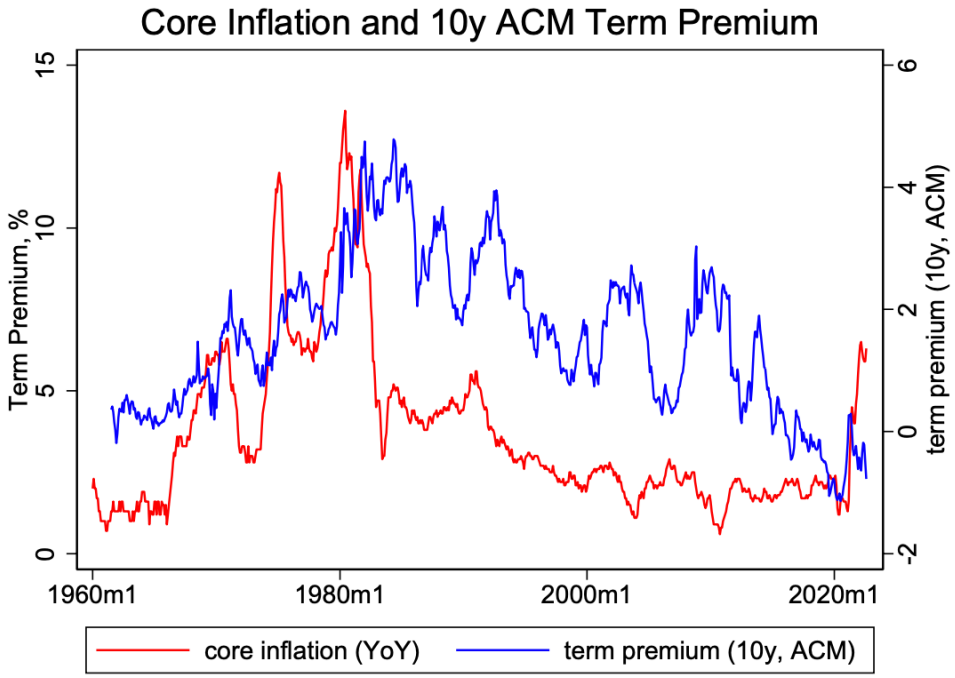
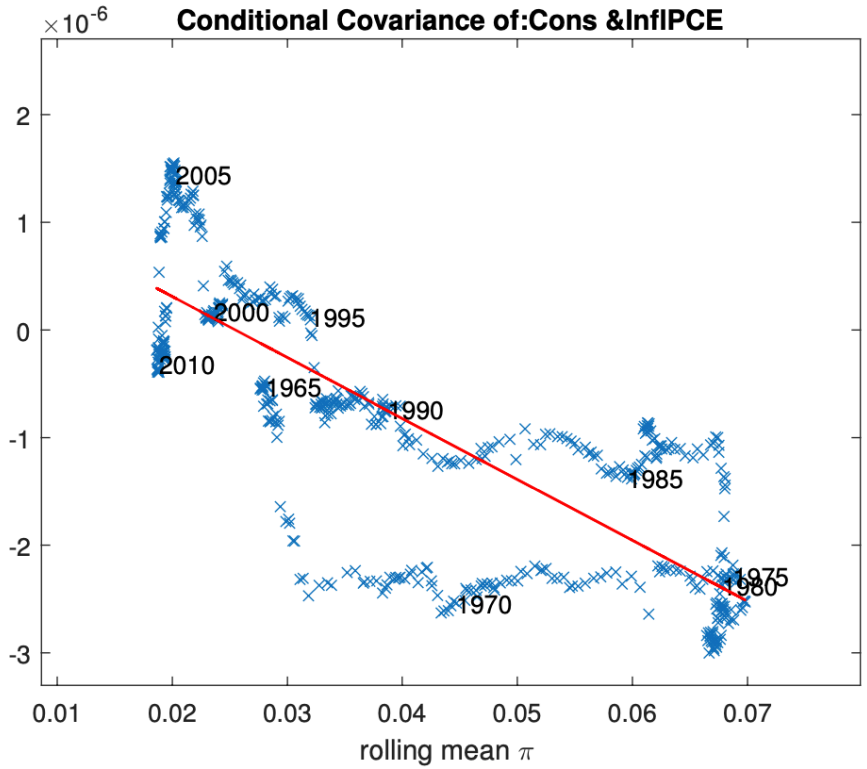
Comment on “Downward Nominal Rigidities and Bond Premia” by François Gourio and Phuong Ngo

John H. Cochrane
Hoover Institution

The paper (a bit)

- Lucas (1973 AER) “Some International Evidence on Output-Inflation Tradeoffs.” Phillips curve is more vertical in countries with higher and more volatile inflation.
- Lucas: confusion of relative prices with aggregate price level.
- This paper: “downward nominal rigidities…implies that when inflation is high, prices are more flexible,”
- Lucas: more neutral response to monetary (then, only) shocks.
- Paper: ``larger output and [negative] inflation responses to a productivity shock. Inflation becomes more volatile and covaries [negatively] more strongly with [marginal utility]”.
- Level of inflation affects bond risk premium (cov (real bond return, marginal utility))





- Level of inflation affects bond risk premium (cov (real bond return, marginal utility))
- Warning: Risk premium estimates need standard errors! *All* based on $r_{t+1} = a + bx_t + \varepsilon_{t+1}$, and x_t moves at business cycle or slower frequency.
- ACM : x=level (?) and slope
- Consumption: changes sign. EZ utility?

Basics & Lessons: Term premium?

Classic: Mean & Variance. Long bonds are riskier, positive term premium.

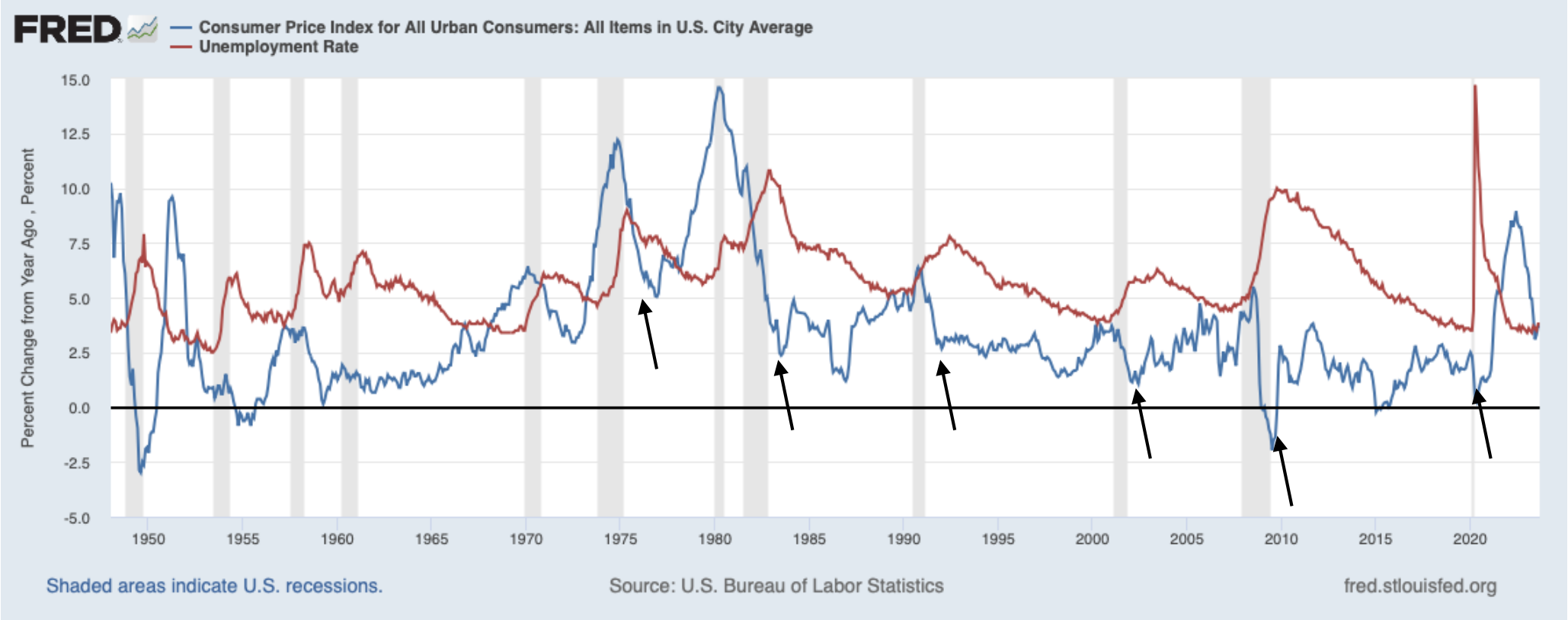
Modern:

A. Long-term bonds are the riskless asset for a long-horizon investor. Downward slope!

B. Risk primarily real rates? Downward slope. Risk primarily inflation? Upward slope. 70s vs. 80s+!

C. *Covariance* matters. $cov[R_{t+1}, u'(c_{t+1})]$.

D. Inflation falls in bad times, good export return, bonds are negative bad-time beta. More since 80s.



Basics: Term premium?

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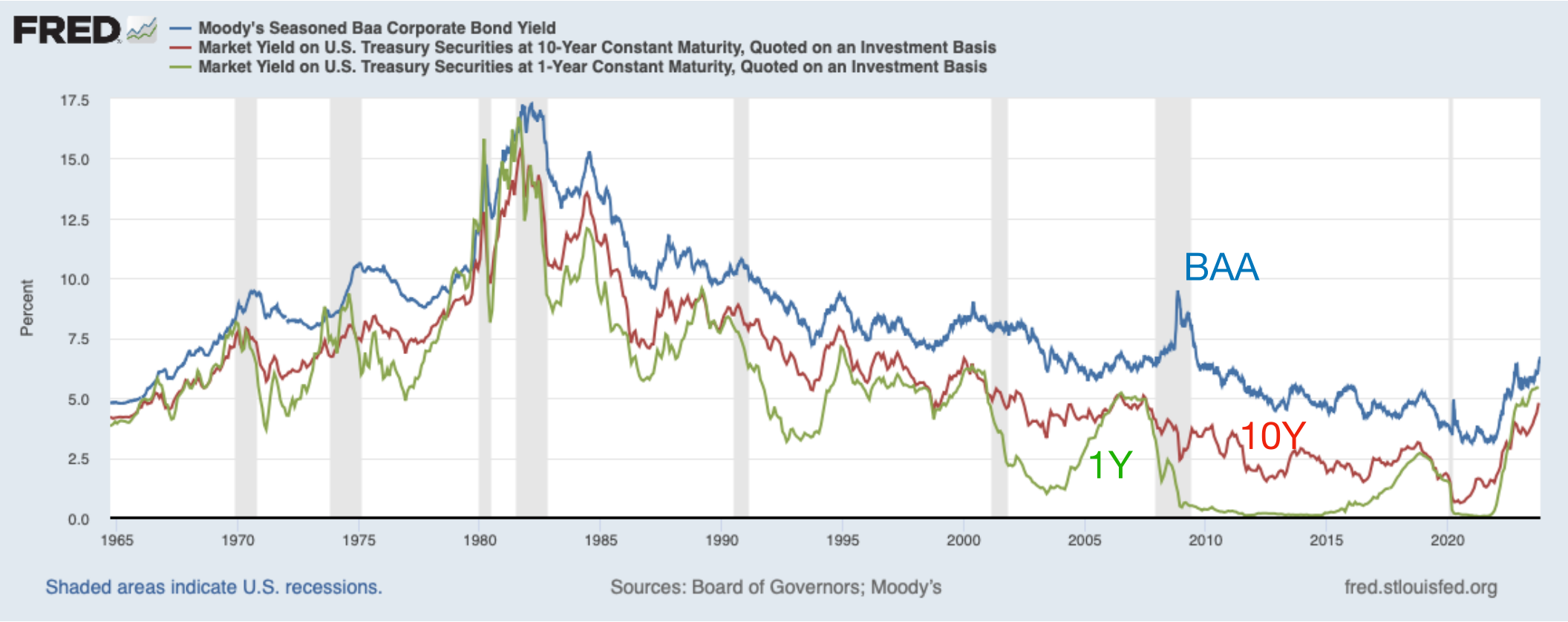
E. But long better than short? Not obvious from graph.



Basics: Term premium?

D. Inflation falls in bad times, good export return, bonds are negative bad-time beta. More since 80s.

E. But long better than short? Not obvious from graph. Model. Estimates. Paper!

F. Wait, what matters is $cov[R_{t+10}, u'(c_{t+10})]$ (really effect on $\sum \beta^j u'(c_{t+j})$). Cumulative returns to high marginal utility state, not one year MU.

G. It is nuts to do one-period analysis on bond returns without state variables. Long debt is optimal for the risk averse long run investor = yield is a state variable. $E(R) = \gamma cov(R_{t+1}, R^m_{t+1}) + \lambda cov(R_{t+1}, \Delta y_{t+1})$

H. Only for power utility consumption based model $cov[R_{t+1}, u'(c_{t+1})]$.

I. Paper, EZ utility: State variables/long run matter.

J. What is the basic story?

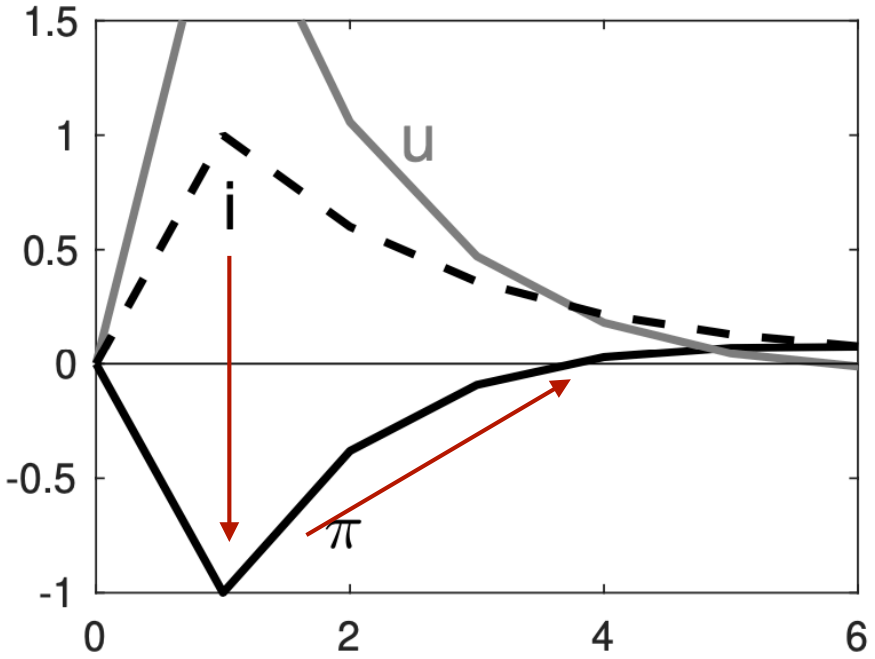
K. Contemporary finance: Leveraged intermediaries, static supply/demand curves, segmented markets, liquidity effects, “safe asset shortage,” “savings glut,” noise traders. Back to one-period? Basic story?

Complaint 2: NK model

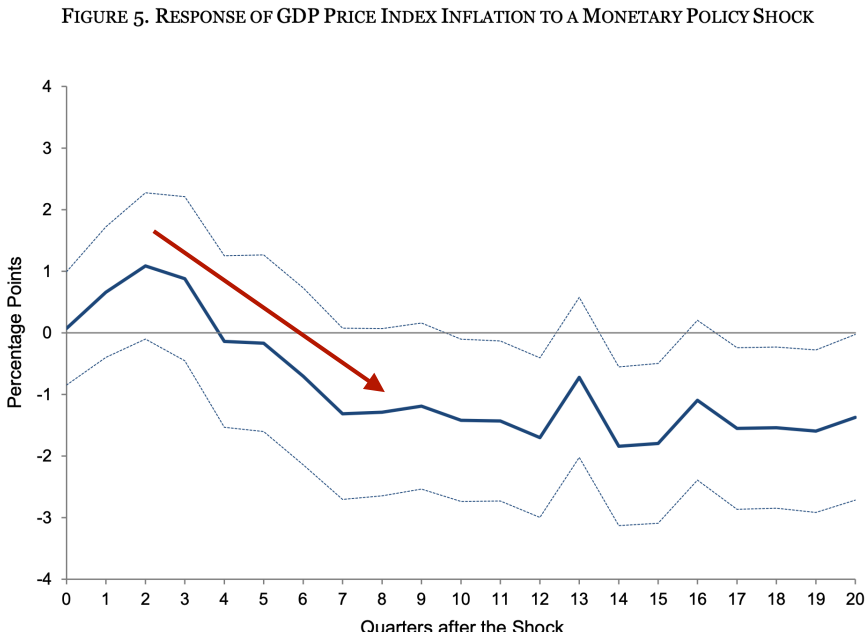
Paper (& many others): slightly modify basic NK model. Many problems:

1) (Ball 1994, t-30) sign is wrong!

- Model: (higher interest rate→) output jumps down → inflation jumps down, relative to future inflation. Inflation *rises* over time. $\pi_t = \beta E_t \pi_{t+1} + \kappa x_t$.
- VARs & policy maker belief: No immediate effect, inflation *falls* over time (long and variable lags).



NK model



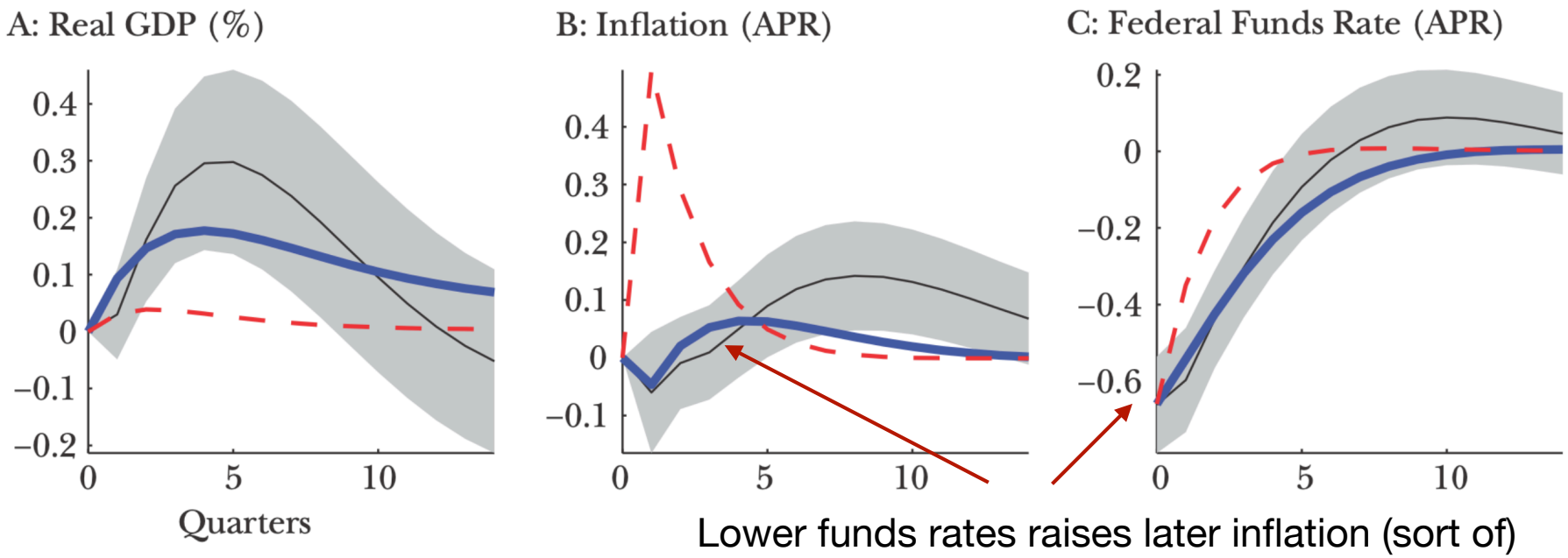
Romer-Romer VAR

Complaint 2: NK model

Problems with NK model:

1) (Ball 1994) sign is wrong!

- Solution (?). Christiano Eichenbaum Evans 2005, t-20.



Lower funds rates raises later inflation (sort of)

- Ingredients: prices fixed for a quarter (no jump down). Habits $\log(c_t - bc_{t-1})$, investment flow adjustment costs, $[1 - S(i_t/i_{t-1})]i_t$ not $S(i_t/k_t)i_t$. indexation: $\pi_t \approx 0.5\pi_{t-1} + 0.5E_t\pi_{t+1} + \text{mc}_t$; $\pi_t - \pi_{t-1} = E_t \sum \beta^j \text{mc}_{t+j}$.
- Substitute growth rates for level in c, i, π. Sticky inflation not sticky price. Major surgery. Micro founded / Lucas critique?
- (Many other changes; sticky w not p for profits, etc. Matches technology shock too.)
- Impact: Many cites. Zero follow up. 1000 papers (like this one) use standard model anyway.

Complaint 2: NK model

Problems with NK model:

2) (Cochrane 2011, others, t-12) Fed behavior is nutty.

- Model: Fed is assumed to destabilize a stable economy, threaten hyperinflation, to have "equilibrium selection policy." Inflation jumps down because of multiple equilibrium selection. 2021? Fed failed to threaten hyperinflation loudly enough. We jumped to wrong equilibrium.
- World: Fed loudly announces *stabilizing* policy, no mention of equilibrium selection.
- Example: flex price model, stochastic inflation target $\{\pi_t^*\}$:

$$i_t = E_t\pi_{t+1}$$

$$i_t = \phi\pi_t + u_t = i_t^* + \phi(\pi_t - \pi_t^*)$$

$$(i_t^* = E_t\pi_{t+1}^*)$$

Equilibrium:

$$E_t(\pi_{t+1} - \pi_{t+1}^*) = \phi(\pi_t - \pi_t^*)$$

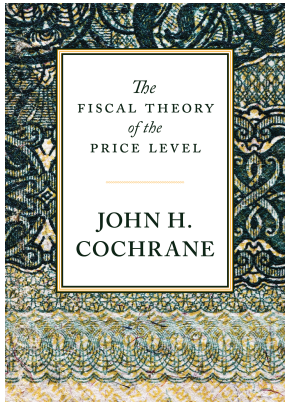
Fed threat assures $\pi_t = \pi_t^*$. Threat, ϕ never seen in sample.

- Solution: FTPL. (∃ other solutions too)

$$i_t = E_t\pi_{t+1} \quad \longleftarrow \text{ Insert rest of standard NK model here}$$

$$(E_{t+1} - E_t)\pi_{t+1} = -(E_{t+1} - E_t)\sum \rho^j \tilde{s}_{t+j} \quad \longleftarrow \text{ Solves multiple equilibrium.}$$

- Resolution: Occasional footnotes apologize. Business as usual for 1000 papers.



Complaint 2: NK model

Problems with NK model:

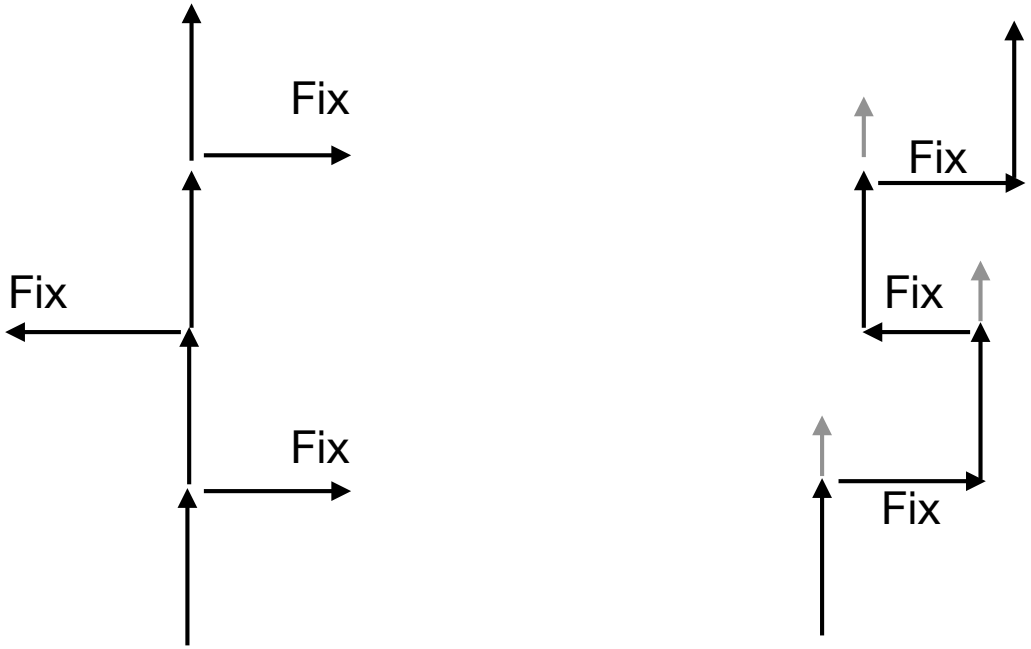
3) (Many). Model fit is terrible.

$$x_t = E_t x_{t+1} - \sigma(i_t - E_t \pi_{t+1}) + \varepsilon_{x,t}$$
$$\pi_t = \beta E_t \pi_{t+1} + \kappa x_t + \varepsilon_{\pi,t}$$
$$i_t = \rho i_{t-1} + \phi_x x_t + \phi_\pi \pi_t + \varepsilon_{i,t}$$

- ``IS shocks" $\varepsilon_{x,t}$ explain most output variance, ``Marginal cost (inflation) shocks" $\varepsilon_{\pi,t}$ explain most inflation variance, etc. 1980? Less volatile shocks!
- Equations don't work, parameters poorly identified.
- Resolution: Don't report fit. Business as usual for 1000 papers.

Complaint 2: NK model

- NK model has many first order problems, most known for decades.
- Why is NK macro so un-cumulative?



- “Unfair” to criticize one paper, when so many others get published
- Wise to add modifications to “textbook” model, don’t change two things at once. (Me too).
- When do we ever get to complain?
- Play well by rules, but building on a broken model leaves one wondering if the answer is reliable.