



RESEARCH

Unconventional Fiscal Policy in Times of High Inflation

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By Mai Chi Dao, Allan Dizioli, Chris Jackson, Pierre-Olivier Gourinchas, and Daniel Leigh. IMF Research Department.

The views expressed here are those of the authors and do not necessarily represent those of the IMF, its Management and Executive Board, or IMF policy.

Inflation Surge: Euro Area and the United States

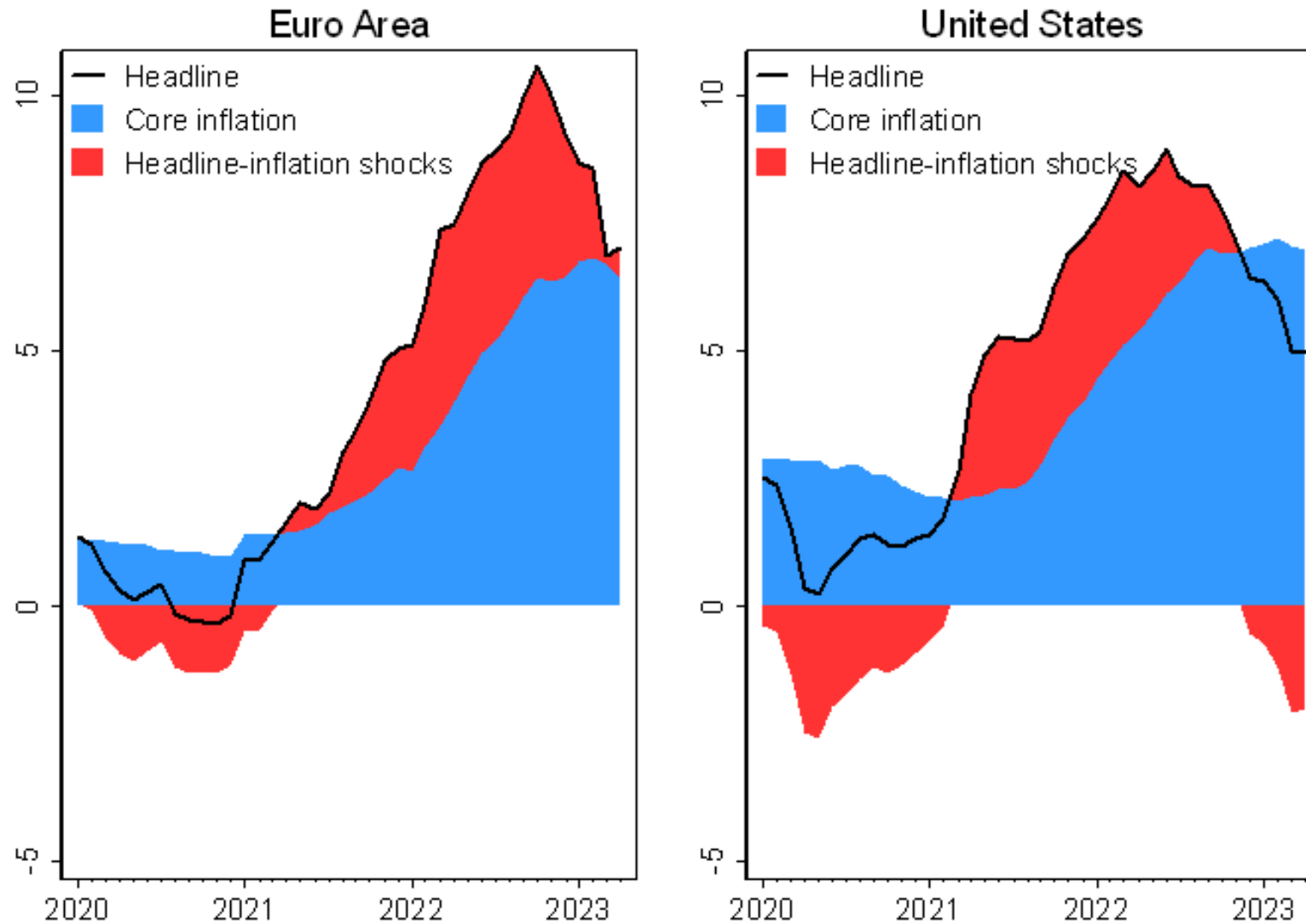
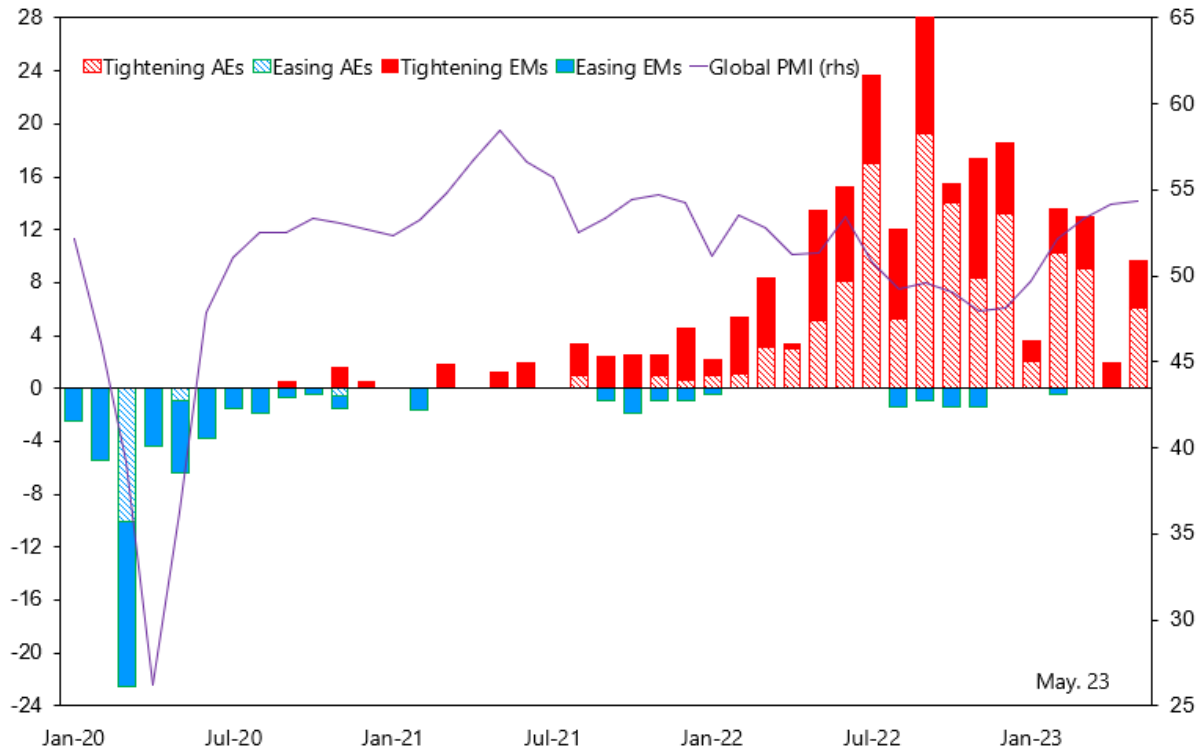


Figure reports 12-month HICP and CPI inflation for euro area and United States, respectively. "Headline-inflation shocks" denotes headline inflation in deviation from core (weighted median) inflation as in Ball, Leigh, and Mishra (2022).

Monetary and Fiscal Policy

Synchronous Monetary Tightening

(number of increases/cuts normalized)



Is there a role for fiscal policy in fighting inflation?

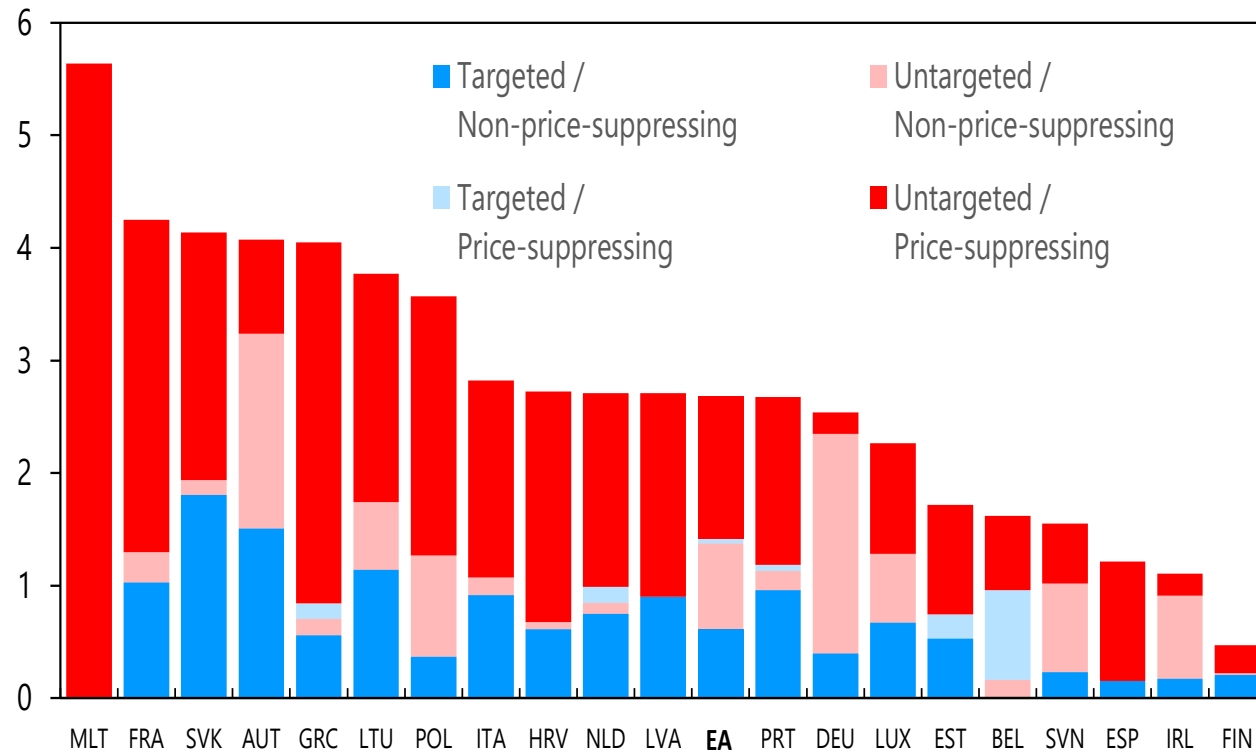
- Textbook case: **Yes!** Fiscal should tighten to cool demand and inflation.
- To support monetary policy, especially if the latter is constrained (as in a currency union).
- To maintain the credibility of the overall disinflation strategy

Sources: Bloomberg Finance L.P., IMF Staff calculations. Policy rate changes are normalized by size of country-specific average hike/cut

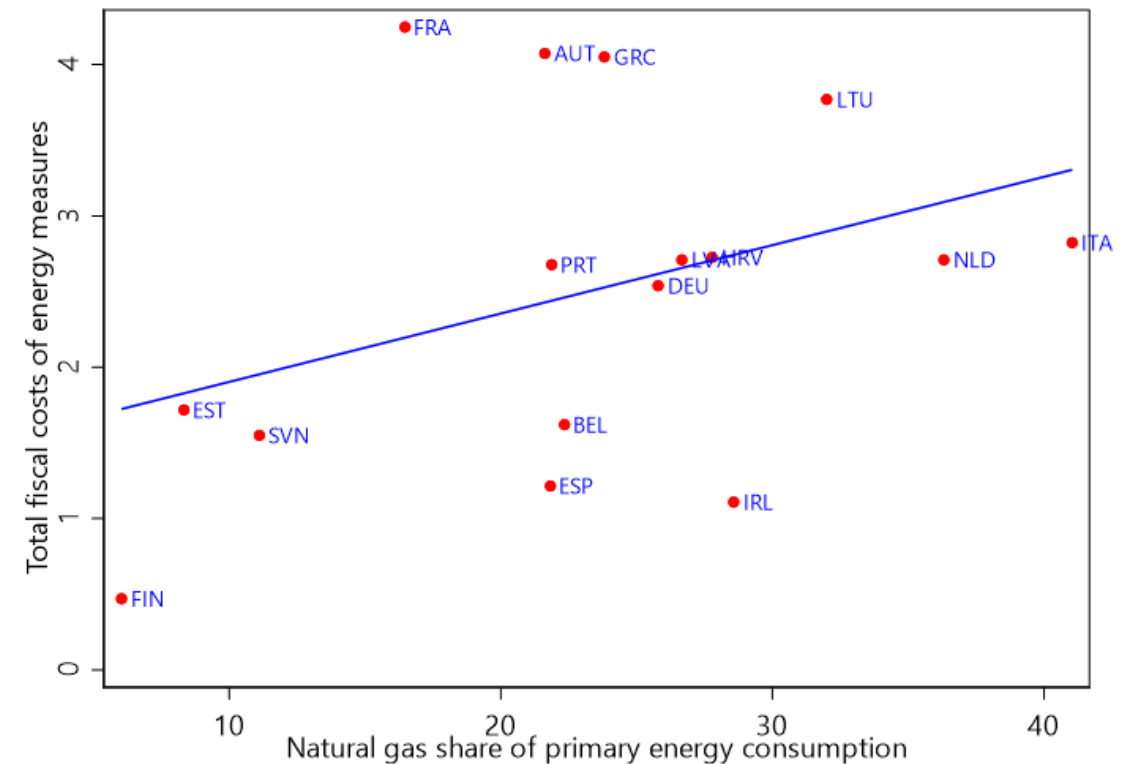
'Unconventional Fiscal Policy' in the Euro Area

Unconventional Fiscal Policy: Support to households and businesses with secondary objective to reduce headline inflation

Fiscal Costs of Energy Measures (Percent of GDP)



Measures vs. Exposure to Energy Price Shock (Percent of GDP; percent)



Sources: Arregui and others (2022), BP Statistical Review (2022).

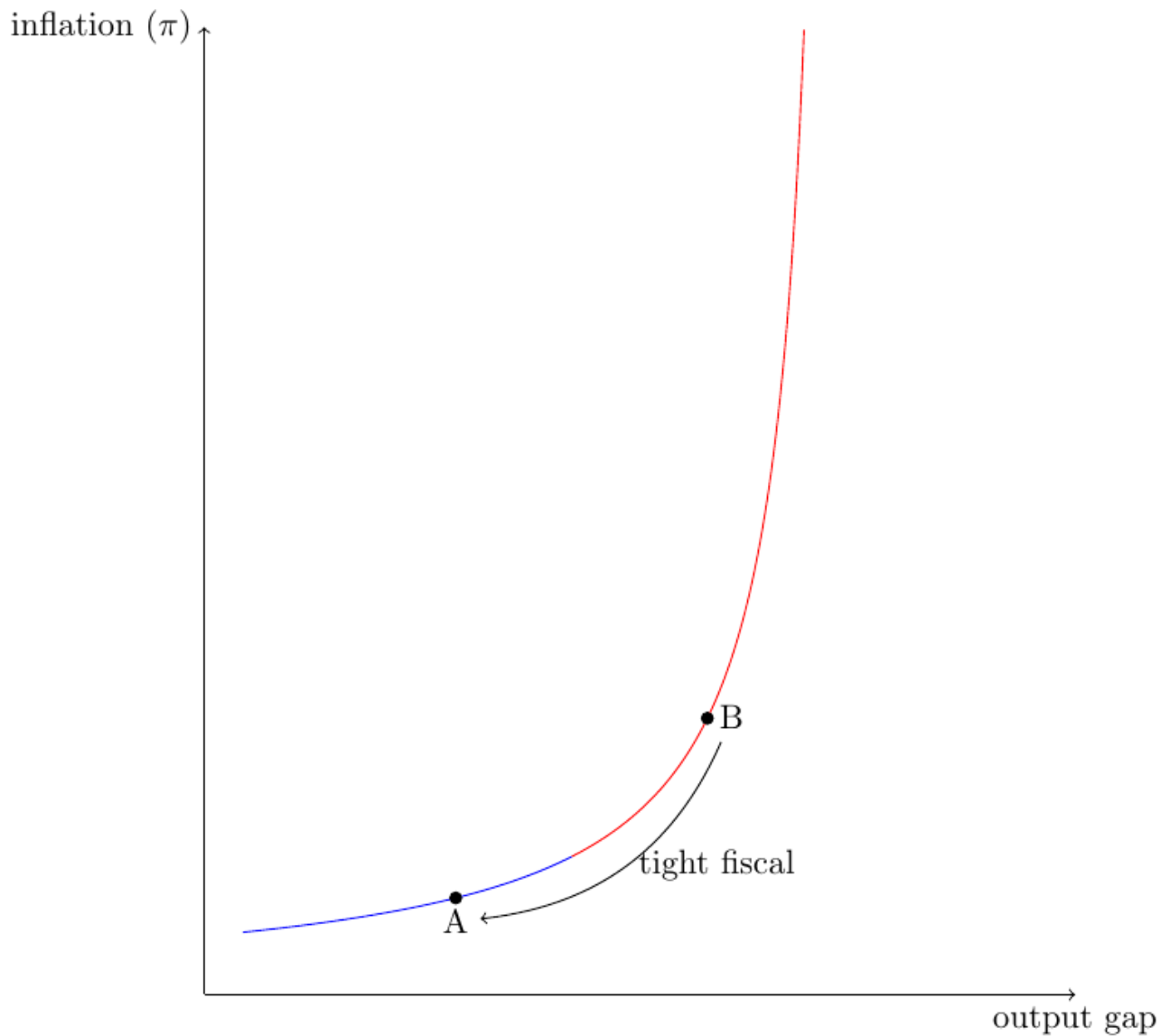
Viewed with Skepticism

Economists' views were mostly skeptical (Booth 2022)

1. Reduced incentives to reduce energy demand, exacerbating the energy crisis.
2. Fiscal measures poorly targeted, with high budgetary cost, delaying much needed fiscal consolidation.
3. If the energy shock is persistent, measures will be unsustainable and only delay the inevitable; if it is transitory, they will only smooth inflation, but cumulated change in the price level will be unchanged.
4. The positive fiscal impulse will stimulate aggregate demand, increasing overall inflation.

Exceptions: "This is a case where a larger fiscal deficit can make the job of monetary policy easier."
(O. Blanchard)

A Simple Conceptual Framework: Nonlinear Phillips Curve



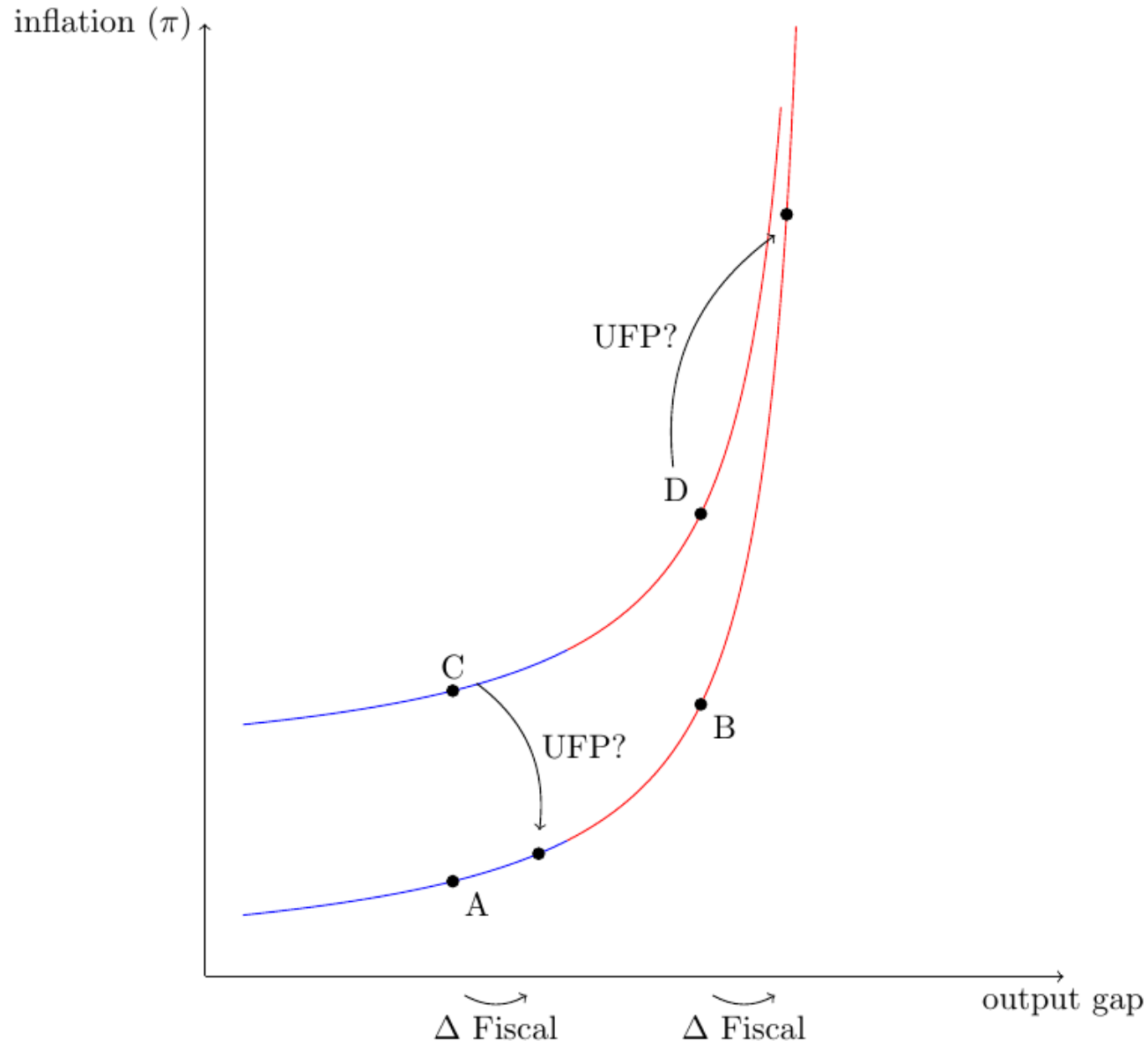
Two key dimensions:

(1) Output gap; and (2) Headline-inflation shock.

(1) Output gap

- Key observation: non-linearity in Phillips Curve
- **Blue:** when economy is not too hot, flat Phillips curve. Limited impact of fiscal policy on inflation.
- **Red:** 'hot economy,' steep Phillips curve. Stronger trade-offs. Tight fiscal policy can help bring inflation down.

A Simple Conceptual Framework: Nonlinear Phillips Curve



(2) Headline-inflation shock (supply shock):

- Shifts Phillips Curve upwards: more inflation given output gap (From **A** to **C** or **B** to **D**)
- UFP neutralizes (part of) the headline-inflation shock and stimulates economy.
 - **C**: Overall decline in inflation
 - **D**: Overall increase in inflation

We ask:

- *Did UFP reduce inflation and, if so, by how much?*
- *What are the relevant lessons for policymakers?*

Summary of Main Findings

1. Inflation in EA driven mostly by headline-inflation shocks, not overheating, unlike US
2. EA unconventional fiscal measures **reduced inflation by 1-2 percentage points in 2022**
 - Helped keep inflation closer to target (less inflation in 2022-23, more in 2024)
 - 1/3 of the reduction is direct effect. Rest is mostly lower pass-through of headline-inflation shocks
 - **Limited effects from stimulating demand in EA.** Instead, moderately helped stabilize inflation expectations.
3. When non-linearities in PC are accounted for, **average inflation rate lower by 0.5pp in 2021-24.**
4. A set of fortunate circumstances:
 - Energy shock proved temporary
 - Less overheating of EA economiesIn other circumstances (more permanent energy shock, or overheated economy), less desirable results.
5. Other factors (not explored here) could also make the policy less effective or undesirable: inelastic energy supply, negative spillovers
6. **Conclusion: not a blanket endorsement.** The nature of the shock, the state of the economy and the design of fiscal instruments matter.

Methodologies

We use both model-based simulation and empirical estimates in a complementary way.

First: use the IMF's Flexible System of Global Models (FSGM) to evaluate the impact of UFP as implemented in the euro area.

- Semi-structural model featuring commodities production, consumption, trade, and with both liquidity-constrained as well as Ricardian households.
- Model contains a range of fiscal policy tools to capture the effects of the range of fiscal measures implemented in the euro area, calibrated to country-specific packages (in particular, transfers, taxes).
- 'linear' Phillips Curve

Second: empirical assessment using empirical Phillips curve framework allowing for non-linearities.

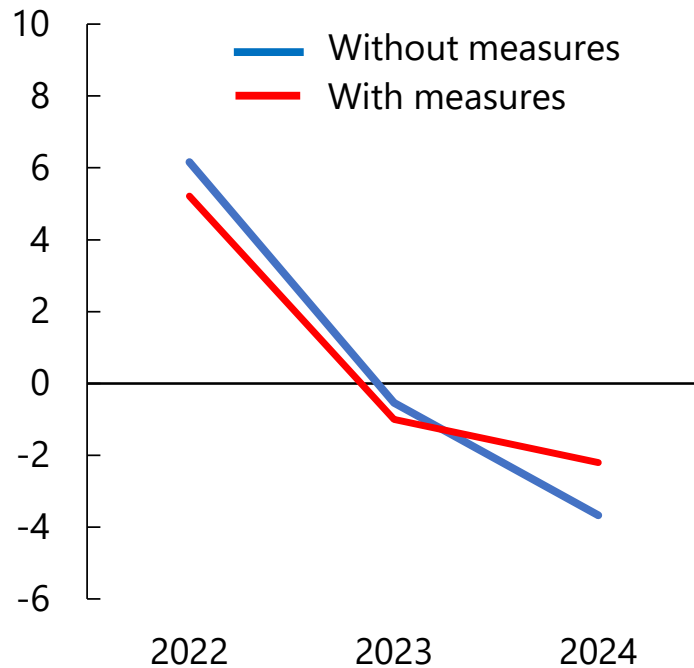
- nonlinearities : between measures of slack and core inflation; between headline shocks to core.
- Allow for endogenous longer-term inflation expectation formation.
- Obtain insights into differences in inflation drivers in US and euro area economies.

FSGM Simulation Results: Effect of UFP vs. Deficit Reduction

UFP stabilizes inflation, output. Deficit cuts: large output costs, small inflation effects.

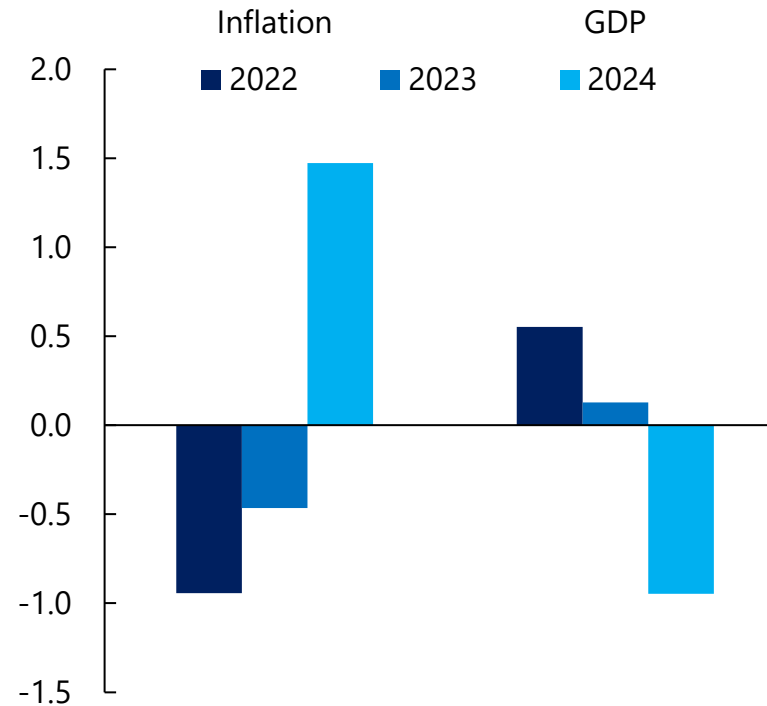
Inflation Paths

(Percentage point deviation from no-shock baseline; euro area)



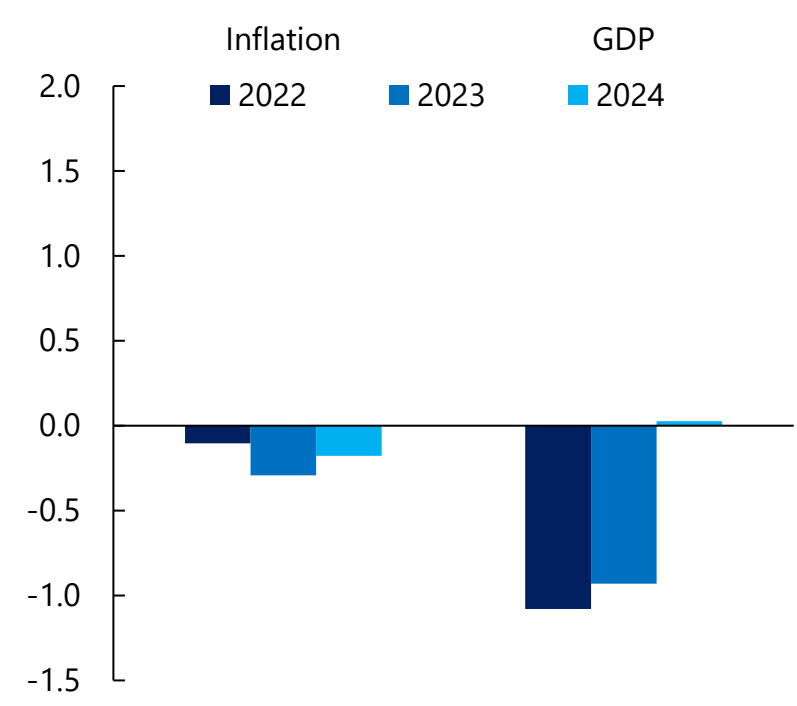
Effect of UFP

(Percentage point deviation from no-measures baseline; euro area)



Effect of Deficit Reduction

(Percentage point deviation from no-measures baseline; euro area)



Budgetary cost of deficit-financed UFP measures: 1.3% of GDP (2022) and 2.0% of GDP (2023). Deficit reduction offsets this cost with government consumption cuts.

Exploring the Role of Nonlinearities

Phillips curve framework for euro area and US inflation. Drivers of core inflation:

Labor market tightness.

- Euro area: unemployment gap.
- US: vacancy/unemployed ratio (V/U). Large Beveridge curve shift during pandemic.
- Focus on effect over time (12-month average).

Passthrough from headline-inflation shocks to core.

- Channels: wages or other costs. Blanchard (2022), di Giovanni and others (2022).
- Focus on passthrough over time (12-month average).

Inflation expectations.

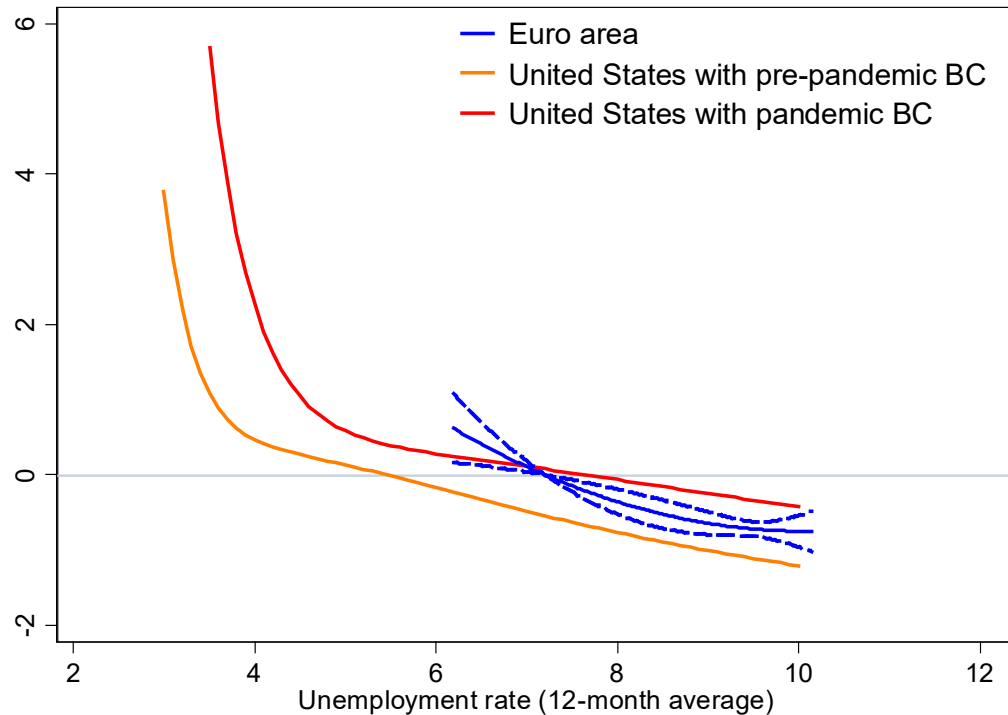
- Longer-term expectations. Hazell and others (2022).
- US: SPF 10-year forecast. Euro area: ECB SPF 5-year.

Evidence of Nonlinearity and Asymmetry

US is on steeper part of the Phillips curve than euro area. Shocks have asymmetric effects.

Inflation Gap vs. Unemployment

(Percentage points)



Inflation Gap vs. Headline-inflation Shock

(Percentage points)

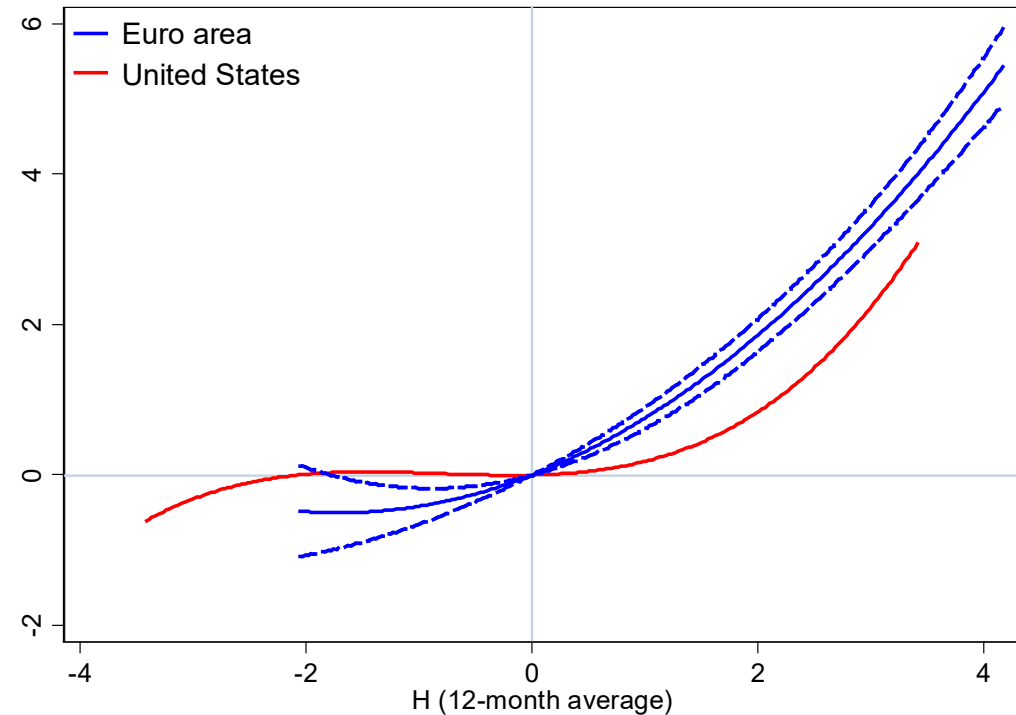


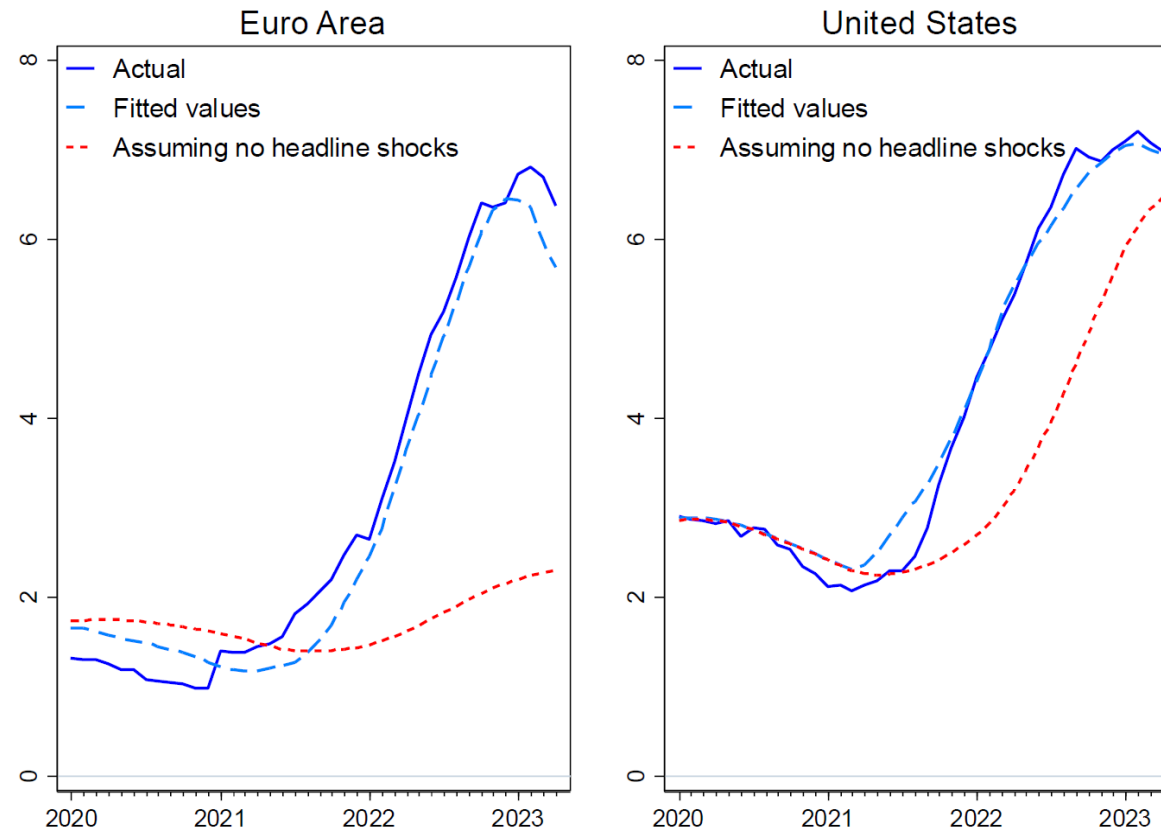
Figure reports estimated inflation gap (monthly annualized median inflation minus longer-term inflation expectations). Bands report 95% confidence intervals.

Predictions for Core Inflation During 2020-2023

Euro area core inflation driven more by passthrough from shocks. US more by overheating.

Predictions for Core Inflation During 2020-2023

(12-month rate; percent)



Core inflation denotes 12-month weighted median inflation.

Effects of UFP while Allowing for Nonlinearities

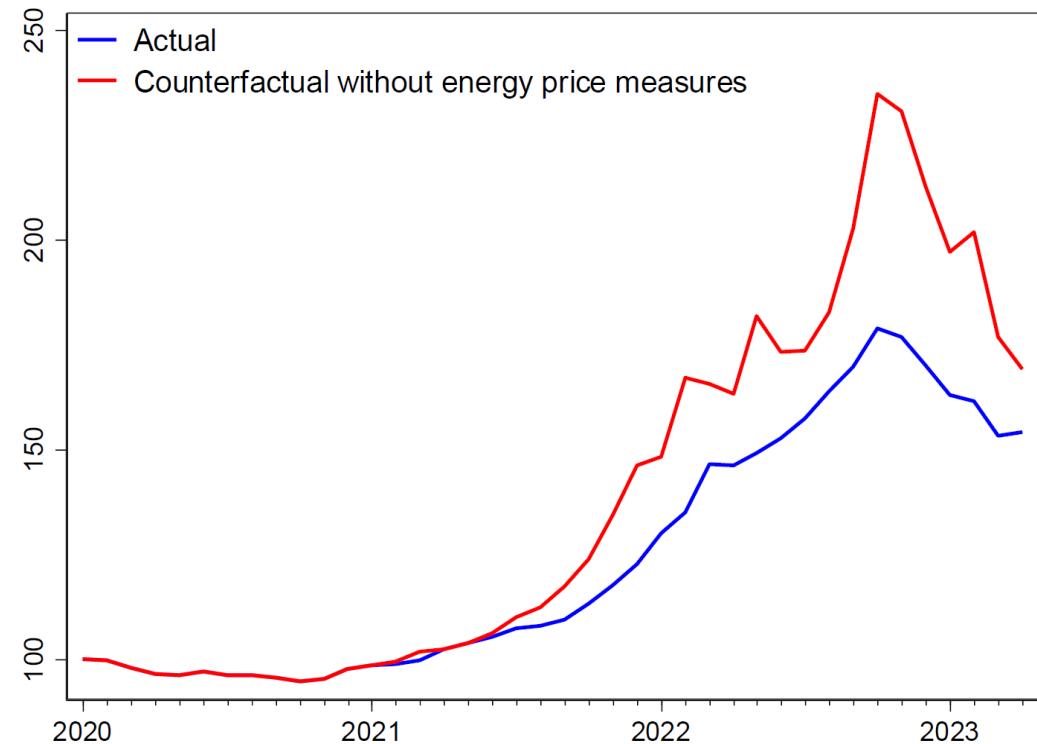
Use framework to compare path of inflation to counterfactual without UFP measures.

Three steps:

1. Construct counterfactual headline shocks. Use gap between estimates of “market” prices from official sources and actual prices.
2. Derive counterfactual path of core using counterfactual shocks and (nonlinear) Phillips curve. Derive impact on core from assumed unemployment path in the absence of the measures. (Multiplier of 1, Okun coefficient of 0.5.)
3. Calculate effect on inflation expectations based on the counterfactual core and a process for evolution expectations that allows for feedback effects from headline (Ball, Leigh, Mishra 2022).

Counterfactual and Actual Energy Prices

(Index; January 2020 = 100)



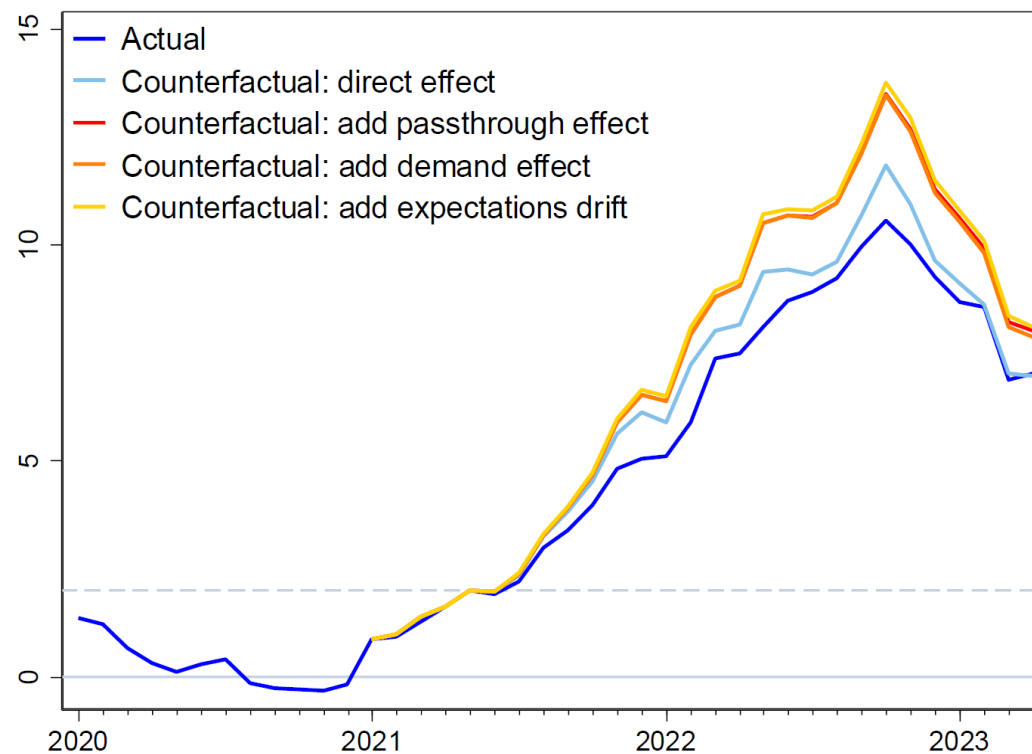
“Actual” indicates HICP for Electricity, Gas and Other Fuels.

Inflation: Counterfactual without Energy Measures

Inflation higher without UFP:

- Headline 2.2pp higher in 2022 (on average).
- About 1/3 of difference is direct effect.
- About 2/3 is from passthrough into core.
- Offsetting demand effect is limited (<0.1pp).
- Expectations drift (0.2pp) higher without UFP.

Headline Inflation: Actual and Counterfactual (Percent)

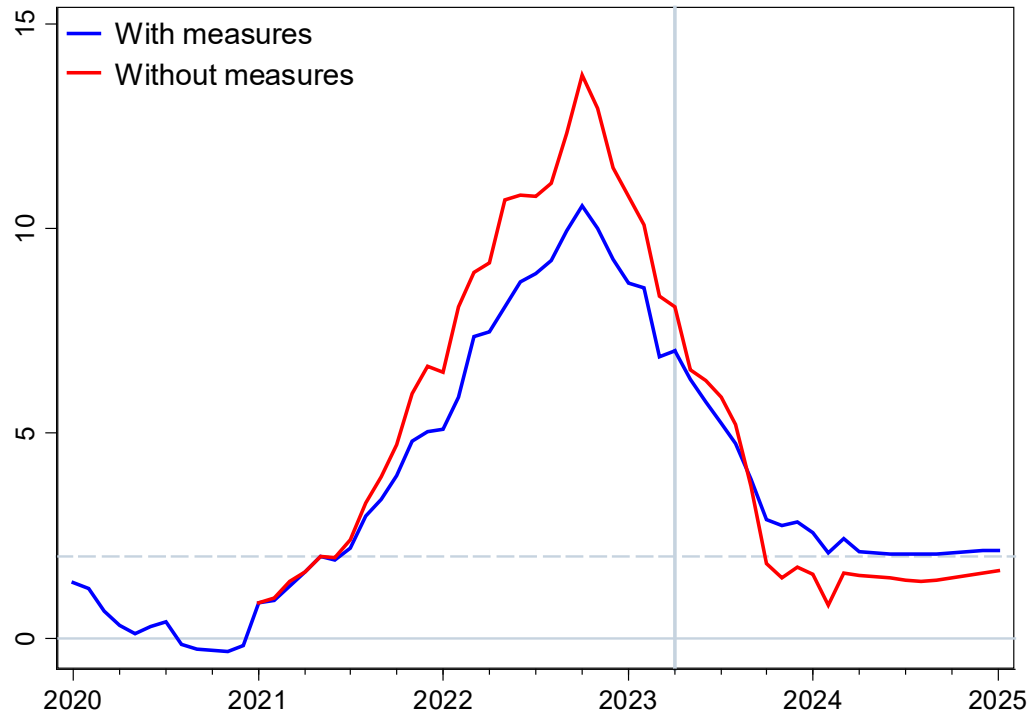


Horizontal dashes indicate 2% inflation target.

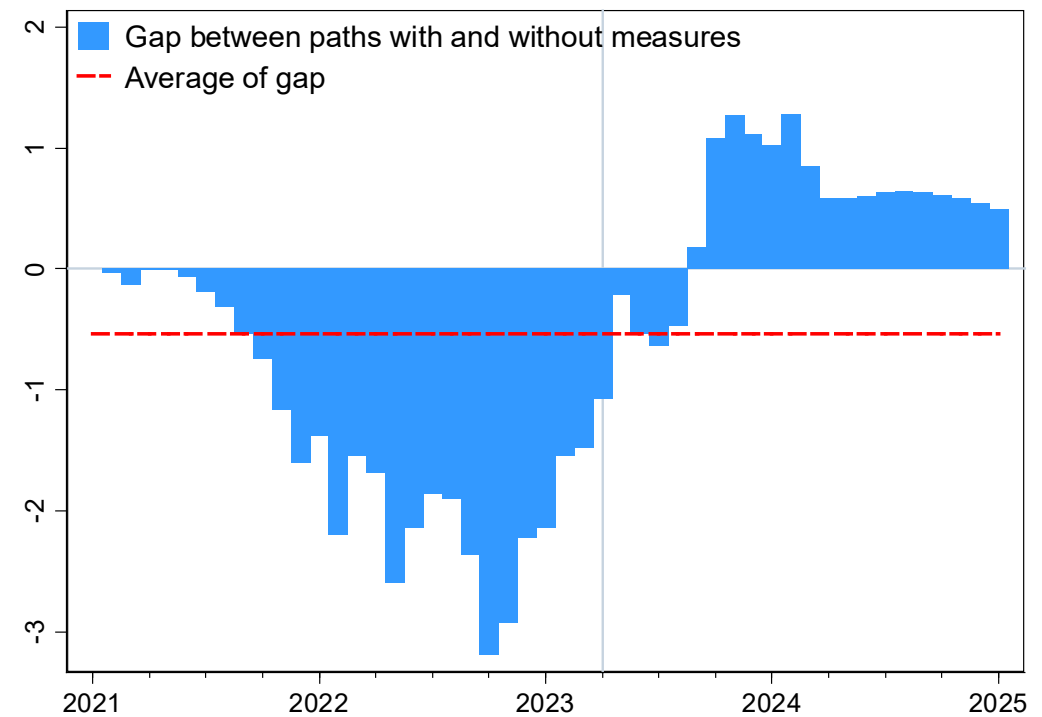
Scenarios for Future Inflation: Luck vs. Skill

With IMF staff forecast of unemployment and lower energy prices, inflation declines.

Headline Inflation (Percent)



Marginal Effect of Energy Measures (Percentage points)

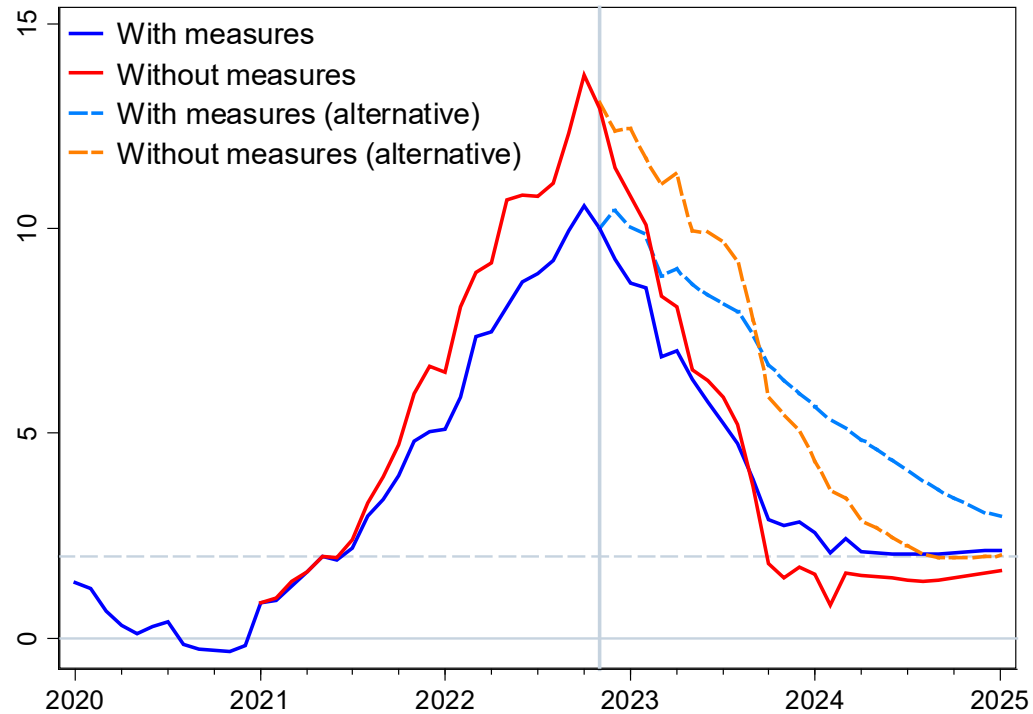


In left panel, horizontal dashes show 2% target for HICP inflation.

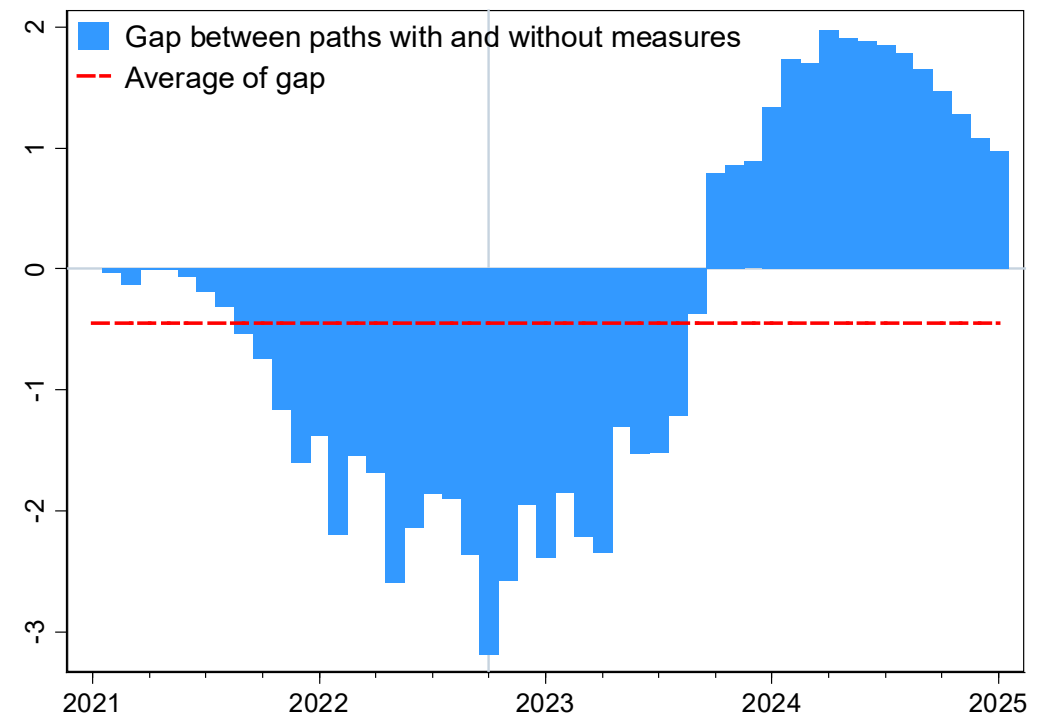
Alternative Scenario: Energy Prices Staying High

If energy prices stay at 2022 peak levels, slower decline in inflation. UFP stabilizes by less.

Headline Inflation (Percent)



Marginal Effect of Energy Measures (Percentage points)



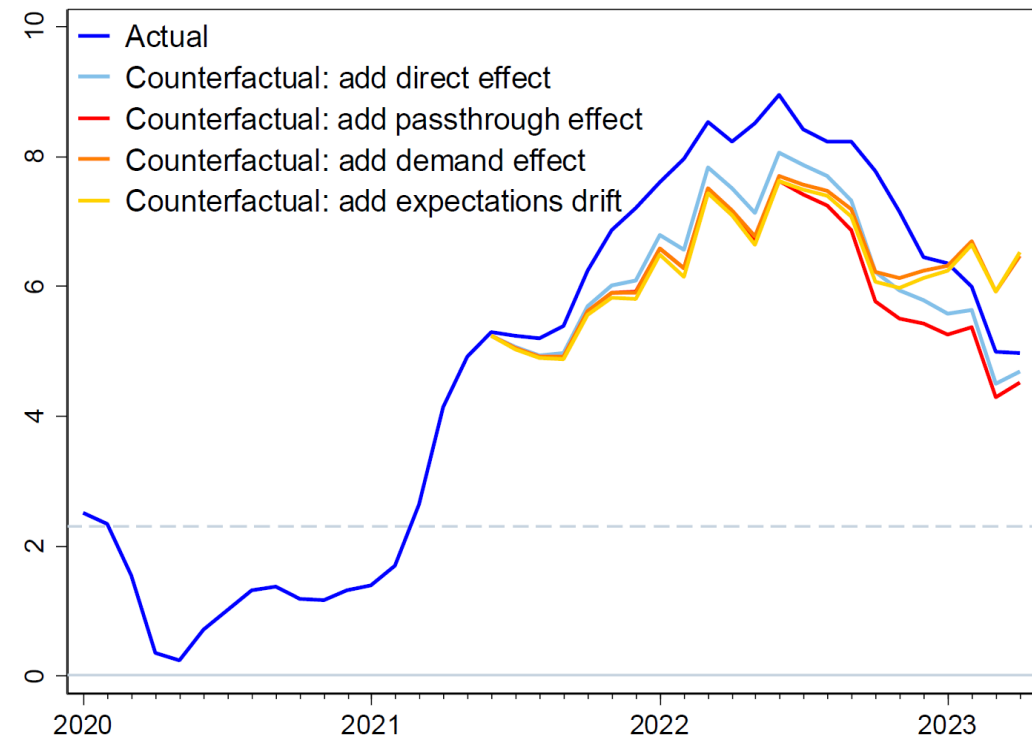
In left panel, horizontal dashes show 2% target for HICP inflation.

UFP in an Overheated Economy: Playing with Fire

Application of euro area policy shocks to US:

- Same counterfactual reduction in headline shocks.
- Same deficit-financed demand boost.
- Initially, inflation lower in 2022 due to headline reduction channel.
- But demand-stimulating channel quickly dominates.
- By April 2023, inflation exceeds the actual level by about 1.6 percentage points.

US Headline Inflation: Actual and Counterfactual with UFP (Percent)



Horizontal dashes show 2.3% target for CPI based on 2% PCE target reported on Federal Reserve Bank of Atlanta Underlying Inflation Dashboard.

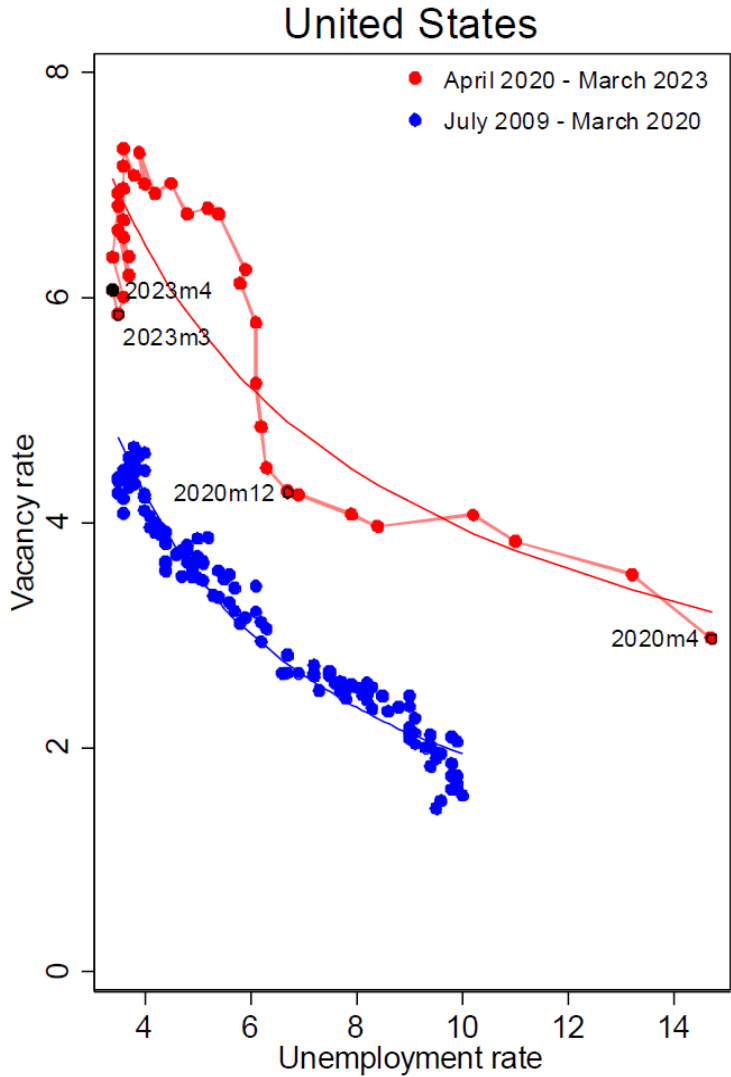
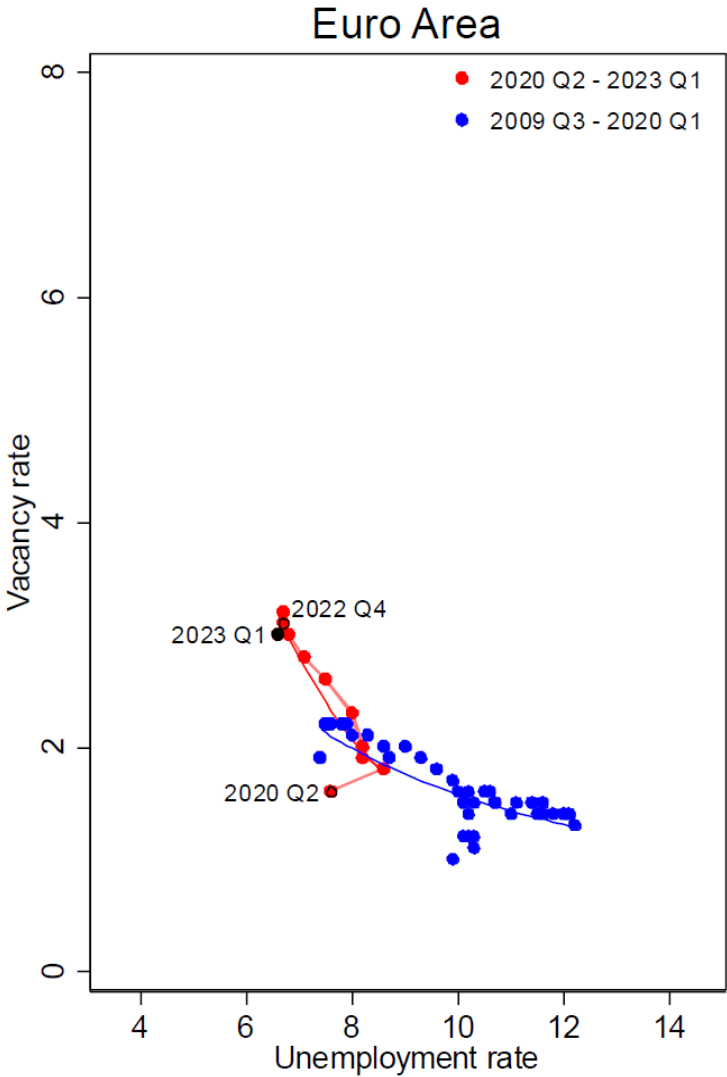
Conclusion

UFP contributed to stabilizing inflation in the euro area, but effects are “state-dependent”

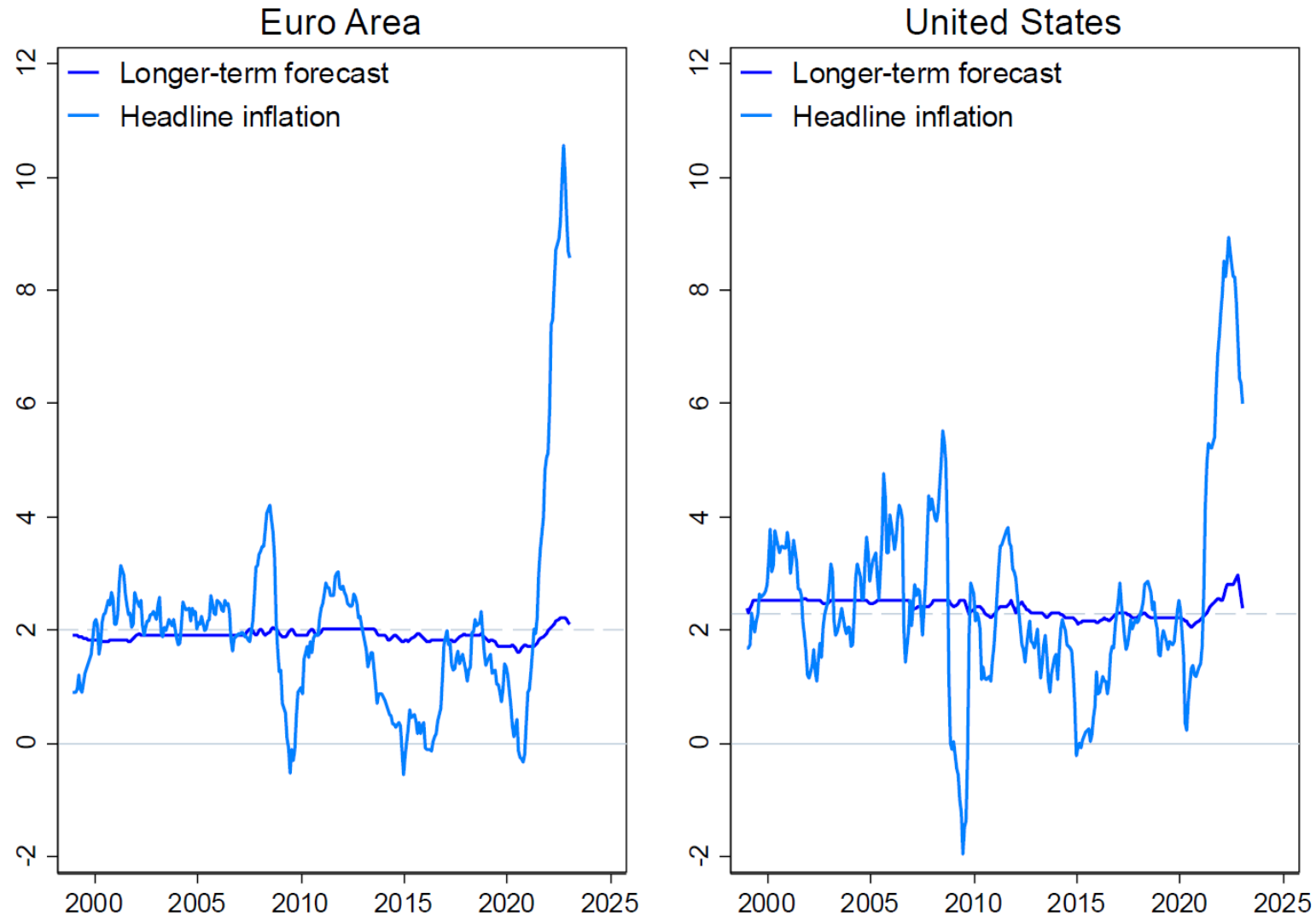
- UFP measures reduced euro area inflation on average by 1-2pp in 2022. Channels: direct effects, pass-through into core, inflation expectation anchoring.
- Comparable inflation reduction through conventional fiscal policy tightening would have required significant fiscal tightening, large output losses.
- UFP effective but luck played a role: (1) energy price shock was temporary; (2) euro area economy was not especially overheated (unlike the US economy). So, use is risky and not necessarily generalizable.
- *More research needed to further understand:* cross-border spillover effects of UFP; role of energy market integration; how to design more targeted, non-price-distorting transfers; amplification through wage and price-setting channels.

Extra Slides

Beveridge Curves: Large Shift in the United States



Longer-term Inflation Expectations



Note: Figure reports ECB SPF five-year expectations and US SPF ten-year expectations.

Euro Area Phillips Curve Estimates

Dependent variable: Median CPI Inflation Gap

| | (1) 1999-2019 | (2) 1999-2023 | (3) 1999-2019 | (4) 1999-2023 |
|---------------|----------------------|----------------------|----------------------|----------------------|
| U gap | -0.316*** (0.031) | -0.300*** (0.062) | -0.490*** (0.101) | -0.520*** (0.159) |
| U gap-squared | | | 0.088** (0.039) | 0.090 (0.068) |
| H | 0.391*** (0.078) | 0.928*** (0.177) | 0.427*** (0.065) | 0.587*** (0.097) |
| H-squared | | | -0.049 (0.056) | 0.172*** (0.029) |
| Observations | 252 | 292 | 252 | 292 |
| Rbar-squared | 0.559 | 0.641 | 0.580 | 0.725 |

Notes: Dependent variable is inflation gap, defined as core inflation minus expected inflation, with core measured by monthly annualized weighted median HICP inflation and expected inflation by ECB Survey of Professional Forecasters (SPF) five-year-ahead forecast of headline inflation. "U gap" denotes difference between unemployment rate and IMF staff estimates of natural rate (12-month average). "H" denotes headline-inflation shock, defined as deviation of headline inflation from core (12-month average). Newey-West standard errors with 12 lags in parentheses. ***, **, and * denote statistical significance at the 1, 5, and 10 percent level, respectively.