Overview
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Ball and Mankiw and ABW
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Comments
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Inflation and Asym
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End
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Discussion of Afrouzi, Bhattarai and Wu, "Relative-Price Changes as Aggregate Supply Shocks Revisited: Theory and Evidence "

Alexander L. Wolman
Federal Reserve Bank of Richmond

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Plan

1. Recap of Ball and Mankiw (1995), relationship to this paper

2. Comments

3. Graphics revisiting inflation and the asymmetry of price changes
   (similar to Ball and Mankiw)

Summary of Ball and Mankiw
Relative price changes as aggregate supply shocks
QJE 1995

▶ Friedman: "Why should the *average* level of prices be affected significantly by changes in the price of some things relative to others?"

▶ B & M's ingeneous answer: with fixed costs of price adjustment and a shifting distribution of desired price changes, inflation tends to move with the asymmetry of the desired price-change distribution.

▶ They provide a stylized model (first generation New Keynesian) and empirics, showing a systematic relationship between inflation and measures of asymmetry in the distribution of relative price changes.

Summary of Afrouzi, Bhattarai and Wu

▶ 2-sector model, input-output structure, sectoral productivity shocks.

▶ Aggregate PC has relative price gap term (dev. of relative price from flex price), unless 2 sectors have same price stickiness and input output structure is symmetric (or nonexistent).

  • So, relative price shocks (which move the gap) affect inflation, separately from the usual output gap channel.

▶ Model experiments (and analytics) show how productivity shock upstream moves overall inflation and "core" inflation (downstream rate of price change).

▶ Empirics: shocks to relative price of energy affect inflation and real activity, and propagate to other category prices heterogeneously, in ways consistent with theory.

Relation to Ball and Mankiw

▶ Based on title of paper I expected "Ball and Mankiw for the 2020s": does a modern menu-cost model support their ingenious idea? Not 100% obvious (to me) that it would.

▶ That's not this paper. Instead of going after the general relationship between inflation and the asymmetry of the relative price-change distribution, ABW study 2-sector model, and empirically focus on the relative price of energy.

▶ But ABW have a model, thus implicitly answer the Friedman question.
  • One answer: relative price changes (shocks) affect inflation through the Phillips curve, due to input-output and heterogeneous price stickiness.
  • That answer is incomplete, because in the model it's feasible (if generally not optimal – Aoki) for monetary policy to prevent that pass-through. In this and most of our models, the corr between inflation and distribution of relative price changes is a policy choice.

Heterogeneous price rigidity and
heterogenous shock volatility

▶ Many papers now emphasize importance of heterogeneous price rigidity
(e.g. for monetary non-neutrality).

▶ In this paper, ABW argue heterogeneous price rigidity along with
network structure important for transmission of shocks.

▶ My work with Ruge-Murcia points instead to heterogeneity of shock
processes across sectors:
  • In multi-sector NK model (albeit without input-output), to match Ball -
    Mankiw type relationship between inflation and rel. price changes, we
    need heterogeneity in shock-processes, not in price rigidity.
  • We estimate both, which highlights the point that heterogeneity in
    observed frequency of price adjustment mixes together price stickiness
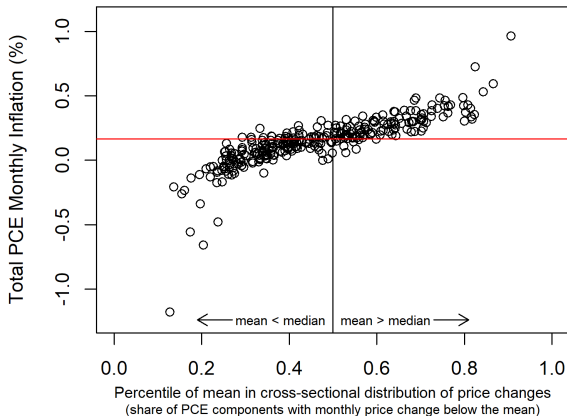   with shock processes.

Other comments

▶ Energy price shocks: clearly important, but also special compared to other relative price shocks (empirics focus on energy).

▶ Sectoral productivity shocks vs "pure" relative price shocks: distinction relevant for behavior of real activity (the latter don't affect aggregate productivity).

▶ Relative price shocks not just from productivity (Ruge-Murcia and Wolman attribute much of $\sigma^2(\pi)$ to sectoral demand shocks).

Inflation and the distribution of relative price changes (previewing some pictures)

▶ Ball and Mankiw showed systematic relationship between inflation and asymmetry in distribution of relative price changes.

▶ Ongoing work with Hornstein and Ruge-Murcia, I show something similar for U.S. in the stable inflation period from '95 to Feb. '20.

▶ Inflation is high in months when there is a large share of price increases less than the inflation rate (i.e. when inflation rate is in the right tail of the distribution of price changes).

▶ Tight relationship pre-COVID, use it to evaluate behavior of inflation starting in March 2020.

Empirics of inflation and asymmetry

Inflation vs. asymmetry of price changes
Jan 1995 to Feb 2020

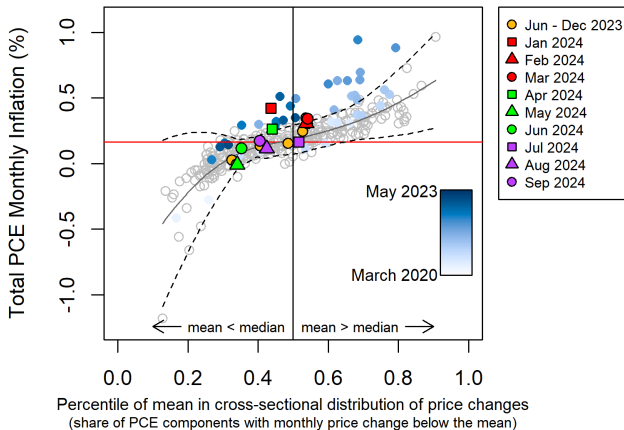Note: horizontal red line denotes monthly inflation consistent with 2 percent annual rate.

▶ Y-axis = inflation. X-axis = share of relative price decreases.

Empirics of inflation and asymmetry

Inflation vs. asymmetry of price-changes
Jan 1995 to Sep 2024
Confidence Interval based on Jan 1995 to Feb 2020

Note: horizontal red line denotes monthly inflation consistent with 2 percent annual rate.

Last slide

▶ I recommend this excellent paper to anyone interested in interaction
  between relative price shocks, monetary policy and inflation.
  • That group **should** include everyone who's interested in the behavior of
    inflation!