

Fiscal/monetary policy mix in times of high inflation

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The views expressed are those of the presenter and do not necessarily reflect those of the ECB.

Motivation

- Discussion on fiscal-monetary policy mix during the Monetary Policy Strategy Review:
 - Focused on the implications of low R^* , low inflation and the ELB;
 - Fiscal and monetary policy work “hand in hand” to bring inflation up to the target;
 - Could be described as an “Active fiscal – passive monetary” policy mix.
- Since then, high inflation has challenged this fiscal/monetary policy mix:
 - Monetary policy stance geared at bringing back inflation to target;
 - But government debt is high and fiscal policy is still needed to deal with the cost-of-living crisis;
 - This risks leading to a conflict between monetary and fiscal policy.
- Changed communication in ECB Monetary Policy Statement:
 - “Fiscal support measures to cushion the impact of higher energy prices should be temporary and targeted at the most vulnerable households and firms to limit the risk of fuelling inflationary pressures, to enhance the efficiency of public spending and to preserve debt sustainability.”

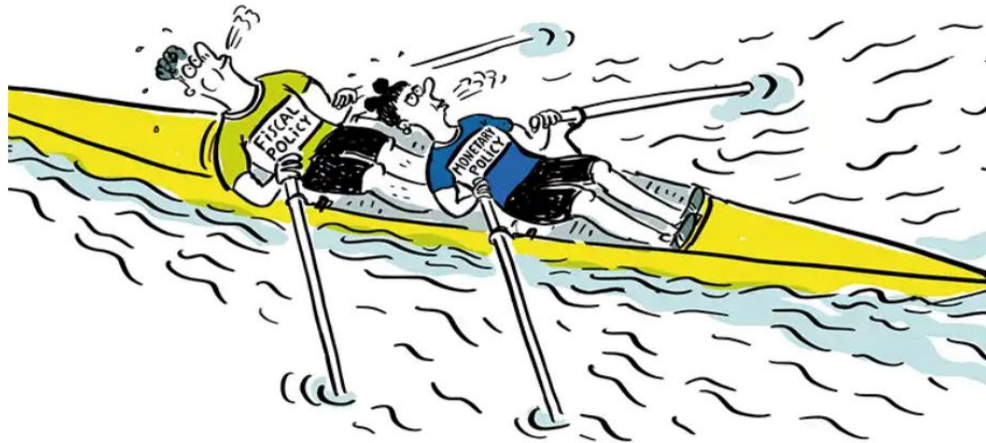
Motivation

- Questions:
 - How much of the current inflation is “fiscal inflation”, i.e. inflation driven by perceived unbacked fiscal expansion?
 - What is the appropriate fiscal/monetary policy response?
- Important from a monetary policy perspective because:
 - Fiscal inflation may mean higher persistence of current inflation;
 - It may also imply that an excessive tightening of monetary policy may actually be counterproductive and lead to stagflation, higher inflation and lower growth;
 - Unless fiscal policy is firmly geared at consolidation and responding to the impact of higher interest rates on government debt accumulation.

Outline

- Review the findings of the Monetary Policy Strategy Review on monetary and fiscal policy interaction at the ELB
- Discuss recent developments in the inflation and associated fiscal and monetary policy outlook;
- Briefly review the fiscal theory of the price level;
- Review measurement of fiscal inflation;

ECB Monetary Policy Strategy Review: Workstream on “Monetary and fiscal policy interaction”



Monetary and fiscal policy are very different, but how they interact with each other matters for the economy. While each is independent from the other, new challenges call for them to work together.

2020/21 Monetary policy strategy review

Main motivation: Pronounced trend decline in the equilibrium real interest rate and effective lower bound reduce space for conventional interest rate policy

Core outcomes:

- Simple symmetric 2% inflation target
- Recognition of need for asymmetric reaction function: especially forceful and persistent measures to avoid negative inflation becoming entrenched
- Confirmation of medium-term orientation
- Mainstreaming of alternative policy measures (FG, AP and (T)LTROs)
- Fiscal and other policies are important for macroeconomic stabilisation, especially in the proximity of the ELB

Monetary – fiscal strategic complementarity at ELB

In low interest rate, low inflation environment

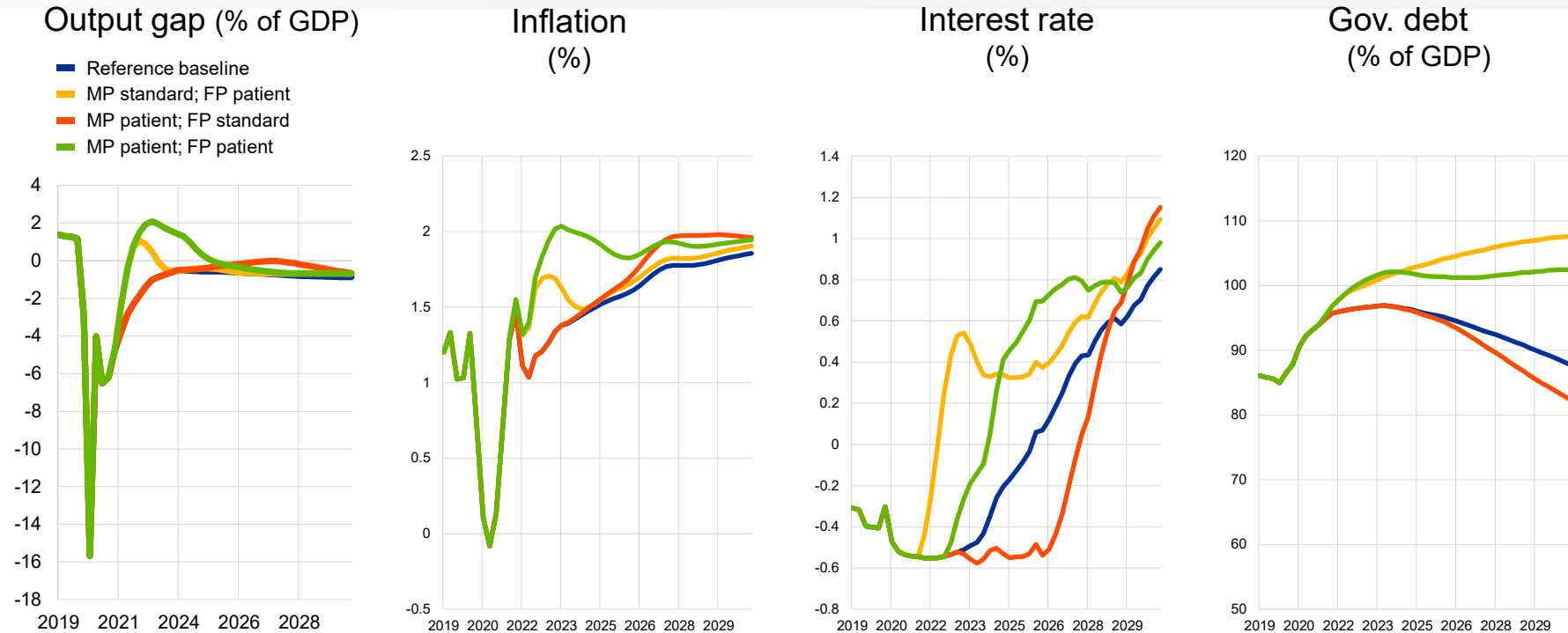
- Fiscal and monetary policy can support each other
- Lower efficacy of monetary policy, but higher fiscal multipliers
- Favourable $(r - g)$ creates more fiscal space
- This “strategic complementarity” is state-dependent
- Caveat in EMU: fiscal sustainability of 19 sovereigns needs to be ensured

Patient monetary and fiscal policy at the ELB

- **Model-based analysis (ECB-BASE)**

- Interaction of different fiscal and monetary policy rules
 - Forward-looking exercise (until 2030)
 - Baseline based on ESCB Dec 2020 macroeconomic projections
 - Euro area simulations; no changes in country-specific risk premia by assumption
- Compare baseline with:
 - Counter-cyclical fiscal policy
 - “Patient” fiscal policy (i.e. expansionary-for-longer) that takes lags of the output gap into account or incorporates nominal developments
 - “Patient” monetary policy (i.e. lower-for-longer) that maintains rates lower than suggested by a standard Taylor rule

Forward-looking model simulations: The merits of patience



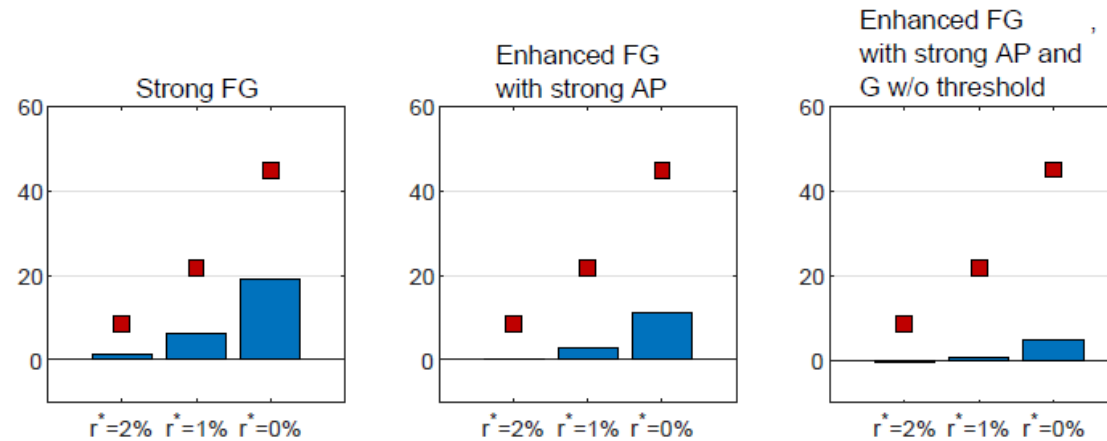
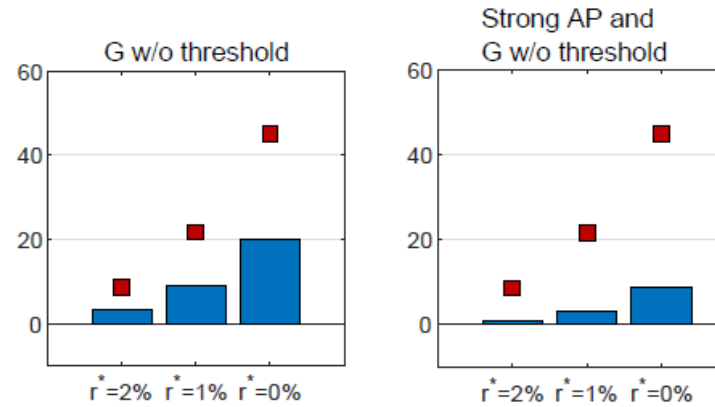
Source: ECB staff calculations using ECB-BASE. The output gap is based on the potential GDP of the European Commission. The reference baseline is associated with the ESCB Dec 2020 projection exercise.

- Compared to **patient fiscal policy with monetary policy reacting as usual** or **patient monetary policy with pre-pandemic fiscal policy**, the combination of **patient fiscal and monetary policy** brings inflation to the target fastest and recovers more of the output pandemic losses
- By working in tandem, both policies reinforce each other and create space for each other

Efficacy of state-dependent policies: Average RMSDs

	ELB incidence		Inflation		Output gap	
	Frequency	Duration	Mean	Std	Mean	Std
No state-dependent policies:						
ELB imposed						
$r^* = 2\%$	10.29	7.02	1.69	2.84	-1.24	5.91
$r^* = 1\%$	16.49	8.02	1.47	3.35	-2.50	6.45
$r^* = 0\%$	24.00	9.56	1.14	4.09	-4.56	7.30
ELB not imposed						
$r^* = 2\%$	—	—	1.90	2.40	0.00	5.77
$r^* = 1\%$	—	—	1.90	2.47	0.00	5.99
$r^* = 0\%$	—	—	1.90	2.54	0.00	6.25

Note: The reported statistics are computed from the model's steady-state distributions obtained for alternative values of its steady-state short-term real interest rate $r^* = 400 \cdot \log(\bar{R}^r)$, expressed in annualised percentage terms.



Note: This slide depicts the average root mean-squared deviations (RMSDs) of the NAWM's steady-state distributions for inflation and the output gap for alternative values of its steady-state short-term real interest rate $r^* = 400 \cdot \log(\bar{R}^r)$. The blue bars and the red squares represent, respectively, the RMSDs with and without state-dependent policies, relative to the RMSDs of the benchmark case without ELB.

“Effects of state-dependent forward guidance, large-scale asset purchases and fiscal stimulus in a low-interest-rate environment”, Coenen-Montes-Smets (2021)

“Countercyclical fiscal rules and the ZLB”

Hauptmeier, Kamps and Radke (2022)

TABLE 2: Evaluation of Simple Policy Rules

Policy Rules	Policy Parameter				Policy Evaluation		
	ϕ_{Π}	φ_b	φ_y	φ_{Π}	λ_u	$\mathbb{P}(R_t = 1)$	$\mathbb{E}(\pi_t^{\text{ann}})$
Baseline SR	1.5	-0.03	0.0	0.0	0.439	10.0	1.66
Standard OSR	3.0	-0.01	0.0	0.0	0.102	8.58	1.93
Baseline MP & Optimal SFR	1.5	-0.05	0.0	-1.9	0.230	0.72	1.95
OSR	3.0	-0.15	0.0	-1.7	0.077	2.60	1.99

Notes. For each parameterisation of the policy rules, we simulated the model economy for $T = 300,000$ periods. Both the unconditional welfare costs, λ_u , and the unconditional ZLB probability, $\mathbb{P}(R_t = 1)$ are presented in percentage terms. $\mathbb{E}(\pi_t^{\text{ann}})$ denotes the ergodic mean of the annualised net inflation rate.

“Escaping the Great Recession”, Bianchi and Melosi (2017)

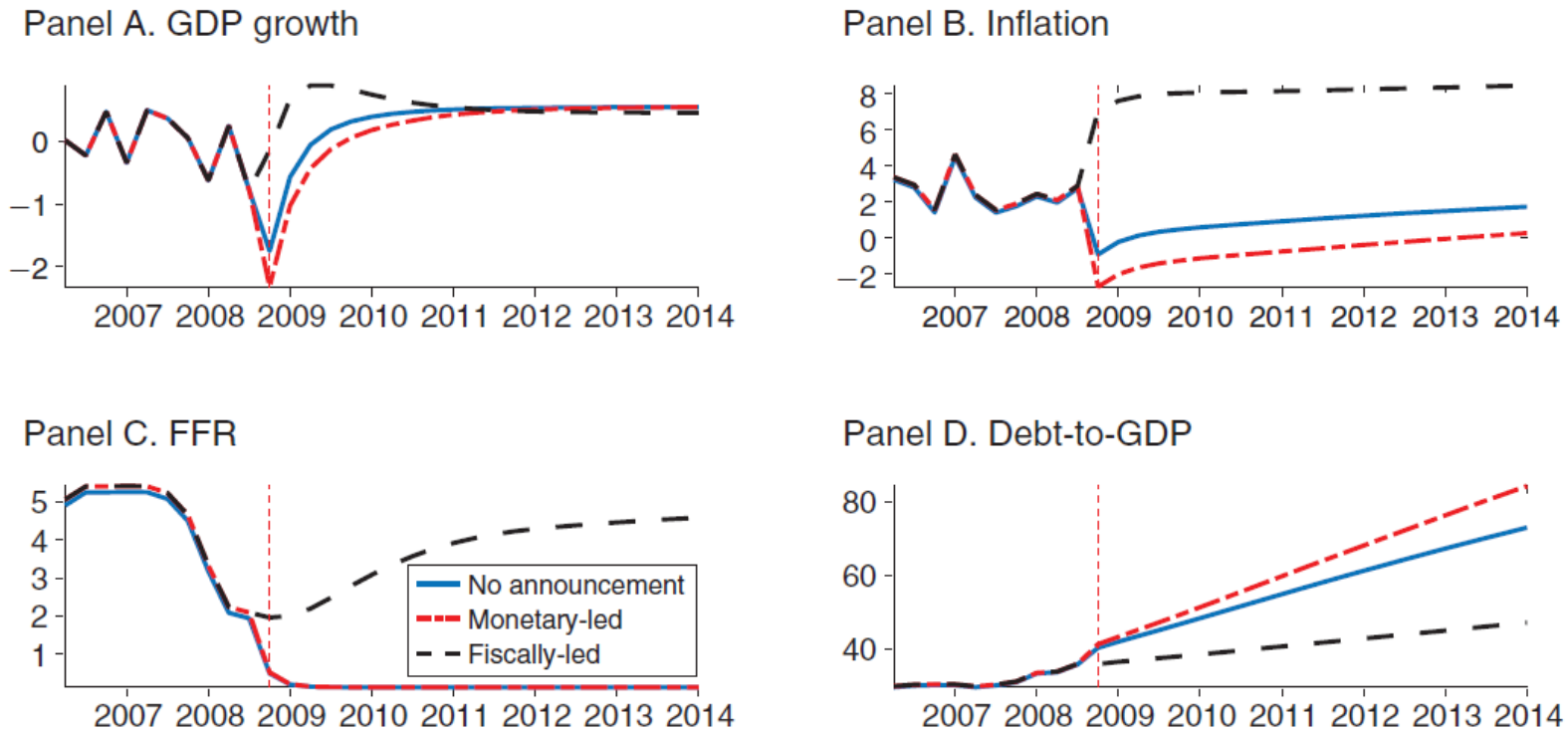


FIGURE 11. EFFECTS OF POLICY ANNOUNCEMENTS FOLLOWING THE DISCRETE NEGATIVE PREFERENCE SHOCK

Notes: Three cases are considered. The first case corresponds to the benchmark model with no announcement; in the second case, policymakers announce a return to the monetary-led regime; in the third case, a switch to the fiscally-led regime is announced.

“Seemingly Irresponsible but Welfare Improving Fiscal Policy at the Lower Bound”, Billi and Walsh (2022)

- Argue that an AF/PM regime is welfare superior to an PF/AM regime when the ZLB is frequently binding in the latter.
- The fiscal rules involve apparently irresponsible fiscal actions, raising spending or cutting taxes as debt levels rise. Such actions generate expectations of the higher inflation necessary to ensure the government's real debt level remains stationary.
- Higher expected inflation helps offset a negative demand shock by reducing the real interest rate. At the ZLB, monetary policy is limited in its ability to generate higher expected inflation. In contrast, the fiscal authority can always act because its instruments are not constrained by the ZLB.

“Seemingly Irresponsible but Welfare Improving Fiscal Policy at the Lower Bound”, Billi and Walsh (2022)

Table 3: Welfare loss under regimes M and F.

Scenario	$\mathbb{L}(\%)$ no ZLB				$\mathbb{L}(\%)$ with ZLB				ZLB freq. (%)
	Tot.	π_t	\tilde{y}_t	\hat{g}_t	Tot.	π_t	\tilde{y}_t	\hat{g}_t	
1. Regime M	0.31	0.30	0.01	0.00	0.99	0.92	0.07	0.00	24.9
2. No tax or G	1.41	1.31	0.10	0.00	1.22	1.12	0.10	0.00	15.3
3. Tax	0.96	0.89	0.06	0.00	0.79	0.73	0.06	0.00	11.8
4. G	0.83	0.77	0.06	0.00	0.70	0.64	0.06	0.00	10.5
5. G balanced	1.04	0.95	0.09	0.00	0.93	0.84	0.09	0.00	12.8
6. G high b	0.62	0.56	0.06	0.01	0.55	0.48	0.06	0.01	8.0

Notes: \mathbb{L} is the permanent consumption loss from fluctuations. The total loss may differ from the sum of its components due to rounding. Scenario 1 is regime M, all other are regime F.

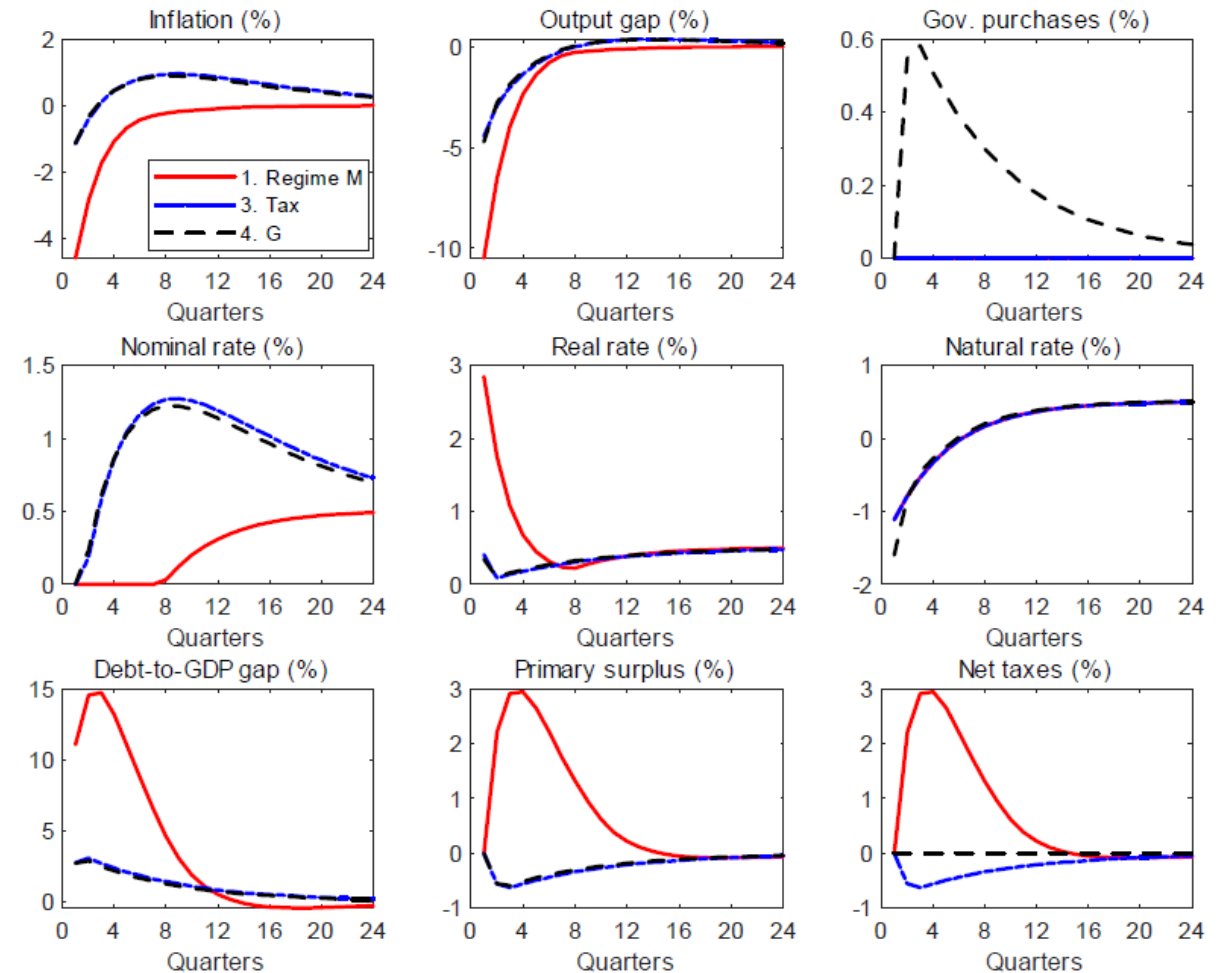
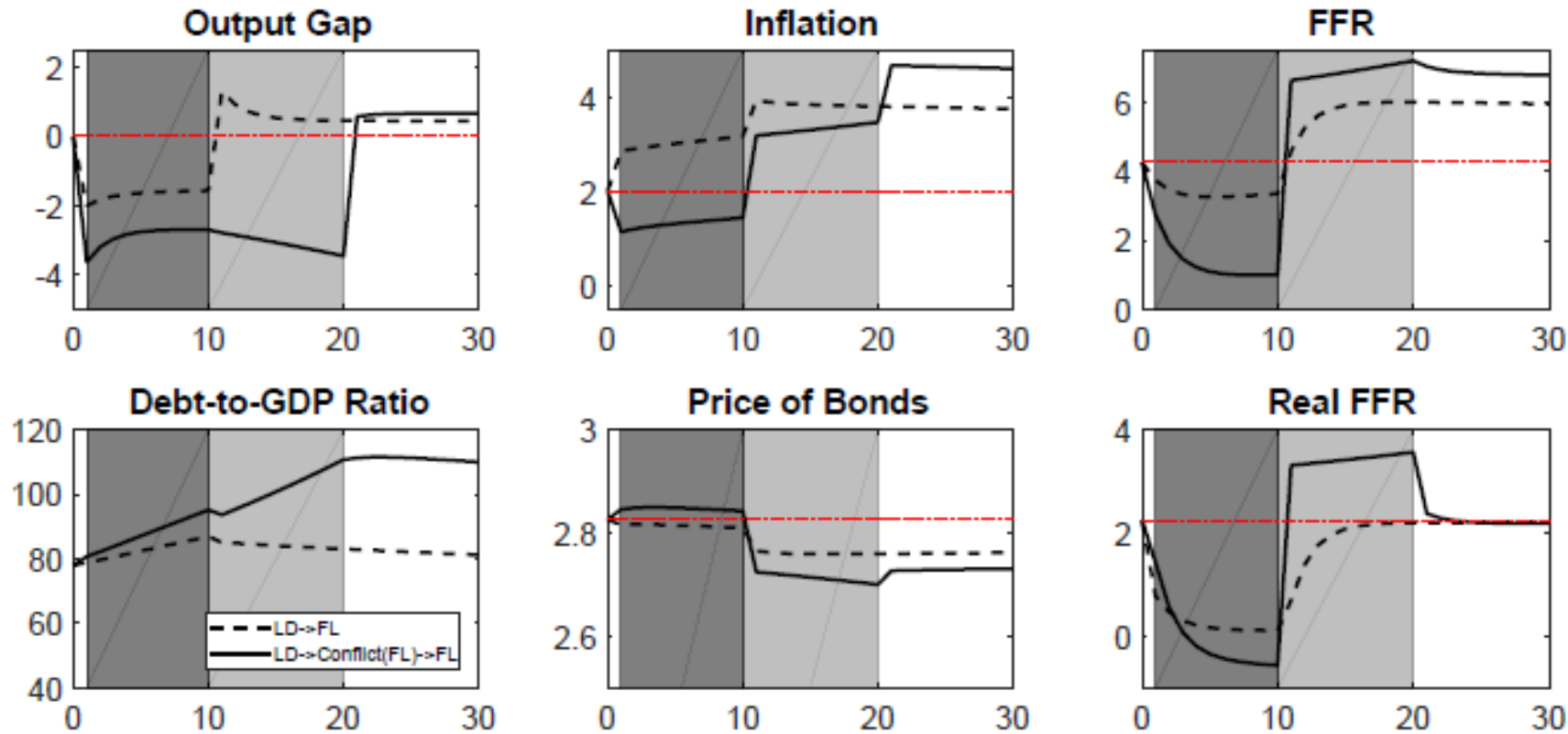


Figure 3: Dynamic effects of a tax cut or G hike with ZLB. Responses to $-3sd$ demand shock.

“The Dire Effects of the Lack of Monetary and Fiscal Coordination”, Bianchi and Melosi (2019)

- Describe the consequences of a scenario in which the private sector expects that policymakers will follow non-coordinated policies. Specifically, the fiscal authority keeps postponing indefinitely the necessary fiscal adjustments, while the monetary authority insists that inflation stability will be preserved, remaining credibly committed to raise interest rates to combat inflation. This policy mix is not coordinated, reflecting a disagreement between the two authorities on whether inflation should or should not be used to stabilize debt.
- The key lesson: If agents expect that the central bank has lost fiscal backing permanently, hawkish monetary policy backfires. Hawkish monetary policy not only fails to lower inflation during the conflict period, but also ends up delivering higher inflation in the post-conflict periods because it generates an increase in the stock of debt that needs to be stabilized by inflation.
- Therefore, when agents expect a conflict between policymakers, the economy goes through a vicious spiral of higher debt, higher inflation, higher interest rate, and lower real activity.

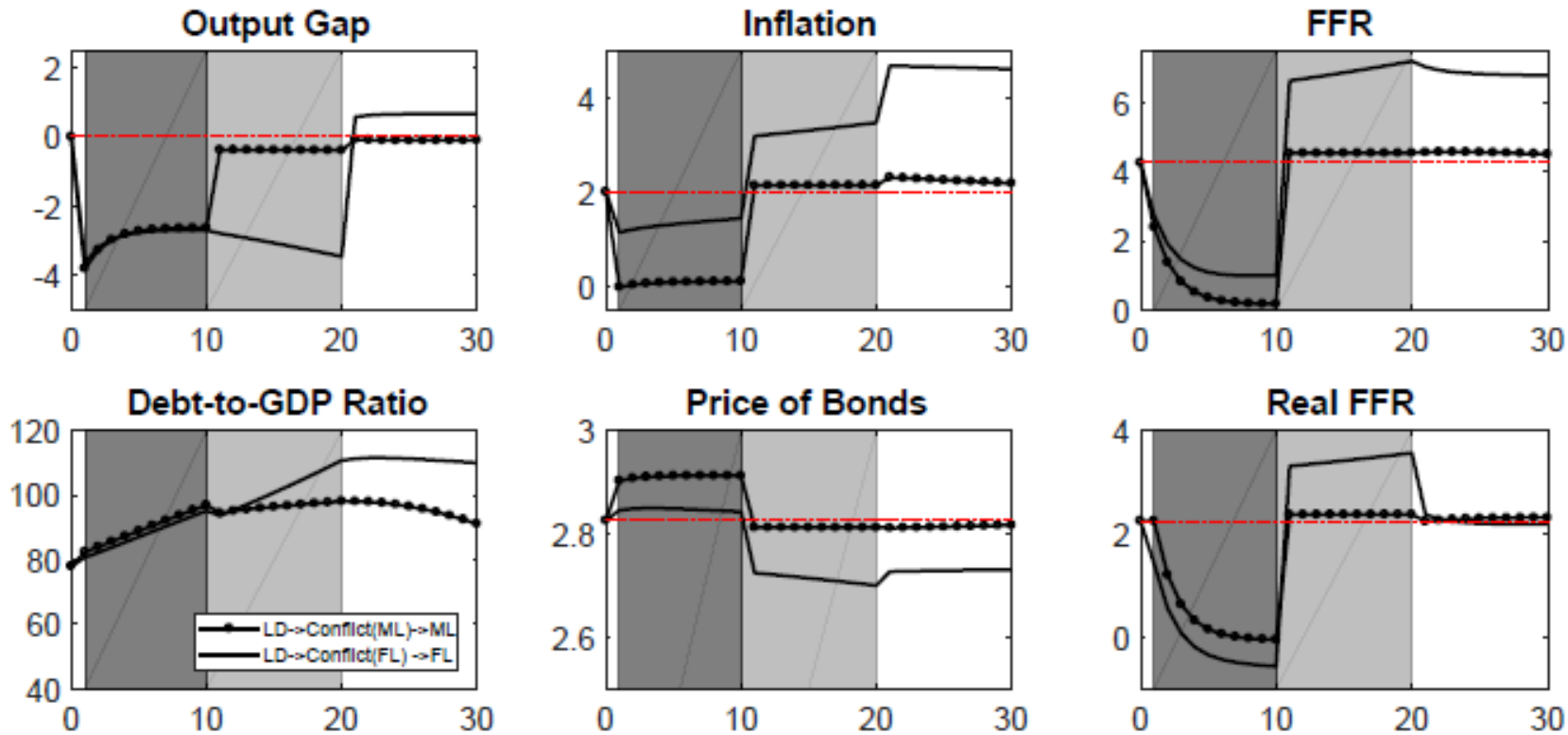
“The Dire Effects of the Lack of Monetary and Fiscal Coordination”, Bianchi and Melosi (2019)



- Agents expect a conflict between the two authorities following the end of the low demand shock period (the light gray area).
- The solid line captures the case in which agents expect that the fiscal authority will win the conflict (FD regime).
- The dotted line captures the case in which there is agreement on the FD regime.

Fiscal dominated regime (with and without MP conflict)

“The Dire Effects of the Lack of Monetary and Fiscal Coordination”, Bianchi and Melosi (2019)



- The dashed line captures the macroeconomic dynamics when agents expect the monetary policymakers to eventually dominate.
- The solid line captures the case in which agents expect that the fiscal authority will win the conflict (FD regime).

RTRS – UPDATE - Euro zone to coordinate fiscal, monetary policy to fight inflation

09-Sep-2022 02:51:20 PM By Jan Strupczewski and Jason Hovet

PRAGUE, Sept 9 (Reuters) - Euro zone finance ministers agreed on Friday to act together to protect households and companies from soaring energy prices, coordinating their support policies with the European Central Bank to avoid adding to inflationary pressures.

RTRS - BoE's Haskel sees tension with government fiscal policy

22-Sep-2022 08:56:01 PM

LONDON, Sept 22 (Reuters) - Bank of England (BoE) policymaker Jonathan Haskel said the central bank was in a difficult position as the government's expansionary fiscal policy appeared to place it at odds with the BoE's efforts to cool inflation.

Opinion

The inflation risk is real



By [Lawrence H. Summers](#)

Contributing columnist

May 24, 2021 at 2:09 p.m. EDT

ECONOMY

New concern for Biden: Could Larry Summers be right about inflation?

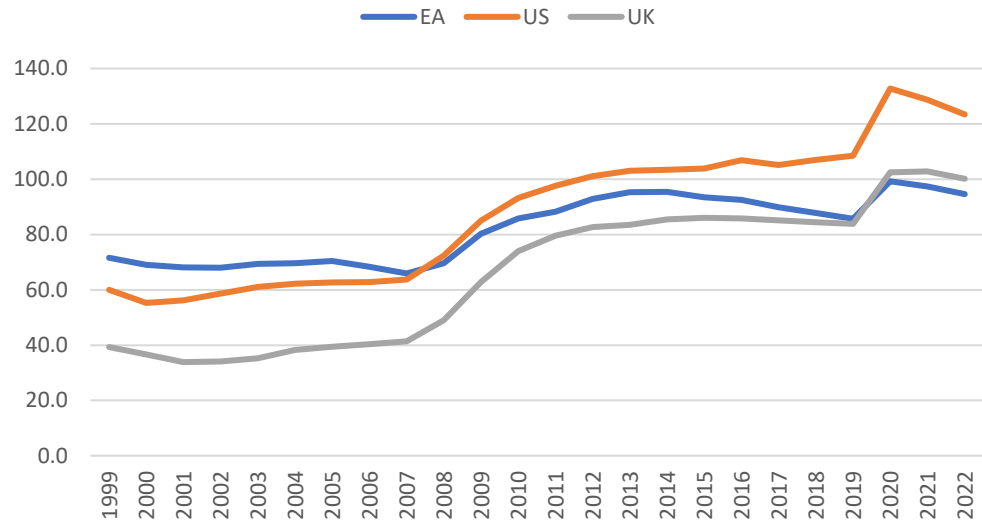
Summers now says he's more concerned than he was when he first issued his warnings.

In defense of concerns over the \$1.9 trillion relief plan

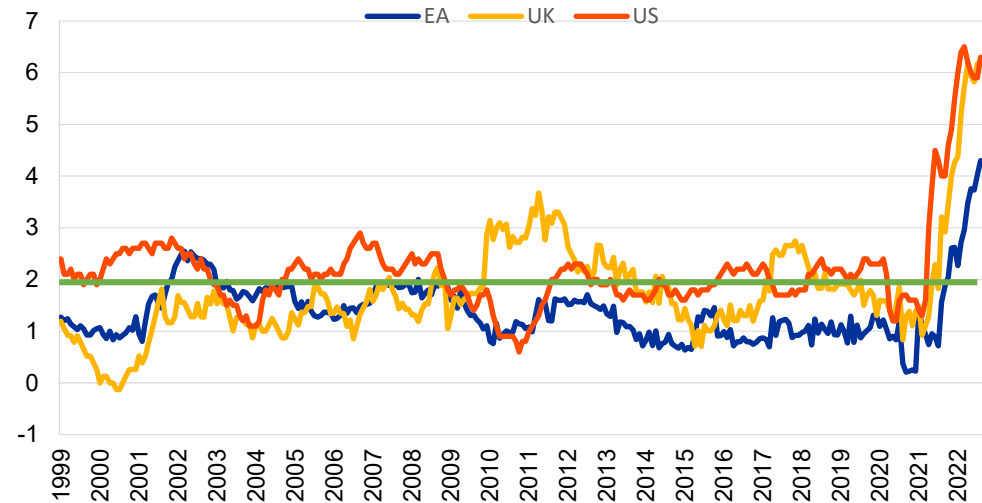
[Olivier Blanchard](#) (PIIE)

February 18, 2021 5:15 AM

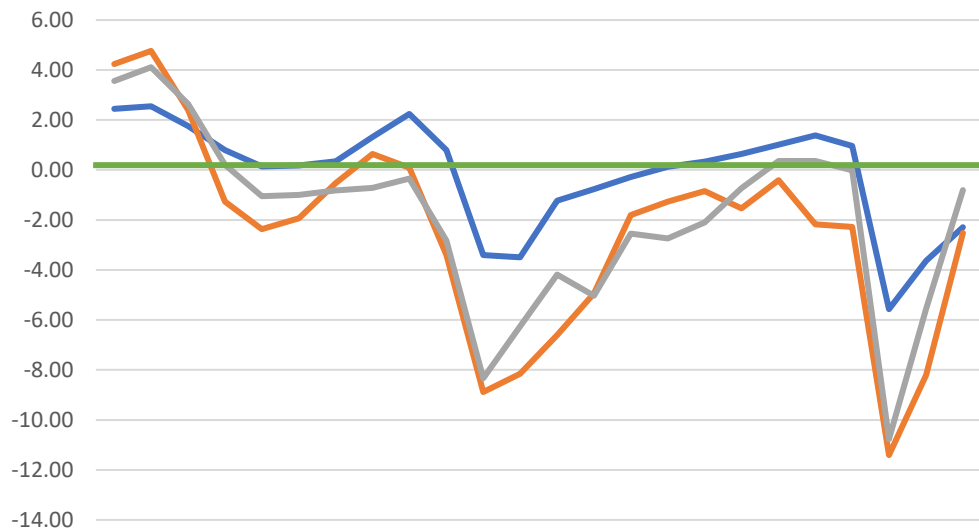
General Government Debt



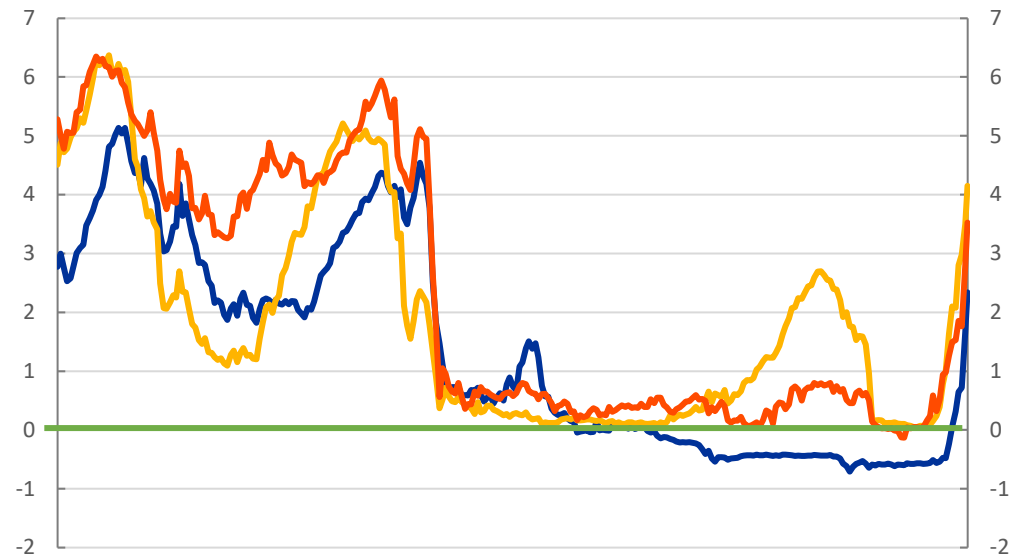
Core inflation



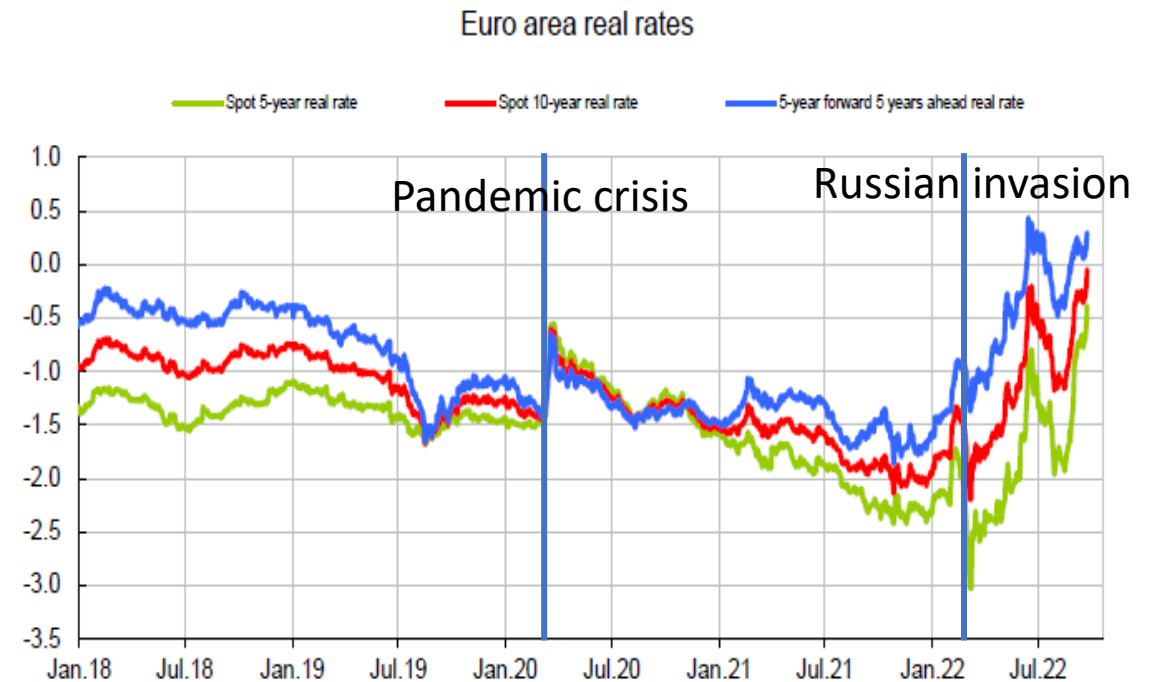
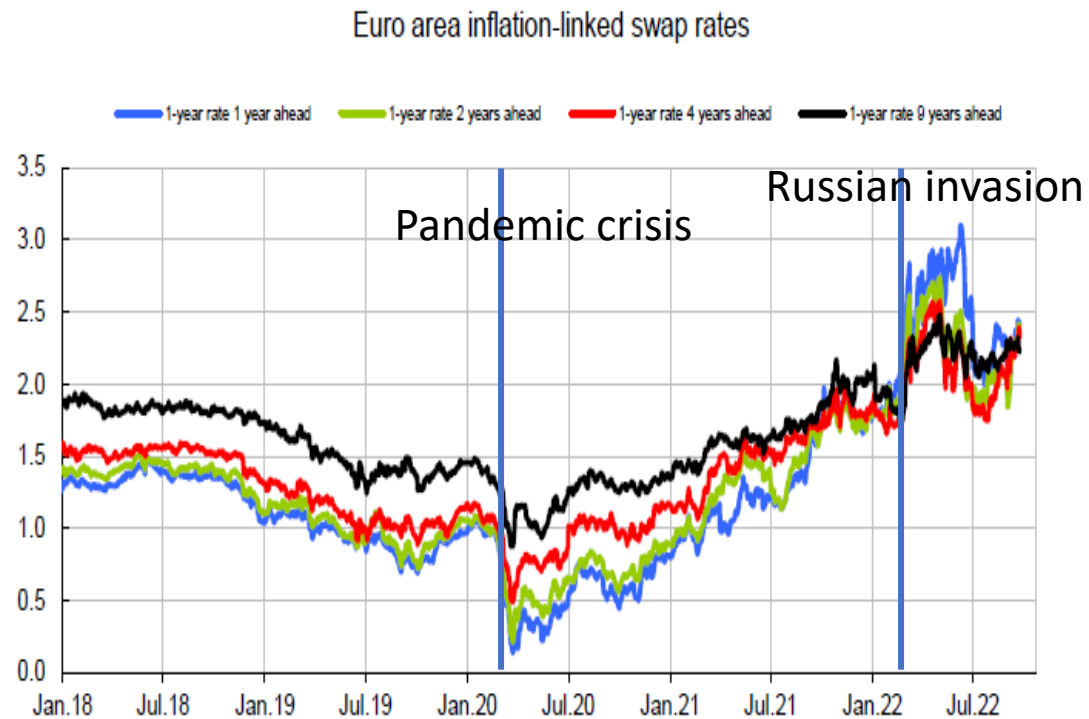
Primary balance



One-Year Nominal Interest Rate



Interest rates in the euro area: Nominal and real components



Empirical question: What is the contribution of fiscal inflation in the US, UK, EA?

- “Fiscal inflation”: inflation driven by perceived unbacked fiscal expansion.

Funded versus unfunded fiscal transfer shocks (Bianchi, Faccini and Melosi, 2021)

Leeper (1991)

$$\hat{r}_t = \mathbb{E}_t \hat{\pi}_{t+1}$$

$$\hat{b}_t = \beta^{-1} \hat{b}_{t-1} - \hat{\tau}_t + b(\hat{r}_t - \beta^{-1} \hat{\pi}_t)$$

$$\hat{r}_t = \phi \hat{\pi}_t$$

$$\hat{\tau}_t = \gamma \hat{b}_{t-1} + \epsilon_t.$$

$$\mathbb{E}_t \hat{\pi}_{t+1} = \phi \hat{\pi}_t.$$

$$\hat{b}_t = (\beta^{-1} - \gamma) \hat{b}_{t-1} - b(\beta^{-1} - \phi) \hat{\pi}_t - \epsilon_t.$$

AM/PF

$$(\phi > 1)$$

$$(\gamma > \beta^{-1} - 1)$$

PM/AF

$$(\phi \leq 1)$$

$$(\gamma \leq \beta^{-1} - 1)$$

Mixed regime

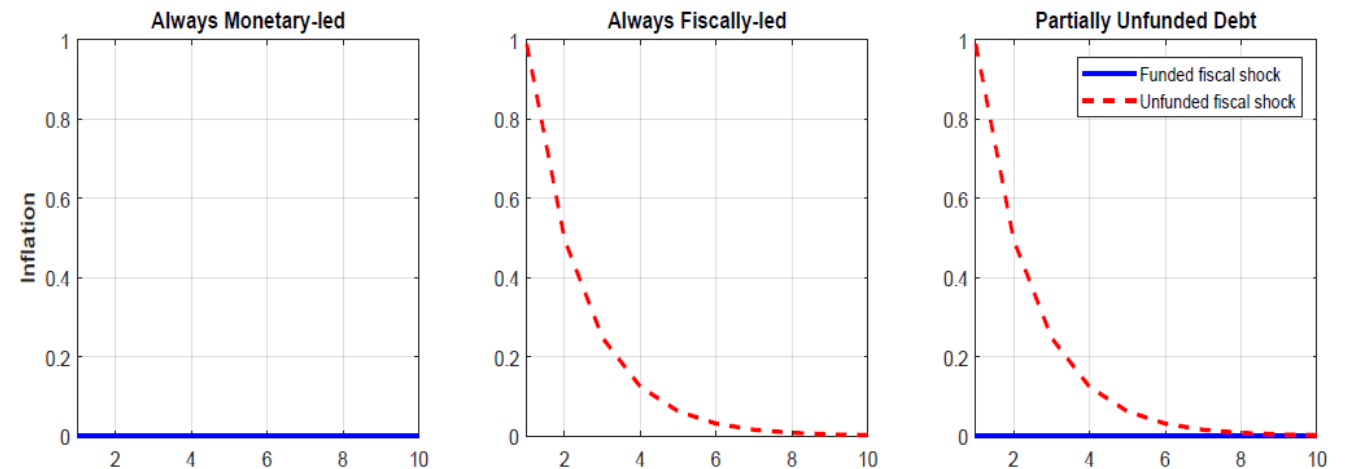


Figure 1: Impulse response of inflation to a fiscal shock. The discount factor β is set to 0.99 and the steady-state value of debt b to 1. In the model with partially unfunded debt, the monetary policy parameters are $\phi^M = 2.0$ and $\phi^F = 0.5$ and the fiscal policy parameters are $\gamma^M = 0.2$ and $\gamma^F = 0$. The Always Monetary-led model is parameterized as follows: $\phi = \phi^M$ and $\gamma = \gamma^M$. The Always Fiscally-led model is parameterized as follows: $\phi = \phi^F$ and $\gamma = \gamma^F$. Fiscal shocks are i.i.d. with unit variance.

Funded versus unfunded fiscal transfer shocks (Bianchi, Faccini and Melosi, 2021)

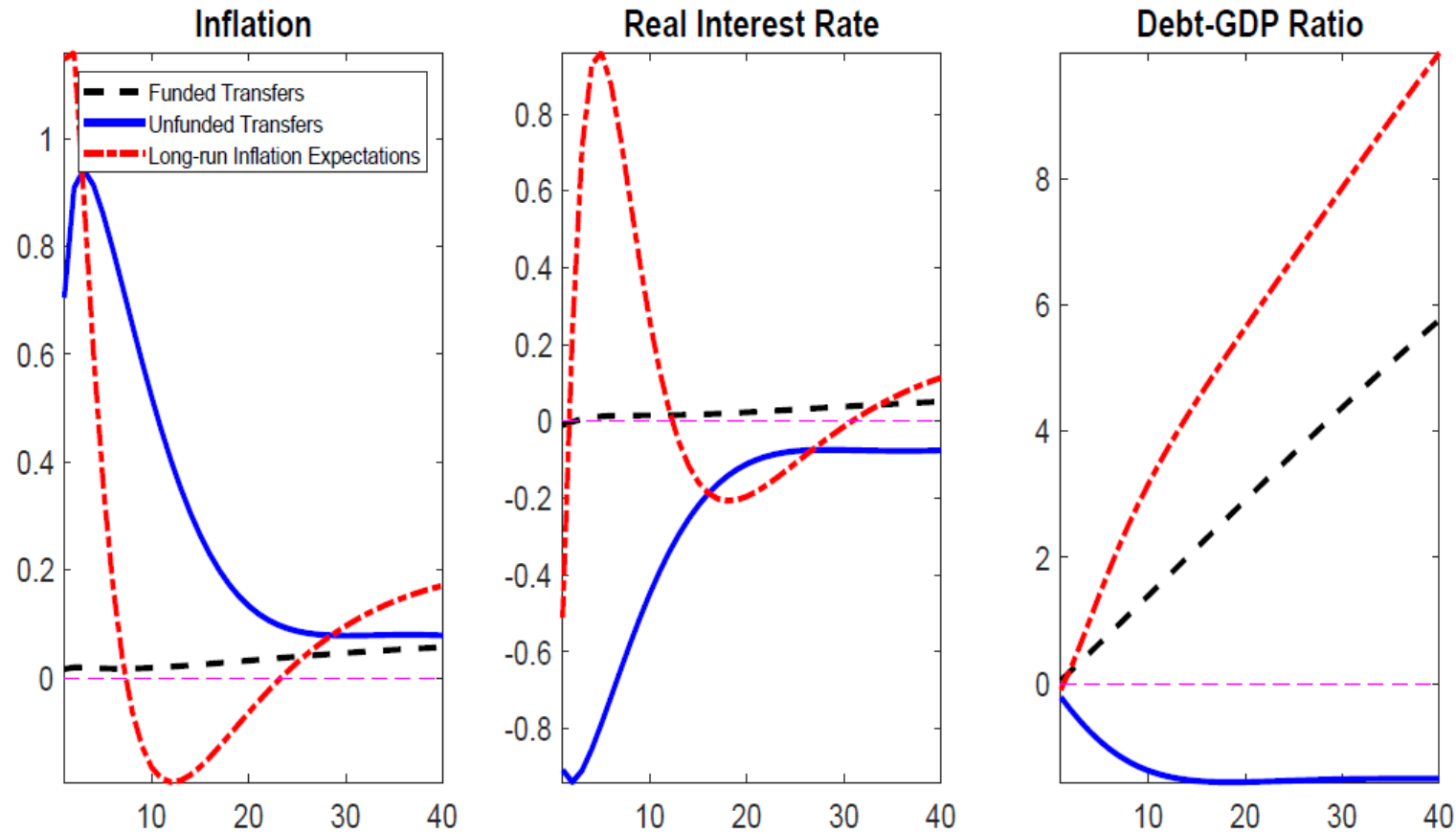
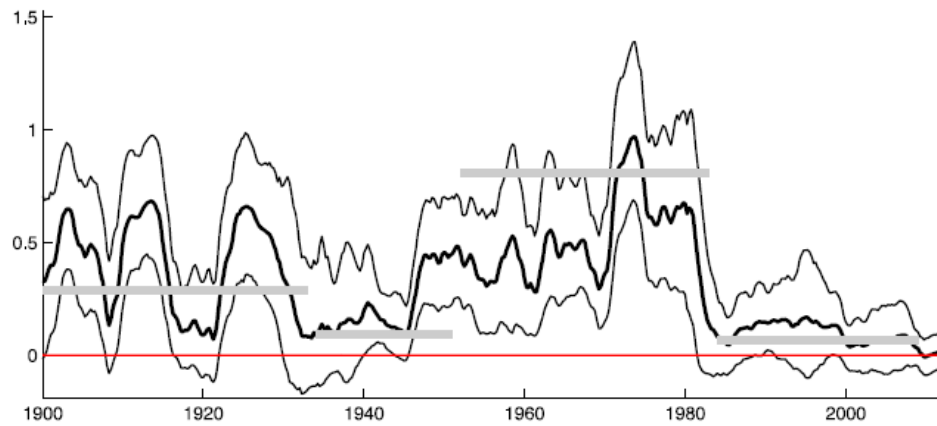
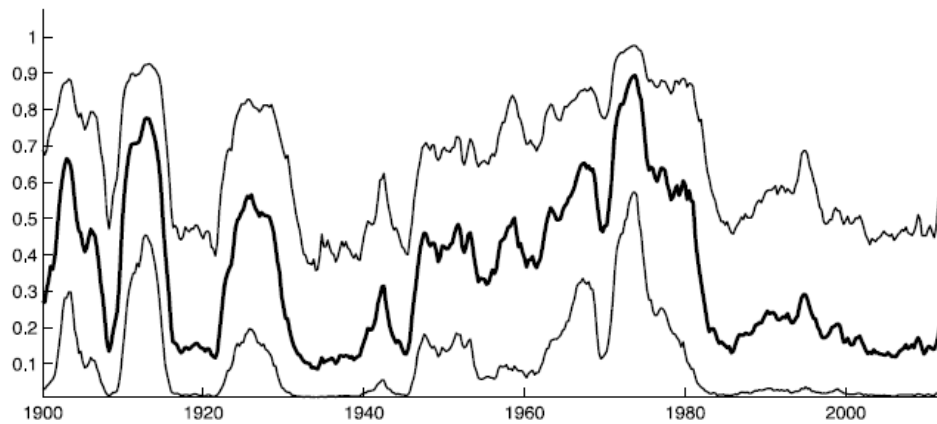


Figure 2: Impulse Response Function of Inflation (left), Real Interest Rate (middle), and Debt-To-GDP Ratio (right) to a one-standard deviation shock to the share of funded transfers (black dashed line), to the share of unfunded transfers (blue solid line), and to the persistent shifter of the Phillips curve (red dotted-dashed line).

“On the Low-Frequency Relationship between Public Deficits and Inflation”, Kliem, Kriwoluzky, Sarferaz (2016a,b)



(a)



(b)

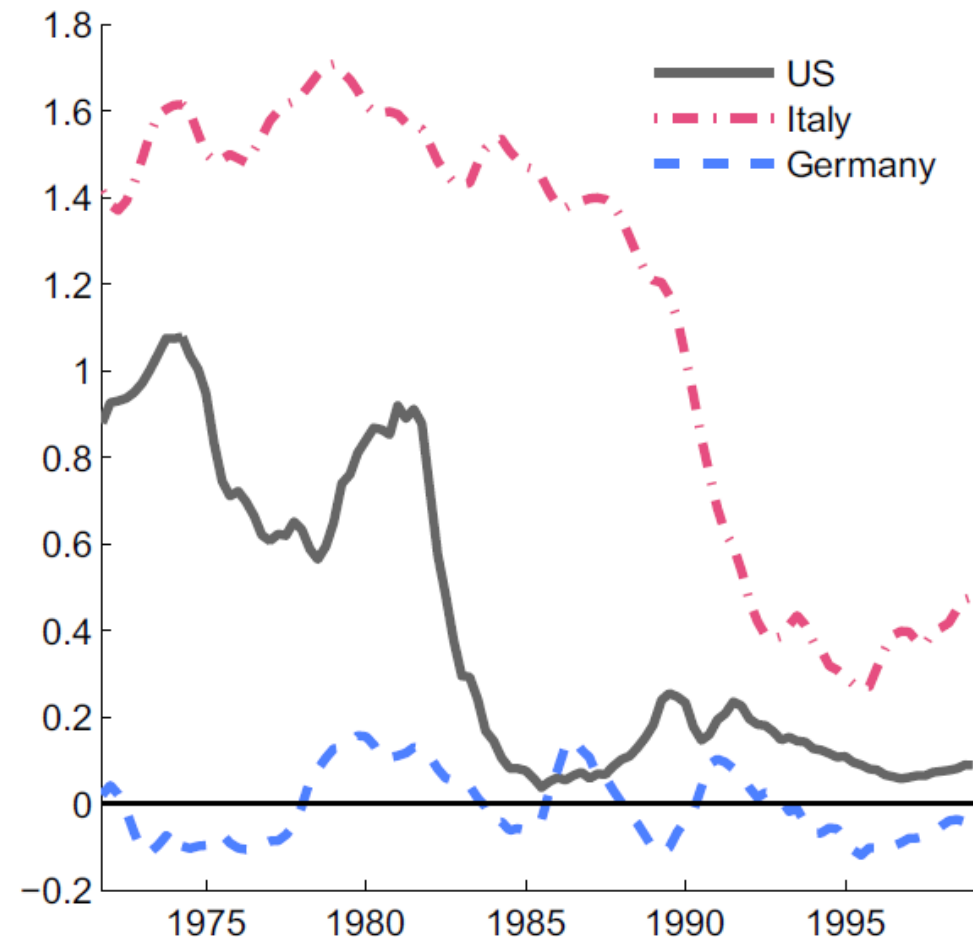


Figure 4. Median and 68% central posterior bands for \hat{b}_f and corresponding R^2 . (a) \hat{b}_f : median and 68% central posterior bands for the time-varying regression coefficient of inflation on deficits over debt. Grey lines depict slopes of the scatter plots which are based on the OLS regression coefficient of the filtered data in Section 2. (b) R^2 : inflation on deficits over debt

Table A

Perceptions of fiscal burden and long-term inflation expectations

Explanatory variables	Sovereign debt crisis (2010-2012)	COVID-19 pandemic (2020-present)
Fiscal burden, Spain	-0.022* (0.01)	-0.12** (0.05)
Fiscal burden, Italy	-0.022* (0.01)	-0.070** (0.03)
Fiscal burden, France	0.00 (0.02)	0.090 (0.06)
Fiscal burden, Germany	0.05*** (0.01)	0.00 (0.03)
Observations	782	308

Source: Bonam et al. (2021b).

Notes: The table reports results for the regression of daily changes in five-year, five-year forward inflation swaps on the first common factors of various indicators of sovereign risk for Spain, Italy, France and Germany. To preserve space, the coefficient estimates of the control variables (macroeconomic news variables, the Euro-Bund future implied volatility and Stoxx Europe 600 indices) are omitted. Standard errors are in parentheses. *, ** and *** indicate significance levels at 90%, 95% and 99% respectively.

Do markets see risks of fiscal dominance in the euro area?

“Identifying Fiscal Inflation”, De Graeve and Queijo-Von Heideken (2016)

F. De Graeve, V. Queijo von Heideken / *European Economic Review* 80 (2015) 83–93

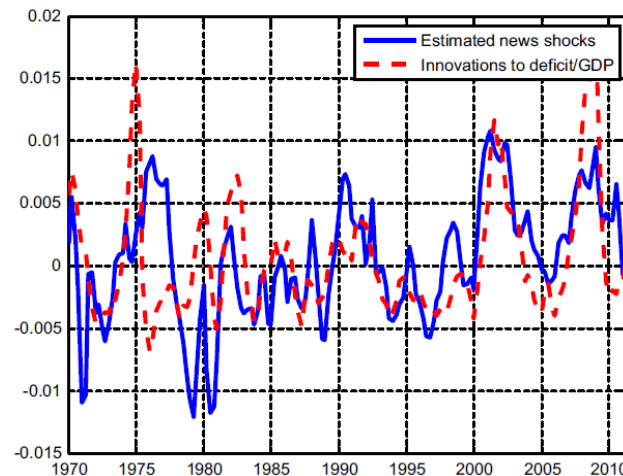


Fig. 5. News shocks and fiscal innovations. Note: The dashed line plots $\frac{1}{3}(\varepsilon_{t+1} + \varepsilon_t + \varepsilon_{t-1})$, where ε_t is the residual of a regression of the primary deficit-to-GDP ratio on its own lag.

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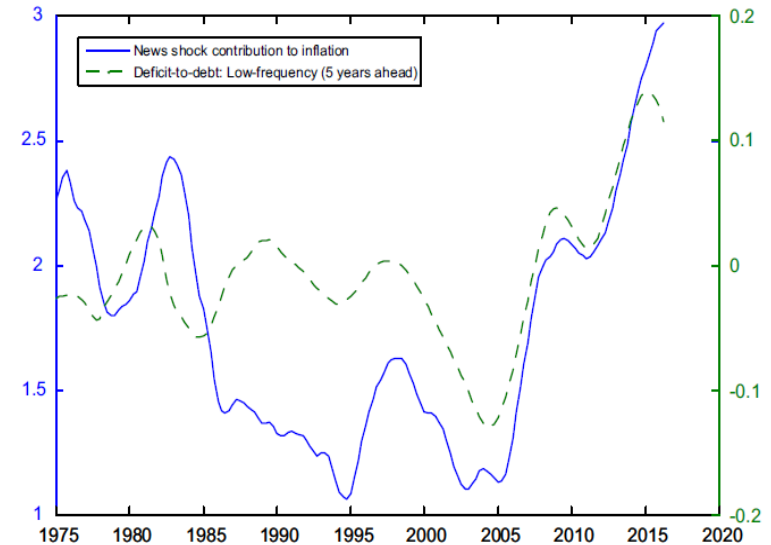
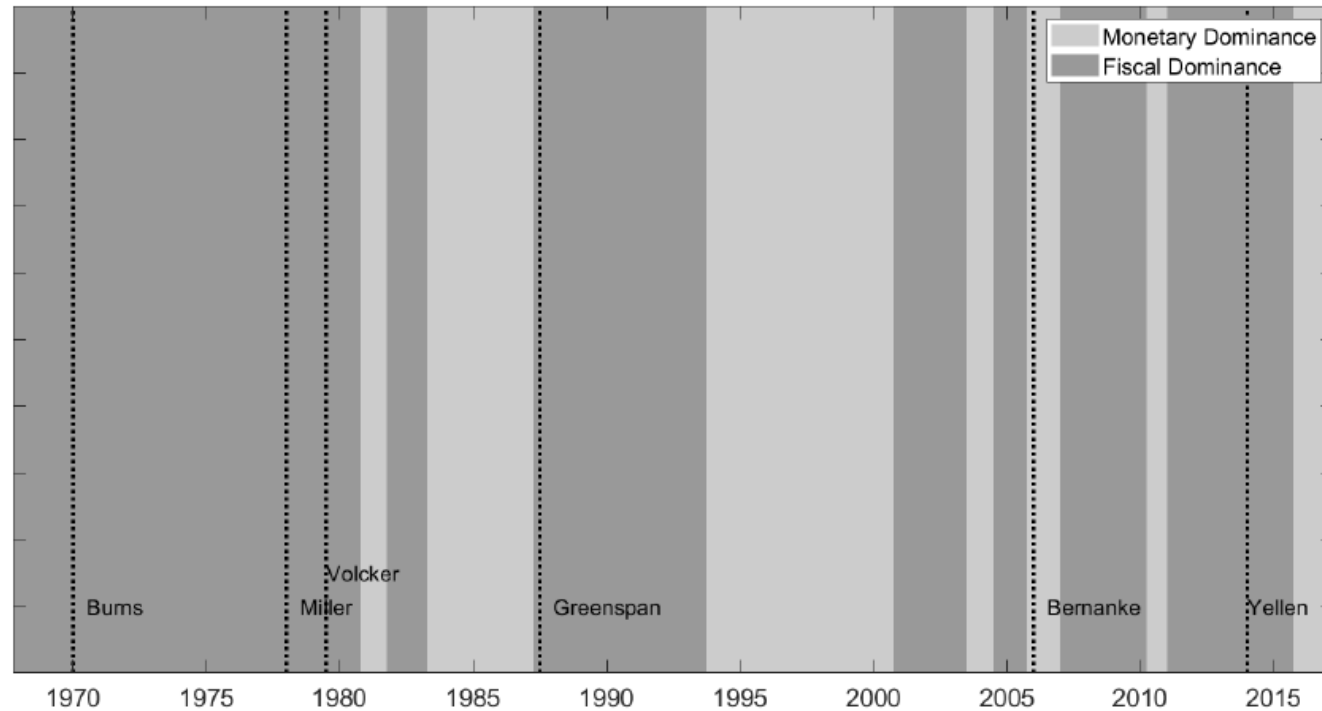


Fig. 10. News contribution and deficit-to-debt (low-frequency). Note: The filter applied is $x(\beta)t = \alpha \sum_{k=-n}^n \beta^{|k|} x_{t+k}$, where $n=8$, $\beta=0.95$ and α is a scalar that makes weights sum to 1. Conform the anticipation horizon in the model, the fiscal variable is shifted forward 20 quarters.

“Classification of Monetary and Fiscal Dominance Regimes Using Machine Learning Techniques” Hinterlang and Hollmayr (2022)

Figure 1: Predicted U.S. Regimes by the AdaBoost Classifier



Note: Predicted U.S. Regimes according to the trained Boosted Trees classifier. Dark-shaded areas correspond to the fiscal dominance regime, while light-shaded areas belong to the monetary dominance regime. The black-dotted vertical lines represent the appointment date of the respective Fed Chairman.

“Monetary and Fiscal Policies in Times of Large Debt: Unity is Strength”, Bianchi, Faccini and Melosi (2021)

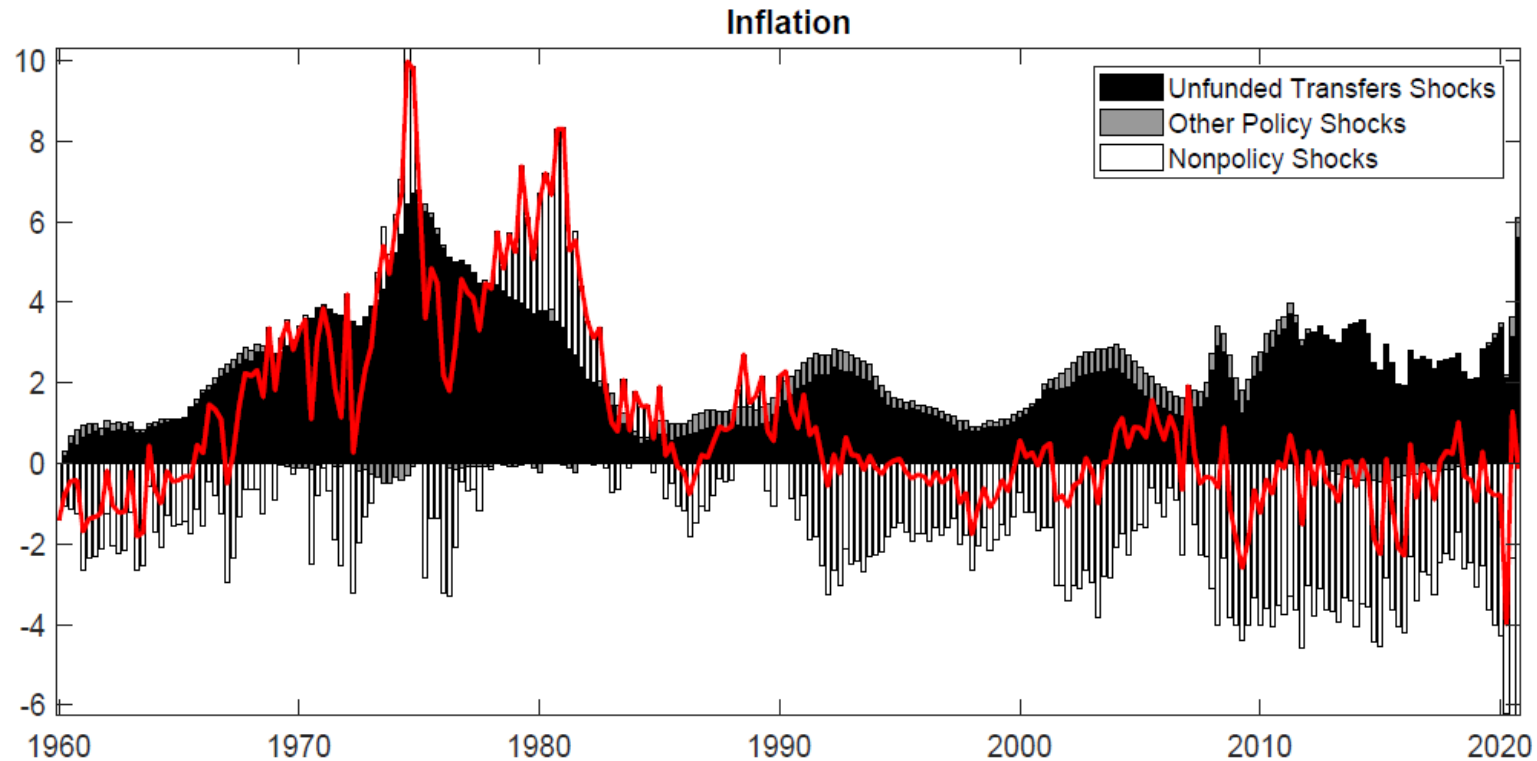


Figure 5: Drivers of Inflation. The red line is the inflation rate in the data in deviations from model’s steady-state inflation. The bars represent the cumulative effects of unfunded transfers shocks (black bars), other policy shocks (gray bars), and nonpolicy shocks (white bars) on inflation (in deviations from steady state). Other policy shocks include shocks to funded transfers and surprise and anticipated monetary policy shocks. Shocks are estimated using the Kalman smoother and setting the model parameters at their posterior mode.

“Monetary and Fiscal Policies in Times of Large Debt: Unity is Strength”, Bianchi, Faccini and Melosi (2021)

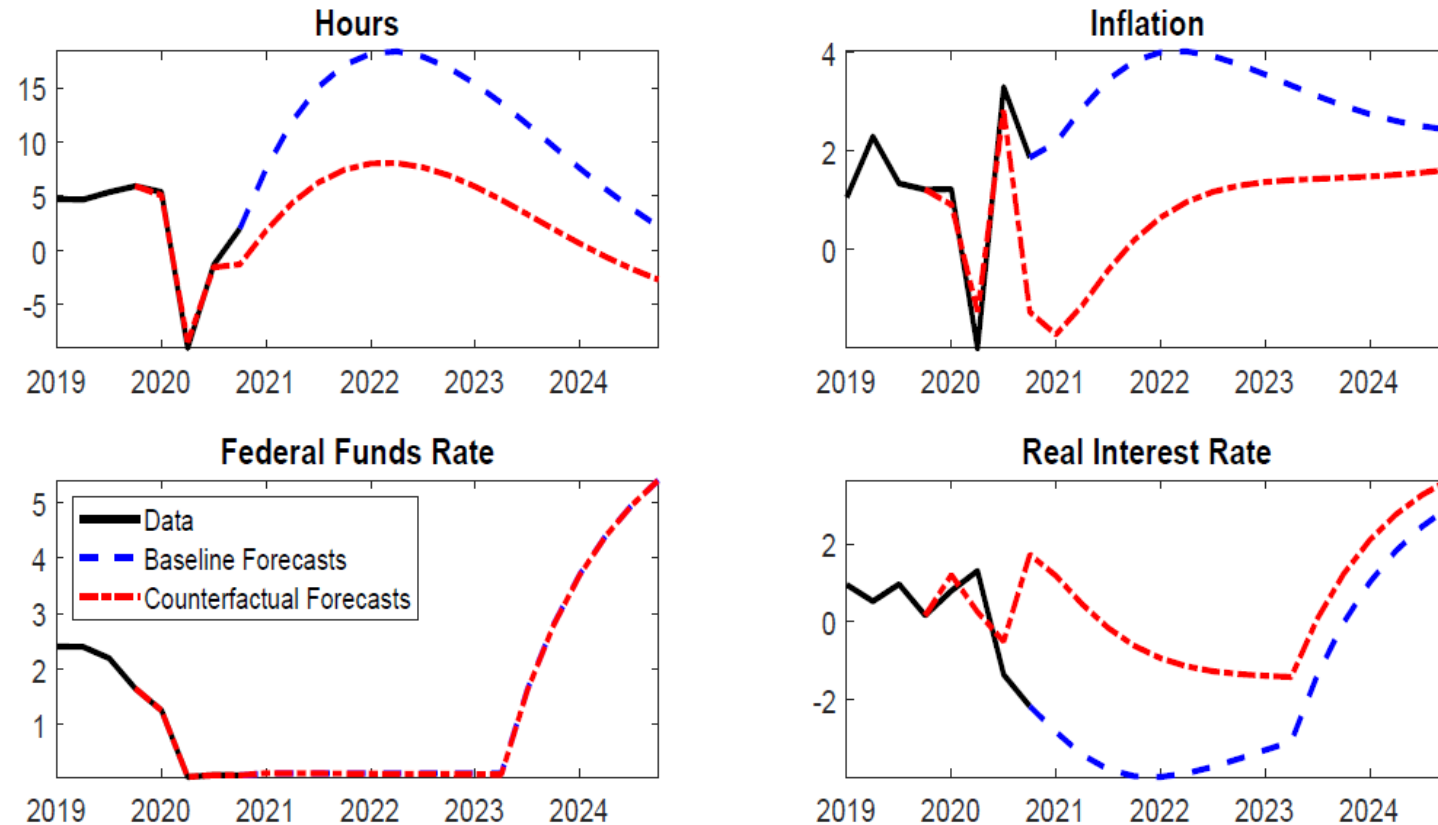


Figure 7: The Role of Unfunded Debt in The Past Recession. Model’s forecast on hours worked, inflation, the Federal Funds rate, and the real interest rate, conditional on using filtered data up to 2020Q4 (dashed blue line). The counterfactual scenario is based on the assumption that all transfer shocks estimated during the Pandemic Recession (i.e., 2020Q1 through 2020Q4) are funded (dot-dashed red line). Shocks are estimated using the Kalman smoother. Model parameters are set at their posterior mode.

“Monetary and Fiscal Policies in Times of Large Debt: Unity is Strength”, Bianchi, Faccini and Melosi (2021)

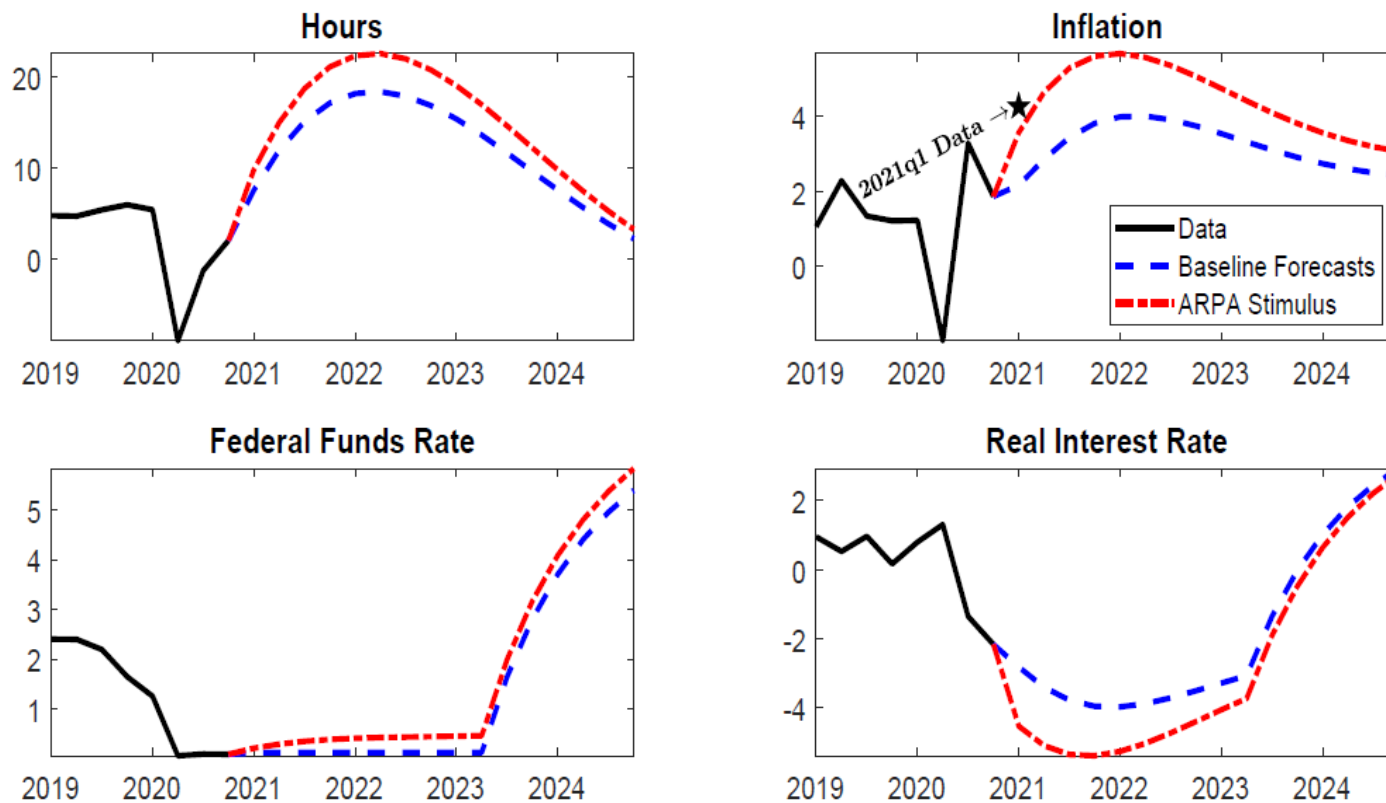
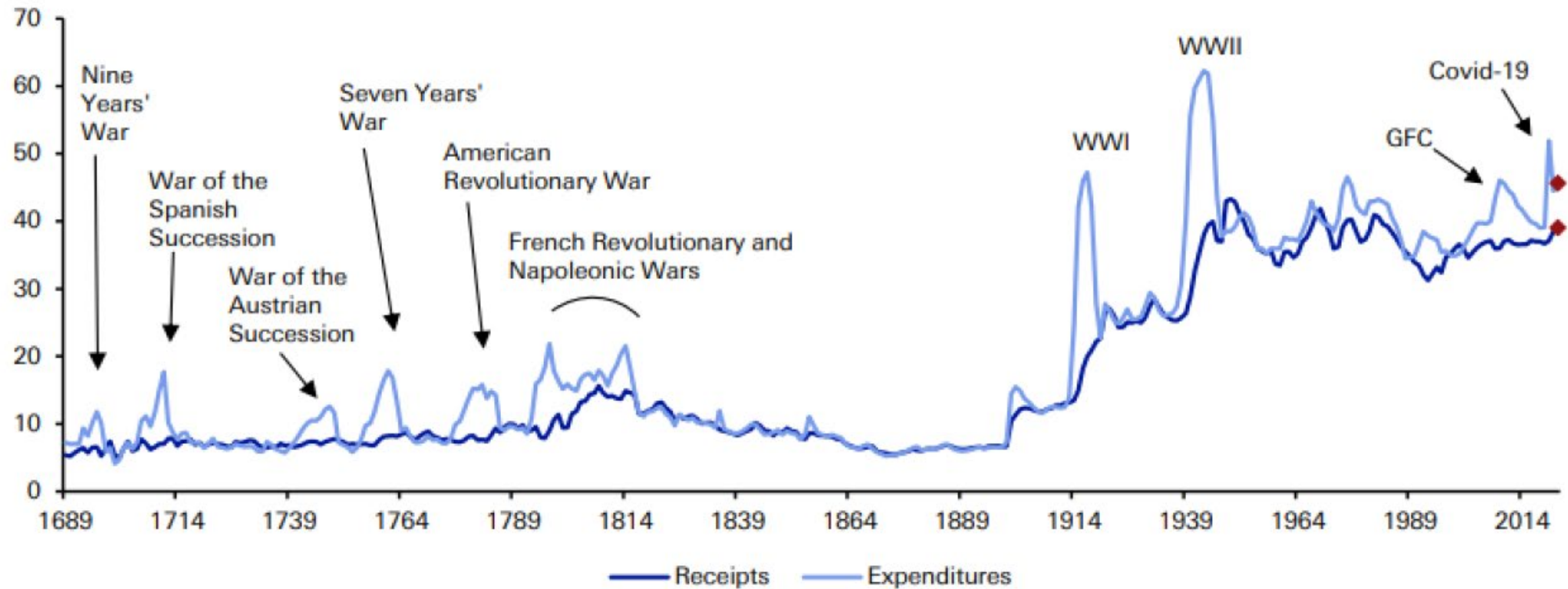


Figure 8: The Macroeconomic Effects of the ARPA Stimulus. Model’s forecast on hours worked, inflation, the Federal Funds rate, and the real interest rate, conditional on using filtered data up to 2020Q4 (dashed blue line). The counterfactual scenario is conditional on filtered data up to 2020Q4 and on the federal transfers payment in the first quarter of 2021, which is when most of the ARPA stimulus checks were sent out (dot-dashed red line). Shocks are estimated using the Kalman smoother. Model parameters are set at their posterior mode.

Figure 1: UK Government Receipts and Expenditures (% of GDP) with 2022-23 estimate.. a 50-yr story of expenditures > receipts...



Source : Deutsche Bank, Bank of England: A Millennium of Macroeconomic Data, OBR

Research questions

- How does the fiscal inflation component in the euro area and the UK compare with that in the US?
- What is the appropriate monetary policy response given these estimates?
 - See Kumhof et al (2010), Benigno and Woodford (2006), Harrison (2022)

Thank you

