

Relative Price Shocks and Inflation

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[The views expressed herein are those of the author and do not represent the views of the Central Bank of Chile]

Summary

Premise: Sectoral shocks have played major role in recent inflation dynamics: the 2012–19 below-target inflation, the 2020–23 COVID episode, and the 2024-25 above-target inflation.

- Estimate a 15-sectors NK model on 1995-2019 US data featuring sector demand and productivity shocks, aggregate demand and productivity shocks, and monetary policy shocks.
- 2012-19 below-target inflation (in sample): Driven by fuel & energy + tight monetary policy.
- 2020-23 COVID episode (out sample): Agg. demand for initial drop; sectoral shocks for later surge.
- 2024-25 above-target inflation (out sample): Jointly driven by sectoral and agg. demand + monetary policy with little role for fuel & energy.

Getting into the weeds

- The model features CD aggregator across sectors and DS within sectors, a unified labor market, a nearly identity IO matrix, most parameters equal across sectors except for sectoral weights and nominal rigidity, and a persistent Taylor rule.
- The paper treats the monetary policy rate as a latent variable due to non-stationarity in the sample.
- Estimation procedure: ML + Kalman filter. Identification assumptions:
 - Sec. demand (productivity) shocks: Sec. prices and quantities move in the same (opposite) directions.
 - Agg. demand (productivity) shocks: Comovement of sec. prices and quantities in the same (opposite) directions.
 - i.i.d. monetary shocks also yield positive commovement but proportionally symmetrical across sectors.
- The paper assumes a stable monetary policy regime, so <2019 is in sample and >2020 out sample.

General thoughts

- This is an empirical paper with a powerful message: sec. shocks matter A LOT for inflation.
- Sec. shocks in principle may average out; not if they affect large sections of the economy.
- Sec. price fluctuations are definitively important to understand inflation dynamics....

My discussion: Beyond implementation details, my main question is whether sec. relative price fluctuations are the origin of inflation dynamics or endogenous responses to other shocks.

- I agree that sec. shocks are important; my comments mainly refer to the causal statement – this is important for the interpretation of episodes.

Identification of sec shocks

- The estimation heavily relies on the model specification: same parameters for all sectors, unique labor market, an almost diagonal IO matrix, time-invariant nominal price rigidity.
- Limited room for agg. shocks to break down the comovement of sec. prices and quantities.
[ONLY NOMINAL RIGIDITY AND SECTORAL WEIGHTS]
- Example 1: if the pricing friction is endogenous, then not only the “average” stickiness matters but also their (potentially heterogeneous) responses to shocks (Montag & Villar, WP 2025).
- Example 2: If sectors have heterogeneous, potentially state-contingent pass-through of agg. shocks, they may look like sec. shocks – think of fuel & energy response to agg. demand shocks.
- Example 3: The IO matrix is almost diagonal; the paper takes an unconventional route to discipline IO links, but still quite diagonal for alternative measures for coarse sectors.
- Then, what is a sector in the model vs. in the data?

Monetary policy shocks

- The paper acknowledges the unconventional approach of modelling mon. policy as a latent variable.
- It does so because the FED funds rate is non-stationary.
- Shadow measures are not discussed but unlikely to solve this issue: falling r^*
- It assumes that until 2019 the monetary policy regime is stable and mon. shocks are different than demand shocks.
- But this procedure does not solve the issue:
 - The same forces behind low r^* could be behind the low oil price in the 2012-2019 episode,
 - It affects the estimated contribution of agg. demand v monetary shocks, or even sec. shocks.
 - Unlikely the mon. policy regime is stable after 2019 – this may mainly affect the estimated contribution of agg. demand and mon. policy.
- BTW, small monetary policy shocks do not mean small role for monetary policy.

Other issues

- Closed-form solutions would help for intuition. The static model of Pasten, Schoenle & Weber (AEJ-M 2024) or maybe results from Afrouzi & Bhattarai (WP, 2025)?
- What is in the data that the model underplays alternative explanations for episodes?
- Compare the estimation-implied FED funds rate with the shadow one.
- Robustness to alternative input-output matrices, both in years and in definitions.
- Presentation of results: It is not clear to me how the contribution of sectoral shocks to inflation maps when split between demand and supply, or fuel & energy for instance:

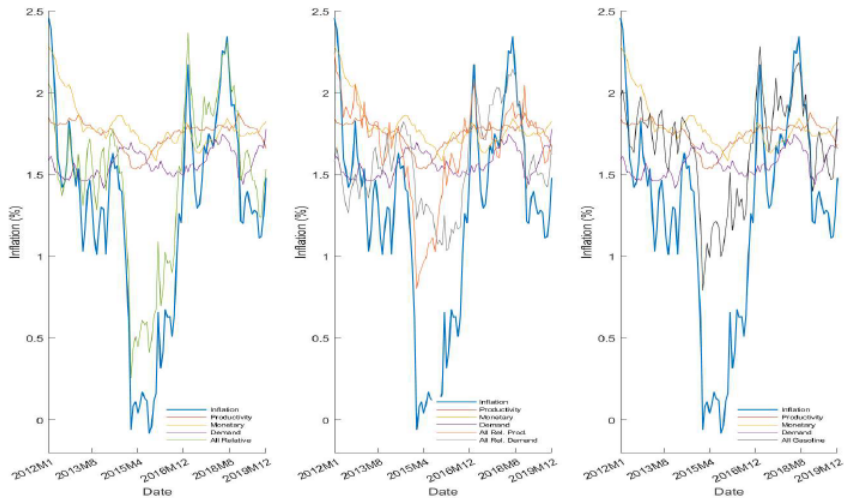


Figure 10: Contribution of structural shocks to the inflation shortfall.

Final remarks

- This is an important paper with a clean message.
- Fully agree with this paper that sectoral price fluctuations are important to understand inflation.
- I am also fully on board with the conclusion that sectoral shocks are important drivers of inflation.
- **General comment:** The paper needs more work to support its *causal* inference, intuition and interpretation of specific episodes.