Macroeconomic Implications of Markups

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Questions

- How do markups affect the slope of the Phillips curve and the transmission of monetary policy?
- Does it affect the tradeoff faced by monetary policy makers?
- Questions that are already important, even if we do not think markups are rising.

Summary

- Literature suggests market power **does** change transmission & incidence of monetary policy:
  - Market power and strategic pricing flattens the slope of the Phillips curve.
    e.g. (Kimball, 1995); (Mongey, 2021); (Wang and Werning 2022); (Afrouzi 2024).
  - Heterogeneous & variable markups imply demand reallocates across firms and affects productivity.
    e.g. (Baqaee, Farhi, Sangani, 2024); (Meier and Reinelt (2024).
  - Incidence of business cycles among employees & employers, or rich & poor households can be different.
    e.g. (Alves, Kaplan, Moll, and Violante 2020); (Bilbiie, 2025); (Sangani, 2026).

- Does this require changing the dual mandate of inflation and output stabilization?

  Less clear — central bank cannot eliminate underlying distortion & trying can do more harm than good.

Variable Markups Change Slope of the Phillips Curve

- Strategic firms care about competitors' prices as well as their own costs. One-period example, desired price satisfies

$$d\log p_i^* = \underbrace{\rho_i \, d\log mc_i}_{\text{own costs}} + \underbrace{(1-\rho_i)\, d\log P}_{\text{competitors' prices}}.$$

  ρ_i: desired cost pass-through; P: competitors' price aggregator.

- If $\rho_i < 1$, firms absorb some cost increases in lower markups. Even firms that adjust prices respond less when competitors' prices are sticky.

- This reinforces nominal rigidity: a flatter Phillips curve and a larger real response to monetary policy.

- In the homogeneous benchmark, the New Keynesian Phillips curve is

$$\pi_t = \beta \mathbb{E}_t \pi_{t+1} + \rho \; \kappa_{\text{CES}} x_t.$$

  x_t: output gap; u_t: exogenous cost-push shock; $\rho = 1$ recovers CES.

Theory: Ball and Romer (1990); Kimball (1995).

Heterogeneous Variable Markups Change Transmission

- High-markup firms underproduce relative to low-markup firms. If they also have lower pass-through, monetary easing lowers their relative prices and reallocates inputs toward them.
- With linear production

$$\underbrace{d\log Y}_{\text{output}} = \underbrace{d\log L}_{\text{employment}} + \underbrace{d\log A}_{\text{productivity}}, \qquad d\log A = \sum_i \text{sales}_i \times \left(1 - \frac{1}{\text{markup}_i}\right) d\log L_i.$$

  Heterogeneous pass-through implies $d\log L_i$ responds differently for different firms.
- Reallocating workers toward firms with higher markups raises aggregate productivity.
- Because firms with higher markups tend to have lower pass-through of costs into their price, positive demand shock reallocates towards those firms.
- With common price stickiness, the Phillips curve becomes

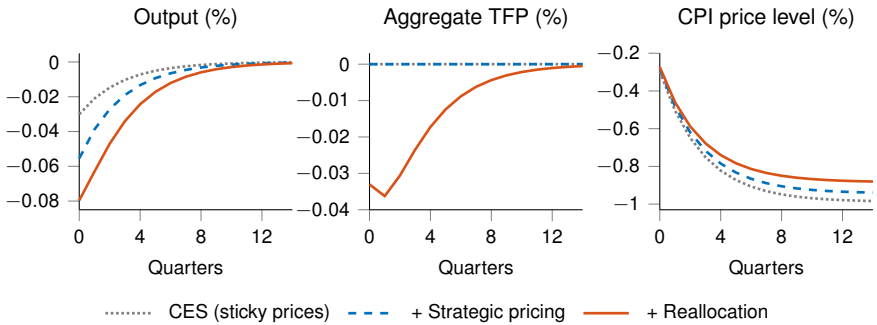
$$\pi_t = \beta \mathbb{E}_t \pi_{t+1} + \bar{\rho}\, \kappa_{\text{CES}} x_t - \alpha d\log A_t.$$

  $\bar{\rho}$: sales-weighted mean pass-through; productivity gains dampen inflation

Baqaee, Farhi, and Sangani (2024).

Monetary Transmission in the Model

Persistent monetary tightening: 25 bp quarterly (100 bp annualized).

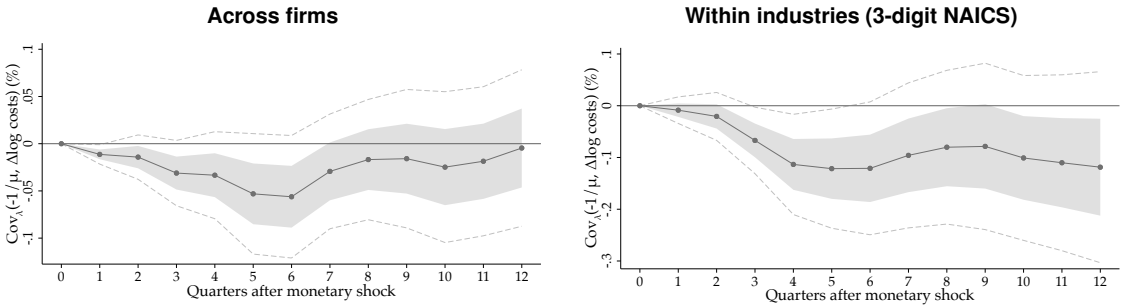


- Strategic pricing amplifies output contraction. Reallocation lowers productivity, dampens disinflation.
- Reallocation raises the cumulative output effect by $\sim 70\%$ relative to strategic pricing alone.

Source: Baqaee, Farhi, and Sangani (2024), calibrated model. Responses are percent deviations from steady state.

Reallocation Responds to Monetary Shocks

Compustat public firms: response to a contractionary monetary shock.

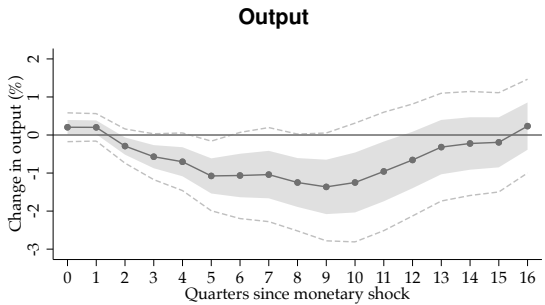


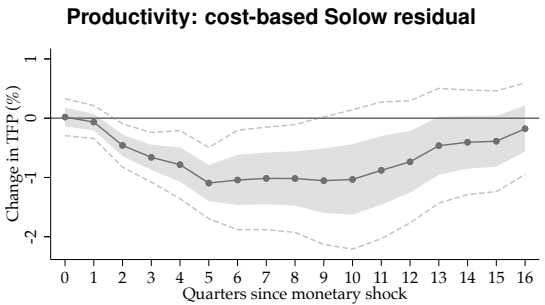
- Resources shift toward low-markup firms in response to a monetary contraction.

Source: Baqaee, Farhi, and Sangani (2024), Figure 8(b,d). Romer–Romer shocks, extended by Wieland–Yang.

Productivity Responds to Monetary Shocks in the Data

U.S. responses to a contractionary monetary shock, 1969–2007.





- Output and productivity fall together after a monetary tightening.
- Does this mean we should add markups into CB's mandate?

Source: Baqaee, Farhi, and Sangani (2024). Romer and Romer (2004) shocks, extended by Wieland and Yang (2020).

A Simple Optimal Policy Benchmark

- A permanent markup leaves natural output below efficient output by $\bar{x} > 0$. Policy problem is:

$$\min_{\{\pi_t, x_t\}_{t\geq 0}} \quad \mathbb{E}_0 \sum_{t=0}^{\infty} \beta^t \left[\pi_t^2 + \omega(x_t - \bar{x})^2\right] \quad \text{subject to} \qquad \pi_t = \beta \mathbb{E}_t \pi_{t+1} + \rho\, \kappa_{\text{CES}} x_t + u_t.$$

  x_t: output gap relative to the natural benchmark absent cost-push shocks u_t; ρ: desired pass-through.

- Central bank's objective now includes loss from the markup, but optimal policy for $t \geq 1$:

$$\pi_t + \frac{1}{\rho} \frac{\omega}{\kappa_{\text{CES}}} (x_t - x_{t-1}) = 0.$$

  Constant $\bar{x}$ disappears from time-consistent policy. Lower ρ raises weight on output-gap changes.

- **Response to shocks.** Balances inflation & output stabilization as if the permanent wedge were absent. The weights depend on pass-through, but **dual mandate remains.**

- **Preliminary.** Work with Kunal Sangani suggests analogous results with heterogeneous firms.

Woodford (2003, Ch. 7); Levin, López-Salido, and Yun (2007).

Market Power, Incidence, and Monetary Policy

- So far, we ignored household heterogeneity and uneven incidence of shocks.
- Market power can change **who bears the effects of monetary policy**. Firms adjust prices, profits, and employment differently; households differ in where they work, what they buy, and what they own.
- **Unequal incidence does not automatically imply a different policy response.** Heterogeneity alone is not a reason to abandon the dual mandate.
- For a central bank focused on **well-functioning markets**, the key question is whether this unequal incidence creates additional inefficiencies that monetary policy can meaningfully alleviate. More research is needed.

Formalized in: Baqaee, Burstein, and Guerreiro (2026), (work in progress).

Conclusion

- **Market power changes transmission and incidence.** Strategic pricing flattens the Phillips curve; when there is market power, reallocation matters to a first-order and can make productivity respond to demand.
- **These effects need not overturn the dual mandate.** Benchmark models retain inflation and activity stabilization, although the optimal balance between them can change.

Questions for future research

1. How should monetary policy respond to rapid reallocations across firms and even sectors given differing degrees of market power?

2. Which unequal effects on workers, consumers, owners and firms reflect inefficiencies that monetary policy can actually address?