Outline of comments

- Credibility, definitions and measures
- Inferring inflation target from reaction-function intercepts (Kozicki-Tinsley)

Central-bank credibility 1

- General definition: Competence, “a safe pair of hands”
- More narrow definition: “Expected to achieve target”
  - Presumes an explicit (or known implicit) numerical target
  - Presumes measure of expectations of future target variable
  - Credibility: Proximity to target of expectations of future target variable
- Inflation target $\pi^*$, inflation expectations $\pi^e$
  - Credibility: $\pi^e \approx \pi^*$
- Exchange-rate target (target zone): $s^*$, $[\underline{s}, \bar{s}]$
  - Credibility: $s^e \approx s^*$, $s^e \in [\underline{s}, \bar{s}]$
Central-bank credibility 2

- Distinguish target credibility from target achievement
  - Inflation-target achievement: Use $\pi_t = \pi^*$?
  - No, imperfect control of inflation!
    - Some deviations from inflation target are unavoidable, unanticipated shocks
  - No, flexible inflation targeting (dual mandate): without prejudice to price stability, also stabilize real economy (employment or unemployment around long-run sustainable rate)
    - Some deviations from inflation target are deliberate, the result of compromise with other objective, “balanced approach” to mitigate deviations

- Inflation-target achievement: Longer-run average of inflation equal to target

Central-bank credibility 3

- Bordo-Siklos definition of credibility:
  $$(\pi_t - \bar{\pi}_t)^2 = \alpha Z_t + \varphi (\pi_{t-1} - \bar{\pi}_{t-1})^2 + \epsilon_t$$

- Small squared deviation from inflation target
- But this is an imperfect measure of inflation-target achievement, rather than a measure of credibility
  - Achievement rather than credibility, since outcome rather than expectations
  - Imperfect, because it includes unanticipated shocks (which differing across economies and time) as well as deliberate deviations under flexible inflation targeting
Example 3: Riksbank target credibility: Good
Inflation expectations close to target, in spite of average inflation below target

Example 3: Riksbank graph: "Inflation target credible"

Inferring inflation target from reaction-function intercept? (Kozicki-Tinsley)

\[
\begin{align*}
\pi_t - \pi^*_t &= -\gamma(u_t - u^*) \\
\gamma\theta(r_t - r^*) &= \theta[(\pi_t - \pi^*_t) + \alpha(\pi_t - \pi^*_t)]
\end{align*}
\]

- Take unconditional mean and combine:

\[
\pi - \pi^* = -\gamma\theta(r - r^*) \quad \text{or} \quad \pi - \pi^* = -\gamma\theta[(\pi - \pi^*) + \alpha(\pi - \pi^*)]
\]

\[
\pi = \frac{1 + \gamma\theta \pi^* + \gamma\theta(\alpha - 1)}{1 + \gamma\theta} \bar{\pi}
\]

- We have \(\pi^* > \pi > \bar{\pi}\) or \(\pi^* < \pi < \bar{\pi}\), or equality
- If \(\pi = \pi^*\) and \(\pi^* > \pi^*\), then \(\pi^* > \pi^* = \pi > \bar{\pi}\)
- Sweden: If \(\pi^* = \pi^*\) and \(\pi^* > \pi\), then \(\pi^* = \pi^* > \pi > \bar{\pi}\)
- If high inflation expectations, higher real interest rate needed to fulfill inflation target (which implies a lower \(\bar{\pi}\))

Summing up

- Distinguish target achievement and target credibility
  - Riksbank: Target achievement bad, target credibility good
  - \(\pi < \pi^* = \pi^*\): Higher unemployment, higher real debt
- Measures of credibility are regime-dependent (target variable(s) different for different regimes)
- Examine each regime separately, break up into subsamples
- Measures of expectations essential (surveys, professional forecasts, break-even inflation rates, expected exchange rates from UIP…)
- Probably not enough old data
**Example 3:** Riksbank target credibility: Good
Inflation expectations close to target, in spite of average inflation below target

**Example 4:**
Riksbank establishing credibility of inflation target 1993-95

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### Average inflation in some countries

<table>
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<tr>
<th>Country</th>
<th>Target</th>
<th>Index</th>
<th>Period</th>
<th>Average</th>
<th>Deviation</th>
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<td>Sweden</td>
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<td>CPI</td>
<td>1997-2011</td>
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<td>1997-2007</td>
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<td>RPIX</td>
<td>1997-2003</td>
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<td>HICP</td>
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<td></td>
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<td>core PCE</td>
<td>2000-2011</td>
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</tbody>
</table>
Sweden: Average inflation below target has led to higher average unemployment 1997-2011

\[ \pi_t = 6.8 - 2.70 (u_t - u_{t-1}) - 0.75 u_{t-1} + \varepsilon_t \]

(0.73) (0.18)

\[ \pi = 6.8 - 0.75 u_t \]

0.8 p.p.

0.6 p.p.

Credibility of Riksbank forward guidance 1
Success!
February 2009

Credibility of Riksbank forward guidance 2
Failure!
September 2011