Enhancing resilience with natural growth targeting

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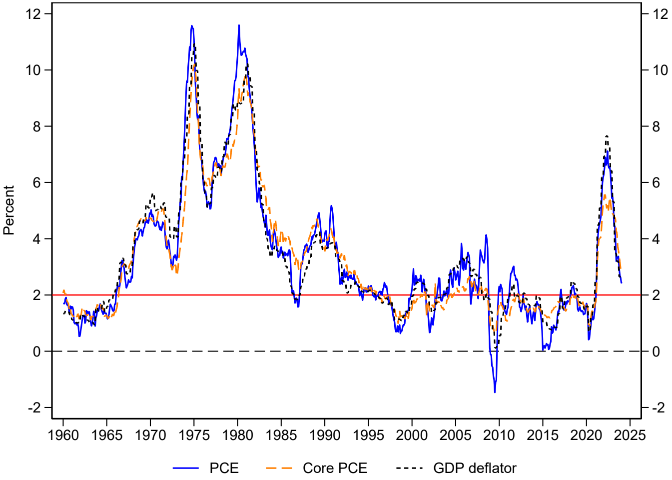
Shadow Open Market Committee Meeting
New York City, April 5, 2024

The post-pandemic inflation in historical context



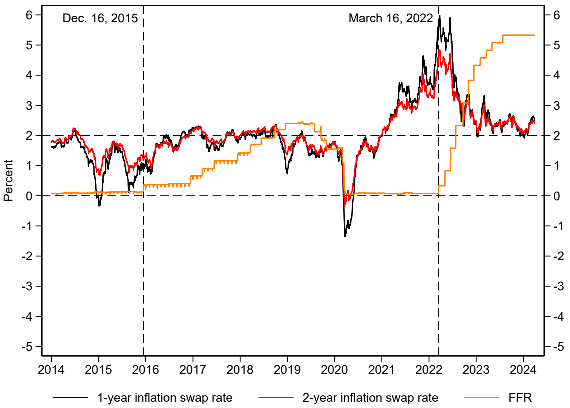
Alternative measures of inflation.
Year-on-year, monthly for PCE, quarterly for deflator.

The monetary policy framework challenge

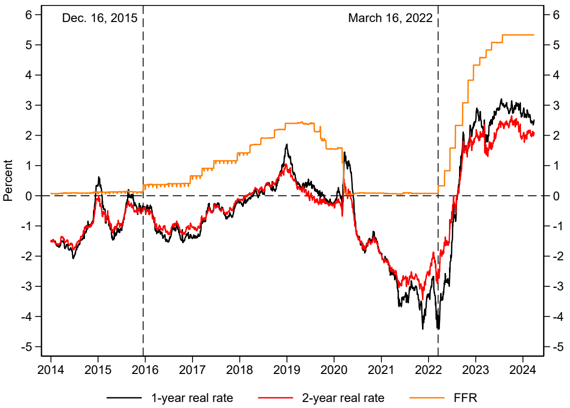
- The Fed's policy strategy proved insufficiently resilient in recent years.
- During 2021, the Fed used its discretion to peg the federal funds rate at zero for too long, while inflation and inflation expectations rose sharply.
- This policy error represented a notable deviation from the Fed's forward-looking approach in earlier years.
- The resilience of the Fed's policy strategy could be enhanced, and such errors be avoided with guidance from simple policy rules.
- A simple natural growth targeting rule that captured the contours of Fed policy reasonably well before the pandemic provides an illustrative example.

The post-pandemic policy error and recovery

Expected inflation



Ex ante real interest rate



Ex ante real rates based on 1-, and 2-year OIS rates and inflation swap rates.

Desirable characteristics of a benchmark rule

- Preserve price stability over time, maintain inflation expectations well-anchrored, in line with 2% goal.
- Forward-looking, embracing benefits from current analysis, now-casting, short-term projections.
- Somewhat countercyclical, tempering business cycle booms and busts.
- Robust to imperfect knowledge, including properly accounting for the pitfalls of relying on unknowable "star" concepts.

A natural growth targeting rule

- Let $(n - n^*)$ be the deviation of nominal income growth from normal.
- Rule has the form of a one-parameter "difference" rule:
  $$\Delta i = \theta(n - n^*)$$
- To ensure rule is operational need to also:
  - specify real-time data/projections for n
  - define "normal" growth, n^*, accounting for variation of real potential output growth to ensure the rule delivers price stability consistently over time.

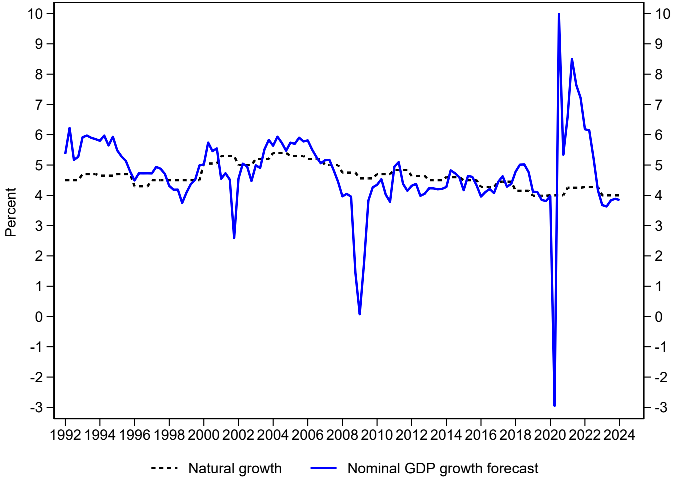
An example based on the SPF

- Natural growth targeting rule with $\theta = \frac{1}{2}$, $\pi^* = 2$:

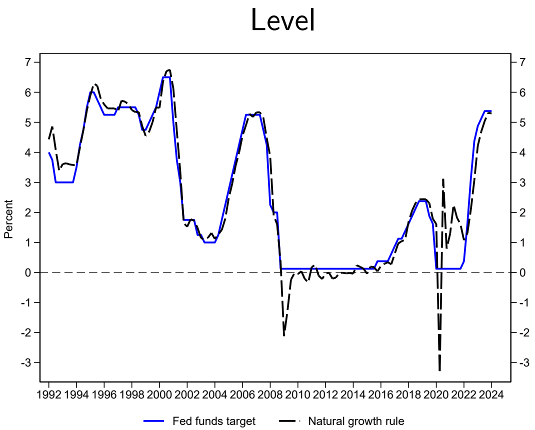
  $$\Delta i = \frac{1}{2}(n - n^*)$$

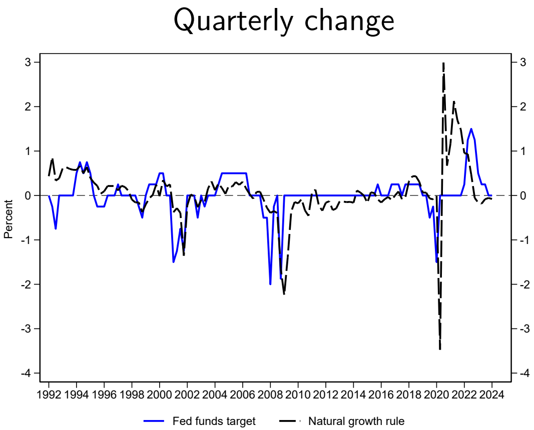
- Use median SPF projections of nominal GDP, year-on-year, 3-Q ahead, for n.
- Use median SPF projection of real GDP growth over next 10 years as a proxy for real potential GDP growth, g^*. Construct $n^* = \pi^* + g^*$.
- Use end-quarter target fed funds (or midpoint of target band) to compare rule prescriptions with actual policy.

Inputs to Natural Growth Rule



Natural Growth Rule





$$\Delta i = \theta(n - n^*)$$
$$\theta = 0.5$$

Variants of natural growth targeting rule with FOMC projections

- The SEP does not provide projections for nominal GDP, but can check variants using projections of inflation and real economic activity.
- Core PCE/growth variant: Recall $(n - n^*) \approx (\pi - \pi^*) + (g - g^*)$
- Core PCE/unemployment variant: Recall $(g - g^*) \approx \Delta y \approx \kappa \Delta u$, where κ based on Okun's law.
- Three alternative variants of rule:

$$\Delta i = \theta(n - n^*)$$
$$\Delta i = \theta(\pi - \pi^*) + \theta(g - g^*)$$
$$\Delta i = \theta(\pi - \pi^*) + \theta\kappa\Delta u$$

- Use median SEP projections: Core PCE, and GDP growth or unemployment.

FOMC Summary of Economic Projections: March 20, 2024

Percent

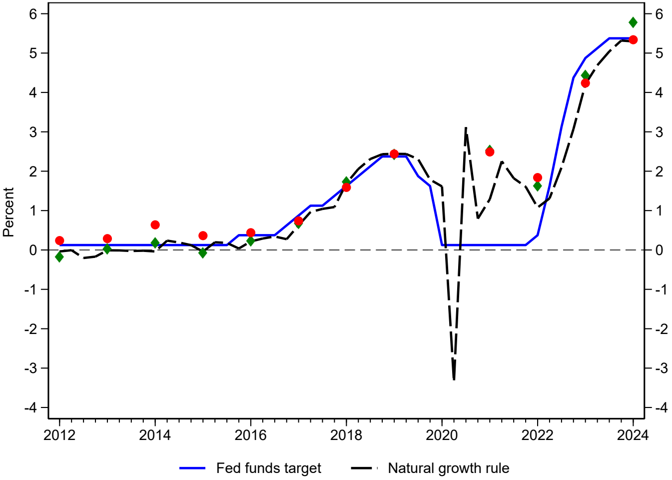
Variable	Median[1]			
	2024	2025	2026	Longer run
Change in real GDP	2.1	2.0	2.0	1.8
December projection	1.4	1.8	1.9	1.8
Unemployment rate	4.0	4.1	4.0	4.1
December projection	4.1	4.1	4.1	4.1
PCE inflation	2.4	2.2	2.0	2.0
December projection	2.4	2.1	2.0	2.0
Core PCE inflation[4]	2.6	2.2	2.0	
December projection	2.4	2.2	2.0	
Memo: Projected appropriate policy path				
Federal funds rate	4.6	3.9	3.1	2.6
December projection	4.6	3.6	2.9	2.5

Rule change, 2023Q1: $+0.5(2.6 - 2.0) + 0.5(2.1 - 1.8) = +0.45$ (GDP growth)

Rule change, 2023Q1: $+0.5(2.6 - 2.0) - 1.0(4.0 - 3.7) = +0.00$ (Unemployment)

Actual change in federal funds target rate during 2023Q1: $+0.00$

Natural Growth Rule: Detail with SEP-implied prescriptions



Bullets [diamonds] show prescriptions of the inflation-unemployment [real GDP] variants of the natural growth targeting rule, based on median SEP projections.

Enhancing resilience with natural growth targeting

- The Fed's policy strategy proved insufficiently resilient in recent years.
- The observed persistent deviation from systematic policy could have been checked with guidance from a simple policy rule.
- Policy research and practical experience suggests desirable characteristics of a benchmark rule.
- Natural growth targeting presents one option.
- The resilience of the Fed's monetary policy strategy could be enhanced with guidance from a natural growth targeting rule.