Floats, Pegs and the Transmission of Fiscal Policy

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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


- Intertemporal IS:

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

- NKPC:

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

- 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:

\[ \beta d_{t+1} = d_t + g_t - t_t + g_y \omega s_t, \]
\[ g_t = \rho g_{t-1} - \phi_{gd} d_t + \varepsilon_t^g, \phi_{gd} > 0. \]
\[ t_t = \phi_{td} d_t, \phi_{td} > 0. \]

– 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:
  \[ E_t c_{t+1} - c_t = \frac{1}{\gamma} (i_t - E_t \pi_{t+1}) \]

- Iterate forward to solve for \( c_t \):
  \[ c_t = \lim_{T \to \infty} E_t c_{t+T} - \frac{1}{\gamma} E_t \sum_{s=1}^{\infty} (i_{t+s-1} - \pi_{t+s}) \cdot \]

- Stationary model implies \( \lim_{T \to \infty} E_t c_{t+T} = 0 \).
  \[ c_t = -\frac{1}{\gamma} E_t \sum_{s=1}^{\infty} (i_{t+s-1} - \pi_{t+s}) \cdot \]

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

\[ i_t = i^*_t + \phi e_t, \quad \phi_e > 0. \]

\[ \Rightarrow \quad (1 + \phi_e) e_t = E_t e_{t+1} \Rightarrow \]

\[ e_t = 0 \quad \text{and} \quad i_t = i^*_t = 0 \quad (\text{since foreign interest rate assumed constant}). \]

\[ \Rightarrow \quad c_t = \frac{1}{\gamma} E_t \sum_{s=1}^{\infty} \pi_{t+s}. \]
• 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:

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

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

$- \pi_{t+s} - \phi_{\pi} \pi_{t+s-1} =$ “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 \( i_t = \phi_\pi \pi_t, \phi_\pi > 1 \)):

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

  – 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 $\varepsilon_g^t$) 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:

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

- If we let $x_t = y_t$ or $c_t$, the paper is concerned with (for instance), how $\eta_{y\varepsilon}$ (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 $\eta$’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:

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

\[ z_t = \rho z_{t-1} + \varepsilon_t^y. \]

• 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:

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

• How does \( \eta_{y} \varepsilon_t \) 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!