Public Debt, Fiscal Deficit Expectations and Their Transmission to the Cyclical Component of Long-Term Interest Rates

5th CEMLA/Dallas Fed Financial Stability Workshop

José Vicente Romero
Hernando Vargas Herrera

2026

Banco de la República

[1]Preliminary version for comments. The views expressed in this document are the sole responsibility of the authors and do not represent those of Banco de la República or its Board of Directors.

Outline

1. Motivation and central question
2. Public debt, fiscal expectations and interest rates: literature review
3. Data
4. Econometric strategy
5. Results
6. Conclusions

Motivation and central question

Motivation and central question

Context:

- Global and domestic fiscal deterioration after COVID-19: higher debt and persistent deficits.
- Observed increase in long-term TES (Colombian government bond) yields.
- Scarce empirical evidence for emerging economies on the role of fiscal *expectations*.

Central question:

How do public debt dynamics and fiscal deficit expectations affect the cyclical component of the long-term real interest rate and the slope of the yield curve in Colombia?

Scope: The analysis focuses on the **cyclical component** of interest rates. Effects on the neutral rate or on long-term risk premia require separate treatment. Focusing on cyclical variation isolates the transitory channels through which fiscal shocks interact with market rates.

Contribution

1. **A new measure of fiscal expectations**
   - Construction of a **fiscal deficit expectations** series (2005–2025).
   - Based on *FocusEconomics* surveys (local and international analysts).

2. **Empirical evidence for Colombia**
   - Impact of **public debt** and **fiscal expectations** on:
     - the cyclical component of the long-term real rate (10-year TES),
     - the slope of the yield curve,
     - time-varying transmission.

Public debt, fiscal expectations and interest rates: literature review

Related literature

Public debt and interest rates

- Engen and Hubbard (2004)
- Furceri et al. (2025)

Fiscal expectations

- Laubach (2009)
- Kameda et al. (2014)
- Nose (2025)

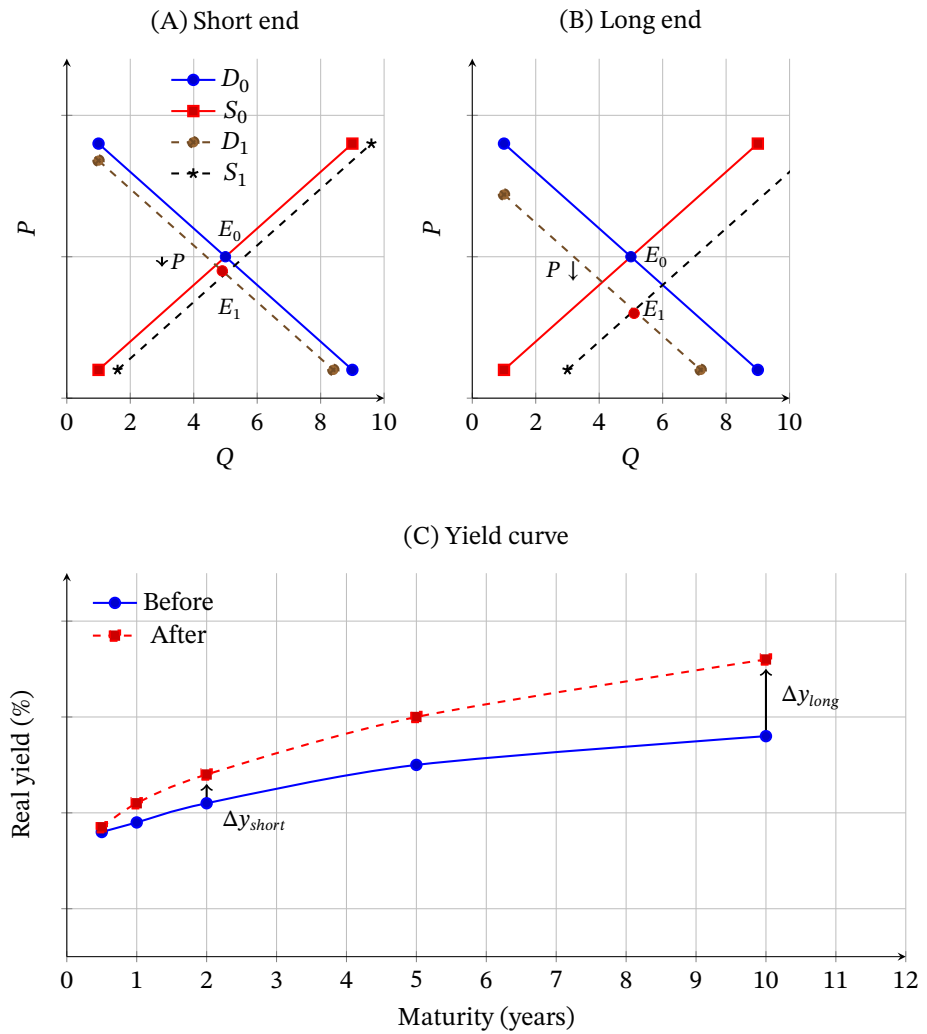
Emerging economies and Colombia

- Kumar and Baldacci (2010)
- Jaramillo and Weber (2012)
- Lozano et al. (2019)
- Nose (2025)
- Chen (2025)
- Banco de la República (2025a, 2025b)

Central idea

Fiscal expectations *are relevant for the determination of long-term interest rates.*

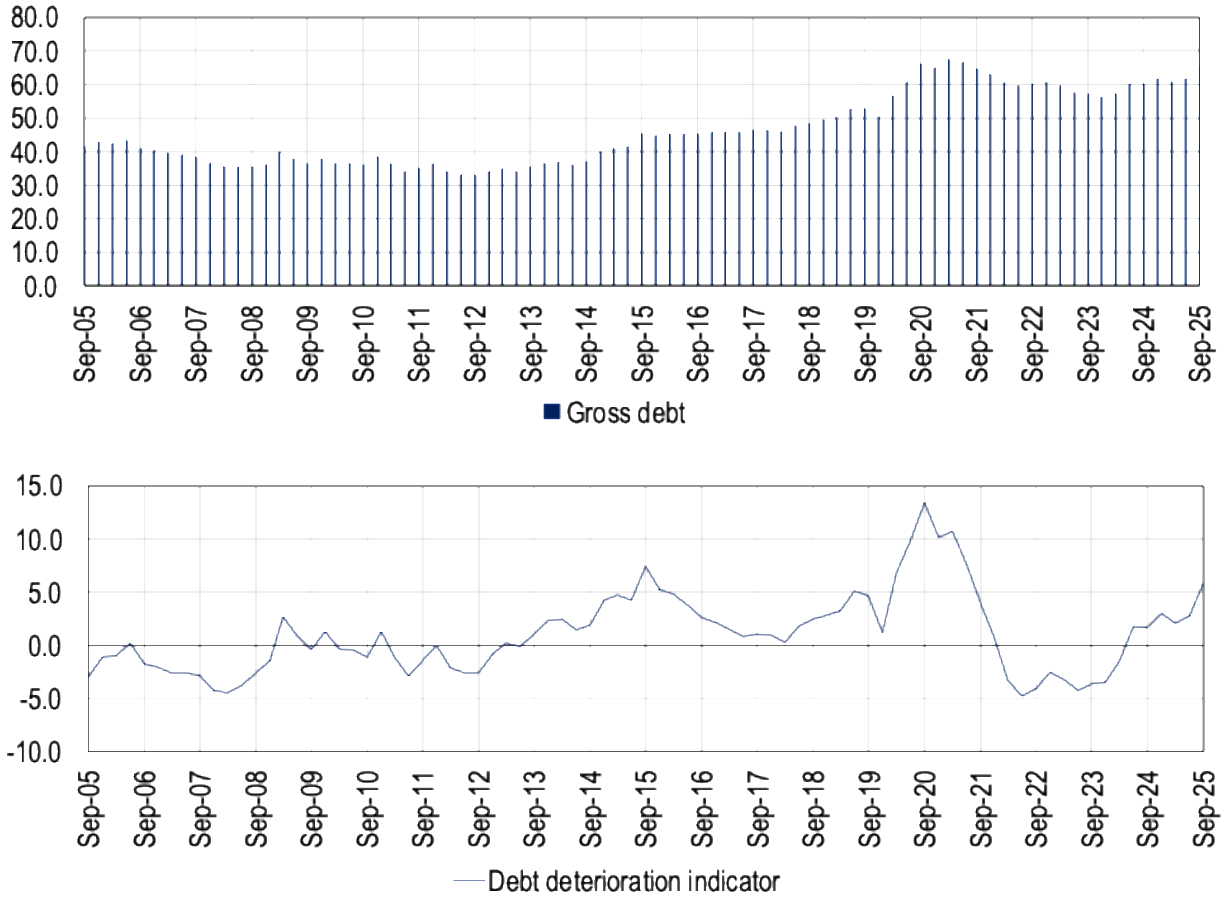
Mechanism: fiscal shocks and yield curve steepening



Note: Illustrative example of the possible effect of a deterioration in debt levels and an increase in fiscal deficit expectations on the yield curve. **Source:** Authors' design.

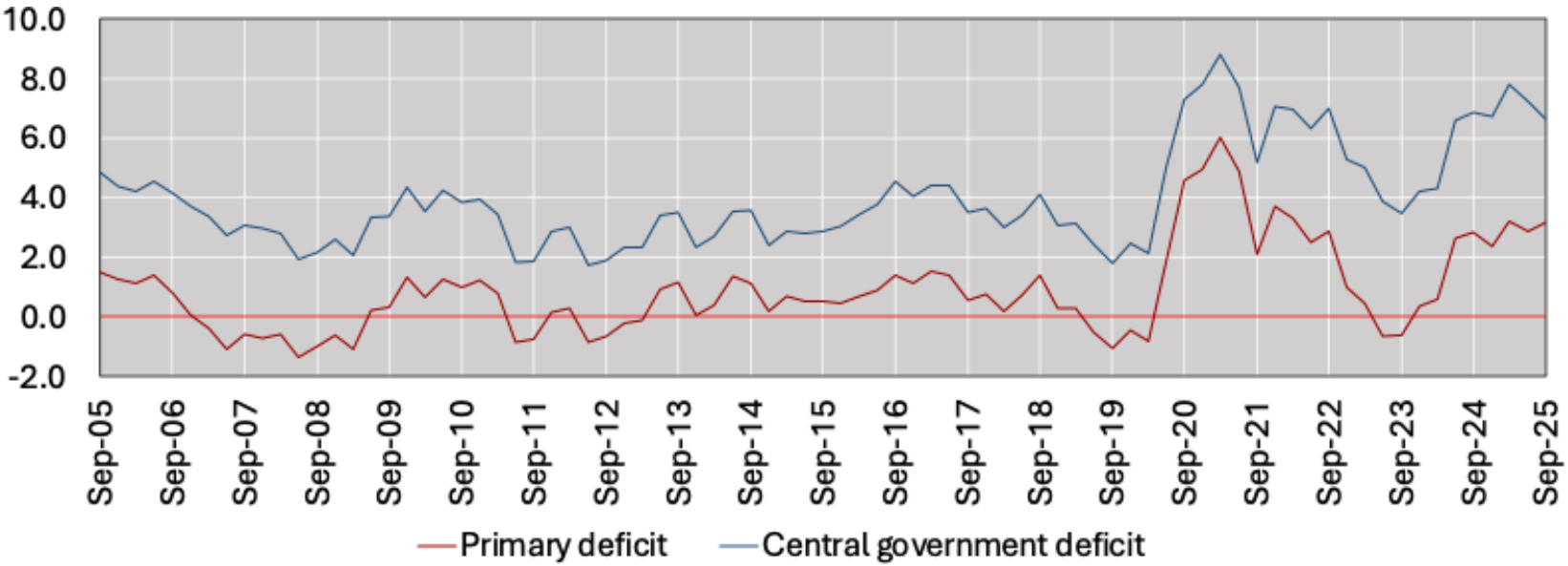
Data

Data: fiscal dynamics in Colombia



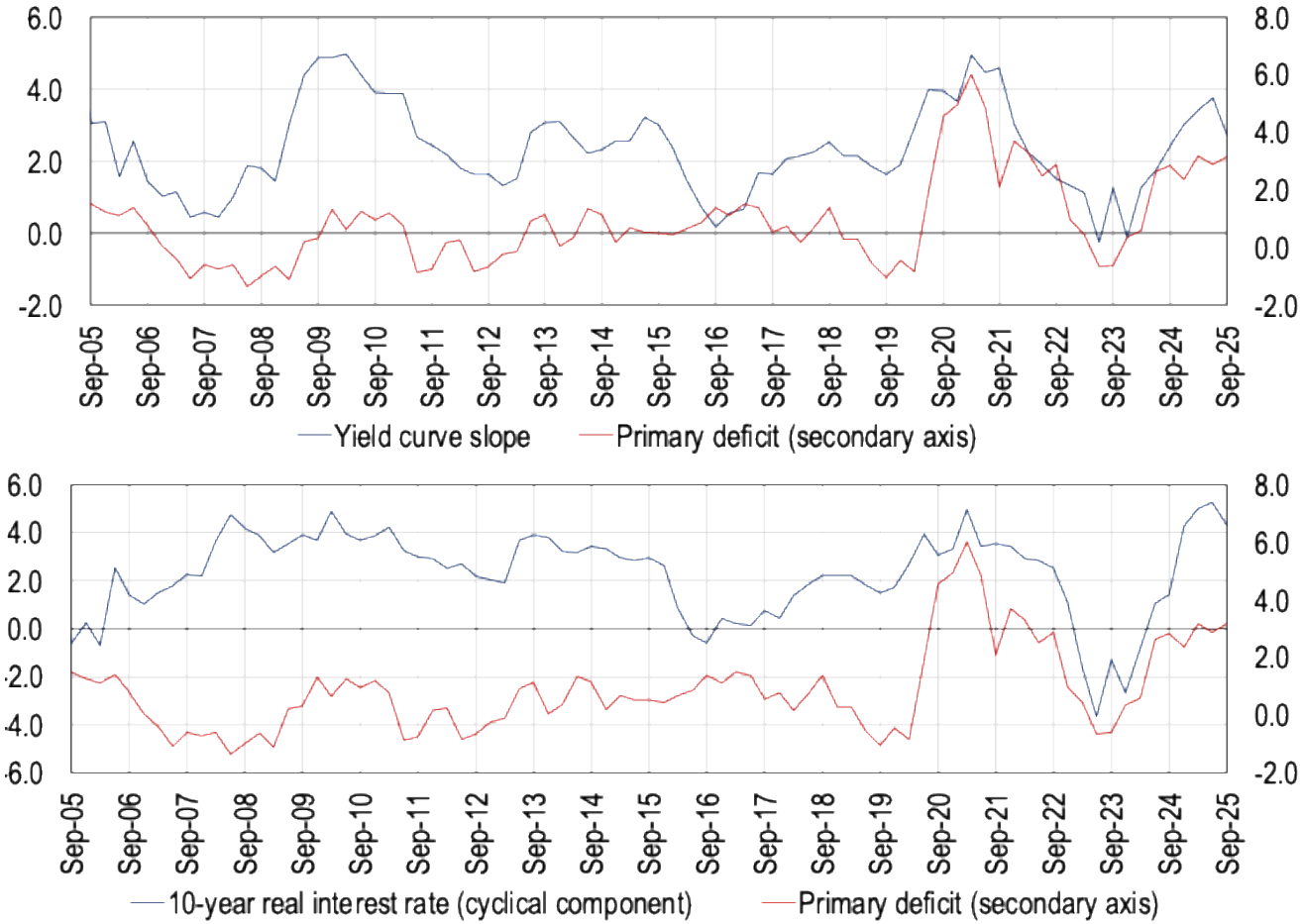
Notes: Gross public debt as a percentage of GDP and debt deterioration indicator. **Source:** Ministry of Finance and authors' calculations.

Data: fiscal dynamics in Colombia



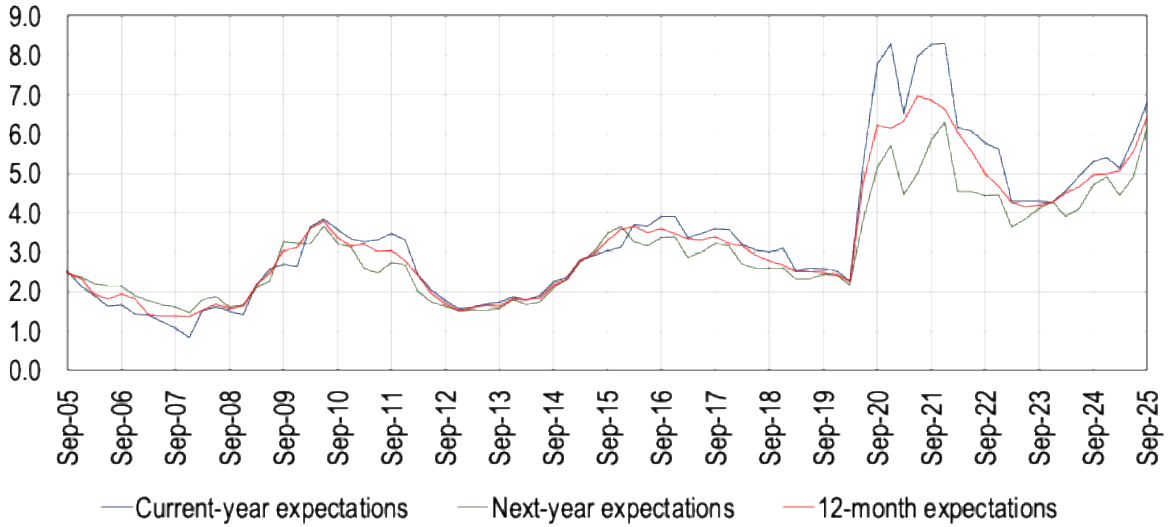
Notes: Central National Government (CNG) fiscal deficit and primary deficit as a percentage of GDP. **Source:** Ministry of Finance and authors' calculations.

Data: fiscal dynamics in Colombia



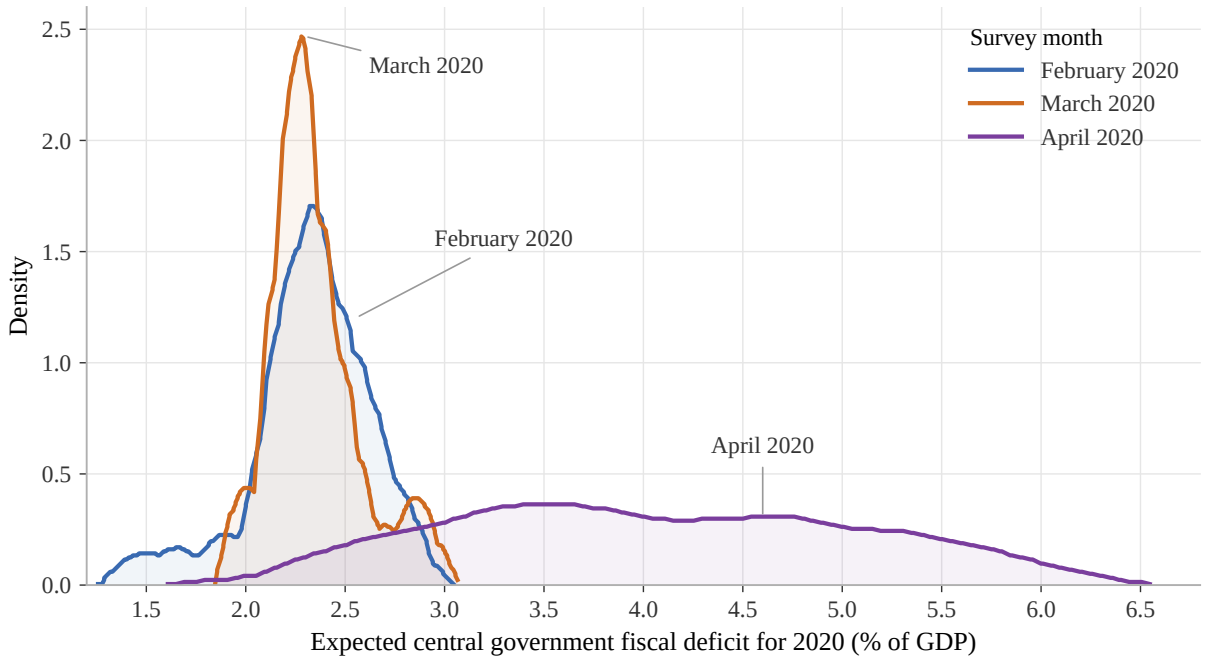
Notes: Primary deficit as a percentage of GDP versus the long-term real interest rate (cyclical component, %) and the yield curve slope. **Source:** Ministry of Finance, Banco de la República and authors' calculations.

Data: fiscal expectations (FocusEconomics)



- Monthly *FocusEconomics* survey (2005–2025): median forecast of the CNG fiscal deficit for the end of the current year.
- Sharp upward revisions during COVID-19 and over 2022–2024.
- Persistent deviations from the fiscal anchor.

Data: distribution of expectations during COVID-19



- Kernel densities of end-of-year fiscal balance expectations during COVID-19.
- The entire distribution shifts: not only does the median change, but **dispersion** across analysts also increases.
- Reflects greater **uncertainty** about the fiscal path.

Econometric strategy

Objective

Quantify the effect of **debt deterioration** and **deficit expectations** on: (i) the 10-year real TES rate (cyclical component) and (ii) the slope of the TES yield curve.

Model:

$$y_t = \sum_{j=1}^{p} A_{j,t}\, y_{t-j} + C\, x_t + \varepsilon_t, \qquad \varepsilon_t \sim \mathcal{N}(0, \Sigma)$$

Time-varying parameters:

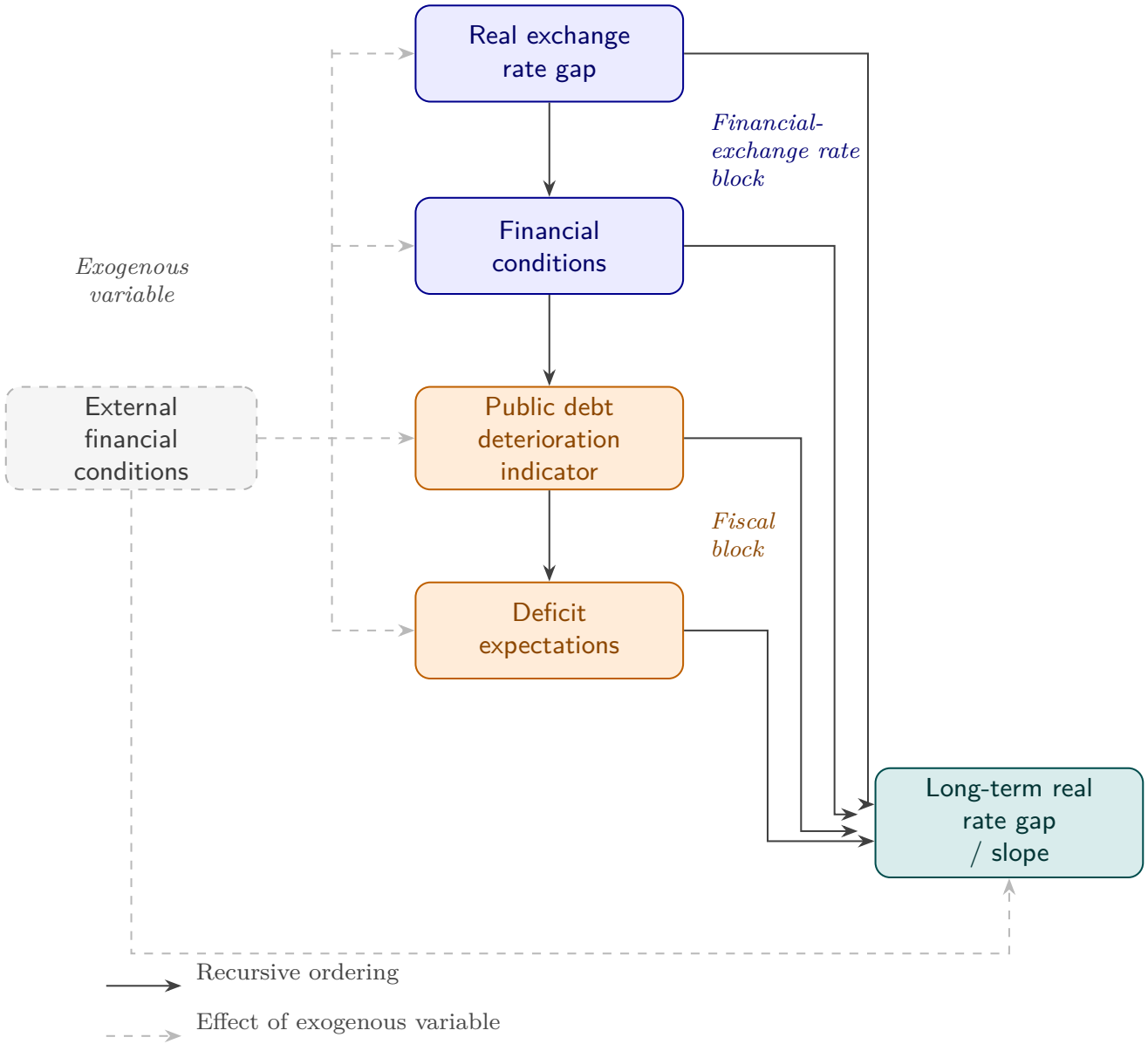
$$\beta_t = \beta_{t-1} + v_t, \qquad v_t \sim \mathcal{N}(0, \Omega)$$

Advantages (in this application):

- Greater robustness in small samples.
- Allows assessing **changes in transmission** (pre vs. post COVID-19).

Data: quarterly, 2005Q1–2025Q3. **Exogenous variable:** slope of the US *Treasury* curve.

Identification: recursive scheme



Identification: system and ordering

Vector of endogenous variables:

$$y_t = \begin{pmatrix} RER_Gap_t \\ IDOAM_t \\ Debt_Det_t \\ Exp_Deficit_t \\ \text{Slope}_t \text{ or } Real_Rate_10Y_t \end{pmatrix}$$

RER_Gap	real exchange rate gap
IDOAM	financial conditions indicator
Debt_Det	debt deterioration indicator
Exp_Deficit	expected CNG deficit

Identification: recursive structural scheme with contemporaneous exclusion restrictions, in the order shown.

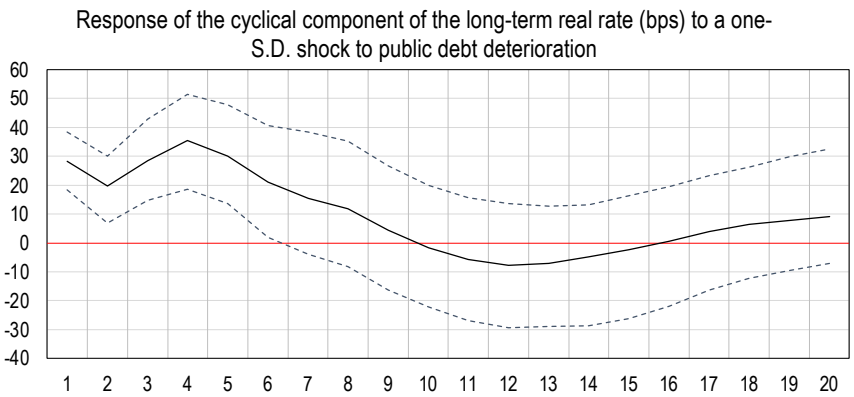
Rationale

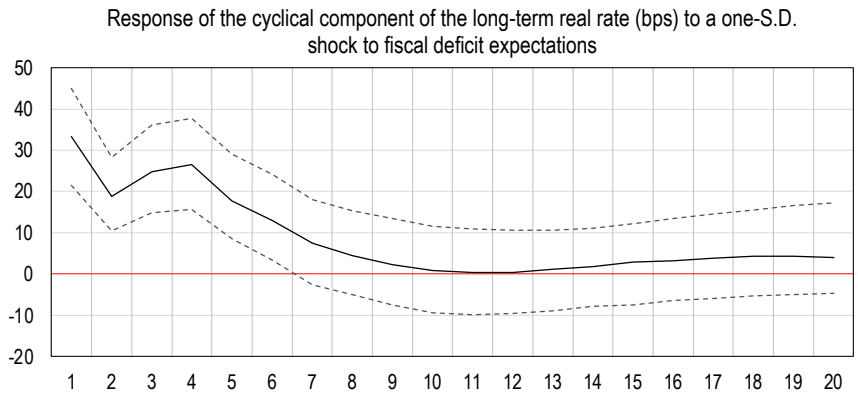
The ordering follows the timing of information. Exchange rate and financial conditions are observed in real time; the fiscal block is built from accounts and forecasts released with a lag; interest rates are ordered last and absorb all contemporaneous information.

An innovation in *Exp_Deficit* is therefore an **informational surprise** (*news shock*) about the future path of public finances, orthogonal to contemporaneous financial, exchange rate and realized-debt disturbances.

Results

Results: cyclical component of the long-term real rate



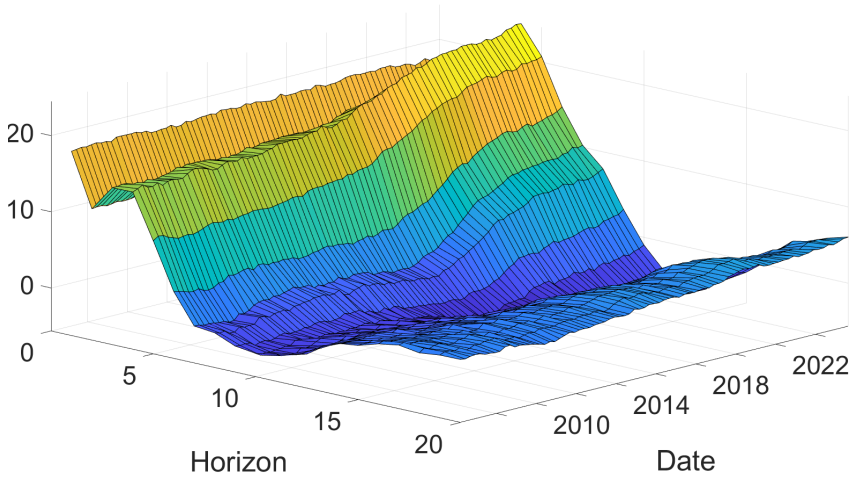


Dashed lines represent 68 % credible intervals. **Source:** Authors' calculations.

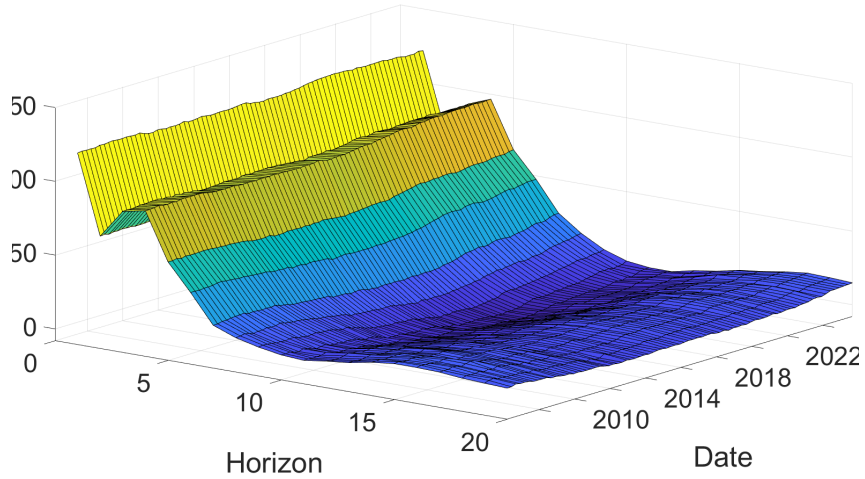
Main result

Fiscal shocks generate **significant** increases in the cyclical component of the long-term real rate.

Results: time-varying transmission (real rate)



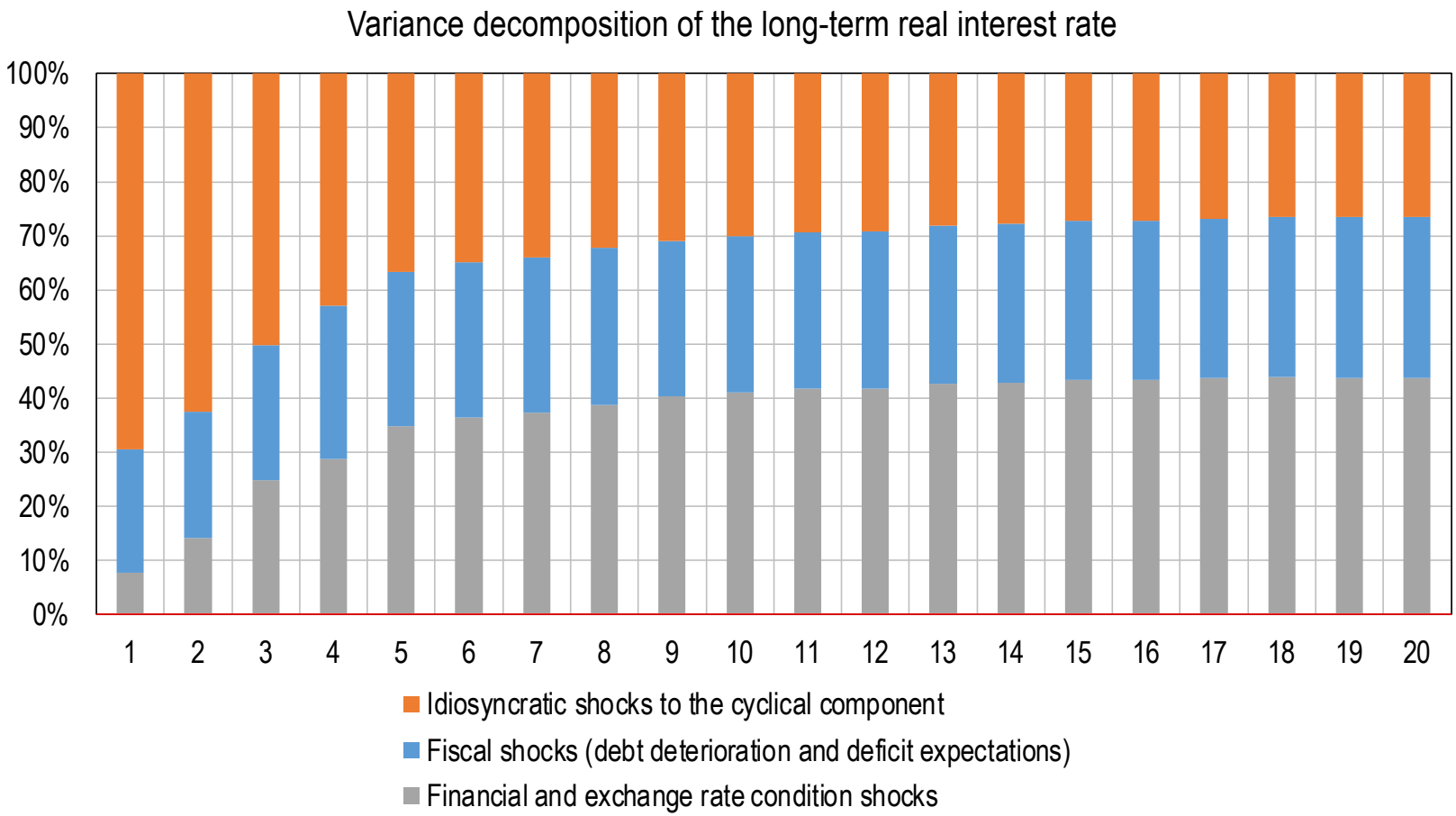
(a) Debt deterioration shock



(b) Deficit expectations shock

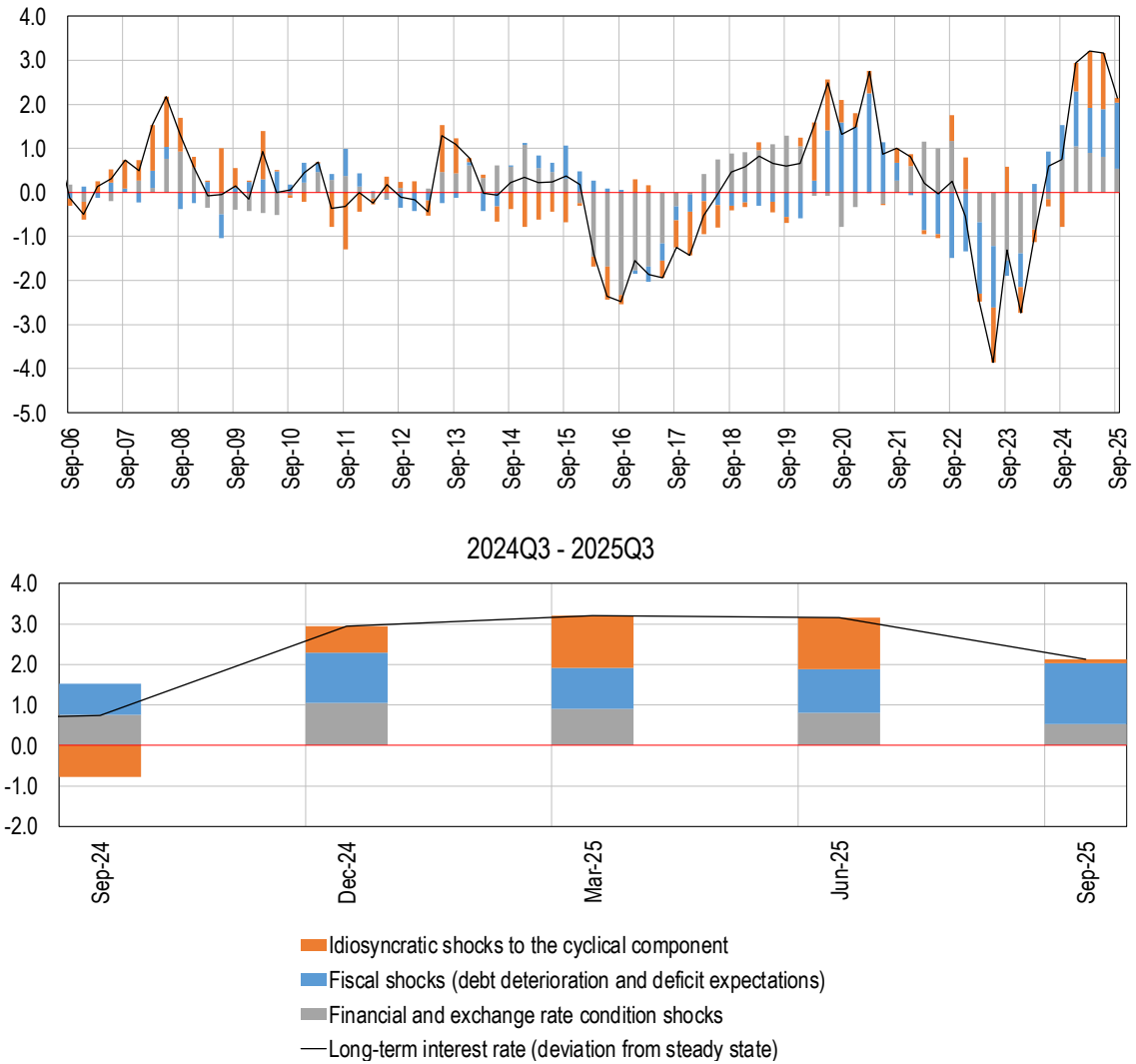
Response of the 10-year real interest rate (cyclical component) to fiscal shocks.
Source: Authors' calculations.

Results: variance decomposition (real rate)



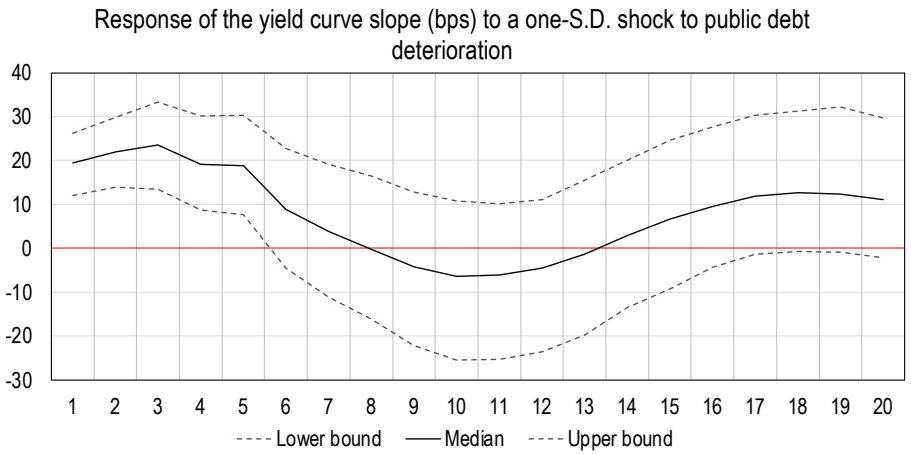
Variance decomposition of the 10-year real interest rate (cyclical component). **Source:** Authors' calculations.

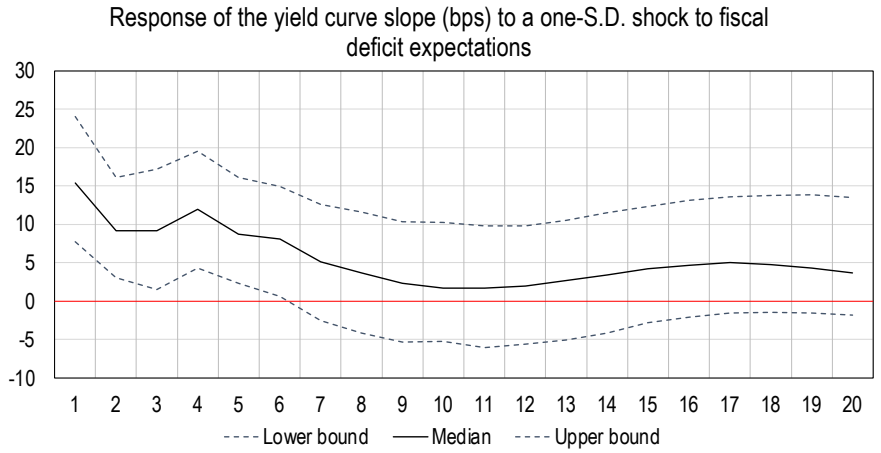
Results: historical decomposition (real rate)



Historical decomposition of the 10-year real interest rate (cyclical component). Deviations from the model's steady state (%). **Source:** Authors' calculations.

Results: yield curve slope



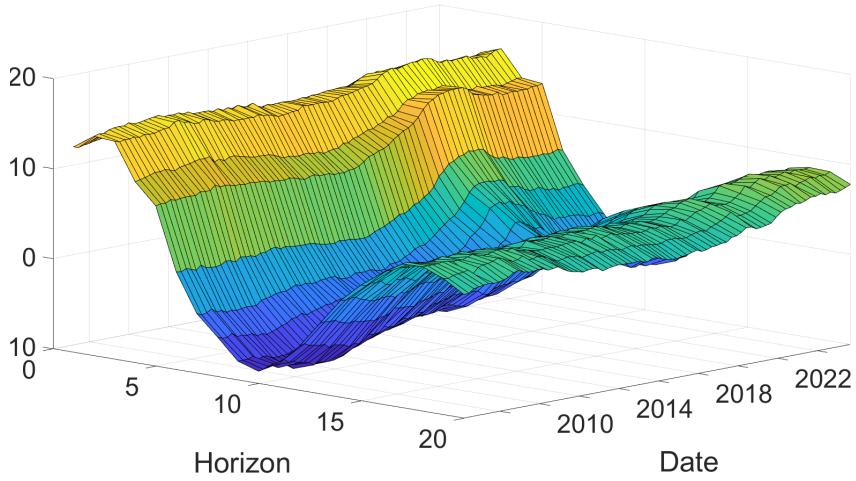


Dashed lines represent 68 % credible intervals. **Source:** Authors' calculations.

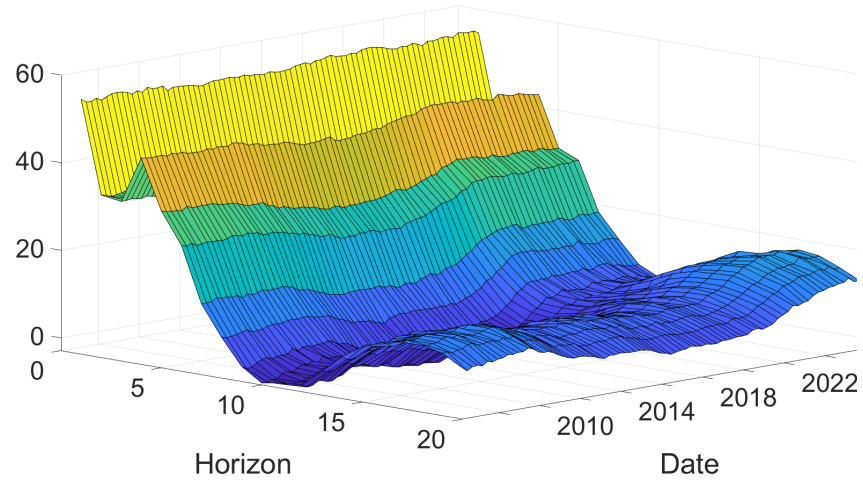
Result

Fiscal shocks generate a **steepening of the yield curve**. Larger impact at the long end than at the short end.

Results: time-varying transmission (slope)



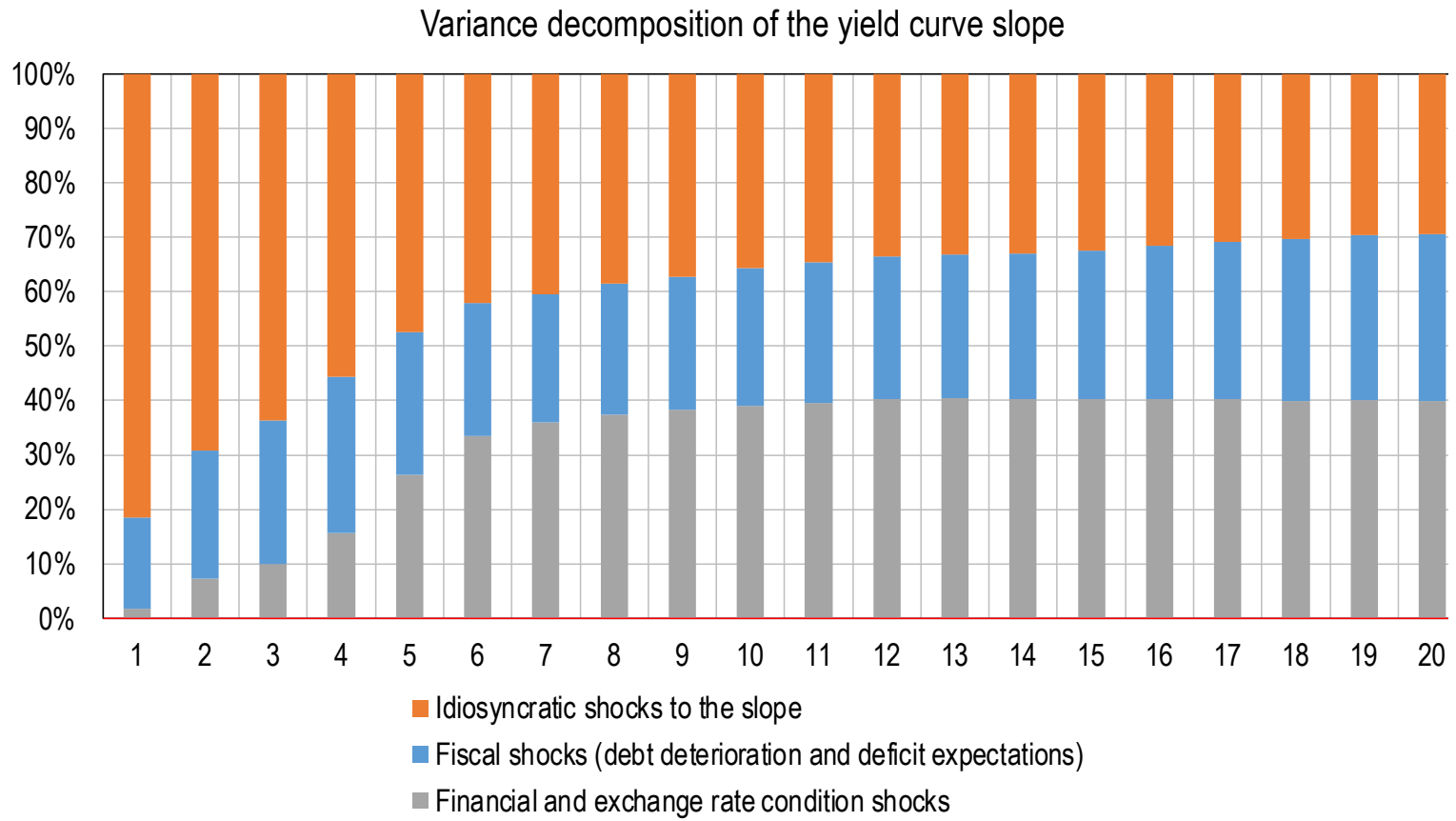
(a) Debt deterioration shock



(b) Deficit expectations shock

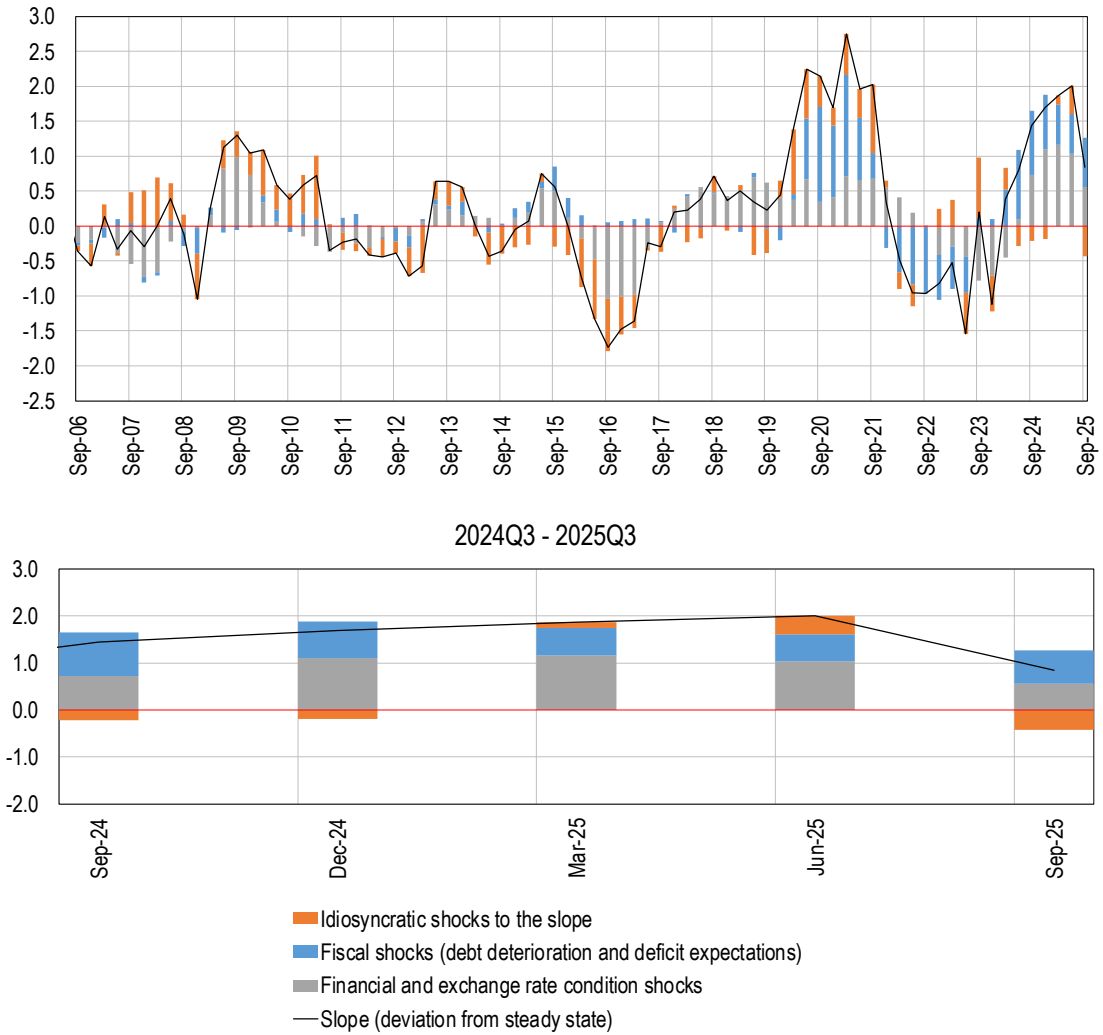
Response of the yield curve slope to fiscal shocks. **Source:** Authors' calculations.

Results: variance decomposition (slope)



Variance decomposition of the yield curve slope. **Source:** Authors' calculations.

Results: historical decomposition (slope)



Historical decomposition of the yield curve slope. Deviations from the model's steady state (%). **Source:** Authors' calculations.

Conclusions

Conclusions: main findings

Contributions of the paper:

- Construction of a fiscal deficit expectations series (FocusEconomics, 2005–2025).
- Estimation of TVP-BVARX models to capture changes in fiscal transmission to the cyclical component of the long-term real interest rate and the yield curve slope.

Central results:

1. Debt deterioration and upward revisions in deficit expectations $\Rightarrow$ **significant** increases in the cyclical component of the 10-year real TES rate and **steepening** of the yield curve.
2. The response to expectations shocks is **persistent**: the forward-looking dimension of fiscal policy matters.
3. Transmission appears **stronger after COVID-19**, consistent with higher debt and persistent deficits; this result is suggestive rather than conclusive.
4. The historical decomposition confirms that fiscal shocks explain a **relevant** share of the recent increase in real rates and in the slope.

Conclusions: implications and future agenda

Policy implications:

- *Perceptions* of fiscal sustainability translate directly into higher sovereign financing costs.
- Markets react to *expectations*, not only to observed outcomes $\Rightarrow$ fiscal announcements and communication are key to price formation in the public debt market.
- In the current context of high debt, fiscal room for maneuver is narrower and the costs of further deterioration may be larger than in the past.

Future research:

- Effect of the fiscal position on sovereign risk premia.
- Nonlinearities: debt thresholds beyond which transmission is amplified.
- Extension of the fiscal expectations series to other countries in the region with comparable FocusEconomics coverage.