New Evidence on Monetary Transmission: Interest Rate versus Inflation Target Shocks

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Outline

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The Fisherian and Neo-Fisherian Views

The Fisher equation:

$$i = r + \pi$$

where: i is the nominal interest rate, r is the real interest rate, and π is the inflation rate.

Assumption (long-run monetary neutrality): In the long-run r is unaffected by monetary policy.

The Fisherian v.s. the Neo-Fisherian View:

A permanent rise in the nominal interest rate ($i \uparrow$) *causes*:

The Fisherian view: $\pi \uparrow$ in the long-run.

The Neo-Fisherian view: $\pi \uparrow$ already in the short-run!
[Cochrane (2018), Uribe (2021)]

The Neo-Fisherian Result in the New-Keynesian Model

The NK model is neo-Fisherian.

The result is driven by the forward-looking nature of the model.

The NK Phillips curve:

$$\pi_t = \beta E_t \pi_{t+1} + \kappa x_t$$

A rise in π in the long-run lifts inflation expectations in the short-run, which raises current inflation:

$$i^{LR} \uparrow \Rightarrow \ \pi^{LR} \uparrow \Rightarrow \ E_t \pi_{t+1} \uparrow \Rightarrow \ \pi_t \uparrow$$

The Neo-Fisherian Result in the New-Keynesian Model (continued)

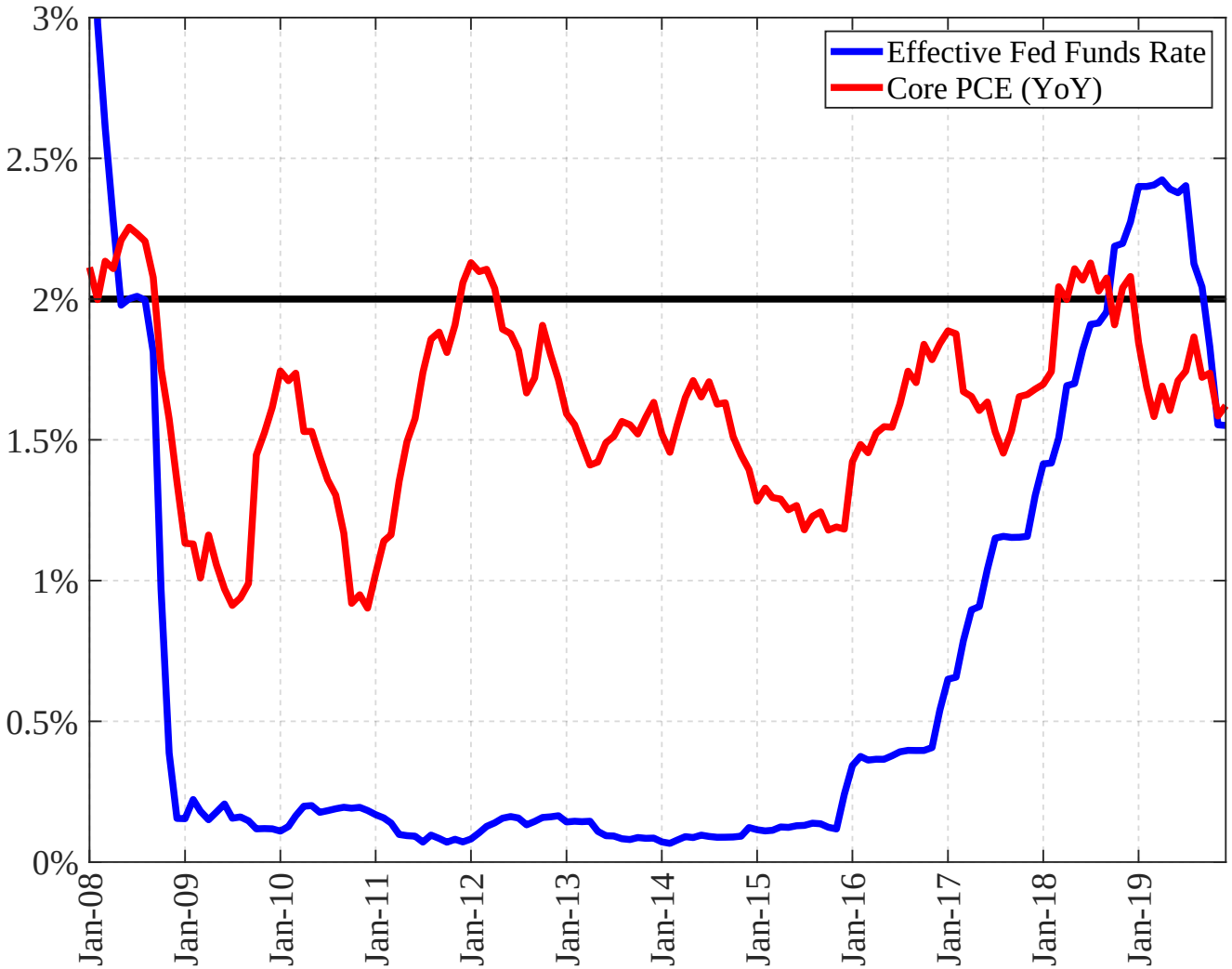
To get the neo-Fisherian effect, the interest rate shock should only be **sufficiently persistent**!
[Garin, Lester and Sims (2018), Lukmanova and Rabitsch (2021)]

How persistent? Depends on the degree of nominal rigidities:
With no nominal rigidities, monetary policy is neutral: inflation moves one-for-one with the interest rate, and **the neo-Fisherian result holds in every period** (regardless of the persistence of the shocks).

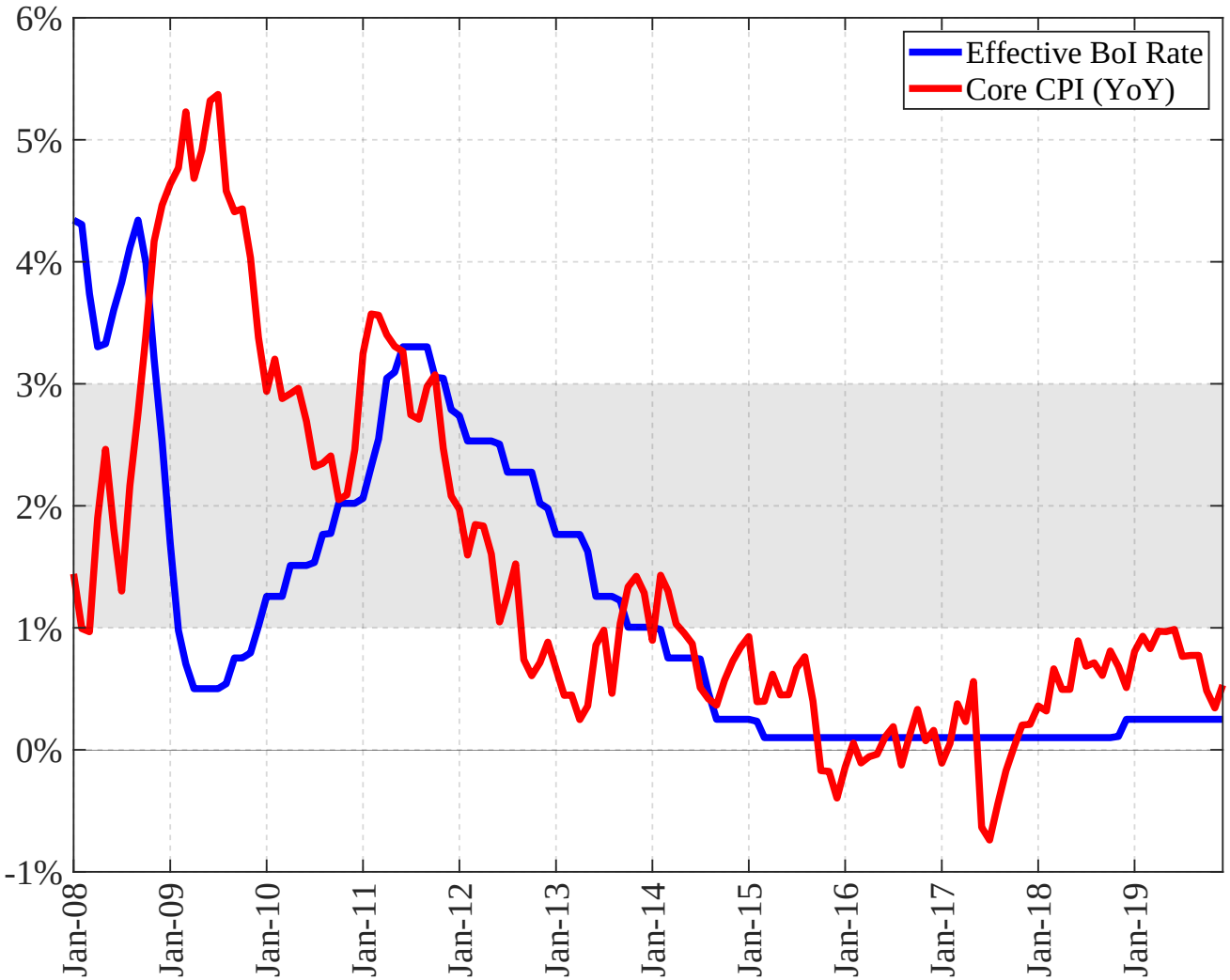
Why Should We Care about Neo-Fisherianism?

Maintaining a low interest rate for a long period of time may **cause** low inflation!

The Federal Funds Rate and Core PCE Inflation, 2008-2019



The Bank of Israel Interest Rate and Core CPI Inflation, 2008-2019



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What the Paper Does

- Augment a standard NK model with inflation target shocks and imperfect information.
  - The inflation target shock operates as a persistent interest rate shock.
  - Imperfect information tampers private agents' expectation (tilts the model away from being neo-Fisherian).
- Estimate both versions of the model (full information and imperfect information) for the US economy.
- Estimate a VAR while being agnostic about the information structure ("letting the data speak").

Main Results

- Imperfect information weakens the neo-Fisherian result. In the estimated **DSGE** version:
  - Under **full information** a persistent shock to the interest rate generates a positive comovement between i and π **on impact**.
  - Under **imperfect information** positive comovement after **5 quarters**.

- The **VAR** estimation also supports the neo-Fisherian result.

- Lifting inflation by raising the interest rate comes with **no output cost**! [also in Uribe (2021)]
  π^e rises by more than $i \Rightarrow r \downarrow$ and $Y \uparrow$

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1. Narrative

The model is unable to distinguish between interest rate shocks and target shocks.
The Taylor rule (abstracting from interest rate smoothing):

$$R_t = R_{ss}\left(\frac{\pi_t}{\pi_t^T}\right)^{\rho_\pi}\left(\frac{Y_t}{Y_t^{flex}}\right)^{\rho_Y}\exp\left(\varepsilon_t^R\right)$$

This can be written as:

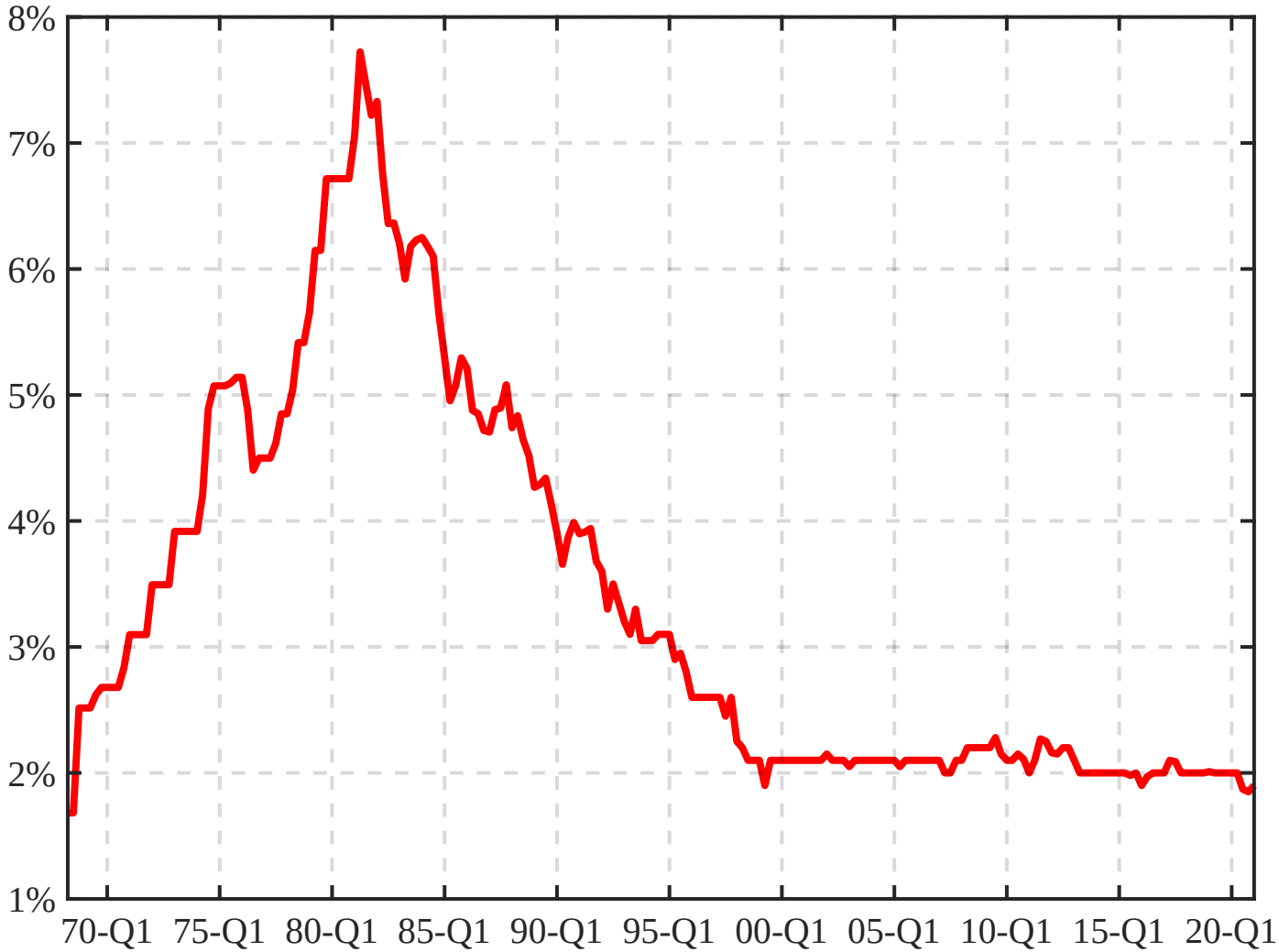
$$R_t = R_{ss}\left(\frac{\pi_t}{\pi_{ss}}\right)^{\rho_\pi}\left(\frac{Y_t}{Y_t^{flex}}\right)^{\rho_Y}u_t \quad , \quad u_t = \left(\frac{\pi_t^T}{\pi_{ss}}\right)^{-\rho_\pi}\exp\left(\varepsilon_t^R\right)$$

The paper **assumes** that π_t^T is persistent and ε_t^R is transitory.

Narrative

Persistent shocks to the interest rate are driven by fluctuations in π_t^T, although recent experience opens the door for considering persistent movement in ε_t^R.

Relevance: Perceived Inflation Target (PTR), 1968-2020



...so what to do about it?

Try to identify persistent interest rate shocks. (Though this is not trivial because of the persistent decline in the natural real rate.)

As a first pass:

- Assume that π^T is fixed (for the last two decades).
- Use the deviation of the forward breakeven inflation (say, 5Yr-5Yr) from the target as a measure for the persistent interest rate shocks (ε_t^R).

2. Causality and the Neo-Fisherian Effect

- The paper presents the neo-Fisherian result as a positive **comovement** between i and π.
- However, positive comovement may result from the endogenous reaction of monetary policy to inflation.
- While the neo-Fisherian result suggests a causal effect: π may be low **because** i is low.
- I suggest changing the language in the paper in this direction:
  - This is what the model suggests
  - May be more in line with recent dynamics of inflation and monetary policy

3. Interpreting the VAR

Variation in trend inflation and long-run expectations may not reflect monetary policy intentions (mainly relevant for the robustness checks).

What looks like a neo-Fisherian reaction might actually reflect **reverse causality**:

Policy reacts to trend inflation and inflation expectations, generating positive comovement.

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Concluding Remarks

- Evidence on a controversial topic: providing empirical support for the neo-Fisherian effect.
- Important implications for monetary policy.

- Can go a bit bolder by changing the narrative of the paper.

Thank You for Listening!