Do capacity constraints affect the pass-through of monetary policy to prices?

Ahlander, Amberg, and Klein

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Discussion by Anton Nakov

Motivation

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- The recent inflation surge has reignited interest in the drivers and dynamics of inflation, supply bottlenecks, etc
- This paper studies monetary transmission through the pricing of heterogeneous firms
- In particular, investigates whether *capacity constraints* matter for firm pricing responses to monetary policy shocks
- If they do, an important implication would be a convex Phillips curve which steepens as inflation rises
- Central banks should take such nonlinearity into account: "Strike while the iron is hot"

Main Findings

- **Average effect:** A 25 bp expansionary shock raises producer prices by about 2% over two years
- **Heterogeneity**
  - Capacity-constrained firms respond by raising prices quickly and strongly
  - Unconstrained firms respond only weakly and sluggishly
- **Role of market power:** Only constrained firms with high markups significantly raise their prices
- **Mechanism:** Price increases mainly due to marginal cost changes, not markup adjustments

Strategy and Result

Empirical Strategy

- Local projection framework with firm-product fixed effects and rich controls:

$$\ln\left(\frac{p_{i,j,t+h}}{p_{i,j,t-1}}\right) = \alpha^h_{i,j} + \beta^h M_t C_{i,t-1} + \gamma^h M_t + \delta^h C_{i,t-1} + \psi^h \mathbf{X}_{i,j,t} + \varepsilon^h_{i,j,t}$$

- Swedish micro-price data underlying PPI, capacity utilization, and markups

- High-frequency identification of monetary policy shocks

- Capacity constraints defined by utilization $\geq 100\%$ or input bottlenecks

Results and Implications

Key Results

- **Nonlinearity:** Sharp increase in pass-through at full capacity
- **Timing:** Constrained firms respond within 2 months; difference with unconstrained firms peaks after 15 months
- **Robustness:** Results stable across specification choices and constraint definitions

Implications for central banks:

- Transmission strength is state-dependent
- Central bank faces greater inflationary risk near full capacity
- Need for macro models integrating capacity limits?

Comments

Discussion

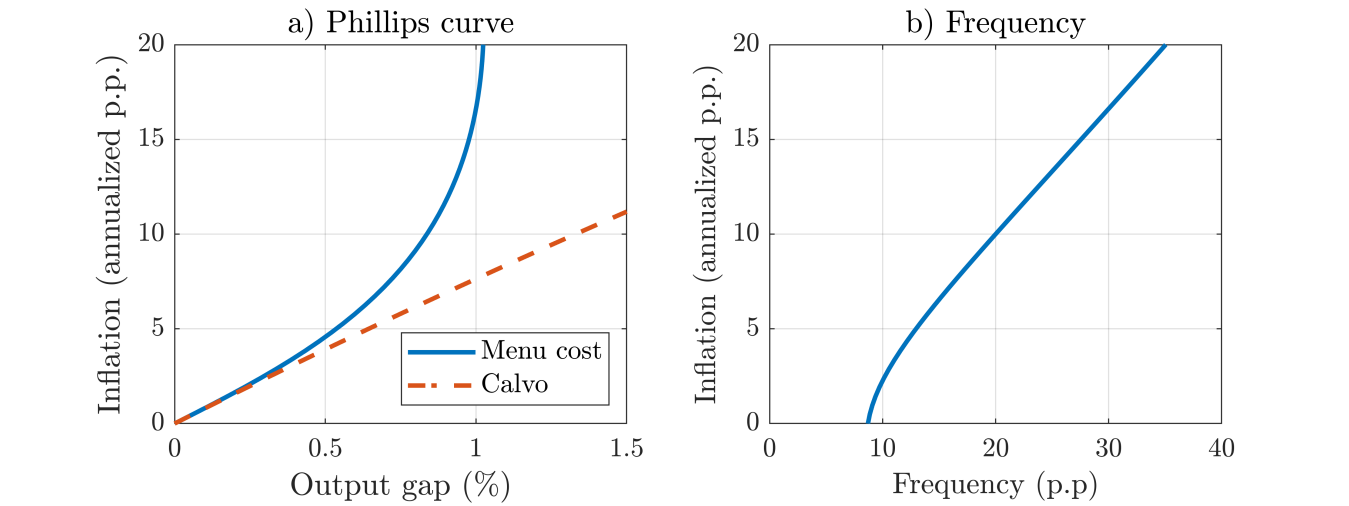
- **One possible story:** The marginal cost of producing additional units may rise as output increases due to short-term diminishing returns within firms (e.g. some inputs are fixed)
- **Another story:** As firms hit capacity constraints they raise their markups (even if costs don't change)
- **Third story:** firms stock out when demand exceeds capacity
- Should macroeconomic models incorporate firm-level capacity utilization as a state variable?
- Or just modeling smoothly increasing marginal costs is enough?

Questions and Comments

- Why do only high-markup constrained firms adjust prices? As the nominal shock passes to costs, all firms should eventually adjust prices to rising input costs.
- Those with a small mark-up especially, otherwise they may incur losses.
- C is a constructed 0/1 indicator variable. But the underlying data on utilization level are smoother.
- Can one estimate a smoother convex relationship between output and prices at the firm level?

Convex Phillips curve with menu costs

- Convex Phillips curve may arise also in models without capacity constraints–e.g. SDP: the fraction of adjusters rises with inflation



- Is there a way to separate these two sets of models?

Questions and Comments

- Some papers question the non-linearity of the Phillips curve
- Baudry, Hou, and Portier (2025) examine whether the US evidence in favor of a nonlinearity in the Phillips curve is robust
- Their findings suggest that the evidence is fragile: it disappears when controlling properly for inflation expectations

Conclusion

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- Hot topic, highly relevant for central banks and for the ChaMP network
- Promising first analysis and first paper draft
- Paper still work in progress
- Looking forward to its further development