



Session 2: Model development needs – themes and priorities

SUERF WORKSHOP IN COOPERATION WITH ECB, BOF AND BDI
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Model Development Needs (Incomplete list)

- Limited scope of remarks, complement previous excellent remarks by discussing 4 issues:
 1. Forward guidance puzzle,
 2. Phillips curves and expectations formation,
 3. UMP tools,
 4. Open economy issues.

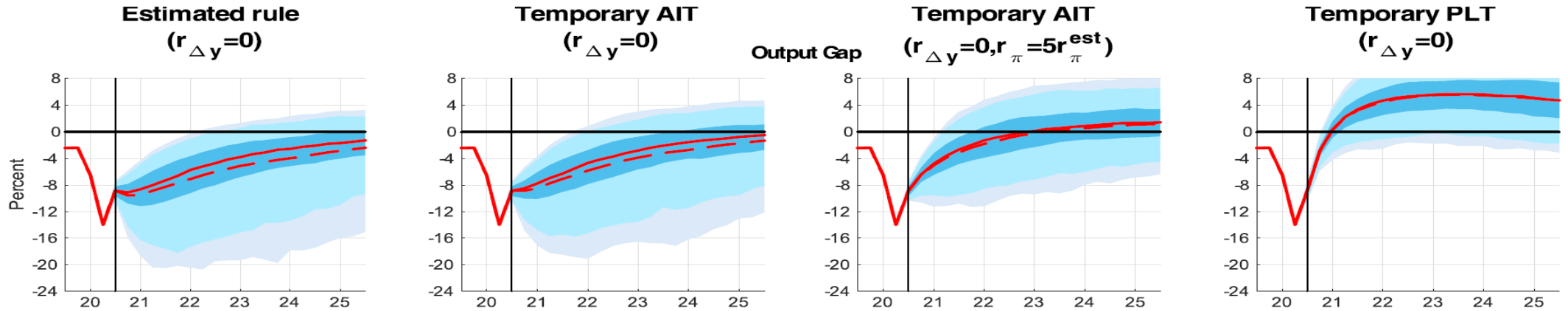
1. Addressing the FG Puzzle

Addressing the FG Puzzle

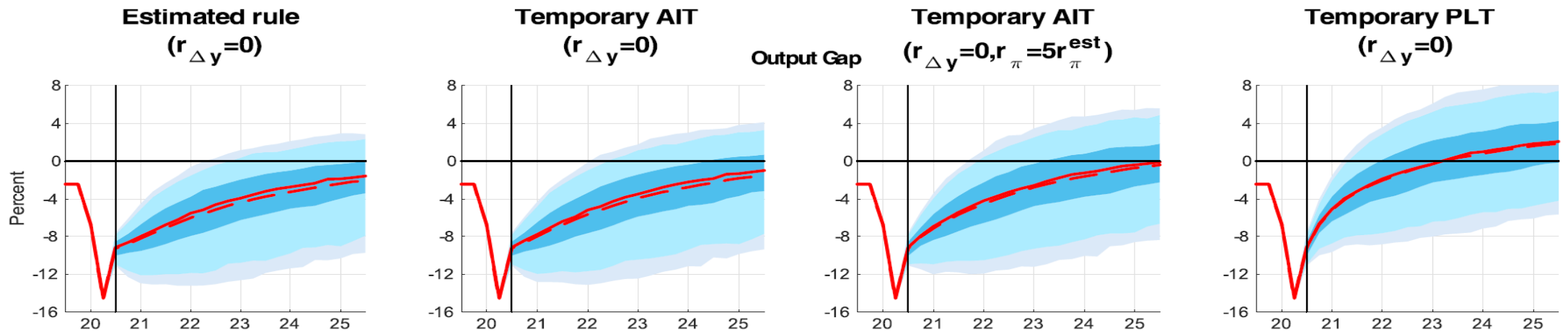
- I think most CB macro models agree that the FG puzzle needs to be addressed somehow.
 - ▶ Growing literature studies alternative way to do so.
- An important question is policy implications of alternative approaches.
 - ▶ **Erceg, Jakab, Linde (JEDC) paper:** Address the FG puzzle by allowing for deviations from rational expectations (RE) in the spirit of Gabaix (2019).
 - ▶ EJL's behavior model offers an alternative interpretation of the Debortoli-Gali (2019, NBER MA) evidence: **output and inflation costs of ZLB very modest.**
 - ▶ **Balance between fixing FG puzzle and policy implications delicate.**

EJL Analysis of FG Puzzle

- No Discounting (RE)

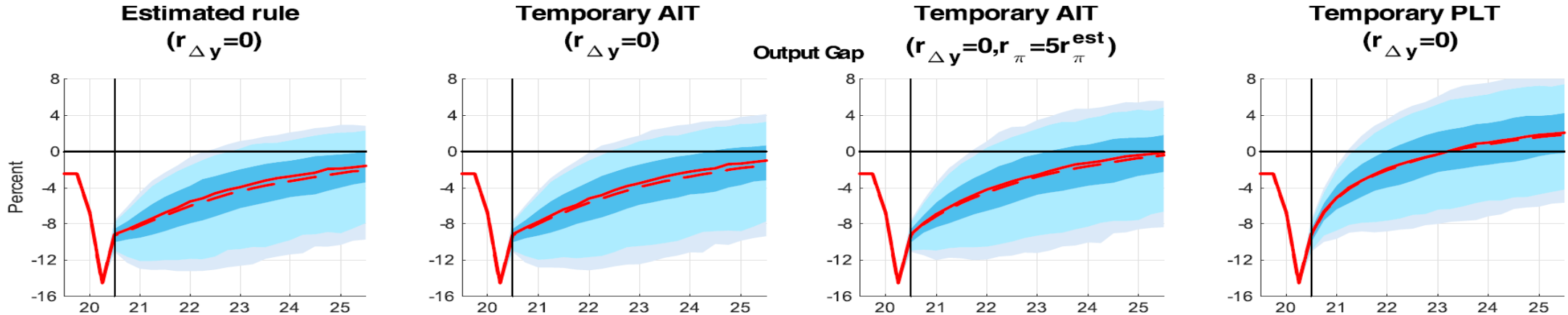


- Discounting in demand bloc

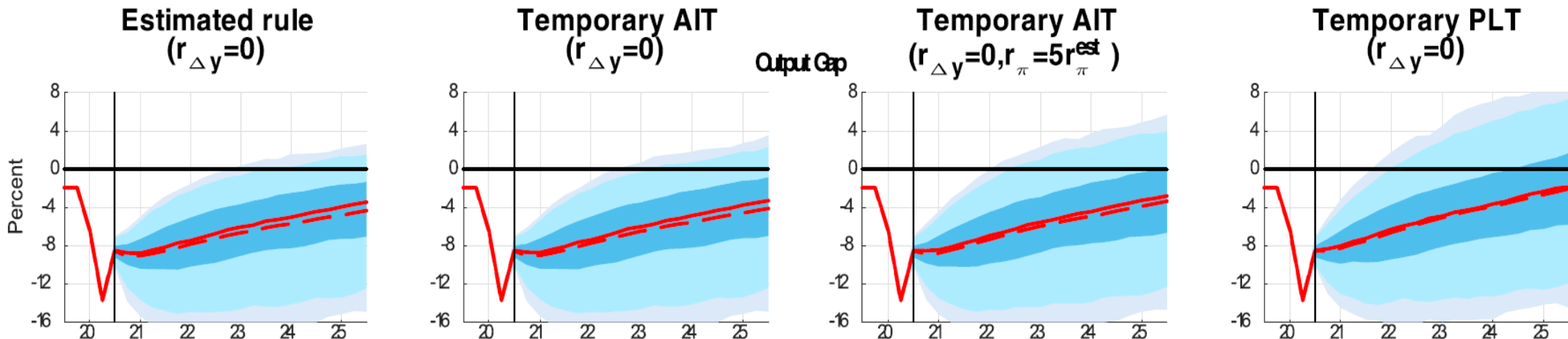


EJL Analysis of FG Puzzle Cont.

- Discounting in **demand bloc** only



- Discounting in **both demand and pricing blocs**



2. Phillips Curves and Expectations Formation

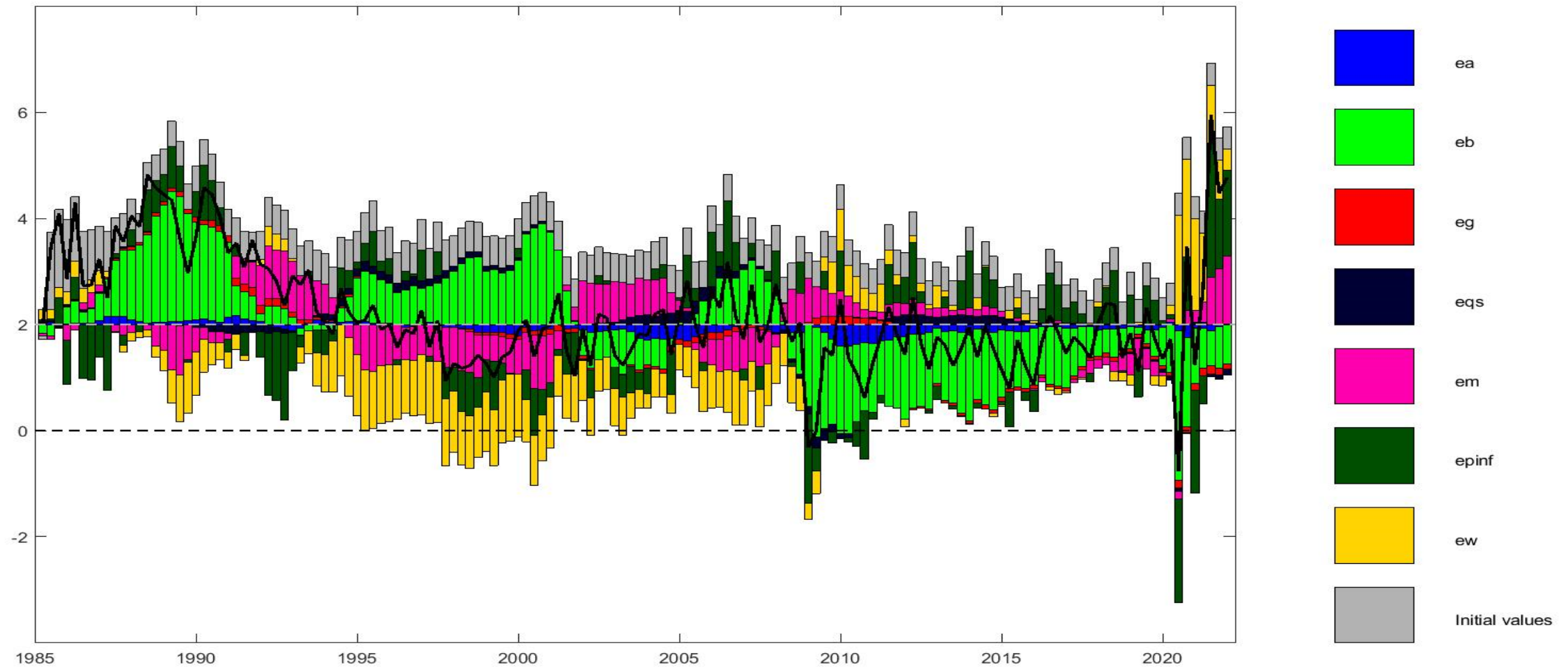
Phillips Curve Forward-looking and Flat

- Benchmark Phillips curve in SW model

$$\widehat{\pi}_t - \iota_p \widehat{\pi}_{t-1} = \beta (\mathbb{E}_t \widehat{\pi}_{t+1} - \iota_p \widehat{\pi}_t) - \kappa_{mc} \widehat{mc}_t + \widehat{\varepsilon}_t^p$$

- Estimates typically highly forward looking (low ι_p) and low slope (κ_{mc})
 - ▶ Pre GFC: $\iota_p = 0.22, \kappa_{mc} = 0.008$
 - ▶ Pre COVID: $\iota_p = 0.26, \kappa_{mc} = 0.004$
 - ▶ Until 2021Q4: $\iota_p = 0.36, \kappa_{mc} = 0.007$
- Although estimates move in the right direction when extending the sample, it is difficult to reconcile a standard forward-looking flat sloped Phillips curve with the recent surge in US core inflation.

Historical Decomposition of U.S. Core PCE Inflation (APR) 1985Q1-2021 in SW Model

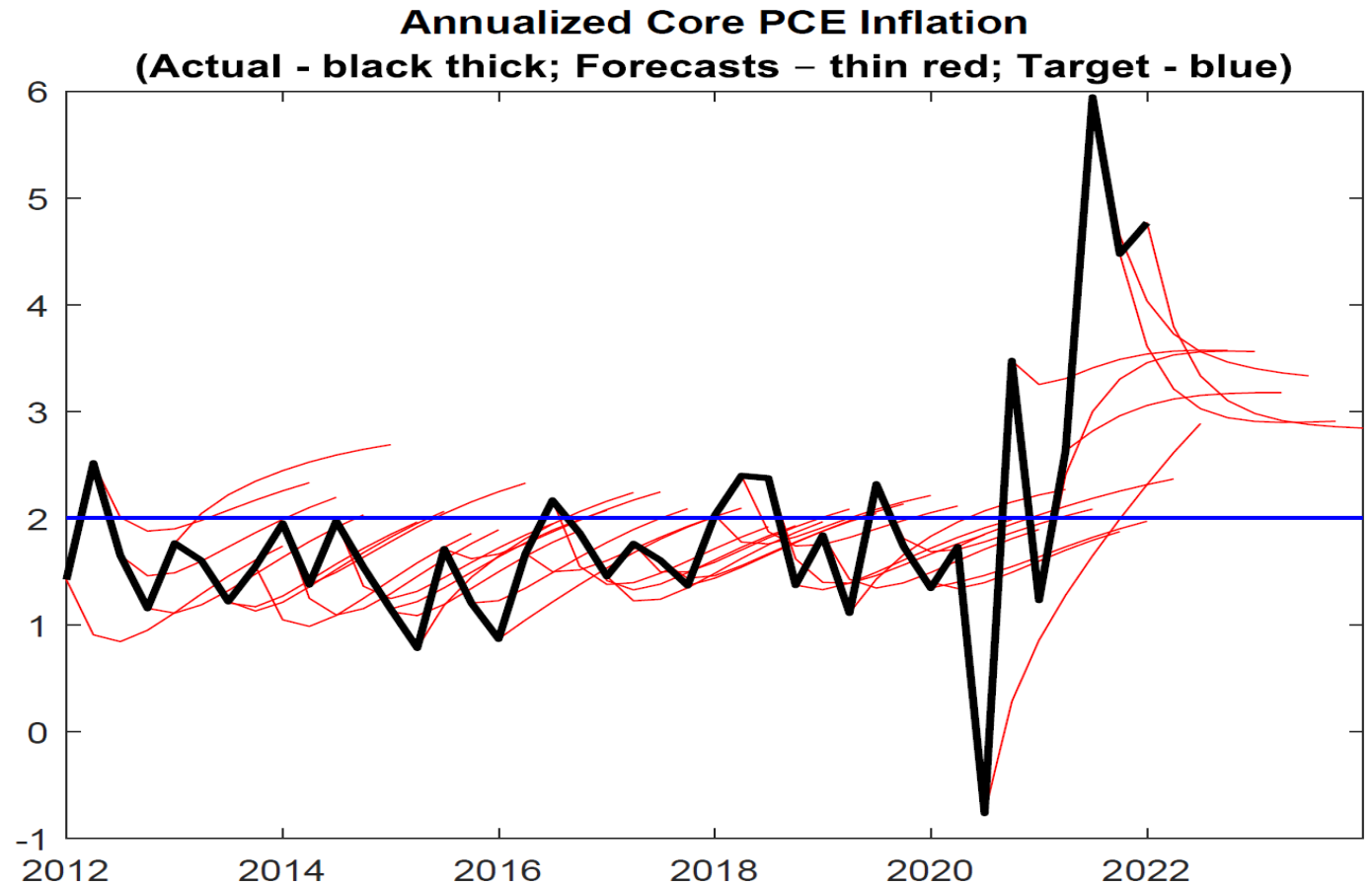


Role of Inflation Expectations

- In our models inflation expectations are generally well anchored around the CBs target by autopilot (CB doing its job).
- While this is generally a nice feature, there is an issue if we want to embed it by autopilot in our models

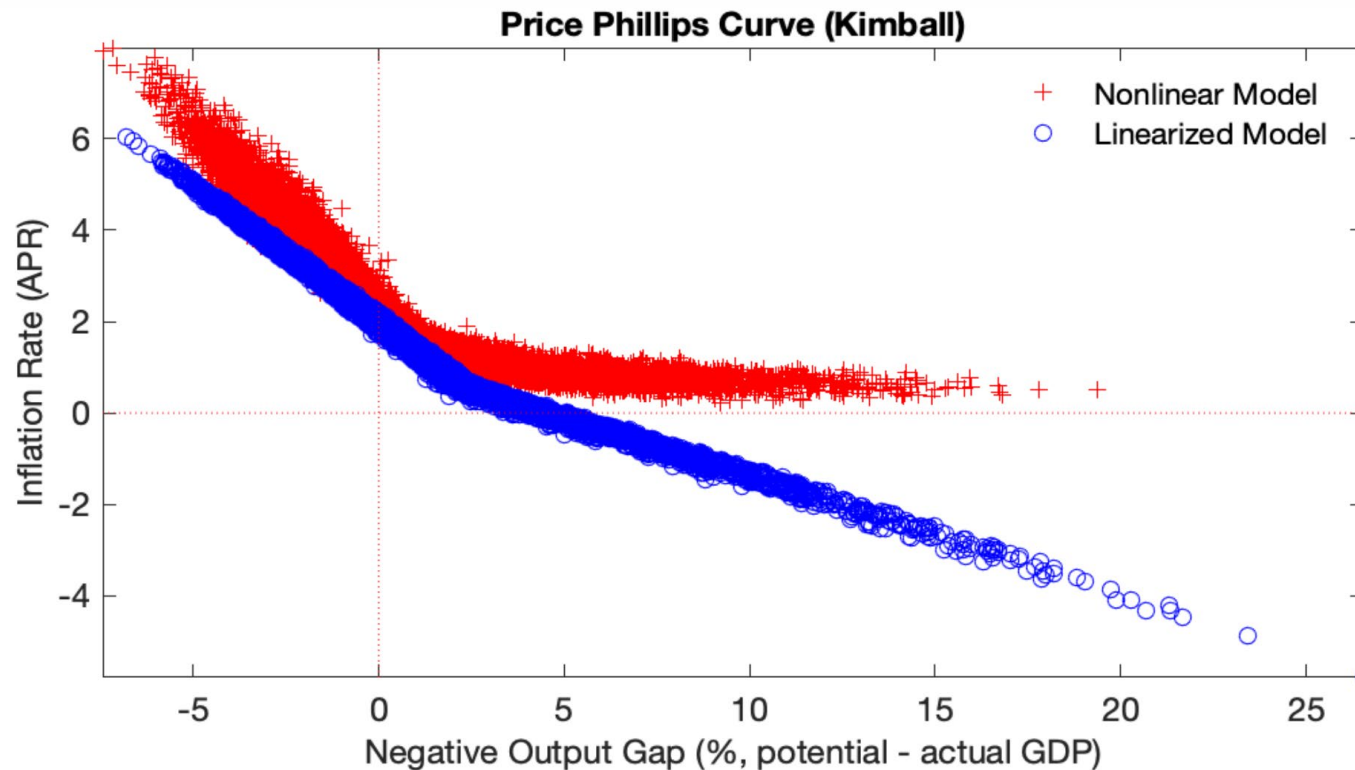
▶ Should persistent energy price Shocks be able to move expectations persistently? Distinction household vs. market expectations?

▶ Standard SW model typically do not predict persistent inflation spirals – see forecast plot



Nonlinearities may help Explaining Inflation Dynamics

- If not linearized, SW model implies "Banana shaped" Phillips curves (see e.g. Harding-Linde-Trabandt, 2021) which offers on possible rationale to explain inflation surge and how inflation expectations can be more sensitive to shocks.



3. UMP Tools in Monetary Models

UMP tools in Monetary Models

- How to introduce UMP tools in monetary policy models?
 - Establish benchmark framework to think about UMP tools.
 - Models should be able to motivate why UMP tools are needed (not for ensuring financial stability, but for boosting the recovery).
 - Should we have rule for the short-term policy rate and UMP tools as exogenous instruments, or try to establish rules for all policy levers?
- Important when communicating scenarios to policy makers and providing alternative scenarios in monetary policy reports.
- In this context let me mention a perennial question: How to best model CB behavior?
 - Merits of simple instrument rules vs. loss-function based approaches...

4. Some Open Economy Issues

Accounting for Comovement and Spillovers

- How to account for open economy spillovers? We know since work of Justiniano and Preston (2009) that this is a challenging task (both real and nominal).
 - Between advanced economies (today, pressing issue is inflation spillovers).
 - From advanced to emerging market spillovers.
- A couple of examples of how strong these spillovers are:
 - EA – Sweden: Infl (YoY) 0.44; GDP gr (YoY) 0.80; Pol Rates 0.94;
 - US – Canada: Infl (YoY) 0.61; GDP gr (YoY) 0.86 ; Pol Rates 0.94;
- In addition, impact is quantitatively large, beta of SWE on EA GDP gr rate equals 1.5. So not just correlation, but also comovement.

Thank you!