# The effects of monetary policy across fiscal regimes

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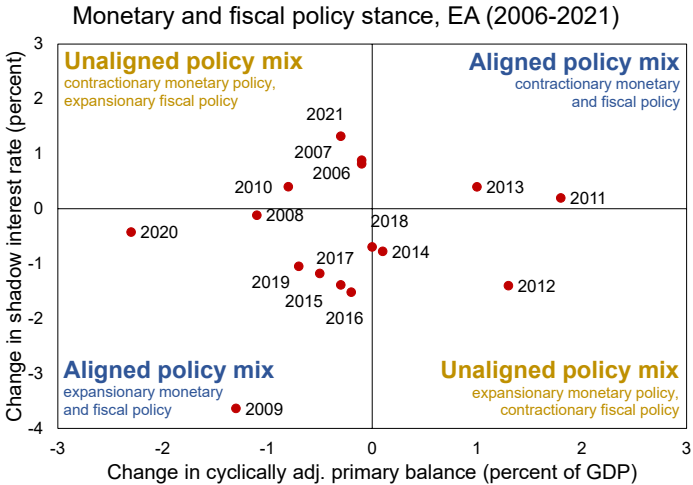
The monetary and fiscal policy mix in a changing world
European Commission, 6 February 2025



*The views expressed do not necessarily reflect the official position of the Eurosystem.*

# Monetary and fiscal policy in the euro area have not always been aligned




*Source*: Jing Cynthia Wu (shadow rate) and AMECO (cyclically adjusted primary balance).

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- Panel smooth transition local projection model
  - Panel of 10 euro area countries (1999Q1-2019Q4)
  - Monetary policy shocks taken from Jarociński and Karadi (2020)
  - Fiscal regimes based on change in cyclically adjusted primary balance

# Our main results

- Monetary policy easing raises output and inflation, *but only if fiscal policy is expansionary*
  - Contractionary fiscal policy can fully offset expansionary effects of monetary policy
  - Differences in the consumption response across fiscal regimes is likely to drive these results
  - Point to intertemporal substitution and wealth channel of monetary and fiscal policy
  - Role of fiscal regime for effects of monetary policy more important during recessions

- Monetary policy tightening lowers output and inflation, *but only if fiscal policy is contractionary*
  - Underscores importance of the alignment of monetary and fiscal policy to deliver price stability

# Literature review

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  - We remain agnostic about the prevalence of monetary and fiscal dominance

- State-dependent effects of monetary policy
  (Barnichon and Matthes, 2016; Tenreyro and Thwaites, 2016; Rüth, 2017; Jordà et al., 2020; van den End et al., 2021; Alpanda and Zubairy, 2019; Hauzenberger et al., 2021)
  - We control for the business cycle, as it may vary systematically with the fiscal stance
  - We also distinguish between tightening and easing monetary policy shocks

# Empirical framework

# A baseline linear model

- Our starting point is a linear panel local projection model (Jordà, 2005) to estimate regime-invariant effects of monetary policy:

$$y_{i,t+h} = \beta_h m_t + \lambda_h x_{i,t} + \alpha_{i,h} + \epsilon_{i,t+h} \tag{1}$$

with:

  - $m_t$ monetary policy shock (Jarociński and Karadi, 2020)
  - $y_{i,t}$ variable of interest for country $i$ (real GDP growth and inflation)
  - $x_{i,t}$ set of controls (two lags of $y_{i,t}$, two lags and leads of $m_t$)
  - $\alpha_{i,h}$ country fixed effects

- $\beta_h$ captures response to monetary policy shock, $h = 0, 1, 2, ...$ quarters after the shock

# Characterizing the fiscal regimes (1/2)

- Distinguish between two types of fiscal regimes:
  - **c**ontractionary fiscal regime
  - **e**xpansionary fiscal regime

- Fiscal regimes based on change in cyclically adjusted primary balance, $\Delta CAPB$, (% of pot. GDP)

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- Note: fiscal regimes *not* defined by on (non-)Ricardian behavior

# Characterizing the fiscal regimes (2/2)

- Construct regime indicator $\mathcal{I}_{i,t} \in [0,1]$ to capture probability of being in either regime:

$$\mathcal{I}_{i,t} = \frac{\exp\left(-\theta \Delta CAPB_{i,t}\right)}{1 + \exp\left(-\theta \Delta CAPB_{i,t}\right)} \tag{2}$$

  with $i = 1, 2, ..., N$ country index

- A more positive $\Delta CAPB_{i,t}$ raises the probability of a contractionary fiscal regime ($\mathcal{I}_{i,t} \to 1$)

- $\theta$ determines speed of transition between regimes
  - Baseline: $\theta = 3$ (Tenreyro and Thwaites, 2016)

# Fiscal regimes in the euro area

Figure 1: Cyclically adjusted primary balance (% of GDP), euro area


*Notes*: The cyclically adjusted primary balance is constructed using country-specific output gap elasticities for the expenditure and revenue components of the public budget balance, taken from Price et al. (2015). Dark (light) gray shaded areas indicate times when, on average across all countries, $\mathcal{I}_{i,t} < 0.5$ ($\mathcal{I}_{i,t} > 0.5$).
*Source*: AMECO and own calculations.

# A smooth transition local projection model

Introduce regime indicator to capture regime-dependent effects of monetary policy:

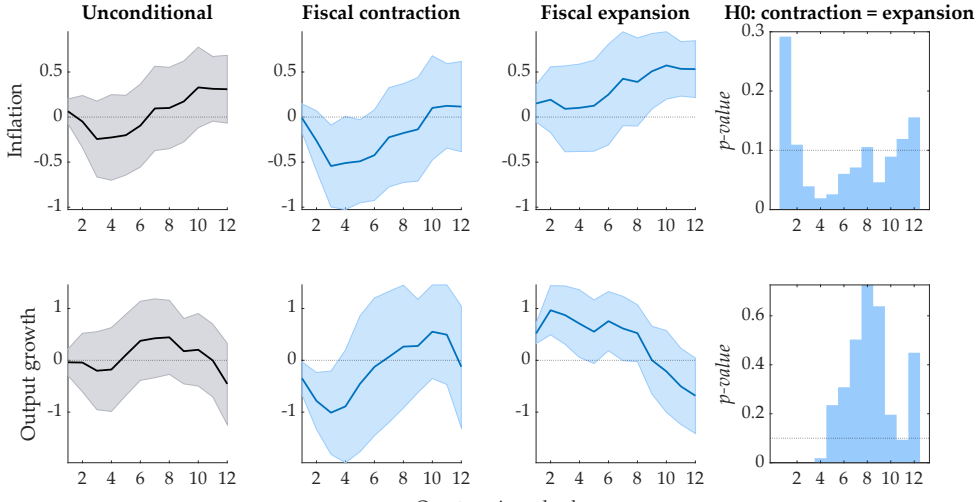
$$y_{i,t+h} = \mathcal{I}_{i,t}\left(\beta_h^c m_t + \lambda_h^c x_{i,t} + \alpha_{i,h}^c\right) + (1 - \mathcal{I}_{i,t})\left(\beta_h^e m_t + \lambda_h^e x_{i,t} + \alpha_{i,h}^e\right) + \epsilon_{i,t+h} \tag{3}$$

where $\beta^c$ ($\beta^e$) captures response to monetary policy shock in contractionary (expansionary) fiscal regime

# Estimation results

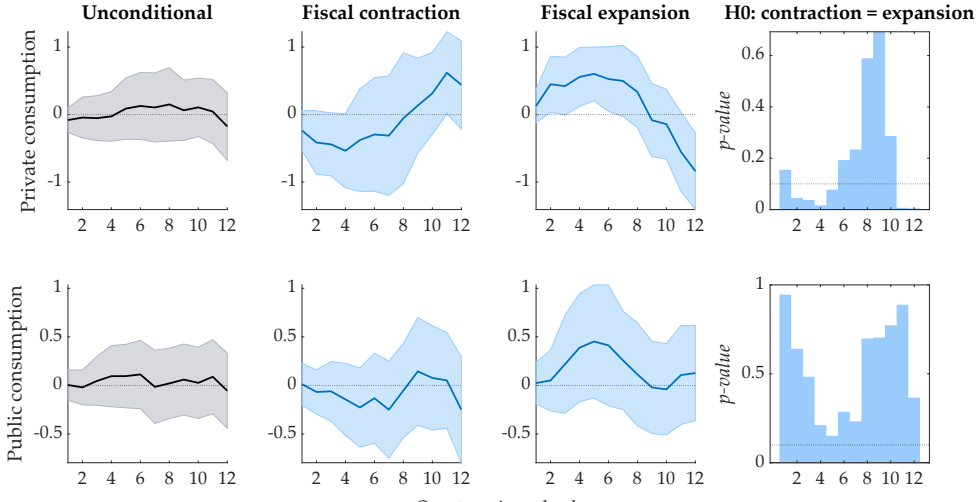
# Monetary easing effective only in expansionary fiscal regime

Figure 2: Responses to a monetary policy easing shock



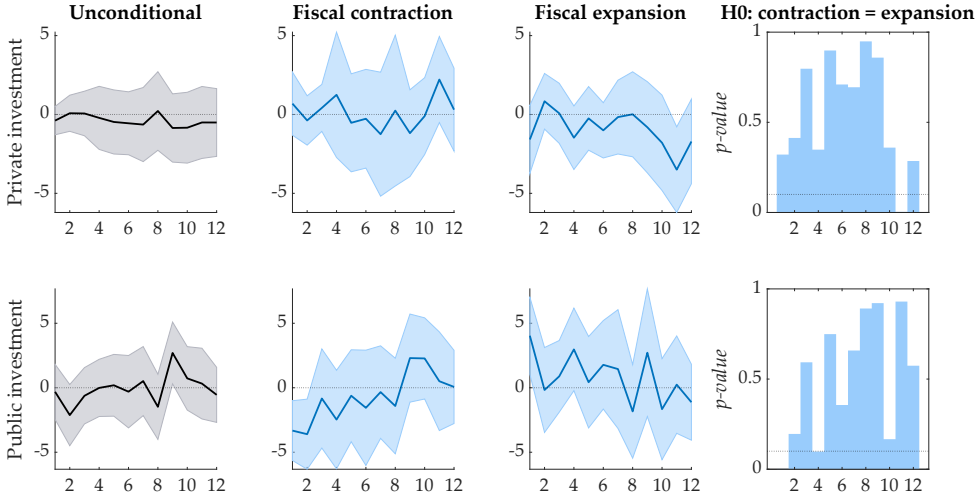
# Result likely driven by response of private consumption

Figure 3: Responses to a monetary policy easing shock



# ...rather than by response of investment

Figure 4: Responses to a monetary policy easing shock



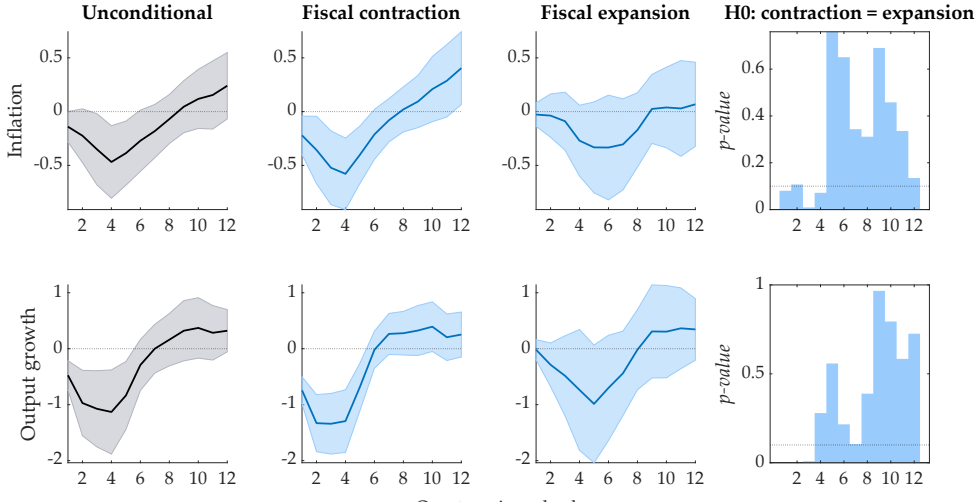
# Interpreting the mechanism

- Following a monetary easing shock, private consumption first rises and then falls
  - Consistent with intertemporal consumption smoothing featured in New Keynesian models
- However, in the contractionary fiscal regime, private consumption *falls*
  - Suggests negative wealth effect that dominates intertemporal substitution effect

  (Caramp and Silva, 2023)
- Responses of public consumption and (public and private) investment not statistically different across fiscal regimes, and therefore unlikely to drive result

# Monetary tightening effective only in contractionary fiscal regime

Figure 5: Responses to a monetary policy tightening shock



# Robustness

# Controlling for the business cycle

- Distinguish between two business cycle regimes:
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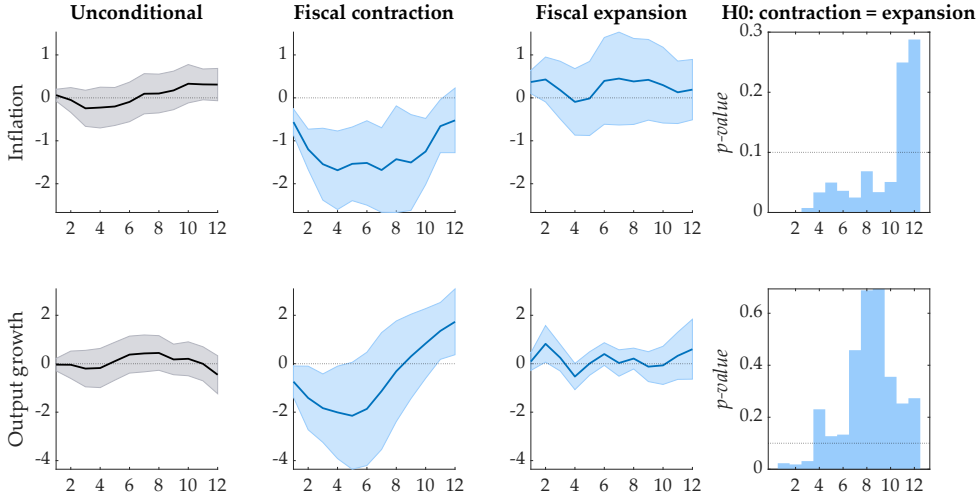
- Construct second indicator, $\mathcal{G}_{i,t}$, to capture probability of being in either regime
- Introduce regime indicator to the model:

$$
\begin{aligned}
y_{i,t+h} = \mathcal{G}_{i,t} & \left[ \begin{array}{c} \mathcal{I}_{i,t} \left( \beta_h^{rec|c} m_t + \lambda_h^{rec|c} x_{i,t} + \alpha_{i,h}^{rec|c} \right) \\ + (1 - \mathcal{I}_{i,t}) \left( \beta_h^{rec|e} m_t + \lambda_h^{rec|e} x_{i,t} + \alpha_{i,h}^{rec|e} \right) \end{array} \right] \\
& + (1 - \mathcal{G}_{i,t}) \left[ \begin{array}{c} \mathcal{I}_{i,t} \left( \beta_h^{exp|c} m_t + \lambda_h^{exp|c} x_{i,t} + \alpha_{i,h}^{exp|c} \right) \\ + (1 - \mathcal{I}_{i,t}) \left( \beta_h^{exp|e} m_t + \lambda_h^{exp|e} x_{i,t} + \alpha_{i,h}^{exp|e} \right) \end{array} \right] + \epsilon_{i,t+h}
\end{aligned}
\tag{4}
$$

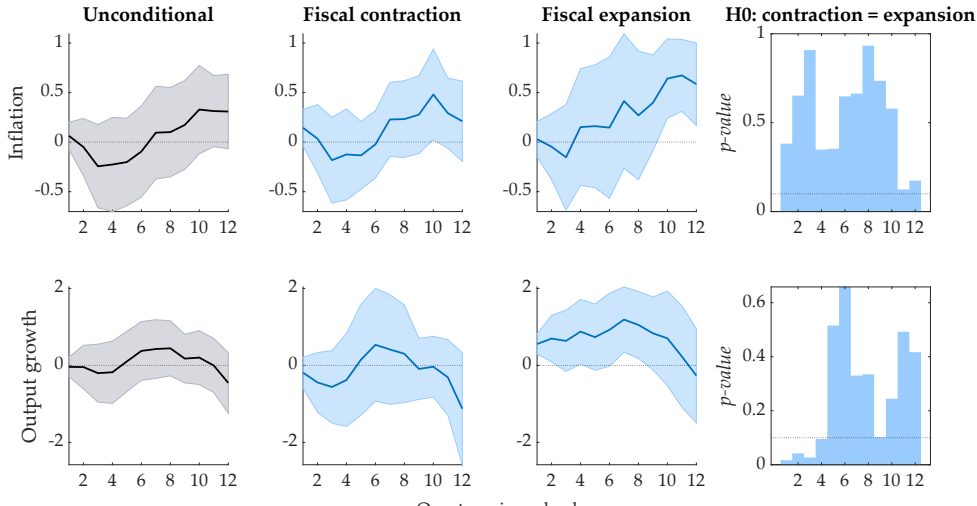
# Role of fiscal regime particularly important during recessions

Figure 6: Responses to a monetary policy easing shock in economic recession



# ...while less important during expansions

Figure 7: Responses to a monetary policy easing shock in economic expansion



# Additional robustness tests

- Fiscal regime based on either government expenditures or revenues (rather than overall balance)
  - Role of fiscal regime only significant when regime is based on government expenditures
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  - Countries that face relatively low sovereign risks (may affect wealth channel)

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  - Fiscal regime expansionary or contractionary if $|\Delta CAPB|$ exceeds some threshold
  - Ensures that we capture truly 'discretionary' fiscal regime changes
- Controlling for the aggregate euro area fiscal stance
  - To account for fiscal policy of one country offsetting the role of fiscal policy in another country

# Conclusion

# Summary of main results

- Monetary policy easing raises output and inflation, *but only if fiscal policy is expansionary*
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Background slides