Discussion of Hall and Reis interest on reserves proposal

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Monetary Standards and the Price Level

- Hall 1997 — mechanisms and problems
- Gold Standard — relative price of gold
- Fixed Exchange Rate — real exchange rate
- Quantity Theory — velocity
- Interest rate rule — indeterminacy
- Chilean experiment with indexed reserves
The Hall-Reis Proposal

• Evaluate in detail in a simple model

• cash in advance
  
  • constant velocity, constant endowment

• Fiscal policy
  
  • nominal lump sum taxes/transfers

  • finance constant nominal growth of consolidated Treasury debt and CB liabilities

• Monetary policy
  
  • Set nominal return on excess reserves relative to Tbill rate

  • Households determine composition of government liabilities
Government Finance

- Treasury auctions Tbills
- CB pays auction rate plus price level adjustment on excess reserves
- Households choose portfolio of
  - currency
  - excess reserves
  - T-bills
- Taxes/transfers to pay for interest on reserves and T-bills
- Asset Market Clearing
  - Household nominal assets equal consolidated nominal liabilities of Treasury and CB
Three cases

- Standard Case:
  - CB rate below Treasury rate
    - households hold no excess reserves
    - CB holds T-bills financed by currency
    - additional T-bills held directly by households
Current Case

- CB reserves rate equals Treasury rate
  - households hold excess reserves
  - CB creates reserves by buying Tbills
  - Households hold fewer Tbills directly
  - No need to expand consolidated debt of Treasury and CB
Fed balance sheet
Non-standard case

- Treasury auctions Tbills
- CB pays auction rate plus price level adjustment on excess reserves
- CB rate above Treasury rate
  - Tbill auction fails
  - CB buys all Tbills to finance Treasury through creation of excess reserves
  - Households hold only currency and excess reserves
Household portfolio and cash in advance constraints

\[ W_t(z_0) = m_t(z_0) + A_t(z_0) + q_t(z_0)B_{t+1}(z_0) \]

\[ m_t(z_0) \geq P_t(z_0)c_t(z_0) \]

\[ W_{t+1}(z_0) = \frac{1}{q_t(z_0)} \frac{P_t(z_0)}{P_t^*} A_t(z_0) + B_{t+1}(z_0) - T_{t+1}(z_0) + P_t(z_0)(Y - c_t(z_0)) + m_t(z_0) \]
No short sales

\[ A_t(z_0) \geq 0 \]

\[ B_{t+1}(z_0) \geq 0 \]
Fiscal Policy
Consolidated liabilities of gov’t

\[ \bar{B}_{t+1}(z_0) = m_t(z_0) + \frac{1}{q_t(z_0)} \frac{P_t(z_0)}{P^*_t} A_t(z_0) + B_{t+1}(z_0) - T_{t+1}(z_0) \]

Constant growth of consolidated liabilities and target price level

\[ \bar{B}_t = \left( \frac{\beta}{\bar{q}} \right)^t \bar{B}_0 \]

\[ P^*_t = \left( \frac{\beta}{\bar{q}} \right)^t P^*_0 \]
Equilibrium prices and inflation

\[
\frac{P_{t+1}(z_0)}{P_t(z_0)} \geq \frac{\beta}{q_t(z_0)} \max\{\frac{P_t(z_0)}{P^*}, 1\}
\]

Continuum of equilibria with target inflation and nominal interest rate

\[
P_{t+1}(z_0) = \left(\frac{\beta}{q}\right)^t P_0(z_0)
\]

Only excess reserves or Tbills held in equilibrium

Additional equilibria with interest rate and inflation also indeterminate
Conclusion

- I would be nervous to try the Hall-Reis proposal