It's Baaack: The Surge in Inflation in the 2020s and the Return of the Non-Linear Phillips Curve

By Pierpaolo Benigno & Gauti Eggertsson

Discussion at the Reykjavík Economic Conference 2024

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London School of Economics

Background: the Flat + Linear Phillips Curve Before 2020

The Phillips Curve:

$$\pi_t = \beta \pi^e_{t,t+1} + \kappa \, \text{slack}_t + \varepsilon_t$$

- Measure of slack: output gap or -1 $\times$ unemployment gap

Consensus finding: flat Phillips Curve from 1978-2020, κ positive but near zero

[Kiley 2015; Blanchard 2016; Stock & Watson 2019; Del Negro et al 2020; Hazell et al 2022]

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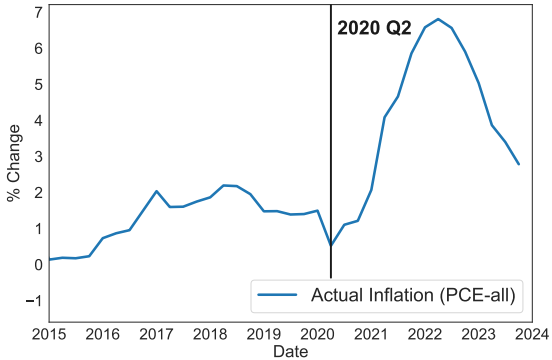
Explains major inflation episodes during 1978-2020:

- Missing Disinflation during the Great Recession
- Missing Reinflation during late 1990s and late 2010s
- Fall in inflation during 1980s Volcker Disinflation from changes in π^e

What about the Post-Pandemic Inflation?

Can the flat + linear Phillips Curve rationalize the post-pandemic inflation?



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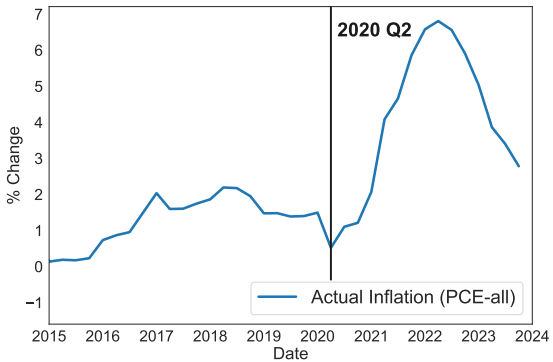
Can the flat + linear Phillips Curve rationalize the post-pandemic inflation?

This paper:

1. The right measure of slack is labor market tightness v/u
2. When $v/u > 1$ the Phillips Curve becomes nonlinear and steep
   → Rationalizes post pandemic inflation
3. Stakes: danger zone + soft landing



Summary

Contribution #1: Tightness is a Good Measure of Slack

Focus on labor market tightness
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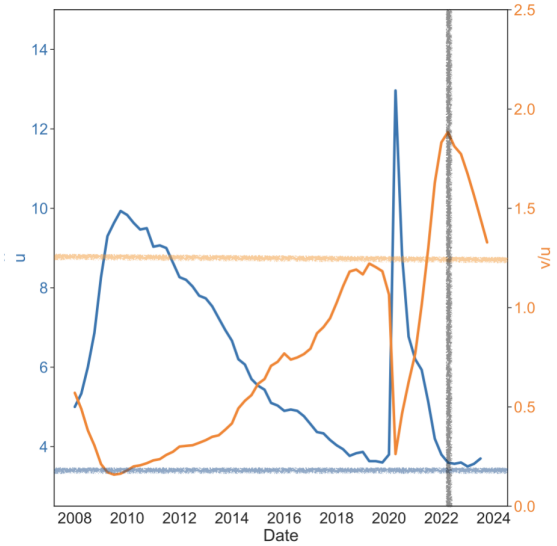
- Unemployment same 2020 + 2022
  - Inflation much higher in 2022
  - Tightness much higher, $v/u > 1$
- Theoretical: "correct" measure of slack in Keynesian model w/ search
  [Christiano et al 2016]



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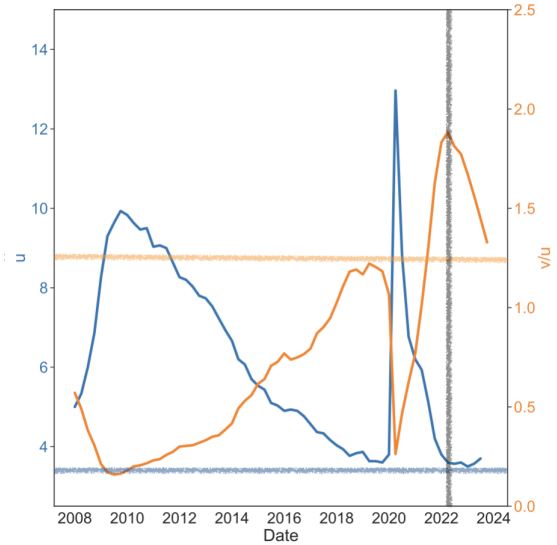
Tightness rarely considered pre-pandemic

- Comoved closely w/ unemployment



Warmup: Flat + Linear Phillips Curve before 2020

Estimate by OLS:

$$\pi_t = \beta \pi^e_{t,t+4} - \kappa \frac{v_t}{u_t} + \gamma e_t + \varepsilon_t$$

- π_t: PCE headline inflation
- $\pi^e_{t,t+4}$: Avg over 2-years (Cleveland)
- v_t/u_t: Labor market tightness
- e_t: PCE energy inflation
- Sample: 1984Q1-2020Q1

Note: ignores omitted variable bias from ε_t

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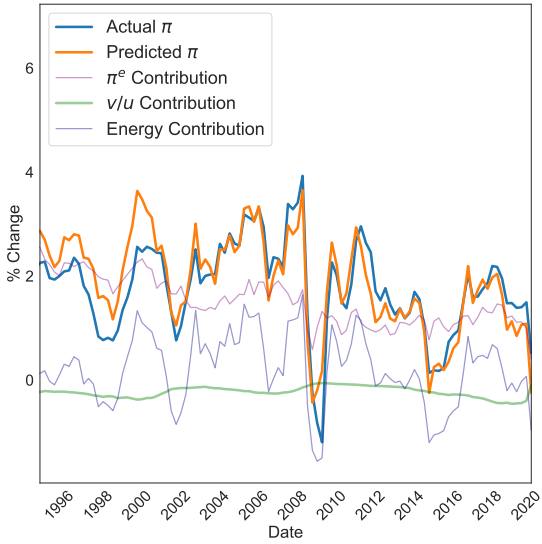
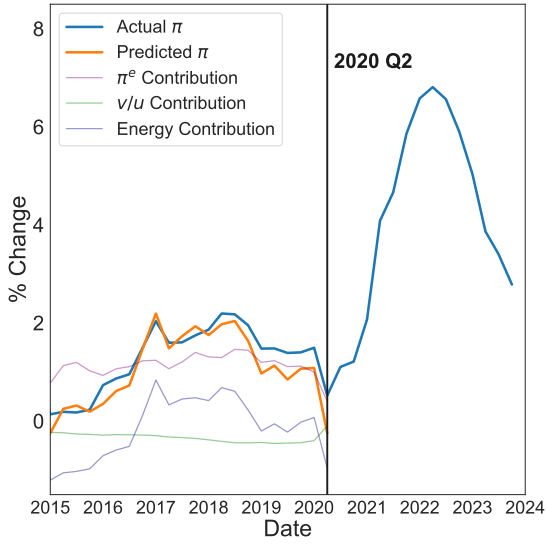
Flat Phillips Curve: v_t/u_t matters little

- Despite big changes in v_t/u_t



Contribution #2: Nonlinear Phillips Curve Fits Post Pandemic Inflation

Does the flat + linear Phillips Curve fit post pandemic inflation?



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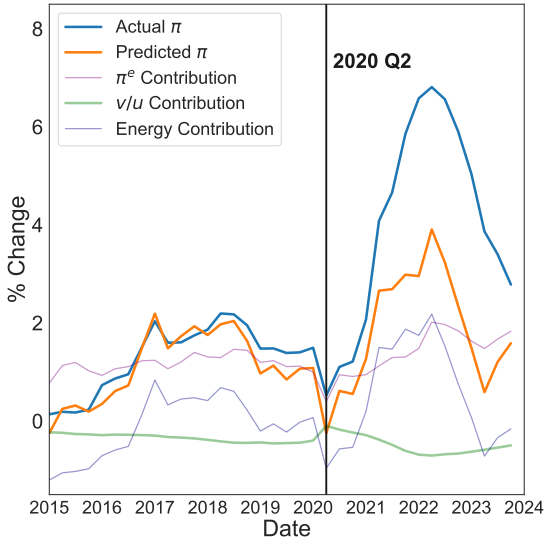

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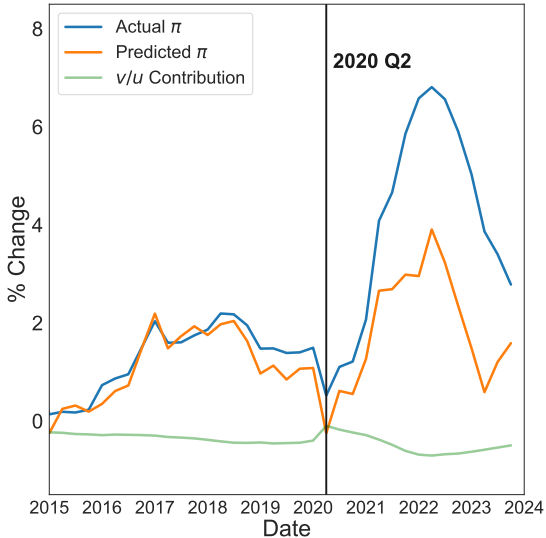
- $v/u > 1$ in '65-'70 as in '21-'24



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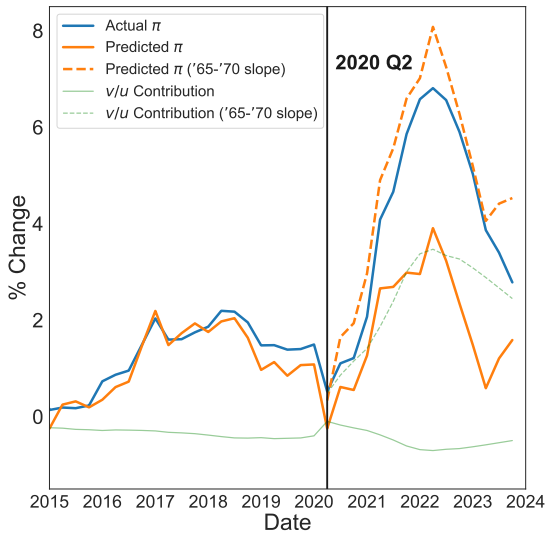

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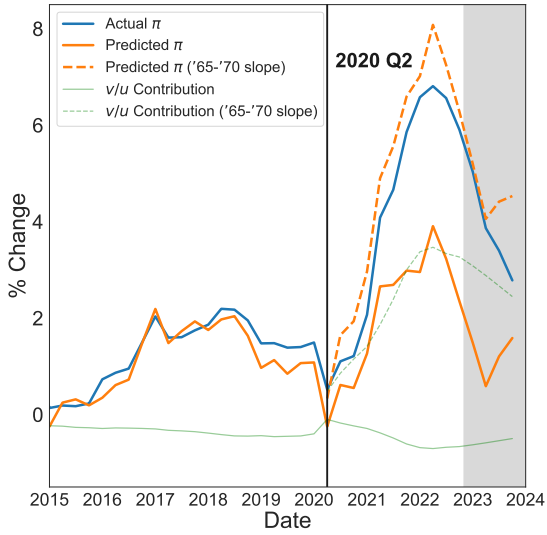
Including out of sample!

- First draft stopped in 2022Q3



Contribution #3: The Stakes Are High

	Flat + Linear	Nonlinear
Phillips Curve	$\pi_t = \beta \pi^e_{t,t+1} + \kappa(v_t/u_t)$	$\pi_t = \beta \pi^e_{t,t+1} + \kappa(v_t/u_t)$ $+\delta(v_t/u_t) \times I[(v_t/u_t) > 1]$

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$\rightarrow$ Inflation expectations more important if Phillips Curve is flat

Comments

Some Comments

- This is a great paper
  - Plausible read of the data
  - With out of sample validation + historical episodes
  - Important and well drawn out implications

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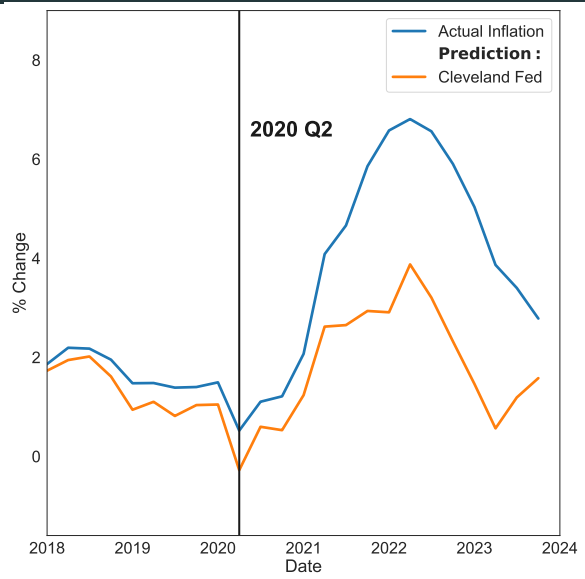
- Alternative view: Phillips Curve is linear and π^e is crucial

- My comments—alternative view is plausible
  1. Household inflation expectations suggest linear Phillips Curve
     - Arguably household inflation more reasonable than Cleveland Fed measure
  2. Nonlinear Phillips Curve predicts "too large" response of inflation to fiscal stimulus

Other Measures of Inflation Expectations Suggest Linear Phillips Curve

Reminder: linear Phillips Curve fits badly

- With Cleveland Fed measure of inflation expectations, 2 yr avg.
- $\approx$ weighted average of professional forecasts + financial markets



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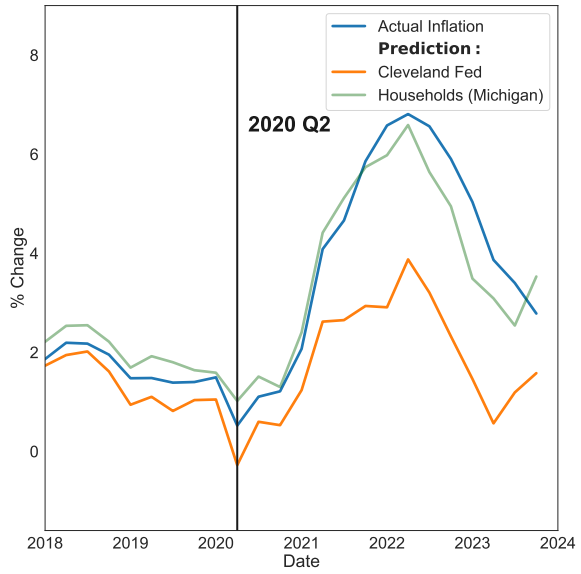
Linear Phillips Curve fits well with household inflation expectations

- From Michigan consumer survey
- Linear Phillips Curve estimated w/ pre '20 data

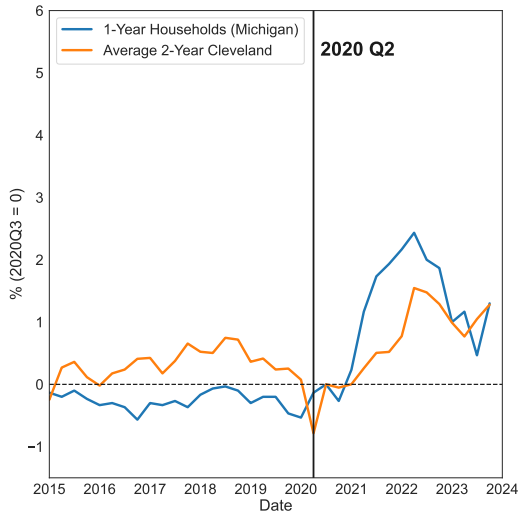
[Beaudry, Hou & Portier 2024]



Household Inflation Expectations Potentially More Reasonable

Why does household π^e "work"?

- Household π^e rises much more



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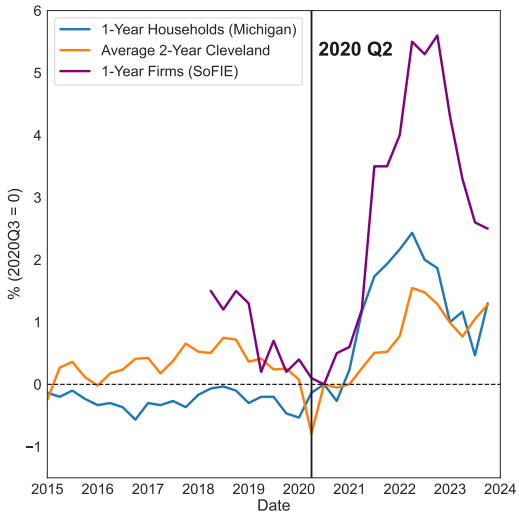

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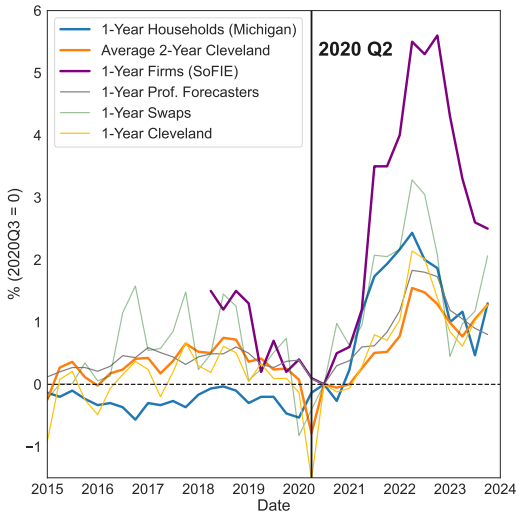
Other π^e rises more than Cleveland 2 year

- E.g. Swaps, Cleveland 1 year



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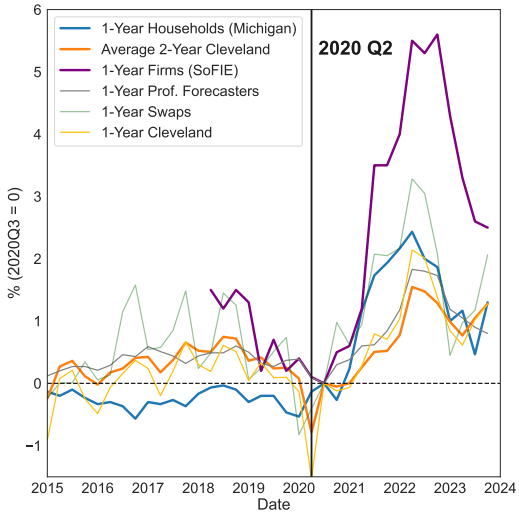
Side note: professionals perform badly

- Worse than households?!



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Response of Inflation (Too?) Large w/ Non-Linear Phillips Curve

Phillips Curve—in terms of output + solving forward π^e term

$$d\pi_t = \kappa_y \mathscr{M} E_t \sum_{j=0}^{\infty} \beta^j \frac{dG_{t+j}}{\bar{Y}} \qquad \mathscr{M} \equiv \frac{E_t \sum_{j=0}^{\infty} \beta^j dY_{t+j}}{E_t \sum_{j=0}^{\infty} \beta^j dG_{t+j}}$$

where $\mathscr{M}$ is "cumulative multiplier" given government spending shock dG

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- Fiscal shock = 0.13 (excludes Mar 2020 stimulus, includes Dec 20 + Mar 21 stimulus)
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Estimates of nonlinear Phillips Curve: slope increases by factor of $\approx$10

- Implies effect of fiscal stimulus on inflation $\approx$ 22pp
- Need small multipliers for plausible inflation response

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