Discussion: Monetary Policy Implications of State-Dependent Prices and Wages

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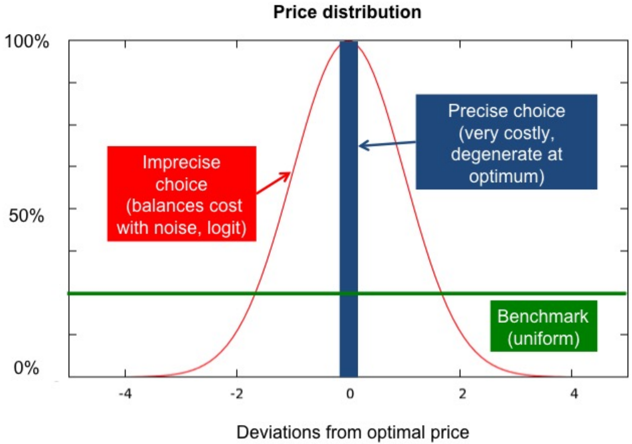
Highlights of the paper

1. **Very interesting theory**
   - Near-rational pricing (from Constain and Nakov 2014)
     - It takes effort (time) to make precise choices, allow for errors
     - Smart way to model choices as random
     - Generates inaction without nominal rigidities
   - Extend to wage-setting and analyze the interaction
2. **Computational advantages**
   - Tractable state-dependent model
   - Allows to analyze persistent monetary shocks (vs. "MIT" shocks)
3. **Micro and macro consequences**
   - Explain several micro statistics
   - Wage-setting errors are quantitatively more important than pricing errors for non-neutrality

Control cost model of stickiness

- Bias distribution of actions towards more desirable alternatives
- Bias is costly, proportional to distance from benchmark (entropy)
- Timing errors (*when* to adjust) and pricing errors (*where* to adjust)



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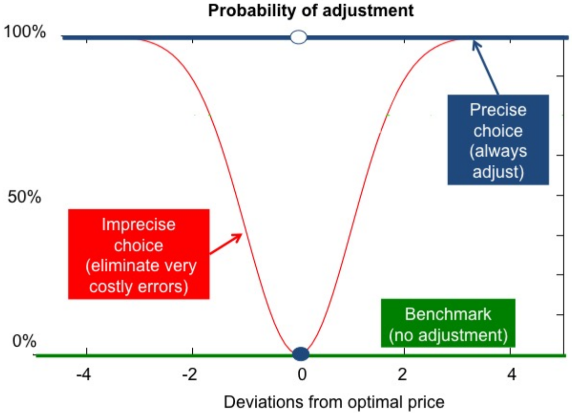

Plan for discussion

1. Relationships with robustness
2. Control-cost model vs. other theories
3. Specific comments and suggestions

Relationship with robustness

- Let $V(x)$ be a value function and $\eta(x)$ the benchmark distribution.
- Distortion $g(x)$: $\pi(x) = g(x)\eta(x)$, where $g(x) \geq 0$, $\int g(x)\eta(x)dx = 1$.
- Entropy cost $\varepsilon(g(x)) \equiv \mathbb{E}^{\pi}[\log g(x)] = \mathbb{E}^{\pi}[\log \frac{\pi(x)}{\eta(x)}]$

1. **Control-cost model (Constain and Nakov)**
   - Agent changes $\eta(x)$ to put more weight on *best* outcomes

   $$\max_{g(x)} \int V(x)g(x)\eta(x)dx - \theta\varepsilon(g(x))$$

   - Penalty $\theta = \kappa_{\pi} W$ is degree of noise in decision process
   - Solution gives twisted probabilities: $g(x) = \frac{\exp(V(x)/\theta)}{\mathbb{E}[\exp(V(x)/\theta)]}$

2. **Robustness and ambiguity aversion (Hansen and Sargent)**
   - Agent mistrusts $\eta(x)$ and put more weight on *worst* outcomes

   $$\max_{g(x)} \int (-V(x))g(x)\eta(x)dx - \theta\varepsilon(g(x))$$

   - Penalty θ is inverse of distrust in the model $\eta(x)$
   - Solution gives twisted probabilities: $g(x) = \frac{\exp(-V(x)/\theta)}{\mathbb{E}[\exp(-V(x)/\theta)]}$

Control-cost model vs. other theories

- **Is there direct evidence of control-cost model?**
  - Survey data on pricing and wage setting
  - Case studies on time-use by firm management and households
- **How to discriminate across theories?**
  - Still have difficulty understanding the difference between...
    - Imprecise choice with perfect information
    - Precise choice with information frictions (Baley and Blanco, 2017)
  - Is it that size of the errors can be controlled?
  - Would like to see other testable implications for overidentification

Specific comments and suggestions

1. **Model discipline**
   - How are benchmark distributions chosen?
   - More details on calibration, particularly for wages
2. **Disentangle source of errors**
   - In firm pricing:
     - Distribution errors: key to match micro-pricing data
     - Timing errors: key to amplify non-neutrality
   - Same for wage-setting?
3. **Highlight your contribution**
   - Control-cost vs. other sticky wage models
   - Compare results with other DSGE models with wage stickiness
     - Erceg, Henderson, Levin (2000) both rigidities are Calvo

Summary

- Relationship to robustness
- Control-cost model vs. other theories
  - Is there direct evidence of control-cost model?
  - How to discriminate across theories?
- Specific comments
  - Model discipline
  - Disentangle source of errors
  - Highlight your contribution