Floats, Pegs and the Transmission of Fiscal Policy

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Discussion

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45” Summary

- Very nice, very clear paper on important topic.
- Conventional wisdom: Fiscal policy is more effective under fixed exchange rates than under a float.
- Intertemporal analysis in a New Keynesian model highlights interdependence of fiscal and monetary policy and the importance of policy specification over the medium-to-long term.
- When the possibility of government spending reversals in the future is taken into account, the conventional wisdom should not be taken at face value:
  - Fiscal stimulus can be more effective under a float than under fixed exchange rates.

The Model

- Galí and Monacelli (*ReStud* 2005) meet Corsetti, Meier, and Müller (2009—CMM).
- Intertemporal IS:

$$\begin{aligned} y_t &= E_t y_{t+1} - \alpha \left(i_t - E_t \pi_{t+1} \right) - E_t \left(g_{t+1} - g_t \right), \\ \alpha &\equiv \left[1 + \omega \left(2 - \omega \right) \left(\sigma\gamma - 1 \right) \right] \left(1 - \chi \right) / \gamma. \end{aligned}$$

- NKPC:

$$\pi_{H,t} = \beta E_t \pi_{H,t+1} + \kappa \left(\varphi + \alpha^{-1} \right) y_t - \kappa \alpha^{-1} y_t, \quad \kappa \equiv \left(1 - \beta\xi \right) \left(1 - \xi \right) / \xi.$$

- UIP:

$$i_t - i_t^* = i_t = E_t e_{t+1} - e_t \quad \text{(foreign variables assumed constant).}$$

- Monetary policy:

$$i_t = \phi_\pi \pi_{H,t}, \quad \phi_\pi > 1 \text{ (float)} \quad \text{or} \quad i_t = i_t^* + \phi_e e_t = \phi_e e_t, \quad \phi_e > 0 \text{ (peg).}$$

The Model, Continued

- Fiscal policy:

$$\beta d_{t+1} = d_t + g_t - t_t + g_y \omega s_t,$$

$$g_t = \rho g_{t-1} - \phi_{gd} d_t + \varepsilon_t^g, \quad \phi_{gd} > 0.$$

$$t_t = \phi_{td} d_t, \quad \phi_{td} > 0.$$

  - Most important novel feature (from CMM): spending reversal in process for g_t as function of accumulated debt.
    - Spending reversal breaks Ricardian equivalence.

- Terms of trade:

$$s_t = s_{t-1} + \pi_{H,t} + e_t - e_{t-1}.$$

The Heart of the Argument

- Euler equation for consumption:

$$E_t c_{t+1} - c_t = \frac{1}{\gamma}\left(i_t - E_t \pi_{t+1}\right)$$

- Iterate forward to solve for c_t:

$$c_t = \lim_{T\to\infty} E_t c_{t+T} - \frac{1}{\gamma} E_t \sum_{s=1}^{\infty} \left(i_{t+s-1} - \pi_{t+s}\right).$$

- Stationary model implies $\lim_{T\to\infty} E_t c_{t+T} = 0$. $\Rightarrow$

$$c_t = -\frac{1}{\gamma} E_t \sum_{s=1}^{\infty} \left(i_{t+s-1} - \pi_{t+s}\right).$$

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$$E_t \sum_{s=1}^{\infty} \left(i_{t+s-1} - \pi_{t+s}\right) = \text{ long-term real interest rate.}$$

The Heart of the Argument: Fixed Exchange Rates

- UIP:

$$i_t - i_t^* = E_t e_{t+1} - e_t.$$

- Interest rate rule for fixed exchange rate (Benigno, Benigno, and Ghironi, *JEDC* 07):

$$i_t = i_t^* + \phi_e e_t, \quad \phi_e > 0.$$

- $\Rightarrow$

$$(1 + \phi_e)\, e_t = E_t e_{t+1} \Rightarrow$$

$e_t = 0$ and $i_t = i_t^* = 0$ (since foreign interest rate assumed constant).

- $\Rightarrow$

$$c_t = \frac{1}{\gamma} E_t \sum_{s=1}^{\infty} \pi_{t+s}.$$

The Heart of the Argument: Fixed Exchange Rates, Continued

- Long-run PPP $\Rightarrow \lim_{T\to\infty} P_t = P_t^* = P^*$, or, in log-linear terms, $\lim_{T\to\infty} p_t = 0$. Hence:

$$\sum_{s=0}^{\infty} \pi_s = 0.$$

- Consider the impact response of consumption to shocks:

$$c_0 = \frac{1}{\gamma} E_0 \sum_{s=1}^{\infty} \pi_s = \frac{1}{\gamma} E_0 \left(\sum_{s=0}^{\infty} \pi_s - \pi_0 \right) = -\frac{1}{\gamma} \pi_0.$$

- Under a fixed exchange rate, government spending expansion (or any other shock) that causes $\pi_0 > 0$ induces $c_0 < 0$, dampening the overall expansionary effect of policy.

The Heart of the Argument: Flexible Exchange Rates

- Under flexible exchange rates, Giancarlo, Keith, and Gernot assume $i_t = \phi_\pi \pi_{H,t}$, $\phi_\pi > 1$.
- For the sake of illustration, assume instead $i_t = \phi_\pi \pi_t$, $\phi_\pi > 1$.
- Then:

$$\begin{aligned} c_t &= -\frac{1}{\gamma} E_t \sum_{s=1}^{\infty} \left(i_{t+s-1} - \pi_{t+s} \right) = -\frac{1}{\gamma} E_t \sum_{s=1}^{\infty} \left(\phi_\pi \pi_{t+s-1} - \pi_{t+s} \right) \\ &= \frac{1}{\gamma} E_t \sum_{s=1}^{\infty} \left(\pi_{t+s} - \phi_\pi \pi_{t+s-1} \right). \end{aligned}$$

  - $\pi_{t+s} - \phi_\pi \pi_{t+s-1} =$ "Taylor-adjusted" inflation growth ($\phi_\pi > 1$).

- Under plausible assumption on government spending reversal, inflation dynamics are such that $c_0 > 0$, amplifying the expansionary effect of the shock.
- Very cool!

Intertemporal Relative Prices and Cross-Country Relative Prices

- The argument in the paper ties together the key intertemporal relative price (the long-term real interest rate) and a key cross-country relative price (the real exchange rate).
- Real exchange rate dynamics are such that:

$$E_t q_{t+1} - q_t = (i_t - E_t \pi_{t+1}) - (i_t^* - E_t \pi_{t+1}^*) = i_t - E_t \pi_{t+1}.$$

- Hence, iterating as for consumption and using long-run stationarity:

$$q_t = -E_t \sum_{s=1}^{\infty} (i_{t+s-1} - \pi_{t+s}) .$$

  - The real exchange rate is the negative of the long-term interest rate.

Intertemporal Relative Prices and Cross-Country Relative Prices, Continued

- Under fixed exchange rates:

$$q_t = E_t \sum_{s=1}^{\infty} \pi_{t+s}, \quad \text{and} \quad q_0 = -\pi_0.$$

  - Government spending expansion that causes inflation also induces real appreciation, thereby dampening the expansionary effect of the stimulus.

- Under flexible exchange rates (and $i_t = \phi_\pi \pi_t$, $\phi_\pi > 1$):

$$q_t = E_t \sum_{s=1}^{\infty} \left(\pi_{t+s} - \phi_\pi \pi_{t+s-1} \right).$$

  - Under plausible assumptions about reversal, government spending expansion can cause real depreciation on impact, thereby amplifying the expansionary effect of the shock.

- Very cool!

Fiscal Shock versus Fiscal Policy as a Stabilization Tool

- The paper focuses on transmission of exogenous government spending shock (innovation ε_t^g) under float or peg.

- This is not really an exercise about the properties of fiscal policy as a stabilization tool—a tool for stabilizing the economy against *other* shocks.

- We can write the solution of the model for any endogenous, non-predetermined variable x_t as:

$$x_t = \eta_{xd} d_t + \eta_{xg} g_{t-1} + \eta_{xs} s_{t-1} + \eta_{xe} e_{t-1} + \eta_{x\varepsilon^g} \varepsilon_t^g.$$

- If we let $x_t = y_t$ or c_t, the paper is concerned with (for instance), how $\eta_{y\varepsilon^g}$ (the elasticity of output to the government spending innovation) is affected by changes in the exchange rate regime and the characteristics of fiscal policy (spending reversal or not).
  - Footnote: Model is simple enough that it should be possible to solve for the η's with pencil and paper.

- I would be interested in fiscal policy as a stabilization tool.

Fiscal Shock versus Fiscal Policy as a Stabilization Tool, Continued

- Intertemporal IS:

$$y_t = E_t y_{t+1} - \alpha \left(i_t - E_t \pi_{t+1} \right) - E_t \left(g_{t+1} - g_t \right) + z_t,$$

$$z_t = \rho_z z_{t-1} + \varepsilon_t^y.$$

- Government spending rule:

$$g_t = \rho g_{t-1} - \phi_{gd} d_t - \phi_{gy} y_t + \varepsilon_t^g, \quad \phi_{gd} > 0, \quad \phi_{gy} > 0.$$

  - A shock that causes $z_t < 0$ and $y_t < 0$ elicits a countercyclical response of government spending to stabilize output.

- The solution for output can be written:

$$y_t = \eta_{yd} d_t + \eta_{yg} g_{t-1} + \eta_{yz} z_{t-1} + \eta_{ys} s_{t-1} + \eta_{ye} e_{t-1} + \eta_{y\varepsilon^g} \varepsilon_t^g + \eta_{y\varepsilon^y} \varepsilon_t^y.$$

- How does $\eta_{y\varepsilon^y}$ change with the exchange rate regime and the characteristics of fiscal policy (reversal or not)?

- How does the entire profile of the output response (or responses of other variables) change?

- While the exogenous government spending shock is interesting as a traditional, benchmark exercise, I would find the analysis of endogenous fiscal policy response to the state of the economy even more interesting (and important from a policy perspective).

Theoretical Results versus Empirical Evidence

- Giancarlo, Keith, and Gernot highlight plausible scenarios that challenge the conventional wisdom on the effects of government spending stimuli under float or peg.

- Yet, Ilzetzki, Mendoza, and Vegh strongly argue in favor of the conventional wisdom from an empirical perspective.

- How can we reconcile these results?

- Was absence of spending reversals dominant across countries and periods studied by Ethan, Enrique, and Carlos?

Fiscal (and Monetary) Rules versus Optimal Fiscal (and Monetary) Policy

- An obvious direction to take this research in the future is optimal fiscal policy (and monetary policy) in response to shocks.

- If we want to remain within the boundaries of simple policy rules, it would be interesting to determine optimized response coefficients and the implied elasticities of endogenous variables to policy.

- How would optimal fiscal and monetary policy vary depending on cooperation versus non-cooperation between government and central bank?

- Would "symbiosis" results (policy delivers "bliss" equilibrium regardless of cooperation or not if policymakers have the same objectives) as in Dixit and Lambertini (*JIE* 03) and Eichengreen and Ghironi (*OER* 02) survive in the presence of spending reversals?

- In an optimal policy context, it would be important to consider distortionary taxation, with a determination of the revenue side of the government budget that is function of the state of the economy beyond $t_t = \phi_{td} d_t$.

Strategy Within and Across Countries

- The small open economy assumption restricts a future analysis of optimal fiscal and monetary policy to strategic interdependence of policymakers within the country under consideration.

- Much of the debate on the consequences of fiscal policy under alternative exchange rate regimes concerns the spillover effects of different policy actions.
  - In Europe's run-up to EMU, this resulted in the Stability and Growth Pact.

- I would be very interested in optimal policy analysis in the CMM world with interdependent economies of similar size.

Conclusion

- Very interesting paper, with strikingly clear analytical results and intuitions.
- It sheds light on the importance of the medium-term policy framework and monetary-fiscal interdependence for the effects of fiscal stimuli under alternative exchange rate regimes.
- It can (and should) be the starting point for a broad research agenda on (optimal) fiscal (and monetary) policy in open economies.
- I look forward to reading the next installments!