Discussion of Lorenzoni and Werning's "Wage-Price Spirals"

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What the Paper Does

- Recent wage and price inflation developments
- Interpretation through the lens of a standard NK model (EHL). Two twists: continuous time + CES technology
- Connection between "wage-price spirals" and "conflict inflation"
- A number of interesting results along the way (e.g., analytical condition for countercyclicality of the real wage)

Outline

- The facts
- Inflation as conflict
- Conflict inflation and wage-price spirals
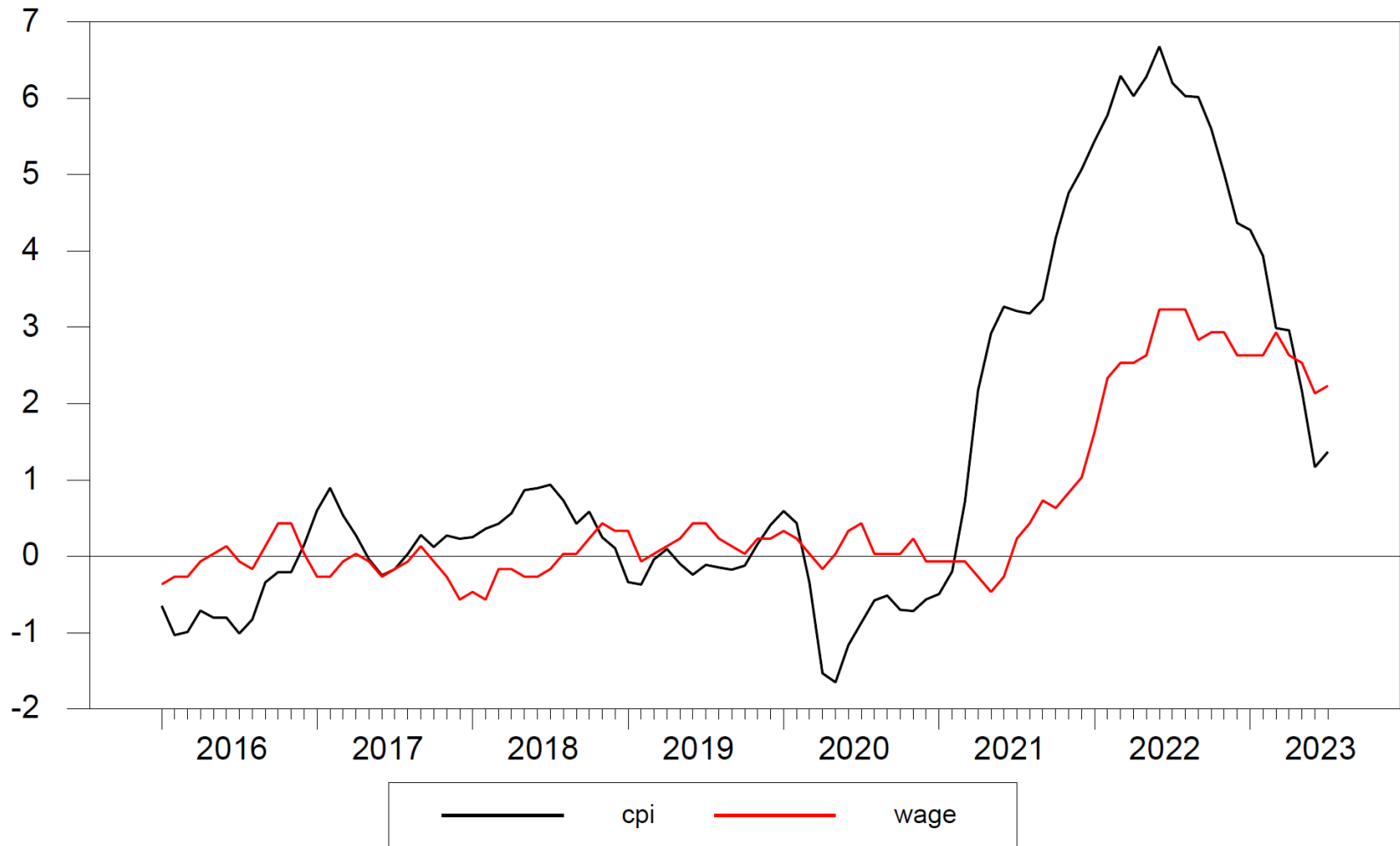- Departures from the standard model

The Facts
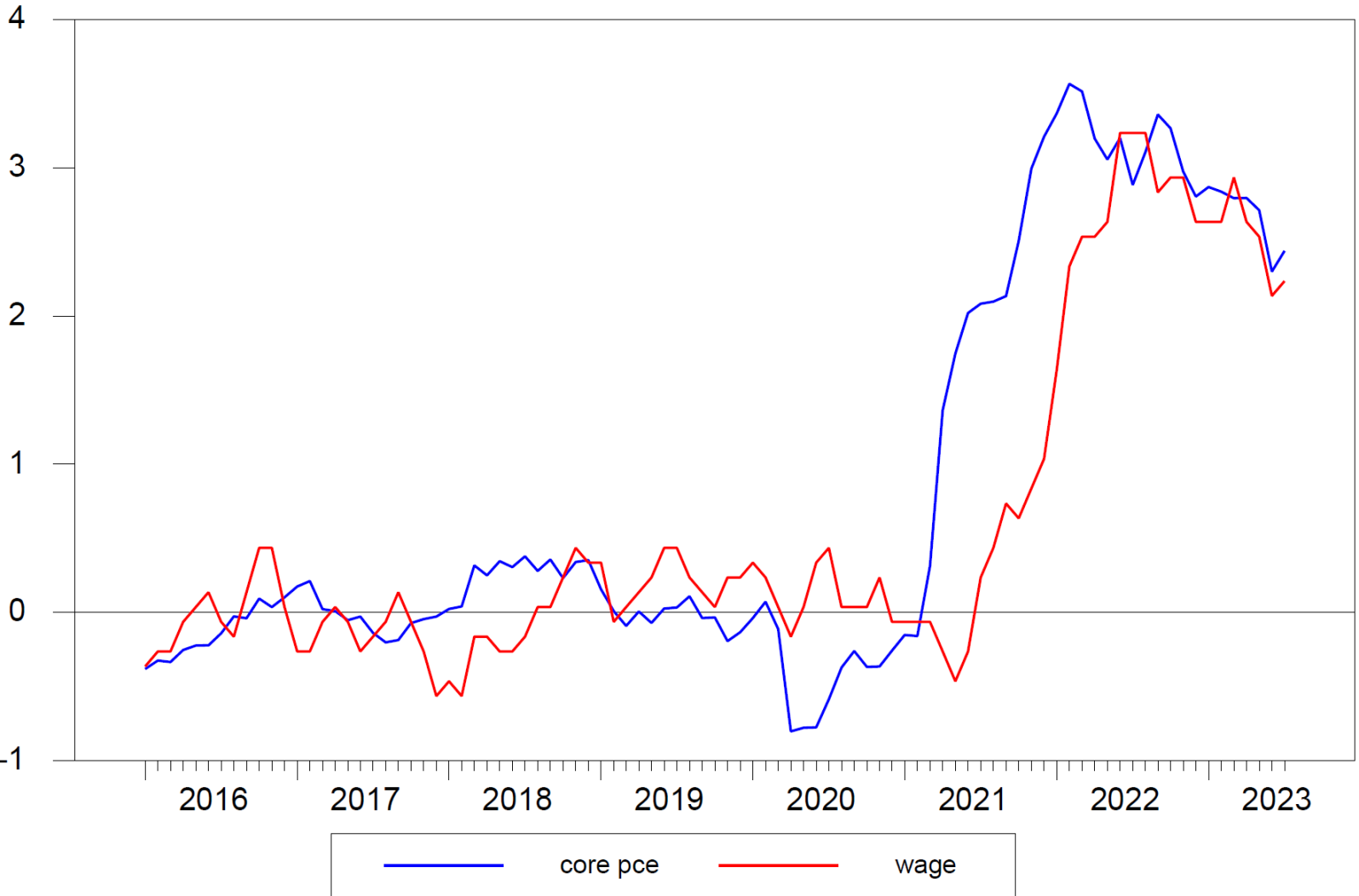
CPI and Wage Inflation
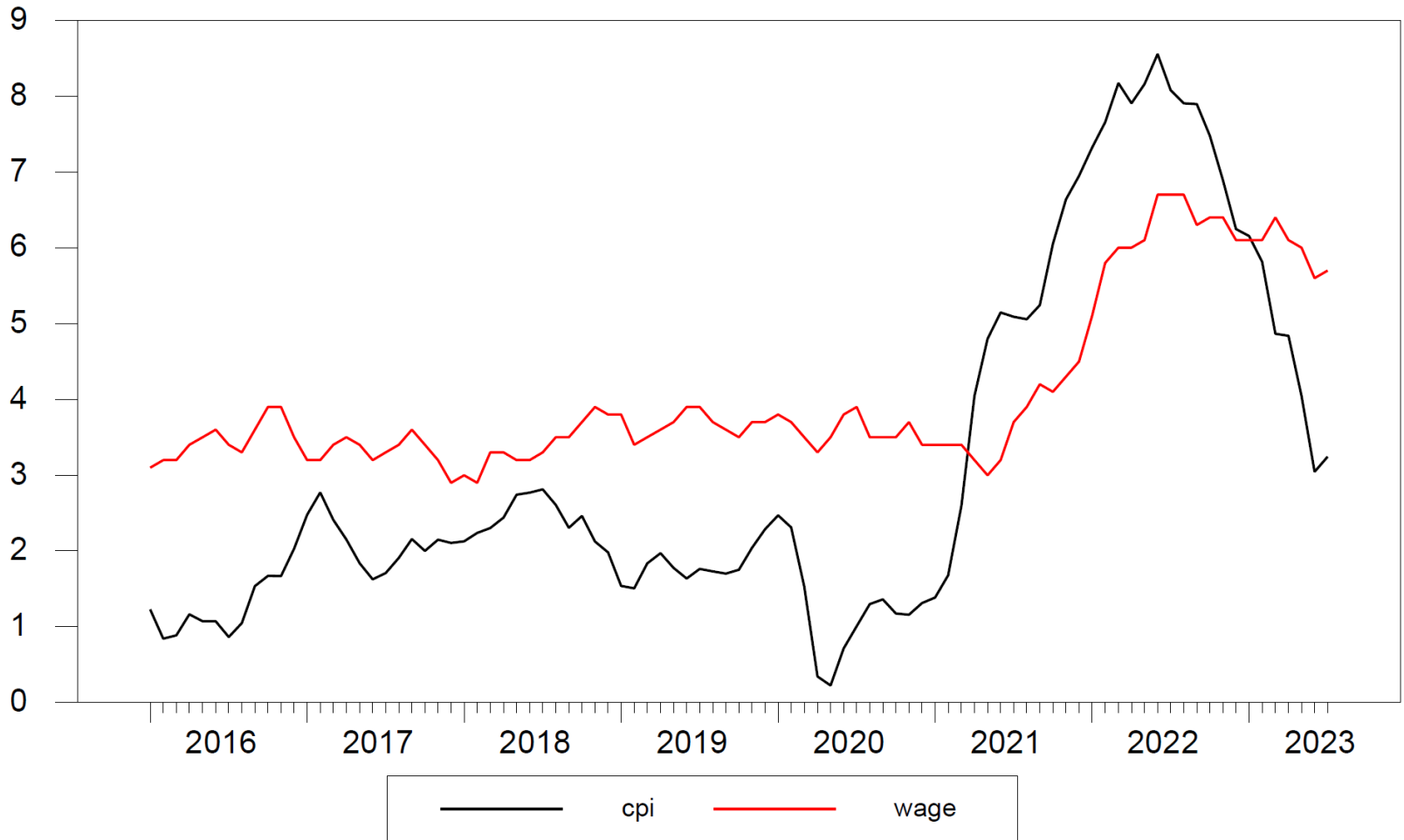
The Facts

- Accounting for trends
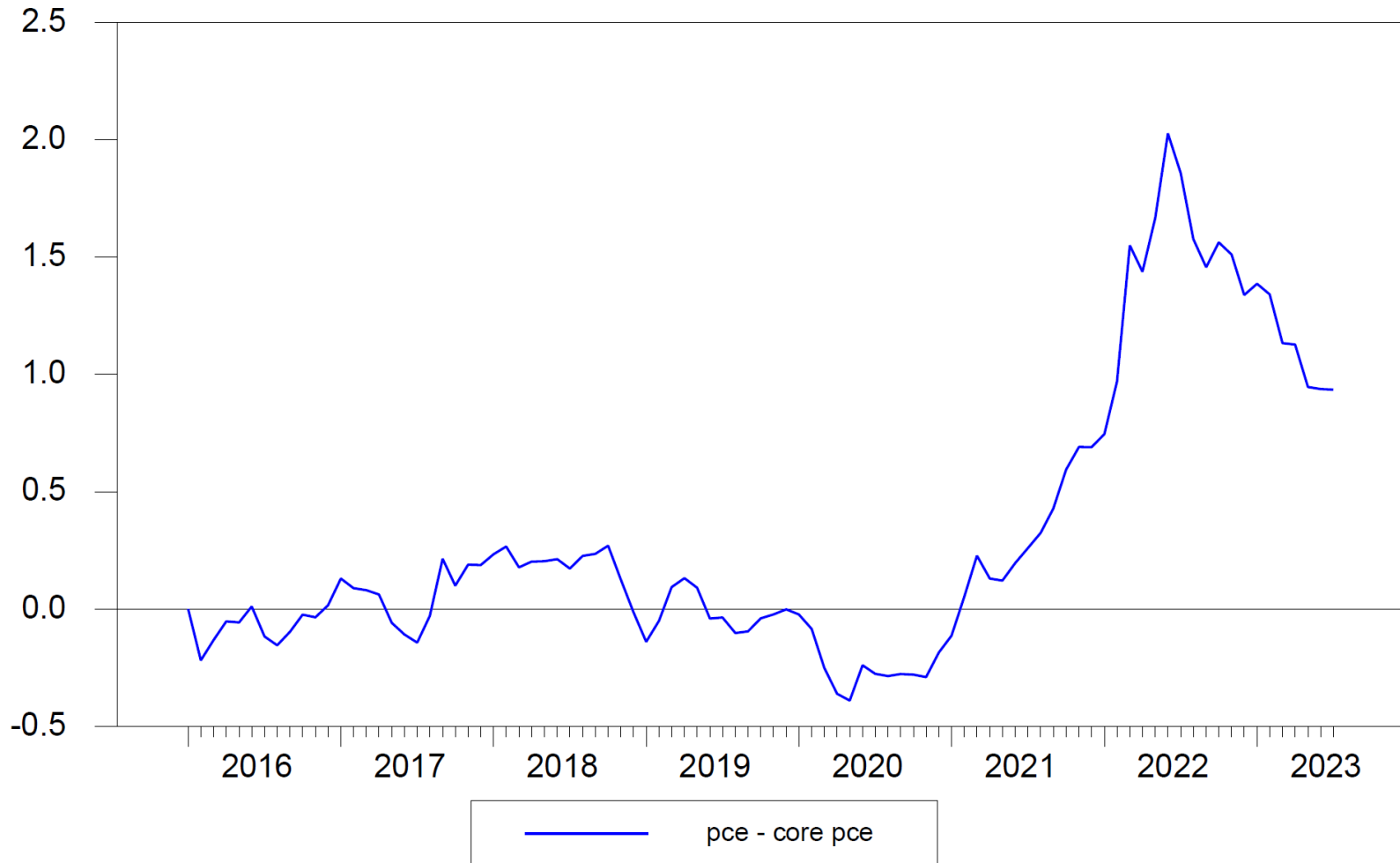
CPI and Wage Inflation (Demeaned)

Core PCE and Wage Inflation (Demeaned)

The Facts

- Accounting for trends
- Transitory or permanent shocks?

Transitory or Permanent Shocks?

Inflation as Conflict

- Price inflation in the NK model

$$\pi_t = \Lambda_p \int_t^\infty e^{-\rho(s-t)}[(w_s - p_s) - (mpl_s - \mu^p)]ds$$

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- Price inflation in the NK model

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- A more conventional interpretation

$$
\begin{aligned}
\pi_t &= \Lambda_p \int_t^\infty e^{-\rho(s-t)}[\mu^p - \{p_s - (w_s - mpl_s)\}]ds \\
&= \Lambda_p \int_t^\infty e^{-\rho(s-t)}(\mu^p - \mu_s^p)ds
\end{aligned}
$$

- Similarly, for wage inflation

$$\pi_t^w = \Lambda_w \int_t^\infty e^{-\rho(s-t)}(\mu^w - \mu_s^w)ds$$

  $\Rightarrow$ "inflation as a result of markup misalignment"

- Spirals: $\downarrow \mu_t^p \Rightarrow \uparrow \pi_t \Rightarrow \downarrow \omega_t \Rightarrow \downarrow \mu_t^w \Rightarrow \uparrow \pi_t^w \Rightarrow \downarrow \mu_t^p \Rightarrow ...$
- Advantages of "markup interpretation"
  (i) constant "targets"
  (ii) captures better the perspective of individual price and wage setters

Wage-Price Spirals

- No formal definition, two coexisting views in the paper:

  - (i) mutually reinforcing dynamics between price and wage inflation
  - (ii) episode with both wage and price inflation simultaneously positive (above trend)

- View (i) is embedded in the model, operates at all times
- Focus on conditions and implications of (ii)
- Alternative definitions (e.g. Alvarez et al. IMF WP 2022: three successive quarters with accelerating price and wage inflation)

Conflict Inflation and Wage-Price Spirals

- Definition of "conflict inflation"

$$\Pi_t \equiv \frac{\Lambda_p \Lambda_w}{\Lambda_p + \Lambda_w} \int_t^\infty e^{-\rho(s-t)}[(mrs_s - mpl_s) + (\mu^w + \mu^p)]ds$$

- *Result #1*

$$\pi_t = \Pi_t - \alpha \dot{\omega}_t$$
$$\pi_t^w = \Pi_t + (1-\alpha)\dot{\omega}_t$$

where $\alpha \equiv \frac{\Lambda_p}{\Lambda_p + \Lambda_w}$.

$$\Rightarrow \text{connection with wage-price spirals}$$

- *Result #2*: *"Divine Coincidence"* holds for conflict inflation

$$\Pi_t = 0 \text{ for all } t \iff y_t - y_t^n = 0 \text{ for all } t$$

Conflict Inflation

- From the literature we know:

$$(1-\alpha)\pi_t + \alpha\pi_t^w = 0 \text{ for all } t \iff y_t - y_t^n = 0 \text{ for all } t$$

where $\alpha \equiv \frac{\Lambda_p}{\Lambda_p + \Lambda_w}$

$$\Rightarrow \Pi_t = (1-\alpha)\pi_t + \alpha\pi_t^w$$

"conflict inflation" = "composite inflation"

- Novelty here: connection with wage-price spirals
- *Remark #1*: note that: $\Pi_t > 0$ *necessary* for wage-price spirals, but *not sufficient*!
- *Remark #2*: for *any* weighted-average $\Pi_t = (1-\gamma)\pi_t + \gamma\pi_t^w$

$$\pi_t = \Pi_t - \gamma\dot{\omega}_t$$
$$\pi_t^w = \Pi_t + (1-\gamma)\dot{\omega}_t$$

In what sense $\Pi_t \equiv (1-\alpha)\pi_t + \alpha\pi_t^w$ is a better index of wage-price spiral?

Conflict Inflation

- Normative implications:

  - optimality of strict output gap stabilization (hence $\Pi_t = 0$) in a knife-edge (symmetric) case (Woodford (2003))
  - near-optimality more generally (Erceg et al. (2000), Woodford (2003)) [also implicit in the present paper]

- Corollary (new, but not stressed): *wage-price spirals are inconsistent with optimal policy*

Departures from the Standard NK Model

- Departure #1: Deanchoring of inflation expectations

$$E_t^f \{\pi_s^w\} = \pi_t^{w,e} \quad \text{for } s \geq t$$

$$\dot{\pi}_t^{w,e} = \gamma(\pi_t^w - \pi_t^{w,e})$$

- Departure #2: sluggish adjustment of "real wage aspirations" ("real rigidities")
- Implications:
  - $\Rightarrow$ slower adjustment of price and wage adjustment to shocks
  - $\Rightarrow$ highly persistent wage-price spirals
- Suggestion #1: analyze independent role of real rigidities
- Suggestion #2: optimal monetary policy analysis
- Suggestion #3: relate to *indexation!*

Concluding Remarks

- Thought-provoking paper
- Interesting application of the standard NK model to the interpretation of current developments, around the idea of wage-price spirals.
- Somewhat skeptical about the value added of "inflation as conflict" and "conflict inflation" *in the standard NK model* (may be different in other models)
- Opens avenues worth exploring in future research (deanchoring and real rigidities)