

The Inflation Surge of the 2020s: the role of monetary policy

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BROWN

I was very wrong on inflation

September, 2021

Translation:
Inflation?
There is nothing to see here!
Not a problem!

米インフレの行方

ガウティ・エガートソン ブラウン大学教授

懸念少なく金利正常化に益

米消費者物価指数 (前年同月比)

消費者物価指数

エネルギーと食品を除いたコア指数

(注) 米労働省

ポイント

・一時的な供給不足が原因、いずれは解消

・FRBの適切な対応で70年代の再現ない

・バイデン政権の積極財政もリスク小さい

ガウティ・エガートソン

プリンストン大学教授
主 (経済学) 専門は
マクロ経済学、国際金
融

「10月5日発表された米労働省の消費者物価指数は、世界経済史上で最も急激な上昇を示している。これは、70年代のインフレに似ている。しかし、FRBは適切な対応で、70年代の再現はない。バイデン政権の積極財政も、リスクは小さい。」

「一時的な供給不足が原因、いずれは解消。FRBの適切な対応で70年代の再現はない。バイデン政権の積極財政も、リスクは小さい。」

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「現在の超低金利政策は、米国の経済成長を押し上げている。FRBがインフレ率を5%程度に引き上げると、金利正常化のメリットが大きい。」

「バイデン政権の積極財政は、米国の経済成長を押し上げている。これは、70年代のインフレに似ている。しかし、FRBは適切な対応で、70年代の再現はない。バイデン政権の積極財政も、リスクは小さい。」

Statement on Longer-run Goals and Monetary Policy

Statement on Longer-Run Goals and Monetary Policy Strategy

As adopted effective January 24, 2012

Following careful deliberations at its recent meetings, the Federal Open Market Committee (FOMC) has reached broad agreement on the following principles regarding its longer-run goals and monetary policy strategy. The Committee intends to reaffirm these principles and to make adjustments as appropriate at its annual organizational meeting each January.

The FOMC is firmly committed to fulfilling its statutory mandate from the Congress of promoting maximum employment, stable prices, and moderate long-term interest rates. The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society.

Inflation, employment, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Moreover, monetary policy actions tend to influence economic activity and prices with a lag. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals.

The inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation. The Committee judges that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate.

Communicating this inflation goal clearly to the public helps keep longer-term inflation expectations firmly anchored, thereby foster-

ing price stability and moderate long-term interest rates and enhancing the Committee's ability to promote maximum employment in the face of significant economic disturbances.

The maximum level of employment is largely determined by nonmonetary factors that affect the structure and dynamics of the labor market. These factors may change over time and may not be directly measurable. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the maximum level of employment, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments. Information about Committee participants' estimates of the longer-run normal rates of output growth and unemployment is published four times per year in the FOMC's Summary of Economic Projections. For example, in the most recent projections, FOMC participants' estimates of the longer-run normal rate of unemployment had a central tendency of 5.2 percent to 6.0 percent, roughly unchanged from last January but substantially higher than the corresponding interval several years earlier.

In setting monetary policy, the Committee seeks to mitigate deviations of inflation from its longer-run goal and deviations of employment from the Committee's assessments of its maximum level. These objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it follows a balanced approach in promoting them, taking into account the magnitude of the deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate.

Statement on Longer-Run Goals and Monetary Policy Strategy

Adopted effective January 24, 2012, as reaffirmed effective January 31, 2023

The Federal Open Market Committee (FOMC) is firmly committed to fulfilling its statutory mandate from the Congress of promoting maximum employment, stable prices, and moderate long-term interest rates. The Committee seeks to explain its monetary policy decisions to the public as clearly as possible. Such clarity facilitates well-informed decisionmaking by households and businesses, reduces economic and financial uncertainty, increases the effectiveness of monetary policy, and enhances transparency and accountability, which are essential in a democratic society.

Employment, inflation, and long-term interest rates fluctuate over time in response to economic and financial disturbances. Monetary policy plays an important role in stabilizing the economy in response to these disturbances. The Committee's primary means of adjusting the stance of monetary policy is through changes in the target range for the federal funds rate. The Committee judges that the level of the federal funds rate consistent with maximum employment and price stability over the longer run has declined relative to its historical average. Therefore, the federal funds rate is likely to be constrained by its effective lower bound more frequently than in the past. Owing in part to the proximity of interest rates to the effective lower bound, the Committee judges that downward risks to employment and inflation have increased. The Committee is prepared to use its full range of tools to achieve its maximum employment and price stability goals.

The maximum level of employment is a broad-based and inclusive goal that is not directly measurable and changes over time owing largely to nonmonetary factors that affect the structure and dynamics of the labor market. Consequently, it would not be appropriate to specify a fixed goal for employment; rather, the Committee's policy decisions must be informed by assessments of the shortfalls of employment from its maximum level, recognizing that such assessments are necessarily uncertain and subject to revision. The Committee considers a wide range of indicators in making these assessments.

The inflation rate over the longer run is primarily determined by monetary policy, and hence the

Committee has the ability to specify a longer-run goal for inflation. The Committee reaffirms its judgment that inflation at the rate of 2 percent, as measured by the annual change in the price index for personal consumption expenditures, is most consistent over the longer run with the Federal Reserve's statutory mandate. The Committee judges that longer-term inflation expectations that are well anchored at 2 percent foster price stability and moderate long-term interest rates and enhance the Committee's ability to promote maximum employment in the face of significant economic disturbances. In order to anchor longer-term inflation expectations at this level, the Committee seeks to achieve inflation that averages 2 percent over time, and therefore judges that, following periods when inflation has been running persistently below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time.

Monetary policy actions tend to influence economic activity, employment, and prices with a lag. In setting monetary policy, the Committee seeks over time to mitigate shortfalls of employment from the Committee's assessment of its maximum level and deviations of inflation from its longer-run goal. Moreover, sustainably achieving maximum employment and price stability depends on a stable financial system. Therefore, the Committee's policy decisions reflect its longer-run goals, its medium-term outlook, and its assessments of the balance of risks, including risks to the financial system that could impede the attainment of the Committee's goals.

The Committee's employment and inflation objectives are generally complementary. However, under circumstances in which the Committee judges that the objectives are not complementary, it takes into account the employment shortfalls and inflation deviations and the potentially different time horizons over which employment and inflation are projected to return to levels judged consistent with its mandate.

The Committee intends to review these principles and to make adjustments as appropriate at its annual organizational meeting each January, and to undertake roughly every 5 years a thorough public review of its monetary policy strategy, tools, and communication practices.

2012 Policy Framework
(‘12 PF)

2020 Policy Framework
(‘20 PF)

What is the Question?

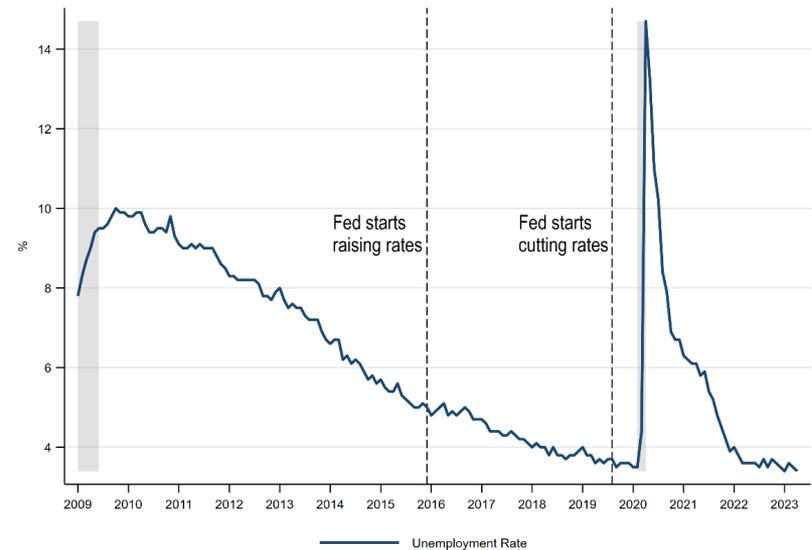
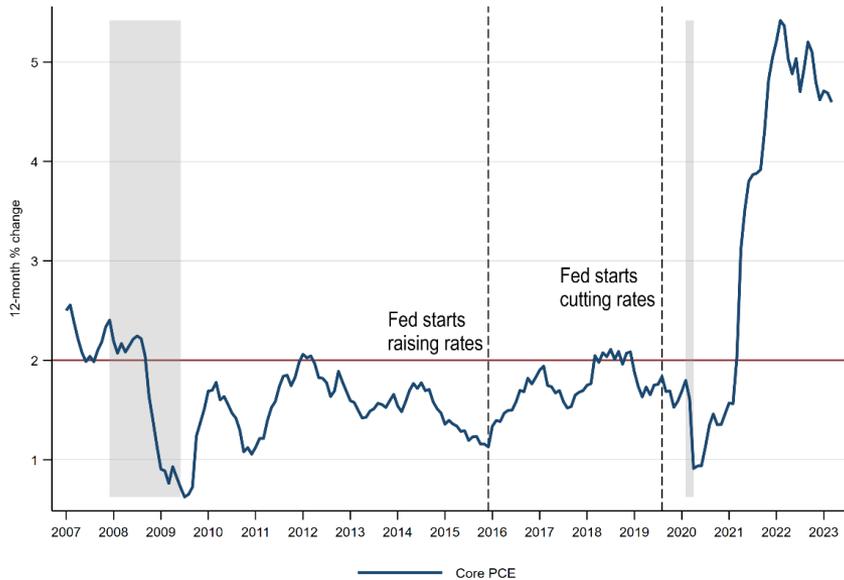
- We are **not** asking: How much of the inflation was caused by Federal Reserve '20 PF or straight up mistakes
- Instead asking: *Could* the '20 PF have contributed the the inflation surge?
- If so, **through** what mechanism?
- Ultimate **Stress Test** of '20 PF:

Key Conclusion

- Framework may be well designed to deal with pre-covid world with low r^* and **inflation < target**
- **Ex-post** **less well** structured to once in a century shock with lots of “unknown unknown”
- Future: Back to pre-covid world of low r^* ?

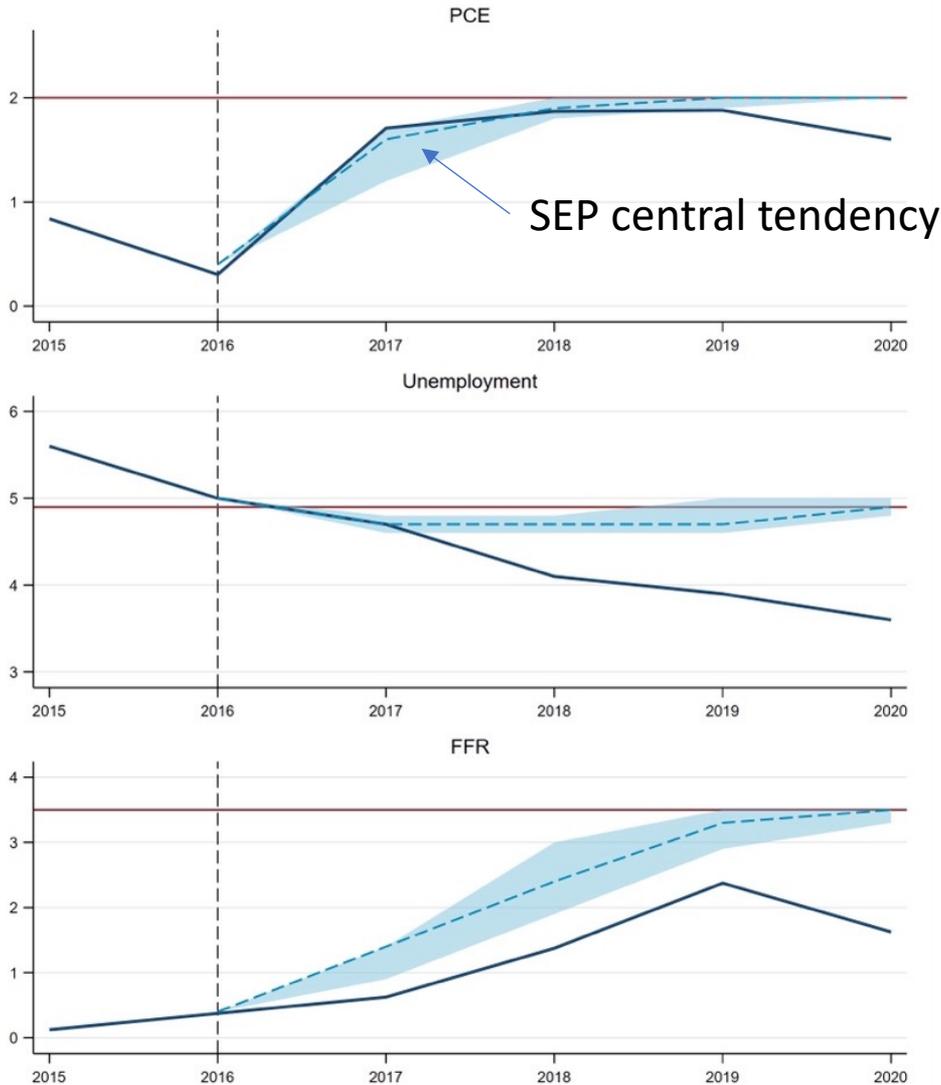
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2. Leadup to the change in PF
The Mistake of 2015 (-2019)
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The Mistake of 2015



FFR \uparrow in 2015 when $U=5\%$. FED expects inflation due to tight labor market.
 $U \searrow$ 3.7 July 2019 no inflation pressure
FFR \downarrow mid 2019 $U=3.7\%$ to \nearrow inflation

FOMC Meeting December 2015



- SEP $u^* = 4.9\%$
- Dec '15 $u = 5\%$
- SEP '19 for $\pi \rightarrow \pi^*$ and $u \rightarrow u^*$.
- **Reality in '19**

$$u = 3.7 \pi < \pi^*$$
- Moving into pandemic Fed cutting rates to reach target.
- '19 in u^* ? Who knows?!

Lessons learned from Mistake of 2015→ '20 PF

Main Concern

- Inflation persistence below target since 2008:
 1. Inflation expectations π^e drifting down making problem ELB worse
 2. Permanently lower r^* with lower π^e makes matters worse dragging down FFR so ELB more often problem

Lessons learned 2019 – emerging consensus

1. u imperfect proxy for max employment
2. u has very limited effect on π (flat Phillips Curve)
3. There has been a persistent fall in r^*

2020 Framework addresses this

Brainard speech at
Brookings 2020



“sensitivity of price inflation to labor market tightness is very low”

“a *flat Phillips* curve has the important advantage of allowing employment to continue expanding for longer without generating inflationary pressures, thereby providing job opportunities to people that might not otherwise have them.”

Mistake of 2015 will not be repeated:

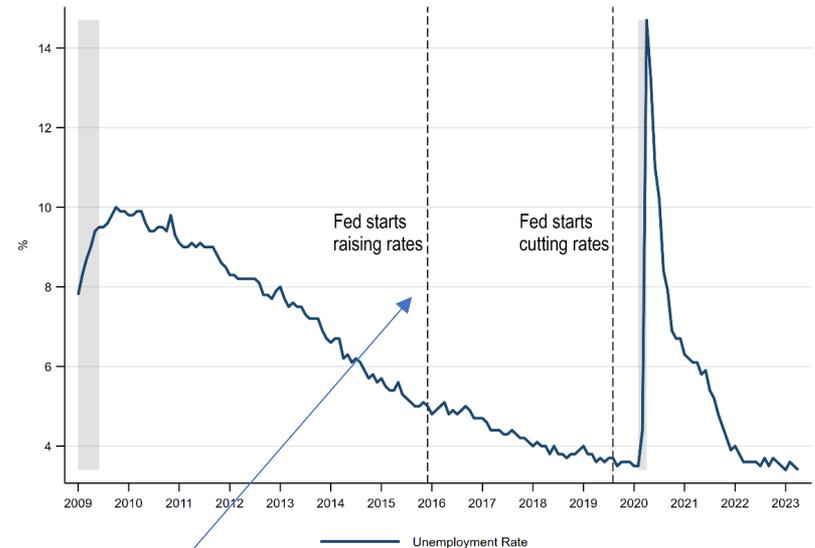
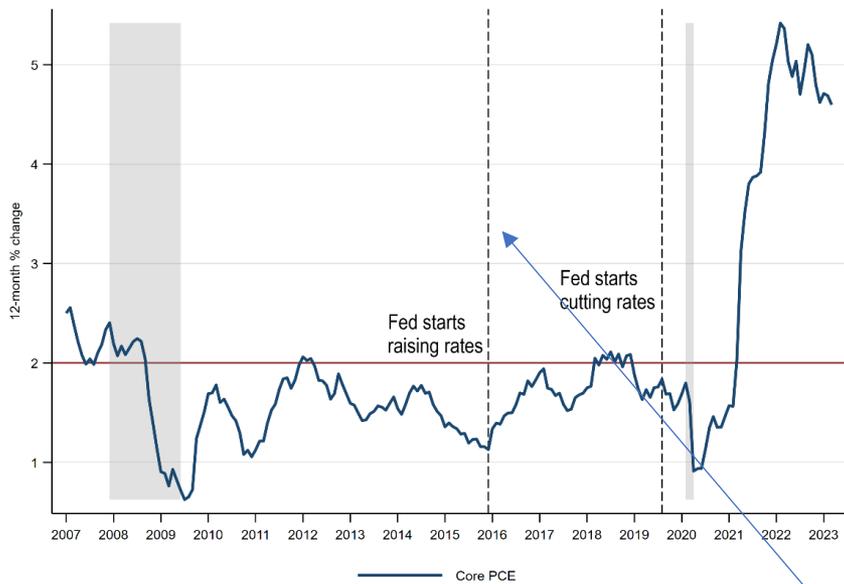
“had the changes to monetary policy goals and strategy we made in the new statement been in place several years ago, it is likely that accommodation would have been withdrawn later, and the gains would have been greater.”

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Major changes from 2012 to 2020 (August 27, 2020)

- i. Defines declining r^* as a **central problem going forward due to ELB**
- ii. Replaces all mentions
 “deviation of employment from maximum”
 with
 “shortfall from maximum employment.”
 eliminates mention of **“balanced approach”**.
- iii. Average Inflation Target implying overshooting if below target: No time horizon and asymmetric
- iv. Gives Employment higher status. Maximum employment defined as
 “a broad-based and inclusive goal that is not directly measurable and changes over time”
 eliminates examples from previous framework of u^* and that the FOMC estimates it during each of its policy cycles.

Preventing the Mistake of 2015

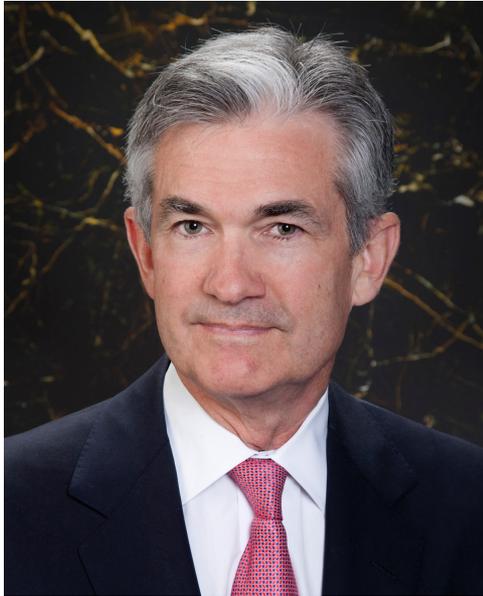


1. No reason to raise rates since we don't penalize employment going over max and inflation is below target

2. Even if we overshoot max employment the impact on inflation is trivial but we react if we see inflation. Potential *big benefit* with *low risk*.

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The Forceful Implementation of in September 2020

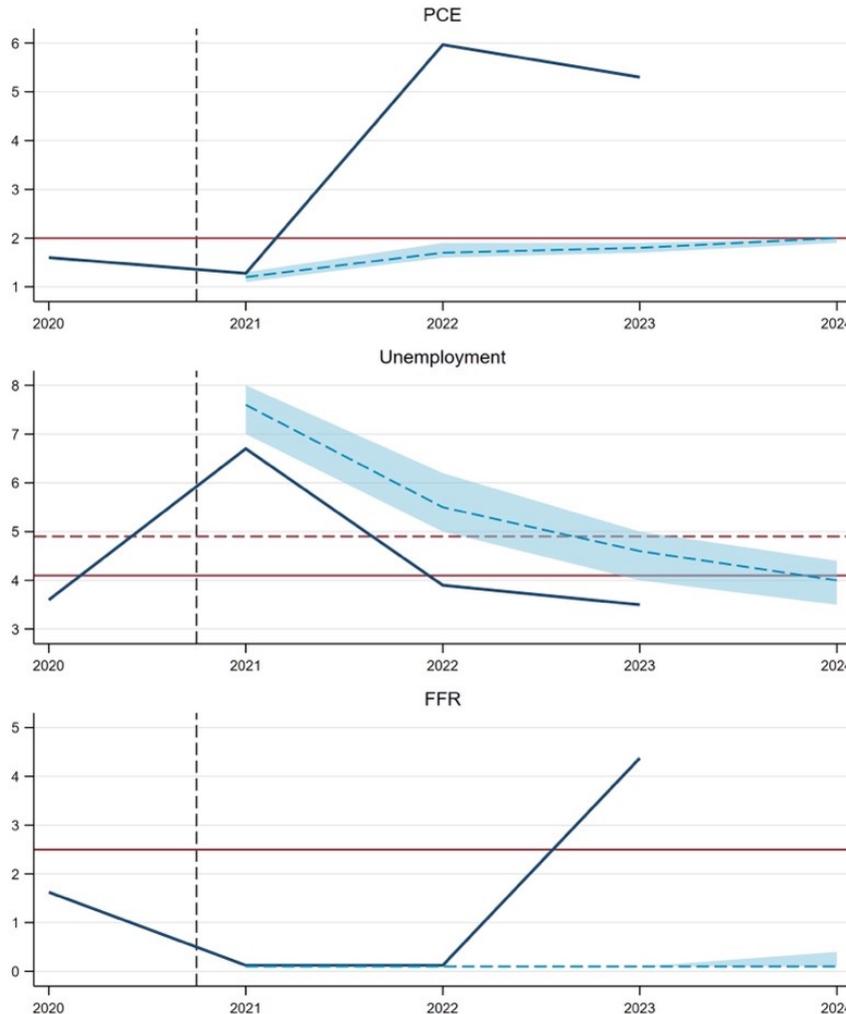


Congressional Testimony” “We have implemented our new framework by forcefully deploying our policy tools.”

FOMC statement from September 2020

The Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent and expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee’s assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time.

Preventing the the Mistake of 2015 in September 2020



- SEP $u^* = 4.9\%$
- $u = 7.9\%$ in Sept 2020
- Fed Projection for 2023 inflation
- $\pi \rightarrow \pi^*$ and $u < u^*$.
- Brilliant solution but to the wrong problem?
- Reality in March 2021 when rate hikes.

$$u = 3.5\%$$
$$\pi = 7.7\% (PCE)$$
$$8.5 (CPI)$$

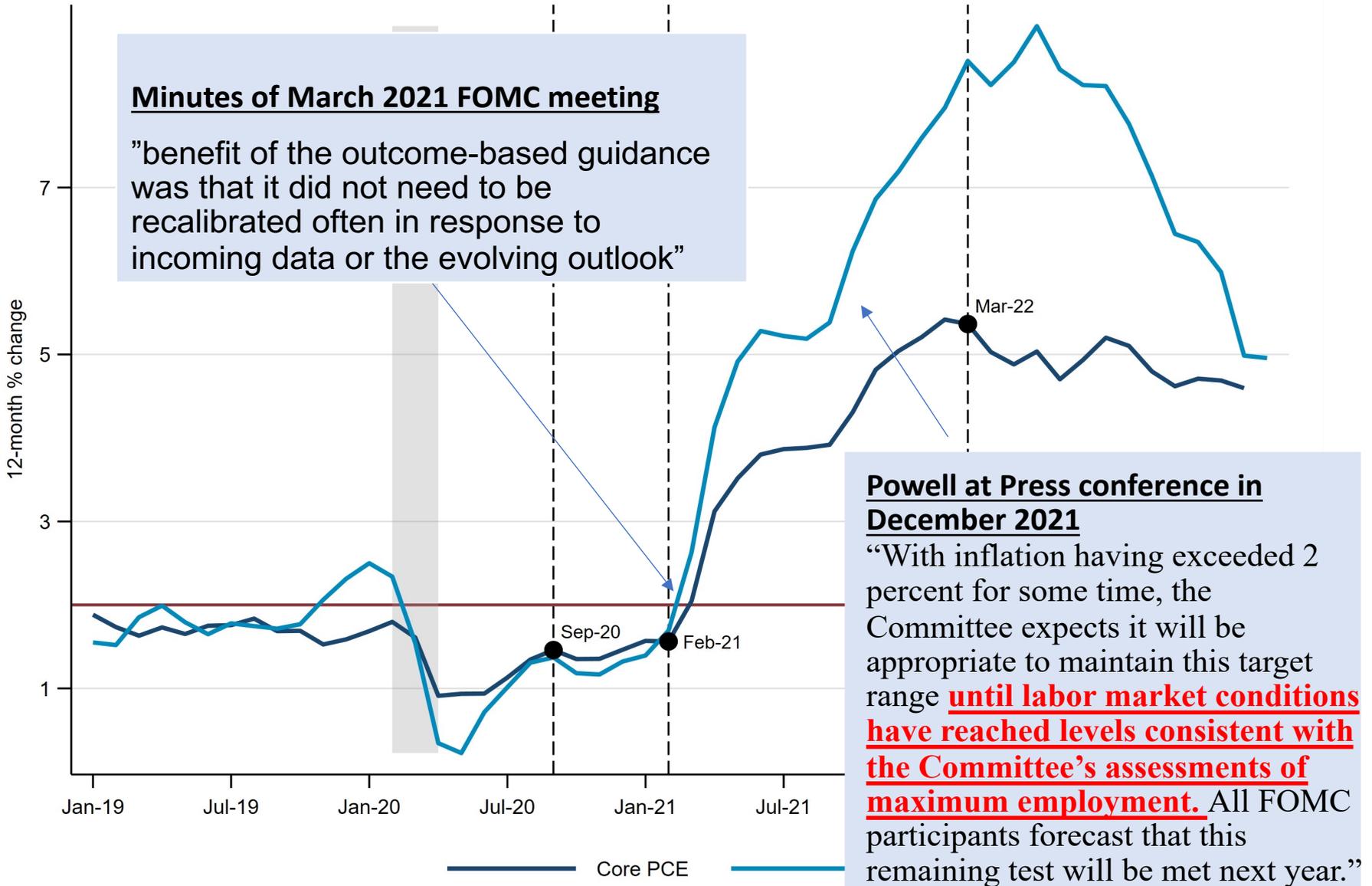
Brilliant solution to the wrong problem?

at 0 to 1/4 percent and expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee's assessments of **maximum employment** and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time

What if INFLATION were to rise BEFORE employment?

Was there **NO** bound on how much inflation could rise until the Fed would tighten Rates?

Employment condition was binding



FOMC only changes statement December 2021

Double down on hitting the maximum employment target

~~The Committee expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee's assessments of maximum employment and inflation has risen to 2 percent and is on track to moderately exceed 2 percent for some time~~ **In support of these goals, the Committee decided to keep the target range for the federal funds rate at 0 to 1/4 percent. With inflation having exceeded 2 percent for some time, the Committee **expects it will be appropriate to maintain this target range until labor market conditions have reached levels consistent with the Committee's assessments of maximum employment.****

November 2021 numbers

PCE 4.8

Unemployment 4.25

prime-age empl/pop ratio at 70.6

March 2022 (rate increase)

PCE 6.8

Unemployment 3.6 (3.5 Feb 2020)

prime-age empl/pop ratio at 80 (80.4 Feb2020)

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Expectations at time of policy is set

Fed Asymmetric Loss function = E_p $\left\{ \begin{array}{l} (\pi - \pi^*)^2 + \lambda_-(l - l^*)^2 \text{ if } l \leq l^* \\ (\pi - \pi^*)^2 + \lambda_+(l - l^*)^2 \text{ if } l > l^* \end{array} \right.$

Phillips Curve (PC)

$$\pi = \kappa(l - l^*) + \mu + \pi^e$$

IS equation

$$l = -\chi i_p + d$$

Inflation overshooting (PC)

$$\pi - \pi^* = \kappa(E_p l^* - l^*) + \kappa(d - E_p d) + (\mu - E_p \mu) + \underbrace{\frac{\lambda}{\kappa^2 + \lambda} E_p \mu + \kappa l^{bias}}_{\text{Expected and unexpected trade-off shocks}}$$

Fed over-estimates maximum employment

Fed under-estimates Demand

Expected and unexpected trade-off shocks

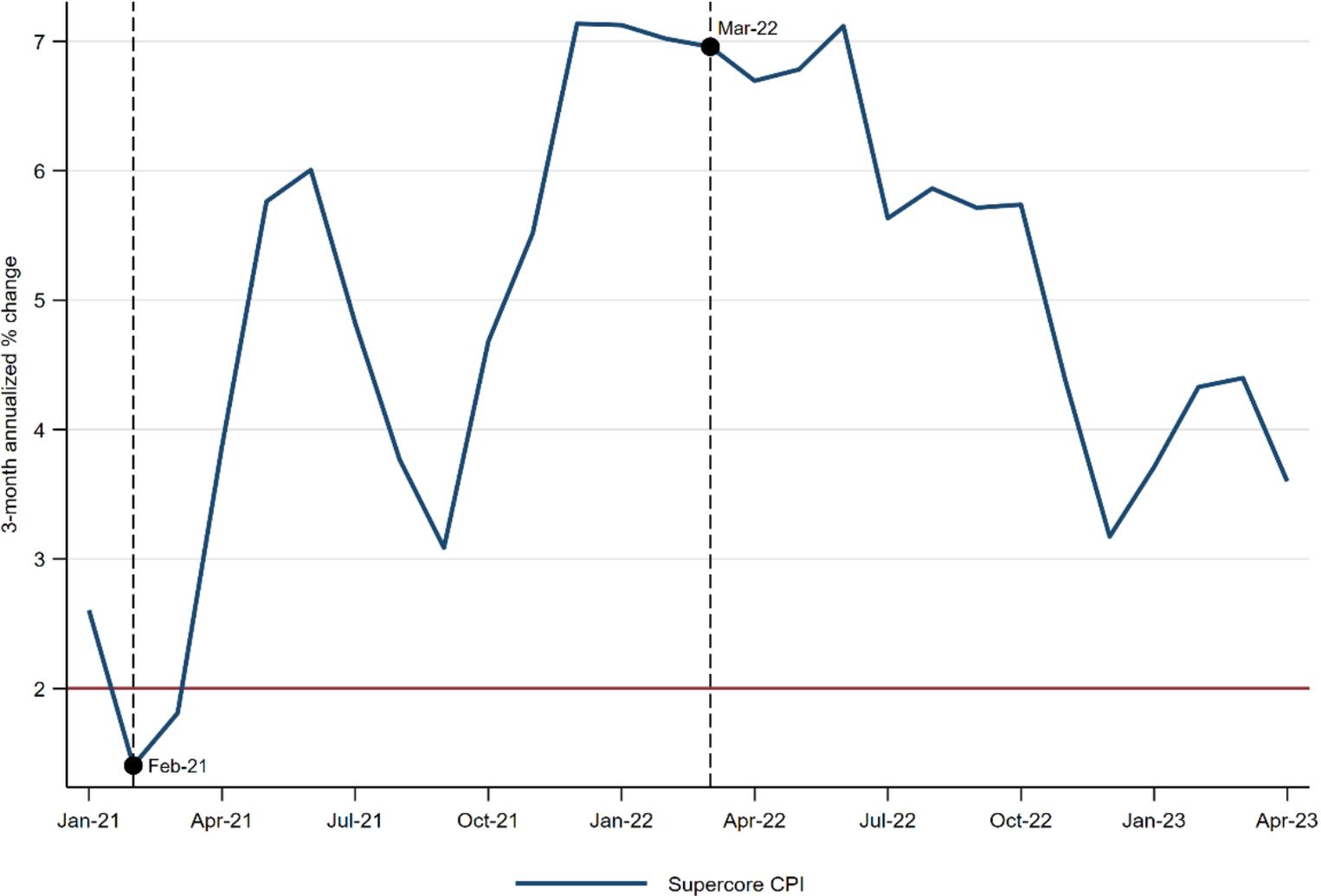
Inflation bias

Inflation bias

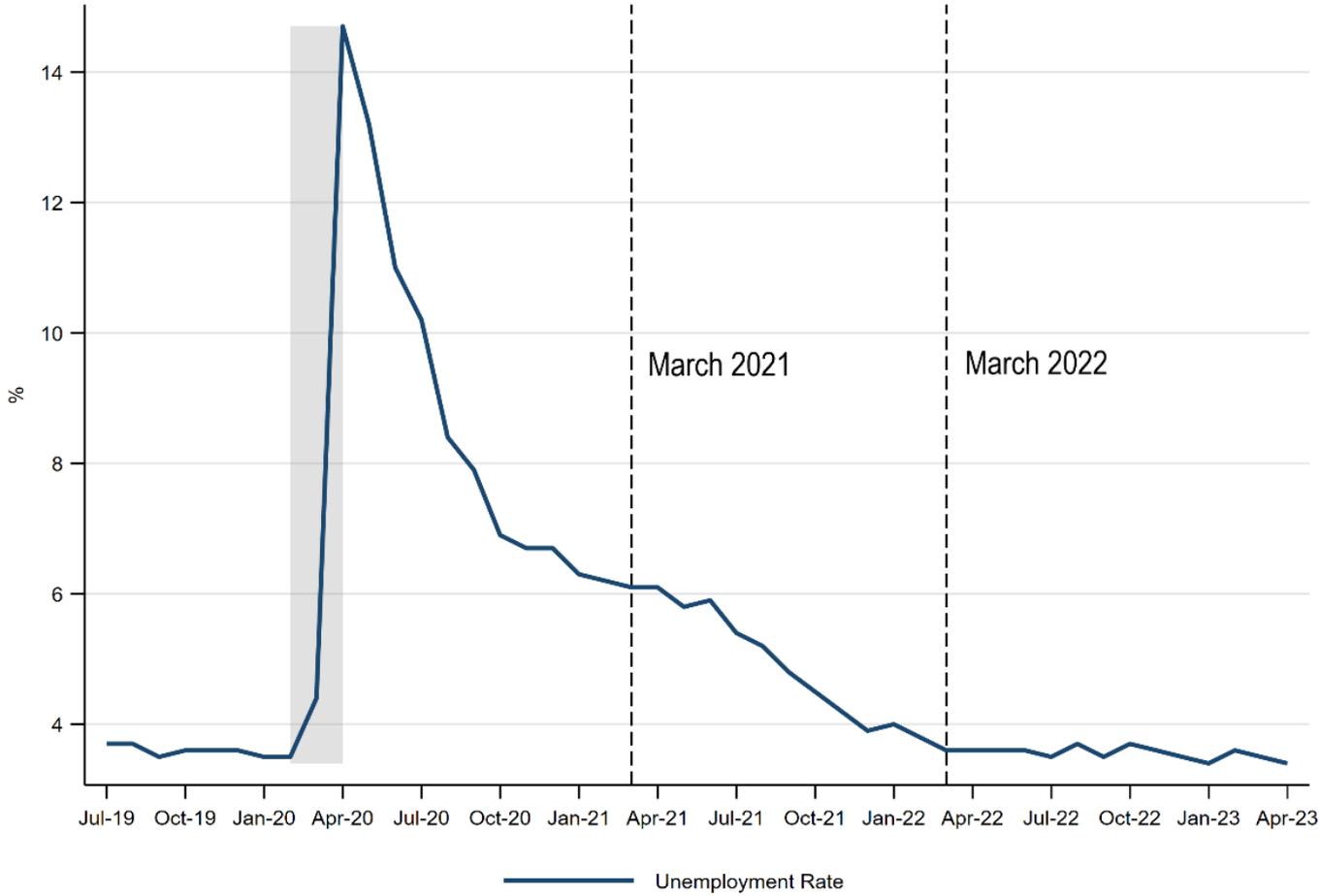
- With asymmetric objective and policy lag:
 - Decision maker will systematically be less willing to set policy *risking employment undershooting* max than *overshooting it*.
 - Inflationary bias which is proportional to Phillips curve
- A feature or a flaw? '20 PF was *designed* to prevent deflationary bias. Cancel out?
- Appendix B shows example of *perception bias* rising naturally from asymmetry of objective
 - ❖ Empirical evidence not encouraging: Don't very skeptical this is of any relevance!

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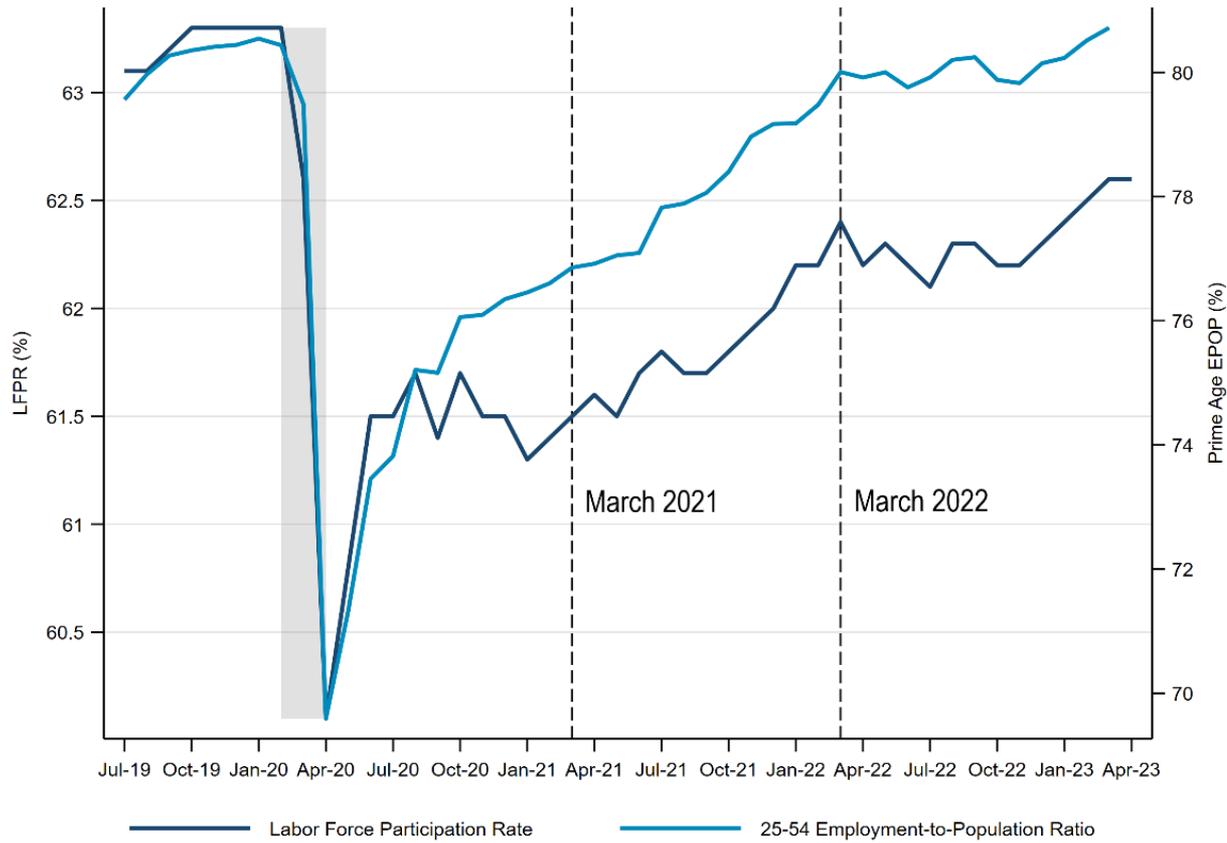
Super-core(excludes shelter, food, energy and used cars)



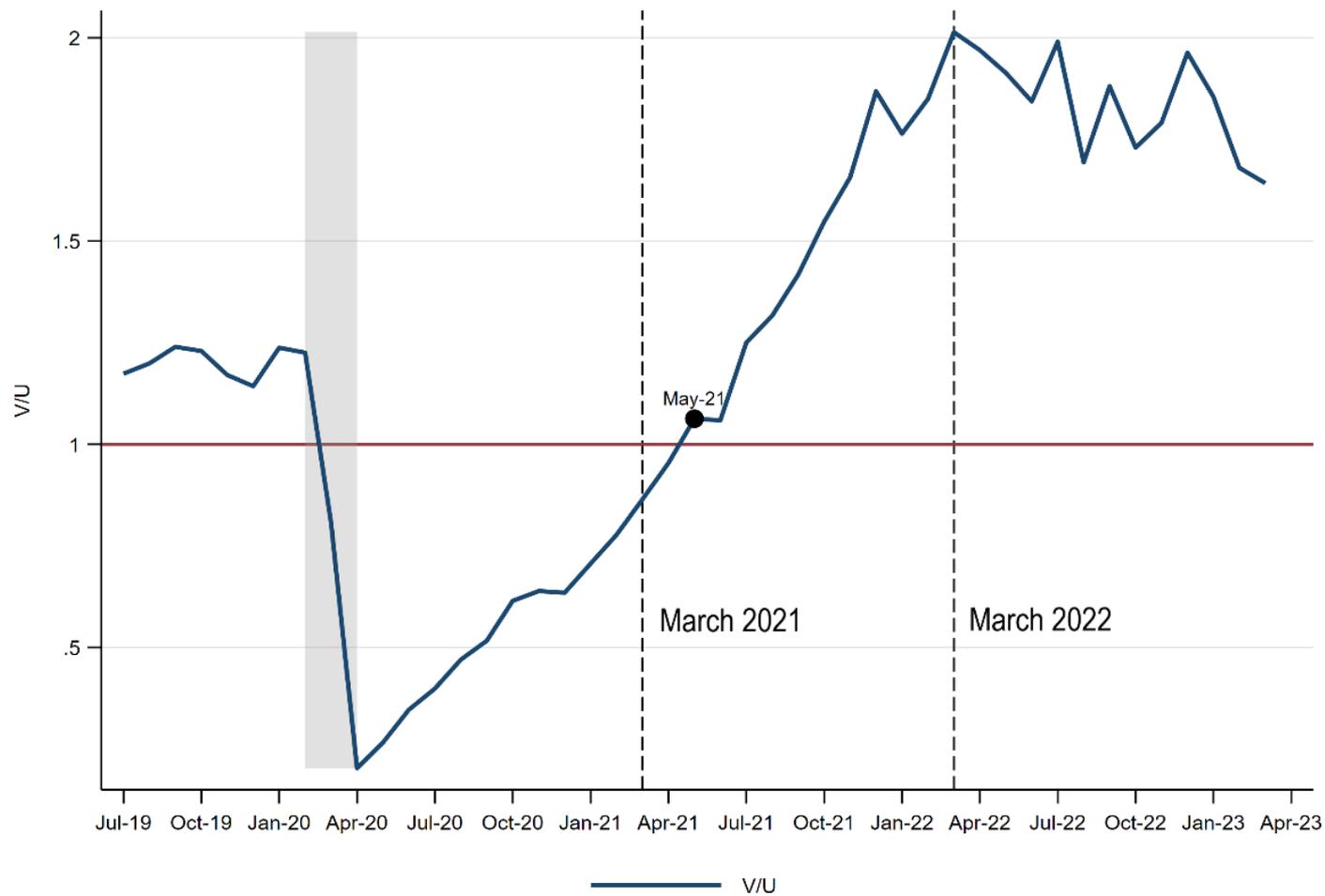
Overestimate of max employment?



Overestimate of max employment?

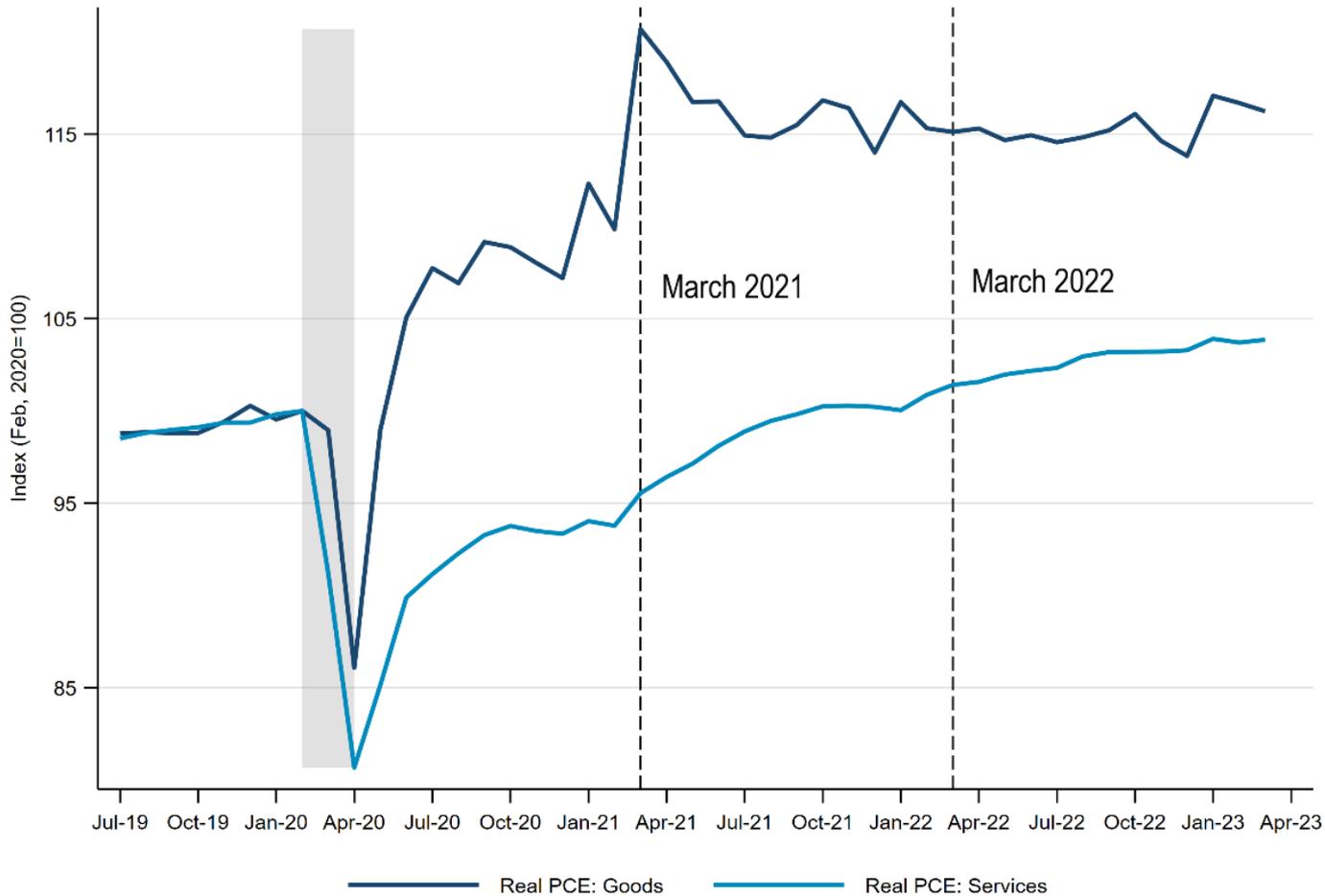


V/U tightest since WWII



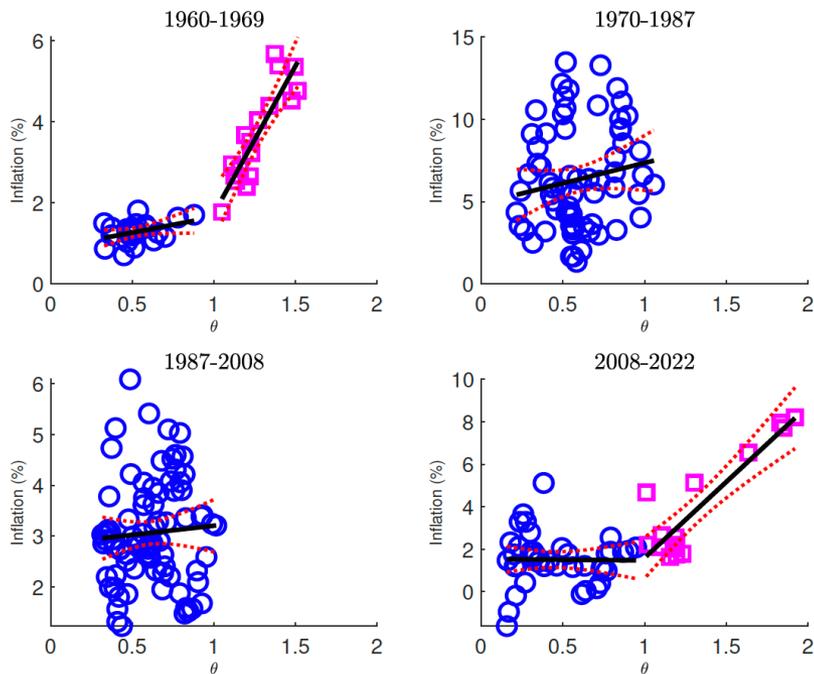
Why conflicting signals?

Large changes in labor market: Example

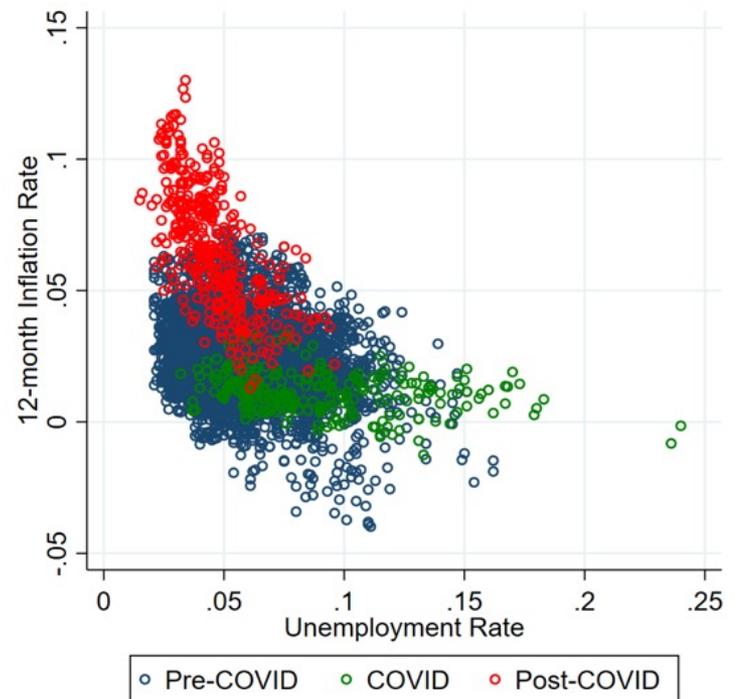


Did this matter?

- Not if there if Phillips Curve is flat. But is it?



Benigno Eggertsson (2023)



Cerrati and Gitti (2023)

Summary: The Inflation Story

i) New Framework →

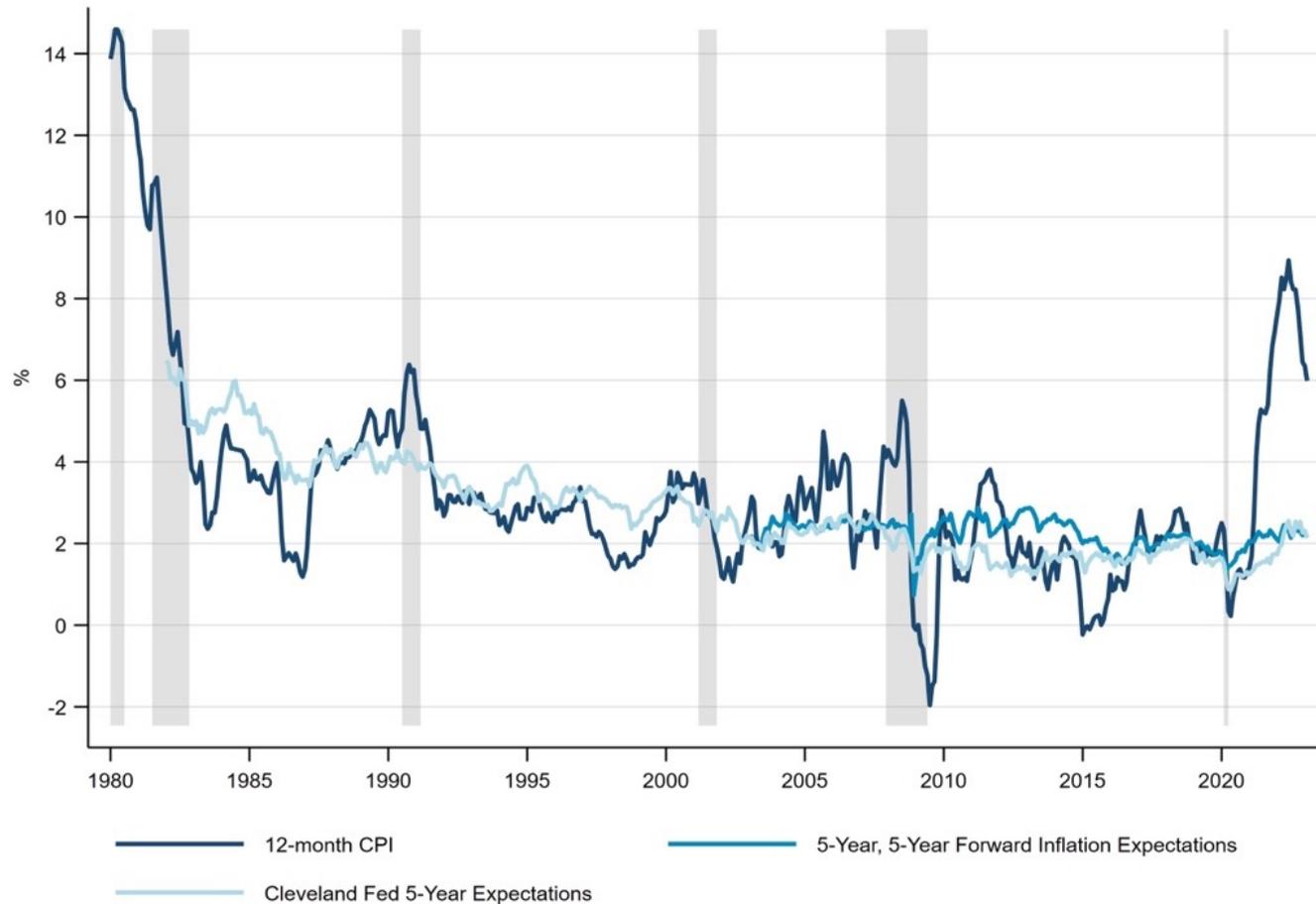
Asymmetric Loss Function, Inflationary Bias,
Extreme Forward Guidance requiring both inflation
and employment goals

ii) Over-estimation of max employment

iii) Non-linearities of Phillips Curve kick in with
highest tightness since WWII → Inflation

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Lessons Learned: Fed so far retained its inflation credibility



Two big themes:

1. The Framework hyper-focused on 2010-19. Several Inflationary Biases
 1. One sided employment objective gives rise to host of complications which incomplete understanding of.
 2. AIT one sided and very vague people did not know how much inflation was “permitted”
2. The forward guidance issued under the new framework amplified the inflationary bias already implicit in the 2020 Policy Framework.
 1. Was well designed to prevent a repeat of 2015
 - i. When employment crosses most reasonable estimates of max
 - ii. Easy to tell how to judge when time to raise as inflation is easier to measure
 2. Much less suitable for an inflation overshoot. Not moving rates become default until overwhelming evidence in favor of max employment.
 3. Required accurate reading of max employment during a time in which it was incredibly challenging.

Lessons for forward guidance

1. Forward guidance is a valuable tool at the ELB.
 - I. Conditions-based forward guidance is far preferable to calendar-based guidance.
 - II. FG conditional, not well designed if inflation moved ahead of employment.
 - III. Lack of clear and transparent definition max employment. In practice just reach pre-pandemic unemployment and prime age employment to labor ratio
 - IV. Conditions will never conform to those envisioned when the forward guidance is set, and forward guidance needs to have flexibility built in, even at the cost of some effectiveness at pinning expectations.

2. Sometimes even some flexibility in guidance won't be enough to allow the Committee to adjust policy to a very different situation than was expected.
 - I. Complex interaction of unusual supply and demand influences and resulting high and persistent inflation accompanying diverse readings on the labor markets that characterized the second half of 2021 and early 2022 meet this criterion.
 - II. In unusual situations policymakers need to adjust their forward guidance as a matter of course and explain clearly why this was necessary. Instead, the same interest rate forward guidance was kept in place from September 2020 into December 2021.

Lessons for Forward Guidance

3. The power of securities purchases comes primarily from the expected quantity of purchases.
 1. The purpose of a well anticipated and gradual wind is to protect market functioning.
 2. There is no contradiction in raising rates while residual purchases are being executed.
 3. Commitment to an extended timeline of warning/taper/liftoff.
 4. Added unnecessary inertia to the tightening process.
 5. Like the criteria for adjusting policy, forward guidance needs to build in flexibility in timing and sequencing to adapt to changing circumstances.

4. Holding rates at zero until full employment is reached is an extreme version of the labor market asymmetry.
 1. The forward guidance of 2019 went much beyond what the framework suggested.
 2. Forward guidance and the policy it implies should be constructed not only to achieve FOMC's goals at a point in time, but with an eye to sustaining prices and employment around those goals after they are reached.

5. 2020-2021 Extraordinary Challenging
 1. Since September 2020 almost no dissent about whether Committee discussions and decisions were being sufficiently challenged by diverse viewpoints.
 2. The specific forward guidance, including its rejection of forecast-based policy, may have contributed to this outcome.
 3. Once the forward guidance was settled as Committee policy, it may have been perceived to lock policy into place until the very explicit criteria had been met.
 4. The Committee should ask itself whether different aspects of its decisions and decision-making are allowing for sufficient scope for effective challenges to the majority view.

Lessons for framework

1. The next framework should be tested against considerably more and different kinds of stress tests and scenarios.

2. Our tentative conclusion is that on balance, the complication created by an asymmetric objective may have created more problems than it solved.
 - I. The inflation penalty may have been small in practice if the Phillips curve is flat.
 - II. Yet, in that case, reversing the overshoot will be costly in terms output and employment.
 - III. Conversely, if the Phillips curve instead is steeper than previously thought once the labor market becomes sufficiently tight, then any delay created by the framework plays a greater role in explaining the surge in inflation.
 - IV. In the next framework review, a central question should be whether the benefits hoped for by evaluating deviations of employment from its maximum level asymmetrically can instead addressed by alternative tools and techniques.

Lessons for framework

3. The Flexible average inflation targeting piece of the Framework—aiming to “achieve inflation moderately above the target for some time”—is a valuable

- I. Leaving “moderately” and “for some time” undefined was essential for flexibility.
- II. The one-sided nature of the averaging (not when inflation had run strong) was not well understood and the lack of definition of “moderately” and “for some time” left observers uncertain about FOMC intentions as inflation rose.
- III. May have made the FOMC more tolerant of high inflation than it should have been.
- IV. Having a better understanding among the policymakers and the public of the terms in use might have disciplined policy and the forward guidance derived from the framework.

4. The asymmetry in the framework puts extra pressure on judging maximum employment.

1. A useful addition to the Framework would be an explicit definition of maximum employment as the highest level consistent over time with stable prices.