Remarks on ‘Escapist Policy Rules’
by James Bullard and In-Koo Cho

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Introduction

• What the authors do:
  - Examine a Taylor-type rule in the conventional sticky-price model for:
    -- its stability
    -- its learnability
    -- its cyclical properties (i.e., escape dynamics)
  - Do so with three key deviations from rational expectations
    -- misspecified private-sector beliefs about policy
    -- feedback from beliefs to policy settings
    -- constant-gain learning
  - They apply their model and technology to the Japan.

• Pertinent references include:
• The authors’ major conclusions include:

  - The Taylor-type rule is learnable
  - The Taylor-type rule performs pretty well...on average
  - There are episodes of escape dynamics
  - They apply this to the Japanese liquidity trap situation and argue:
    -- the model can explain Japan as a rare ‘escape event’ in an otherwise stable economy
    -- the descent into the trap is broadly plausible in terms of its speed

• My knee-jerk reactions include:

  - This is a good paper; I liked it quite a lot
  - Well motivated and interesting, and capably carried out
  - Heroic effort toward an heuristic explanation of escapes
  - The details of the set-up raise some questions for me
Key assumptions

I identify 6 of what I regard as key assumptions and cover each in order, and then turn to a grab bag of miscellaneous stuff....

(1) convex Taylor-type rule: \[ r_t = \bar{r}_t \exp \left[ \frac{\phi}{\bar{r}_t} (\pi_t - \bar{\pi}_t) \right] + \eta_t \]

(2) misspecified private-sector model for the rule:
\[ r_t = r_t^* \exp[ B(\pi_t - \pi_t^*) ] \]

(3) least-squares estimates of the rule:
\[ r_t = \phi_{0,t} + \phi_{\pi,t} \pi_t + \xi_t \]

(4) drift in the target rate of inflation: \[ \bar{\pi}_t = \pi_t^* \]

(5) knowledge of the shocks, \[ \omega_t, \eta_t \]

(6) knowledge and choice of \[ B \] on: \[ \pi_t^* = - \rho + \frac{1}{B} \hat{\phi}_{\pi,t} \]
(1) The convex Taylor-type rule

- \( r_t = \tilde{r}_t \exp \left[ \frac{\phi \pi}{\tilde{r}_t} (\pi_t - \tilde{\pi}_t) \right] + \eta_t \)

- Why this rule? What role does the convexity play?

- Is the form of the rule the reason why escapes are to low inflation rates instead of high ones?

- What justification is there for the existence of \( \eta_t \neq 0 \)?

(2) The private sector’s beliefs

- \( r_t = r_t^* \exp[B(\pi_t - \pi_t^*)] \) vs. \( r_t = \tilde{r}_t \exp \left[ \frac{\phi \pi}{\tilde{r}_t} (\pi_t - \tilde{\pi}_t) \right] + \eta_t \)

- The form of the perceived rule is correct, but \( B \) is set exogenously and apparently on an ad hoc basis.

- The role of \( \eta_t \) is essentially ignored (see (3) below)
(3) Least-squares learning

- \( r_t = \phi_{0,t} + \phi_{\pi,t} \pi_t + \xi_t \)
- The rule is nonlinear but the regression is linear
- Because \( \eta_t \neq 0 \), \( \hat{\phi}_{\pi,t} \) will be biased, likely downward
- But self-reinforcing equilibrium implies \( \phi_{\pi,t}^e = \phi_{\pi} \)
- So why least-squares learning and what role does this play in the simulation results?

(4) Drift in the inflation target

- \( \bar{\pi}_t = \pi_t^* \)
- “If the government adopted a fixed target then the escape dynamics...could not occur. We need the ‘center of gravity’ of the system to move slightly with incoming shocks” (fn. 11, p. 10).

- Difficult to motivate drift in the target in the presence of a zero bound and the convex Taylor-type rule it engenders.
(5) Knowledge of the shocks

• $\omega_t, \eta_t$

• If agents know the form of the true policy rule, and they know the true shocks, the rule could be inverted to find $\phi_\pi$.

• What if they “knew” just the prediction error instead:

\[
\hat{\eta}_{t-1} = r_{t-1} - r_{t-1}^* \exp[B(\pi_{t-1} - \pi_{t-1}^*)]
\]

(6) Knowledge of $B$

• $\pi_t^* = -\rho + \frac{1}{B} \hat{\phi}_{\pi, t}$

• The regression does not supply both and $\hat{B}$ and $\hat{\phi}_{\pi, t}$, so the authors supply $B = 500$ and back out $\hat{\phi}_{\pi, t}$.

• But the choice of $B$ is not innocuous; a large $B$ implies a small response of $\pi_t^*$ to changes in $\hat{\phi}_{\pi, t}$.

• Is there no way to get both $\pi_t^*$ and $\hat{\phi}_{\pi, t}$ from the data?
Random queries and conjectures

• Are the simulations being conducted with the nonlinear model, or the linear approximation?

• Escapes don’t happen very often; higher $\alpha$ would help, but would it come at a cost?

• At the liquidity-trap outcome, when $\hat{\phi}_{\pi,t} = 1$, what if anything keeps $\hat{\phi}_{\pi,t} \geq 1$? The projection facility?

• Potential for explaining why the low-inflation outcome arises, and also why there is no Wicksellian unravelling.