$ is the elasticity of intertemp. sub.

• $\kappa \in [0, \infty)$ indexes fraction of flexible firms.
  - 0 is fixed prices and $\infty$ is flexible prices.

• $r^{nat}$ is the (constant) natural real interest rate

• $(\alpha, \beta) > 0$ are Taylor Rule intercept and slope
Endogenous Variables

- Three endogenous stochastic processes:
  - \( \{y_t\}_{t=1}^T \) is (logged) output gap
  - \( \{\pi_t\}_{t=1}^T \) is the inflation rate
  - \( \{i_t\}_{t=1}^T \) is the nominal interest rate
Equilibrium Definition

- An equilibrium is a triple of stochastic processes \( \{y_t, \pi_t, i_t\}_{t=1}^{T} \) such that:

\[
y_t = E_t y_{t+1} - \sigma^{-1}(i_t - r^{nat} - E_t \pi_{t+1}), \quad t = 1, \ldots, T - 1
\]

\[
\pi_t = \kappa y_t, \quad t = 1, \ldots, T
\]

\[
i_t = \alpha + \beta \pi_t, \quad t = 1, \ldots, T
\]
Characterization of Equilibrium Set

• Set of equilibria can be characterized as:

\[ y_t = \frac{(r^{nat} - \alpha)}{(\beta - 1)\kappa} + \Phi^{T-t}[\frac{(\alpha - r^{nat})}{(\beta - 1)\kappa} + \kappa^{-1}E_t\pi_T] \]

\[ \pi_T \] is arbitrary r.v.

• Here, \( \Phi \) is defined to be:

\[ \Phi = \frac{(1 + \sigma^{-1}\kappa)}{(1 + \beta\sigma^{-1}\kappa)} \]
Active Monetary Policy

• Suppose $\beta > 1$ (active monetary policy).

• Then: $\Phi = \frac{(1+\sigma^{-1}\kappa)}{(1+\beta\sigma^{-1}\kappa)} < 1$ and is decreasing in price flexibility $\kappa$.

• In any eq’m, if $(T - t)$ is large, $y_t \approx \frac{(r^{nat}-\alpha)}{(\beta-1)\kappa}$.

• Note: $(y_t, \pi_t)$ are both decreasing in $\alpha$. 
Passive Monetary Policy

• Suppose $\beta < 1$ (passive monetary policy).

• Then: $\Phi = \frac{(1+\sigma^{-1}\kappa)}{(1+\beta\sigma^{-1}\kappa)} > 1$; $\Phi$ is increasing in $\kappa$.

• In any eq’m, if $(T - t)$ large, then $y_t \approx \Phi^{T-t}[\frac{(\alpha - r^{nat})}{(\beta - 1)\kappa} + \kappa^{-1}E_t\pi_T]$.

• Note: given $\pi_T$, set of eq’m $(y_t, \pi_t)$ is decreasing in $\alpha$. 
Summary

• Under active mon. pol: expectations about LR are irrelevant.

• Under passive mon. pol.: current outcomes depend on expectations about LR.
  – sensitivity nears infinite as prices converge to fully flexible.

• Active or passive: neo-Fisherianism isn’t valid.
QUESTION

• Suppose mon. pol. is passive (as near zero lower bound).

• Then: macroeconomy is highly sensitive to beliefs about LR.
  – long-run pessimism translates into bad current outcomes.

• Degree of sensitivity becomes VERY high when prices are highly flexible.

How can govt use fiscal policy to stabilize economy?