

# **Debt Accumulation & Reduction: What Do the Data Say?**

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IMF Africa Training Institute 10<sup>th</sup> Anniversary Conference  
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# Outline

- Debt levels and borrowing costs
- Debt dynamics
- Fiscal risk
- Debt spikes and debt reductions
- Takeaways

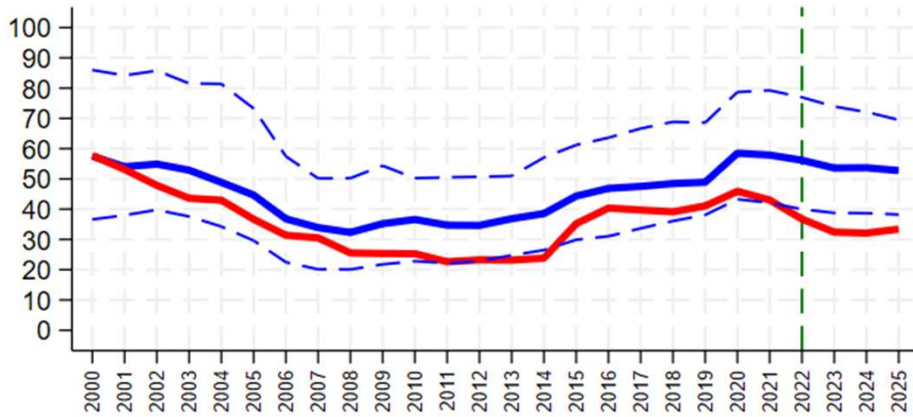
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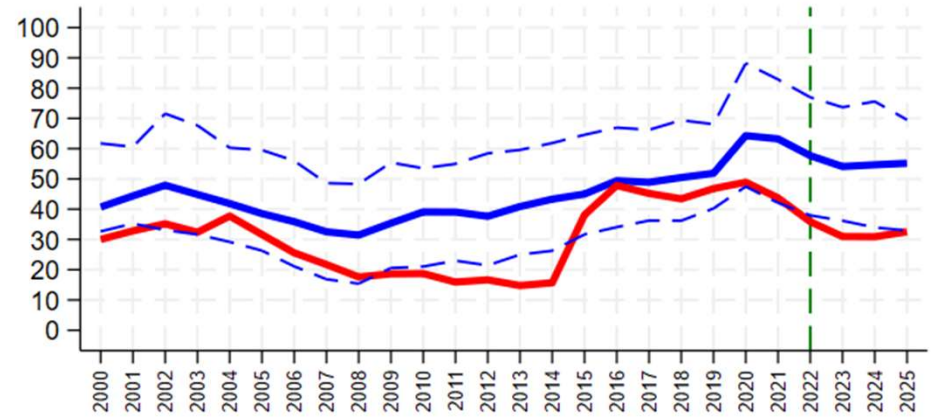
# Debt is high...

## Debt/GDP

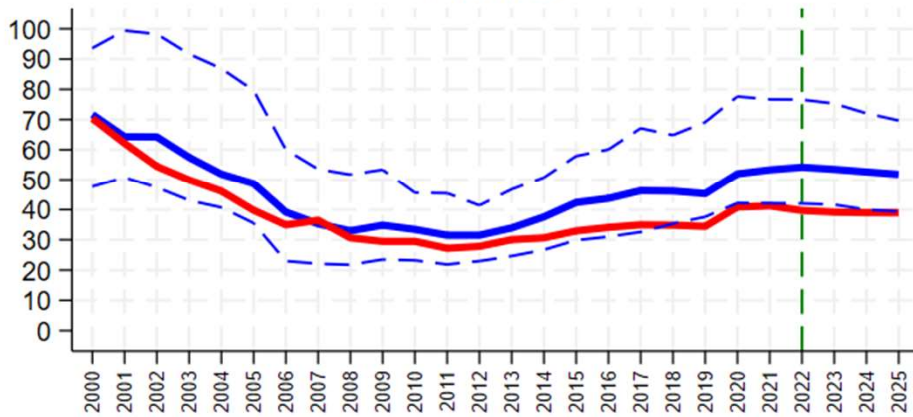
### ALL



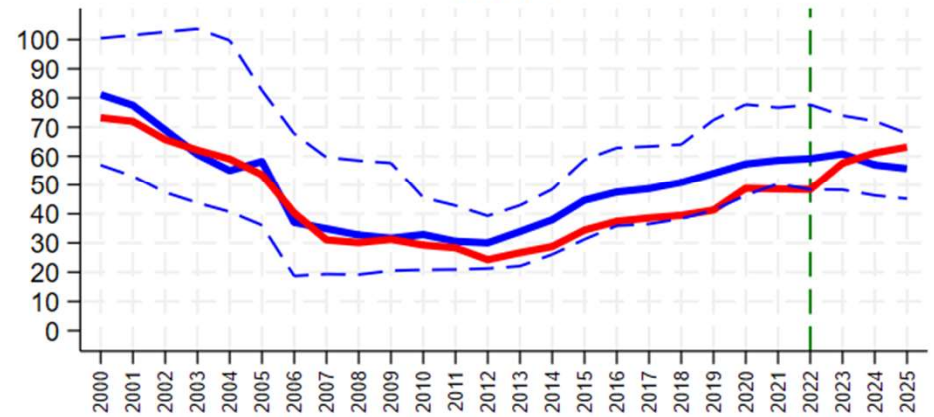
### HUMIC



### LLMIC



### SSA



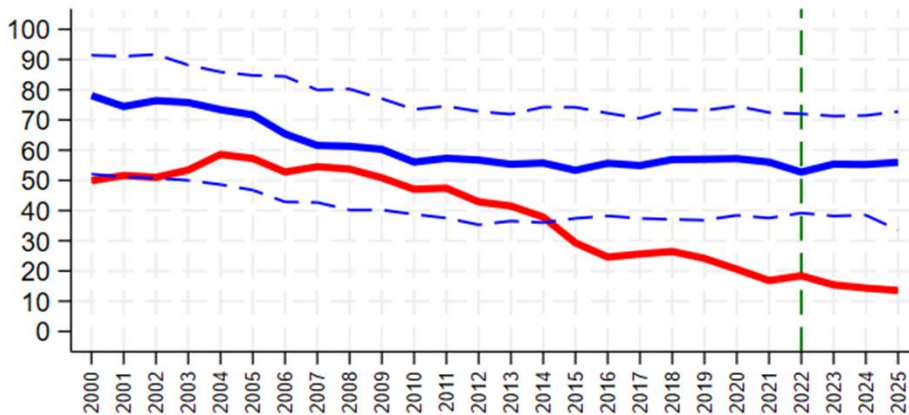
**Median**

**Weighted average (excluding China and India)**

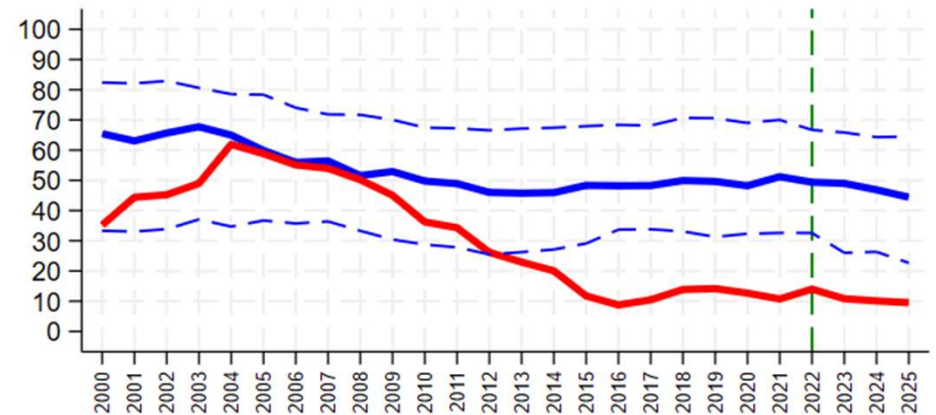
# ...the share of FX debt has been decreasing, but not everywhere...

FX Debt/DEBT

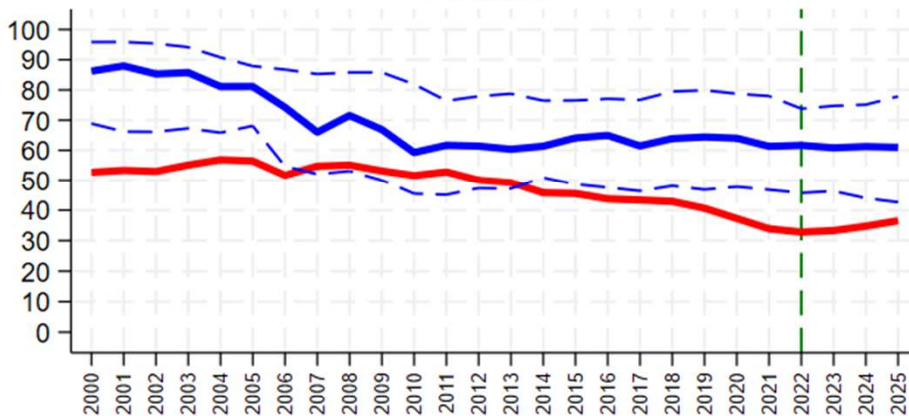
ALL



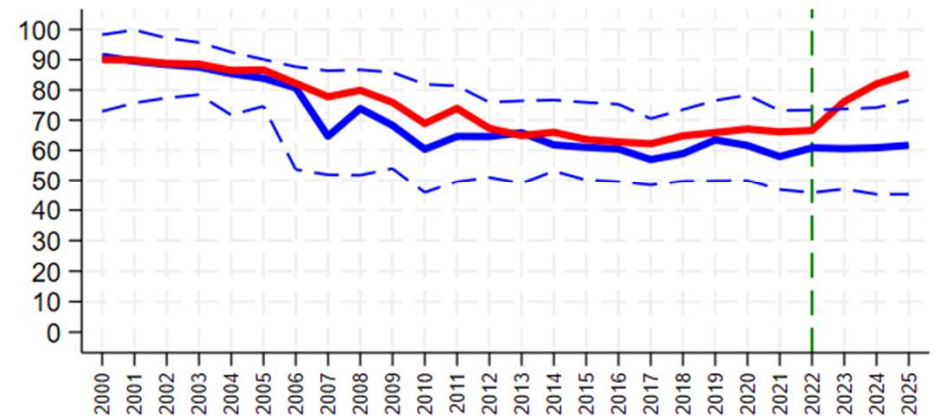
HUMIC



LLMIC



High, also in large countries  
SSA

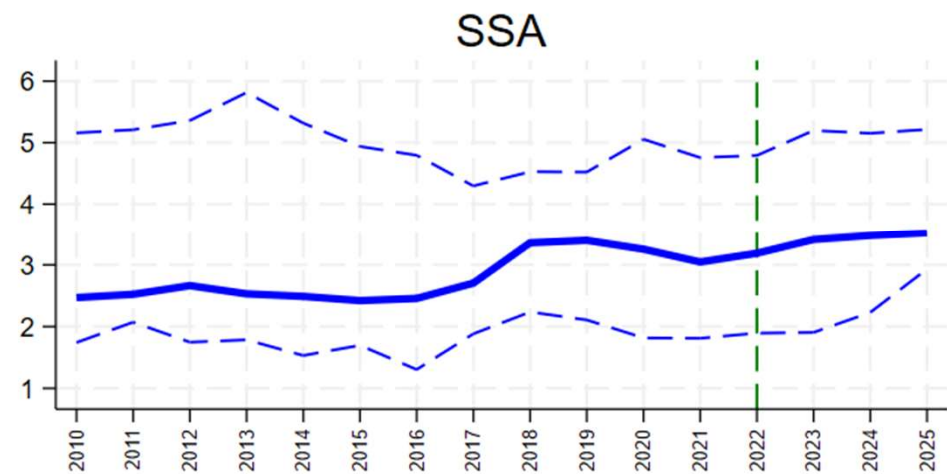
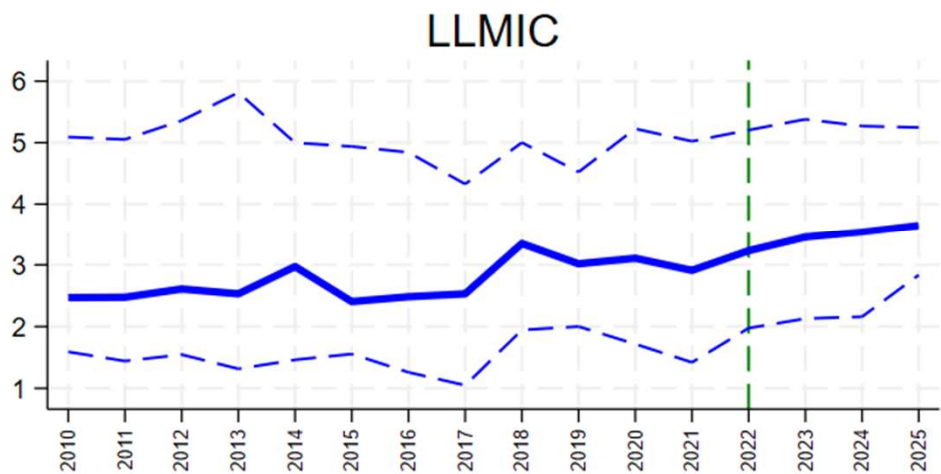
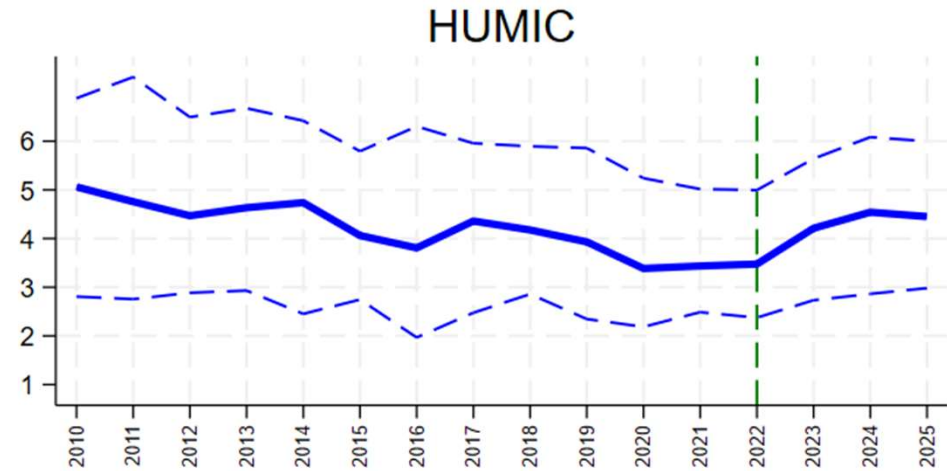
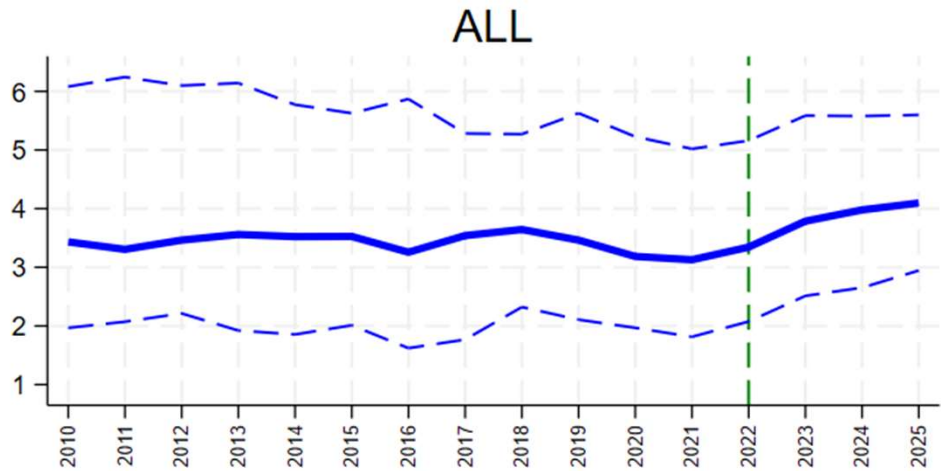


Median

Weighted average (excluding China and India)

# ...interest rates are increasing...

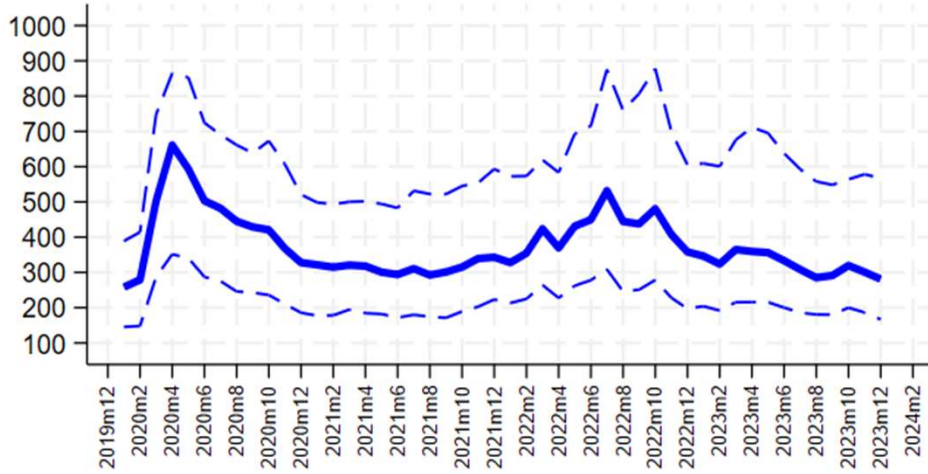
## Interest Rate



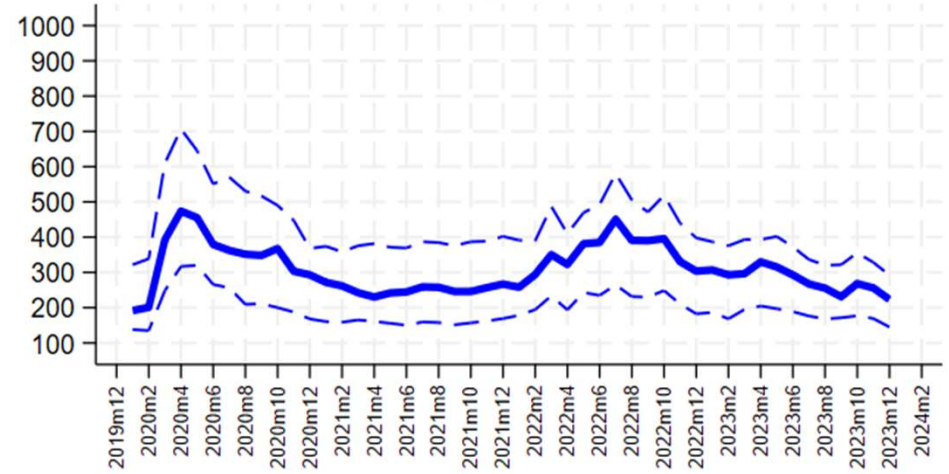


# ...spreads are high and volatile...

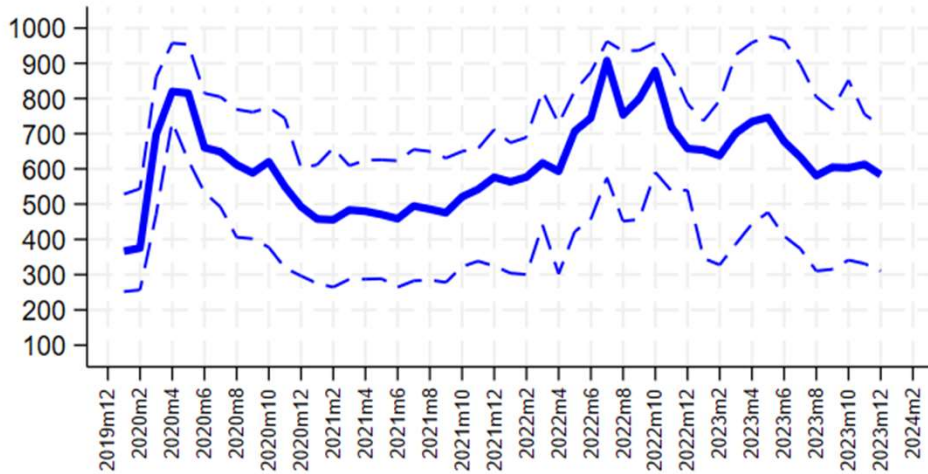
ALL



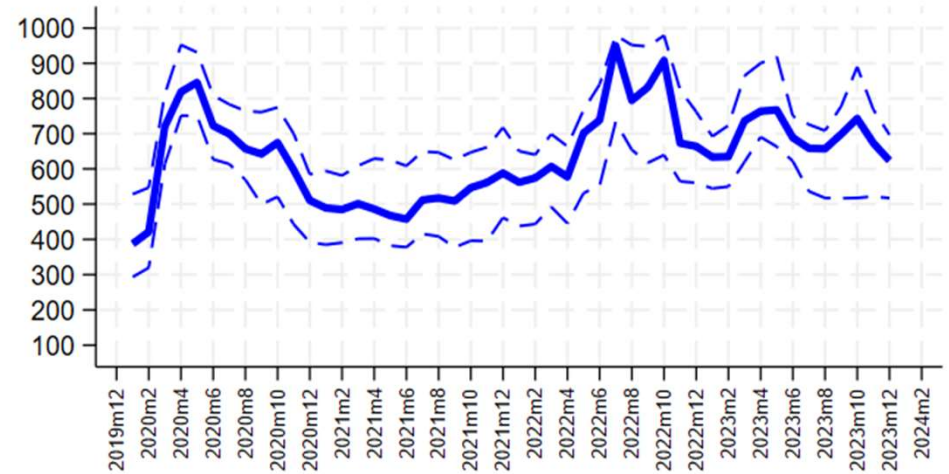
HUMIC



LLMIC

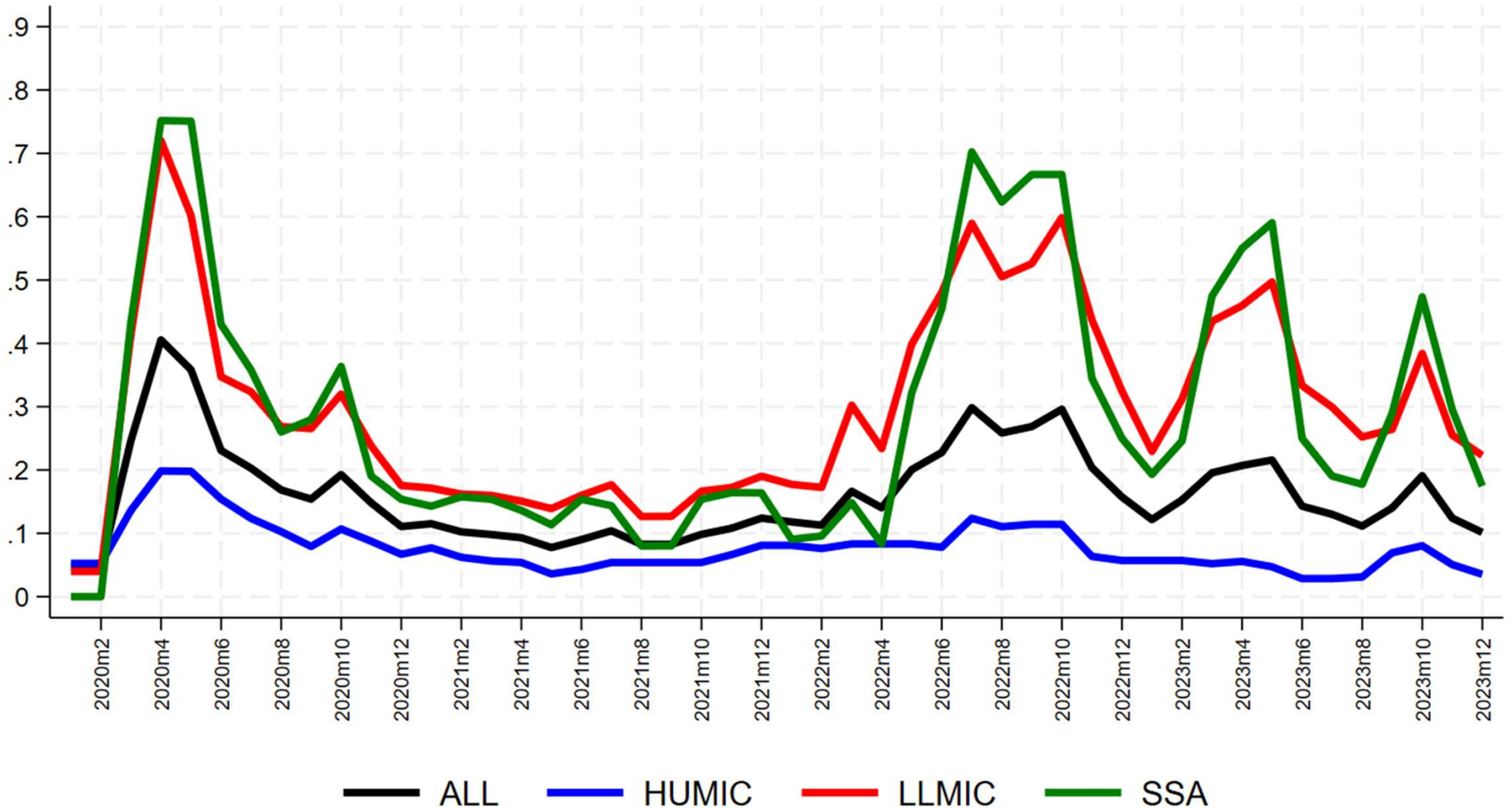


SSA



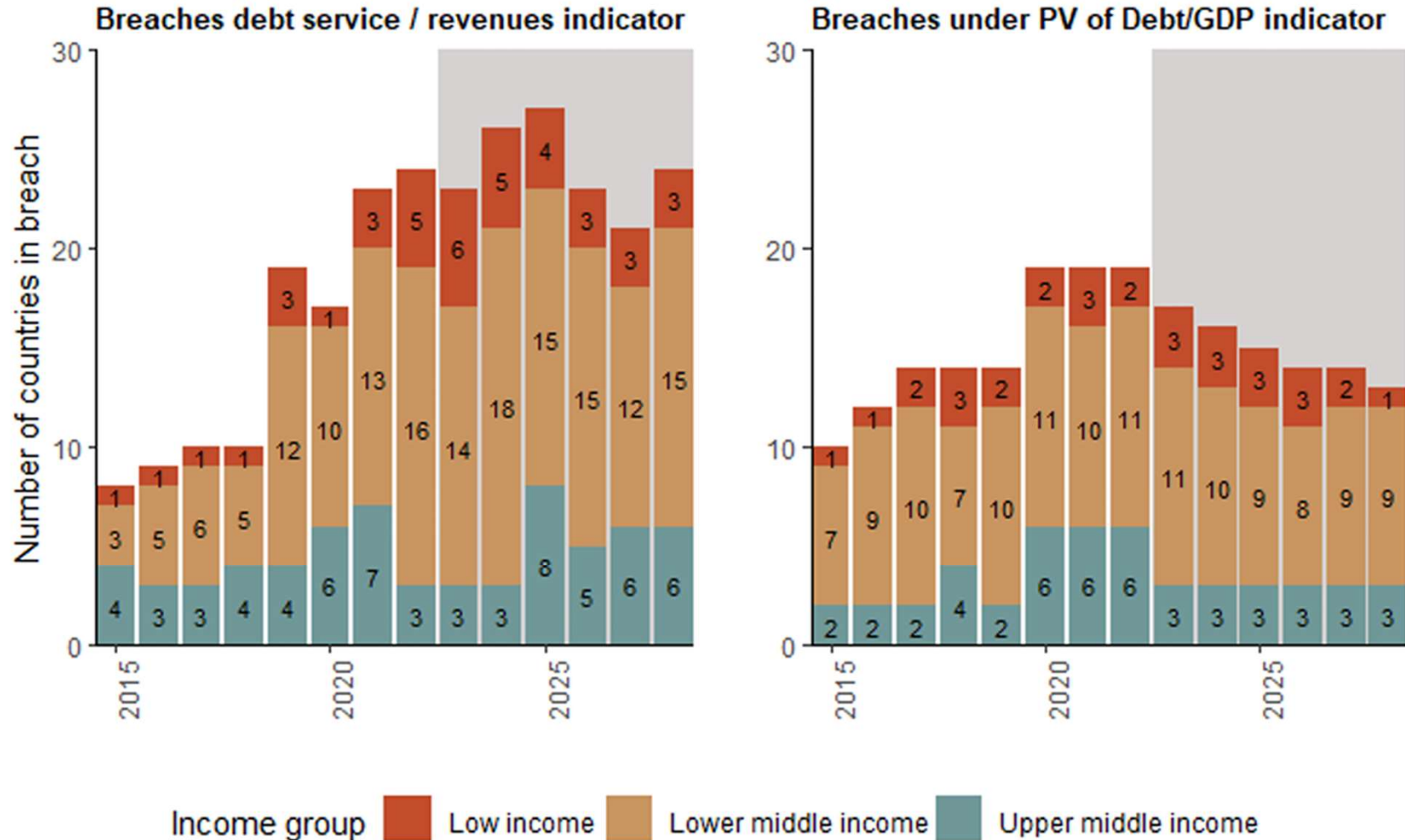
# ...and market access is precarious

Share of Countries with No Market Access





# Liquidity versus Solvency



Source: Albinet, Kessler and Brancher (2023)

# Imagine there's no spread



It's not easy, even if you try

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# Debt Dynamics 101

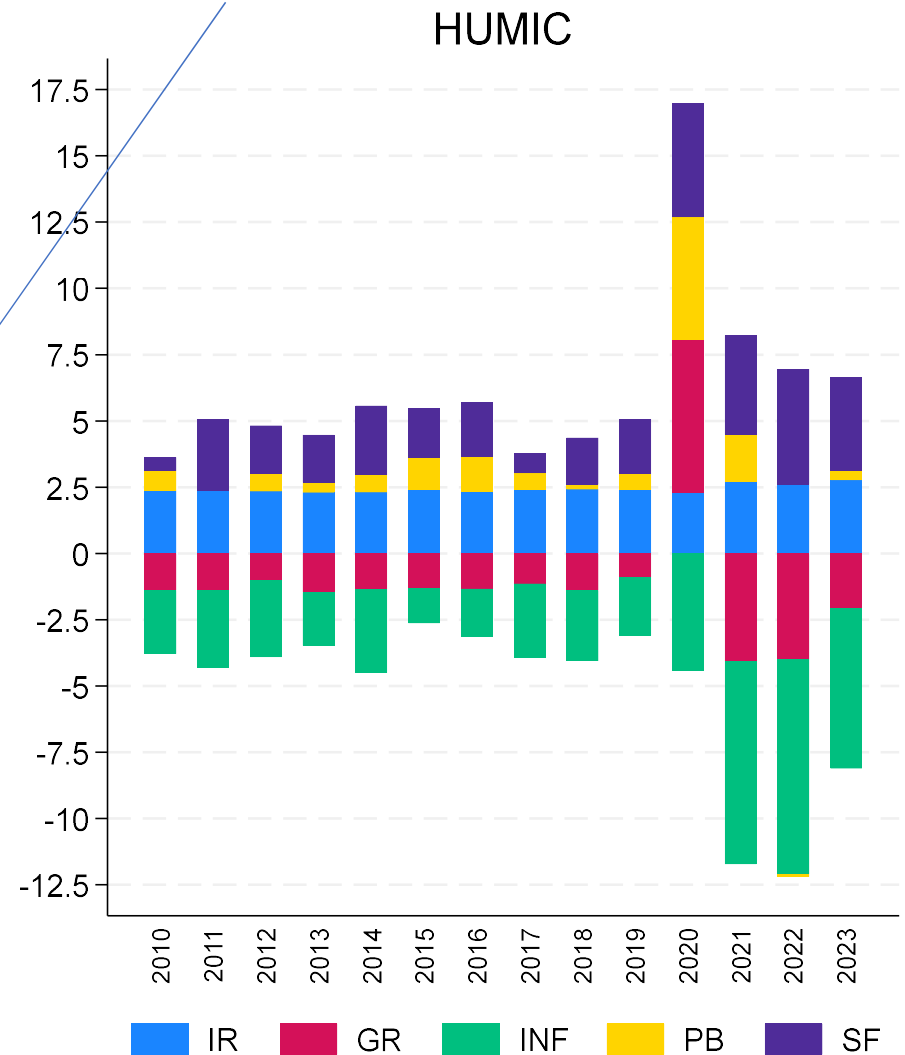
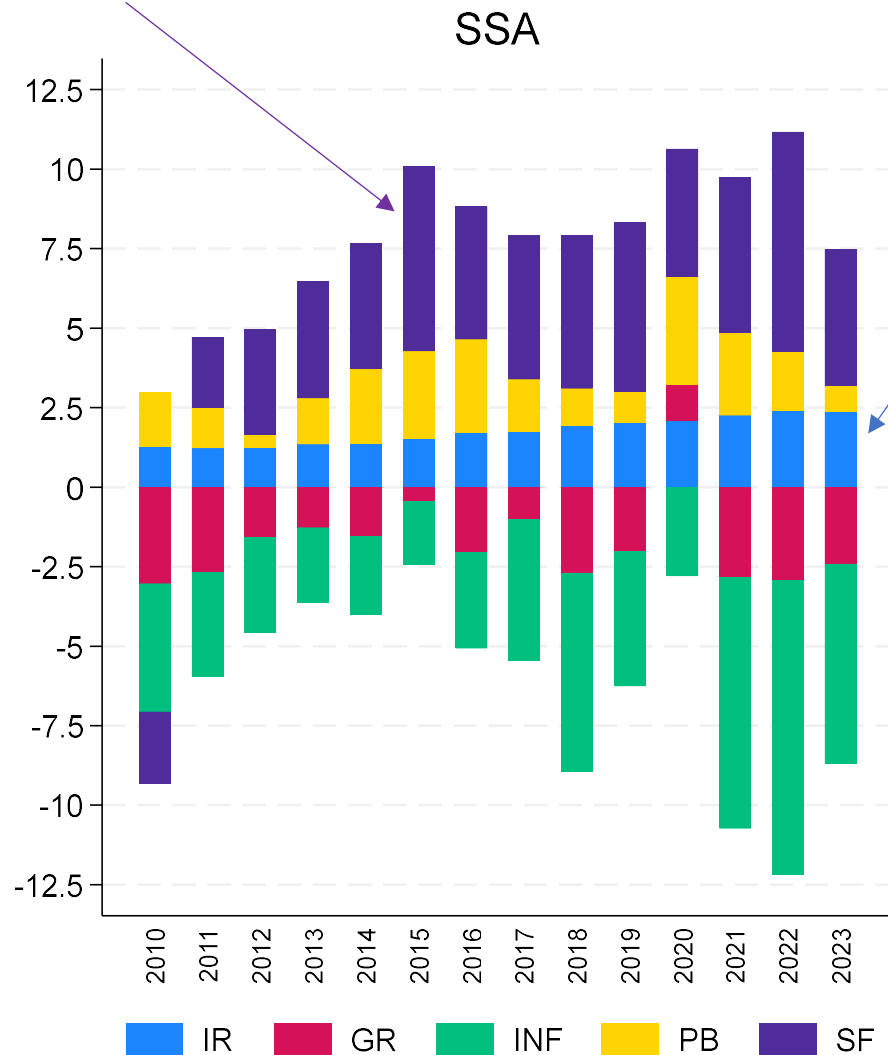
- Change in the debt to GDP ( $d$ ) ratio  $\Delta d =$ 
  - primary balance over GDP  $pb$
  - (real GDP growth)X(initial debt/GDP)  $gd_{t-1}$
  - (inflation)X(initial debt/GDP)  $\pi d_{t-1}$
  - + (interest rate)X(initial debt/GDP)  $id_{t-1}$
  - + stock-flow reconciliation  $sf$   
(AKA, the unexplained part of debt)

$$\Delta d = -pb + (i - g - \pi)d_{t-1} + sf$$

# The Drivers of Debt Dynamics

Large

Growing





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# Fiscal risk

- **Definition**

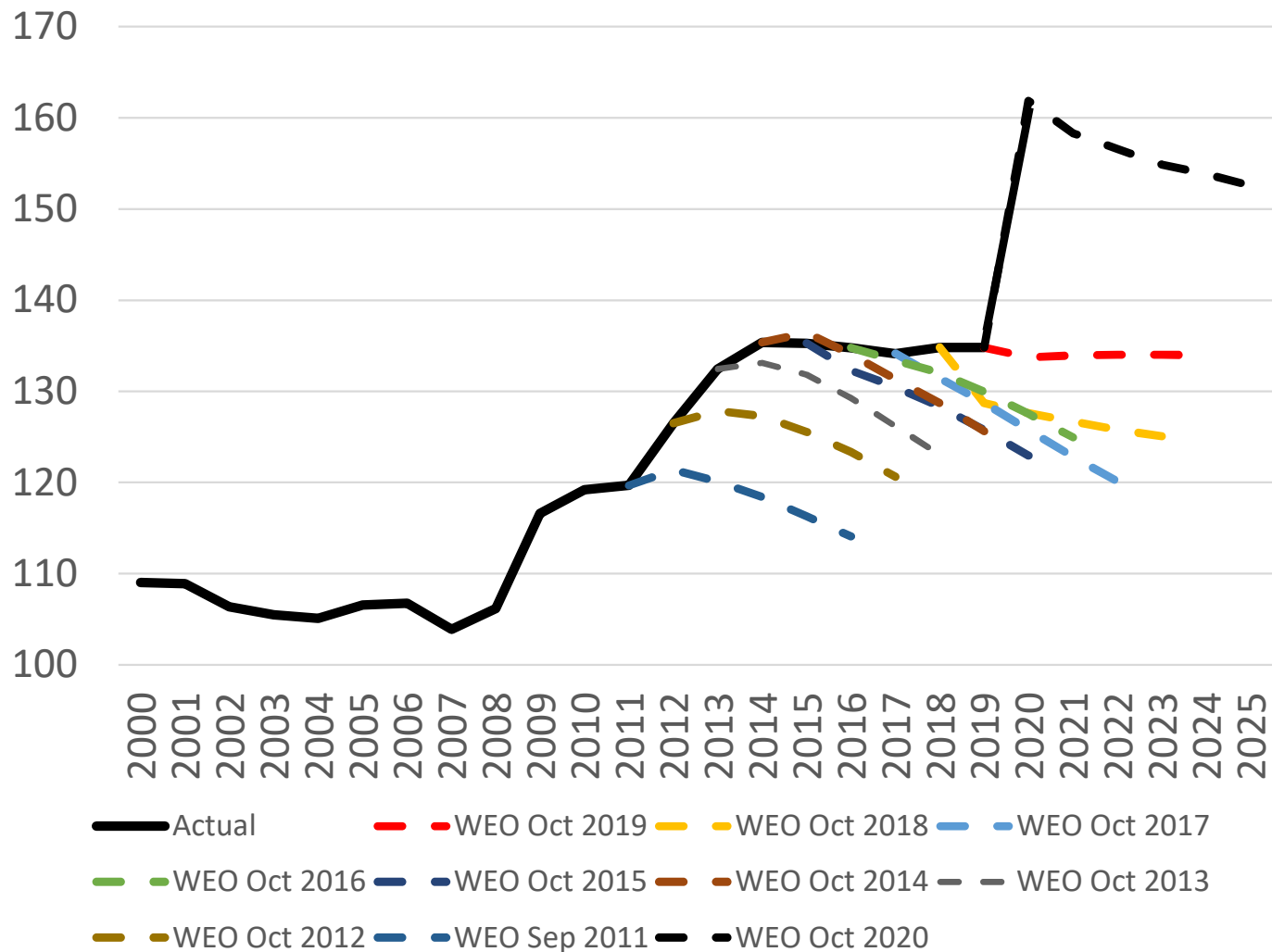
- **Large** or **systematic** deviations of fiscal outcomes from their expected values

- **Sources**

- **Macro** shocks (GDP growth, exchange rate, inflation, and interest rate)
- **Policy** shocks (policy slippages and change in government policies)
- Realization of **contingent liabilities**
- **Strategic** forecasts

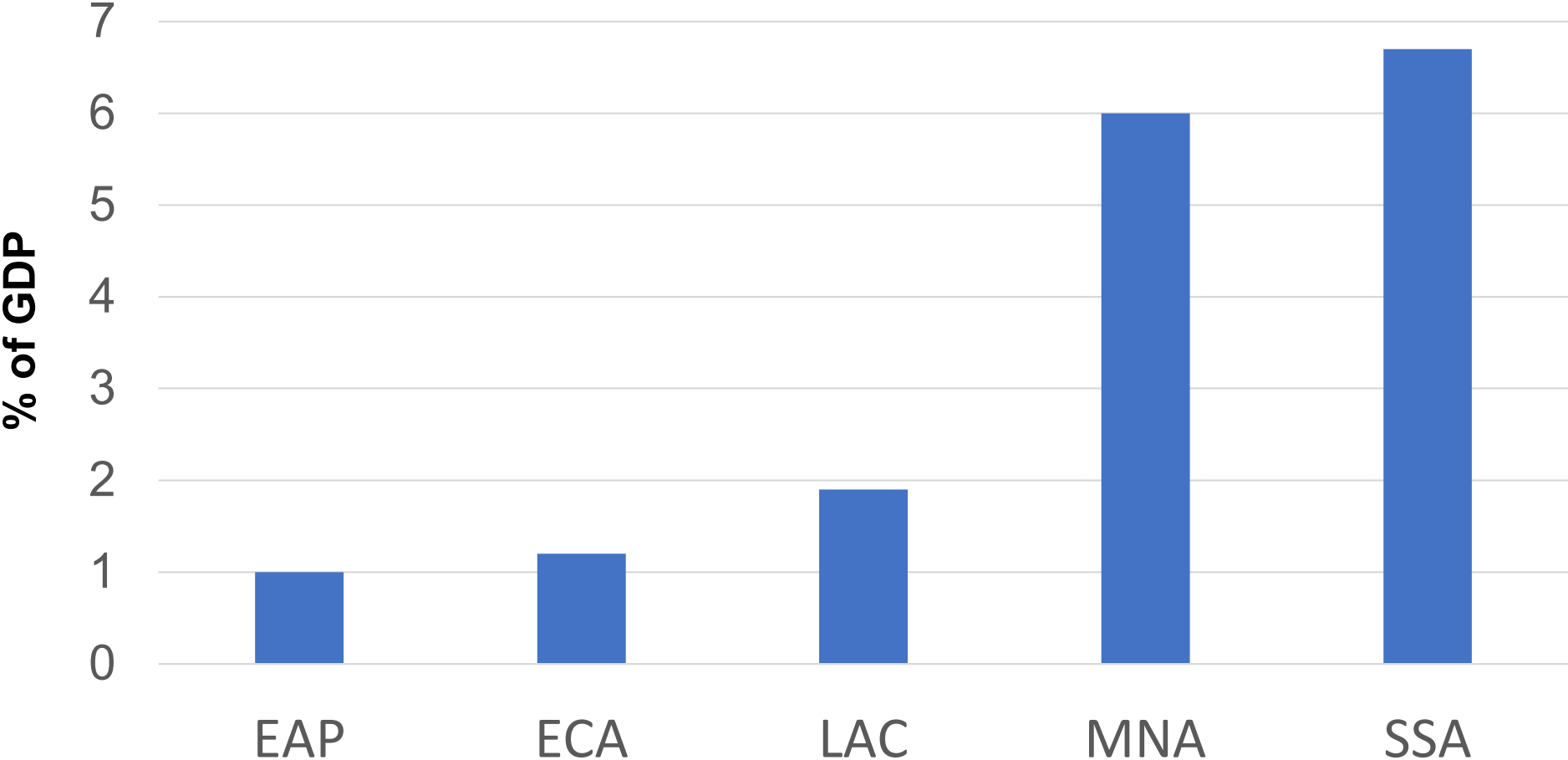
# Fiscal risk in a nutshell

## Public debt/GDP (Italy)



# Outturns minus forecasts

$$D_t - E_{t-2}(D_t)$$



Source: Panizza (2020)

# Debt Dynamics & Forecast Errors

$$\frac{d_t - E_{t-1}d_t}{d_{t-1}} =$$

$$(i - E_{t-1}i) +$$

**INTEREST Forecast Errors**

$$-(\pi - E_{t-1}\pi) +$$

**INFLATION Forecast Errors**

$$-(g - E_{t-1}g) +$$

**GROWTH Forecast Errors**

$$-\frac{pb_t - E_{t-1}pb_t}{d_{t-1}} +$$

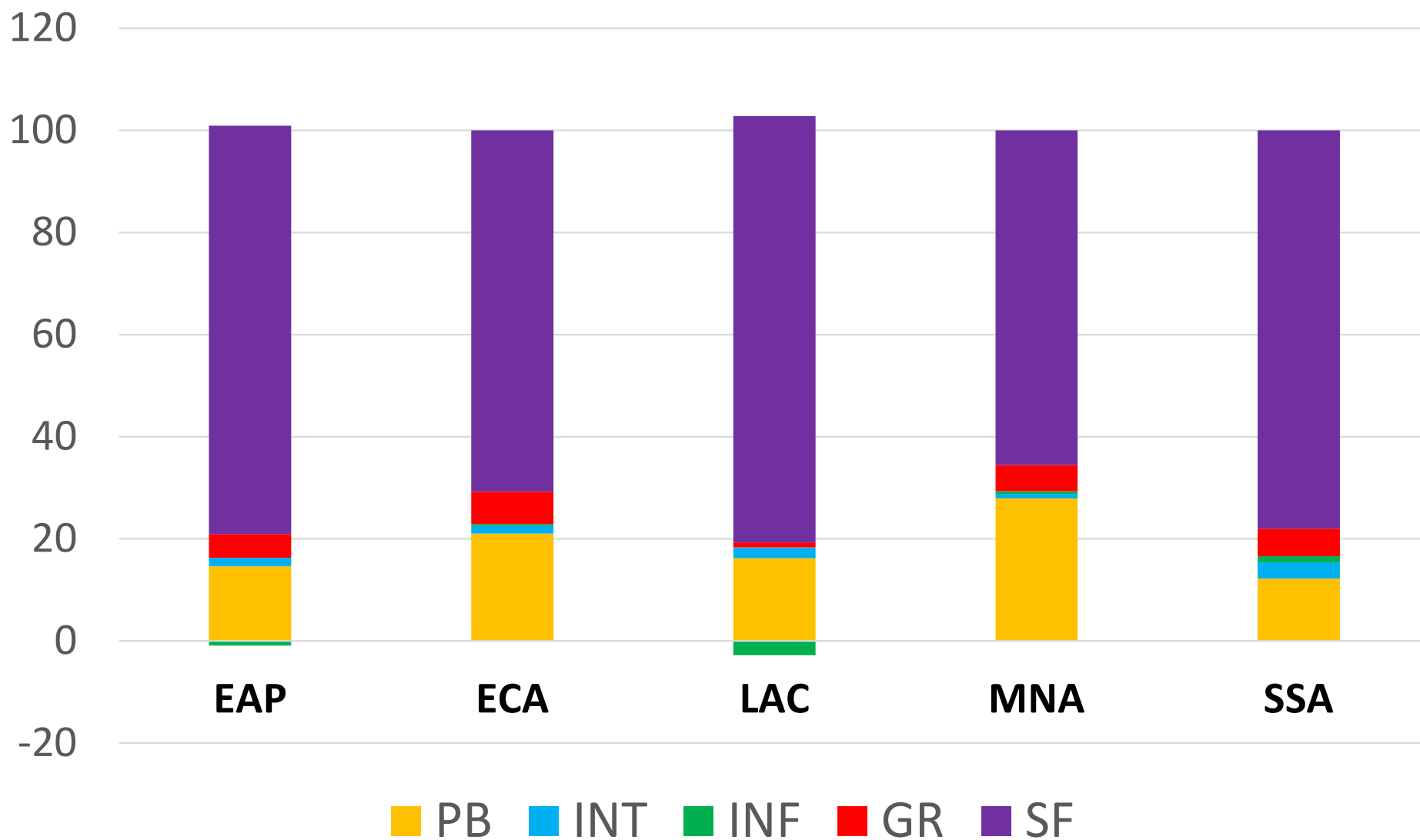
**PRIMARY BALANCE  
Forecast Errors**

$$+\frac{sf_t - E_{t-1}sf_t}{d_{t-1}}$$

**STOCK FLOW  
RECONCILIATION**

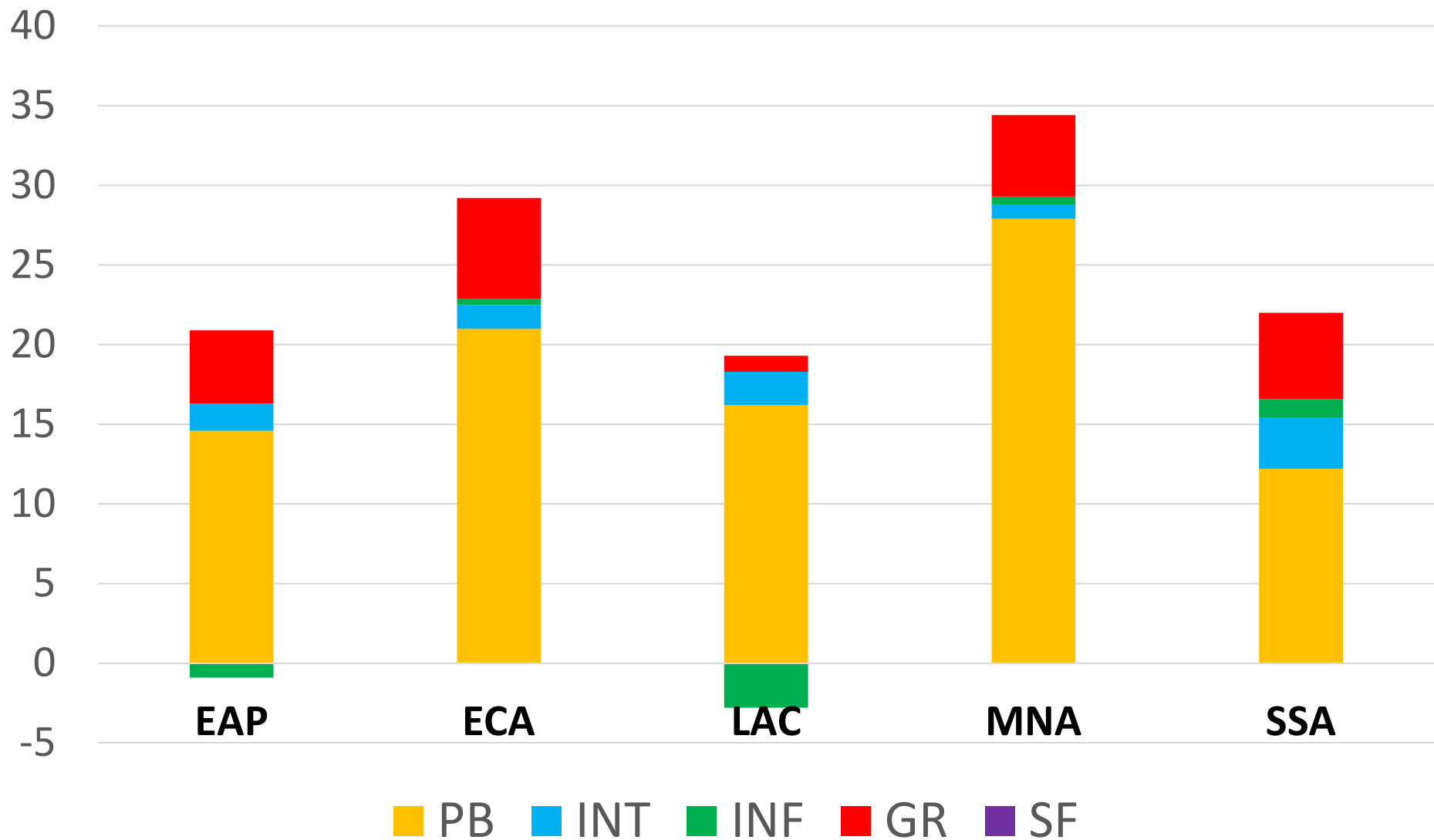


# Components of debt risk



Source: Panizza (2020)

# Components of debt risk



Source: Panizza (2020)

# Fiscal risk and the exchange rate

	(1)	(2)	(3)	(4)
<u>GRxGT</u>	-1.537*** (0.240)	-0.133 (0.291)	-1.479*** (0.215)	-0.131 (0.288)
<u>GRxBT</u>	-2.099*** (0.496)	-0.382** (0.152)	-2.048*** (0.527)	-0.451** (0.176)
BT	0.00353 (0.0113)	0.0343* (0.0177)	0.00241 (0.0110)	0.0364** (0.0180)
DXR	<b>-0.0212</b> <b>(0.0524)</b>	<b>-0.242***</b> <b>(0.0511)</b>	<b>-0.0430</b> <b>(0.0548)</b>	<b>-0.250***</b> <b>(0.0564)</b>
INF			0.987** (0.376)	-0.0886 (0.0893)
N. Obs	291	1,216	291	1,213
N. Cy	26	163	26	163
Cy FE	Yes	Yes	Yes	Yes
Sample	<b>AE</b>	<b>EM&amp;DEV</b>	<b>AE</b>	<b>EM&amp;DEV</b>

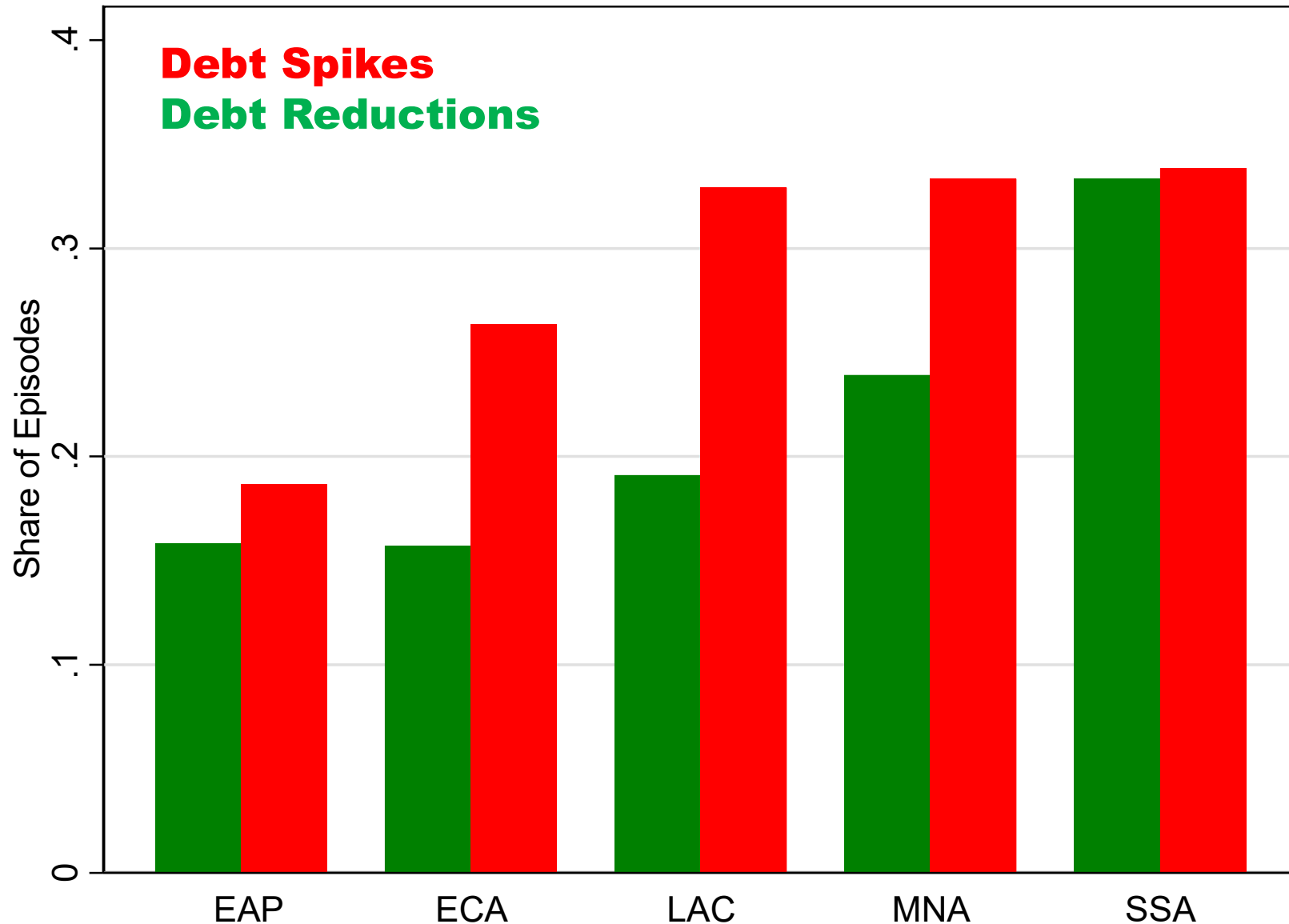
Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Source: Panizza (2020)

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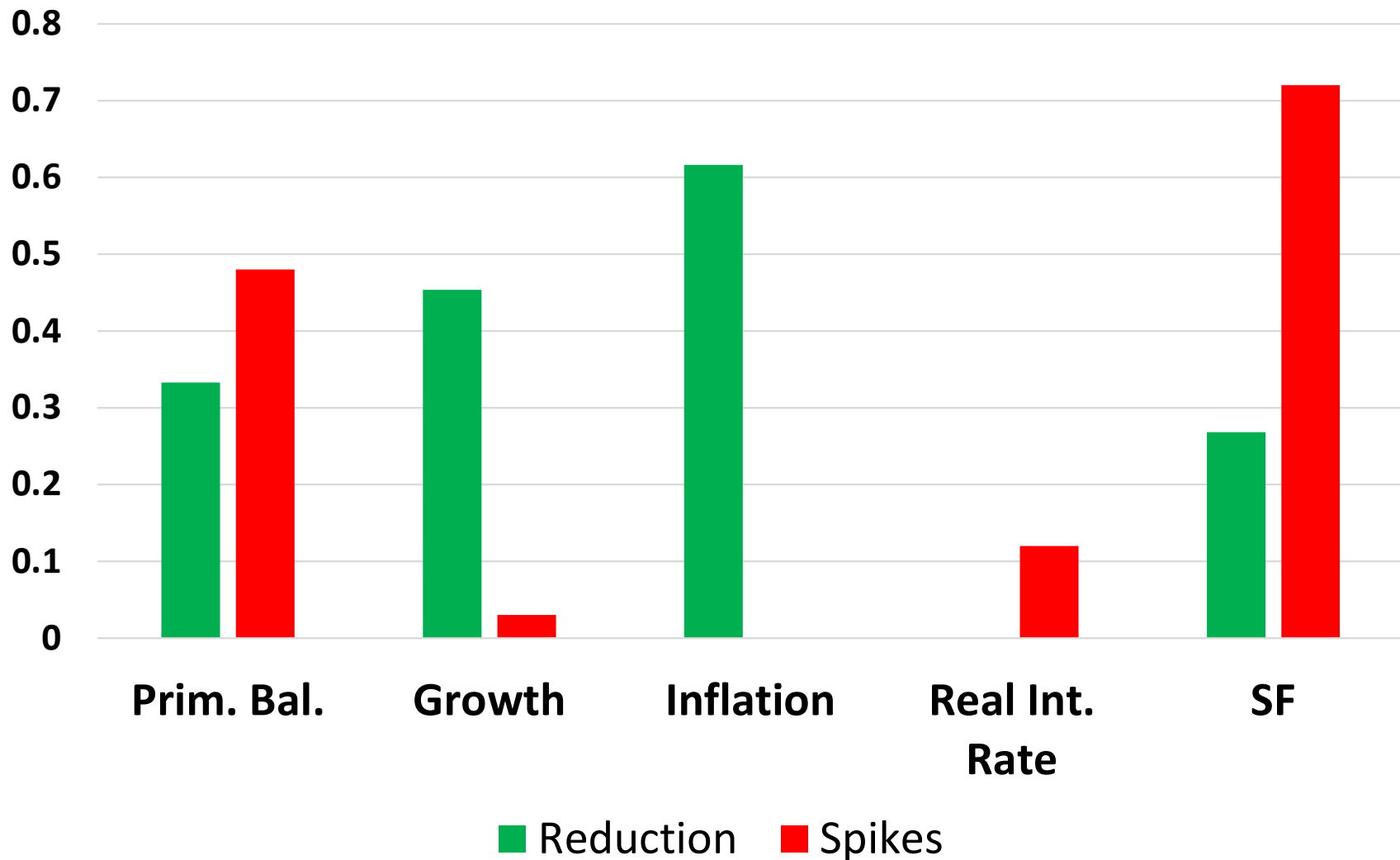
# Debt Reductions and Spikes



Source: Panizza and Powell (2023)

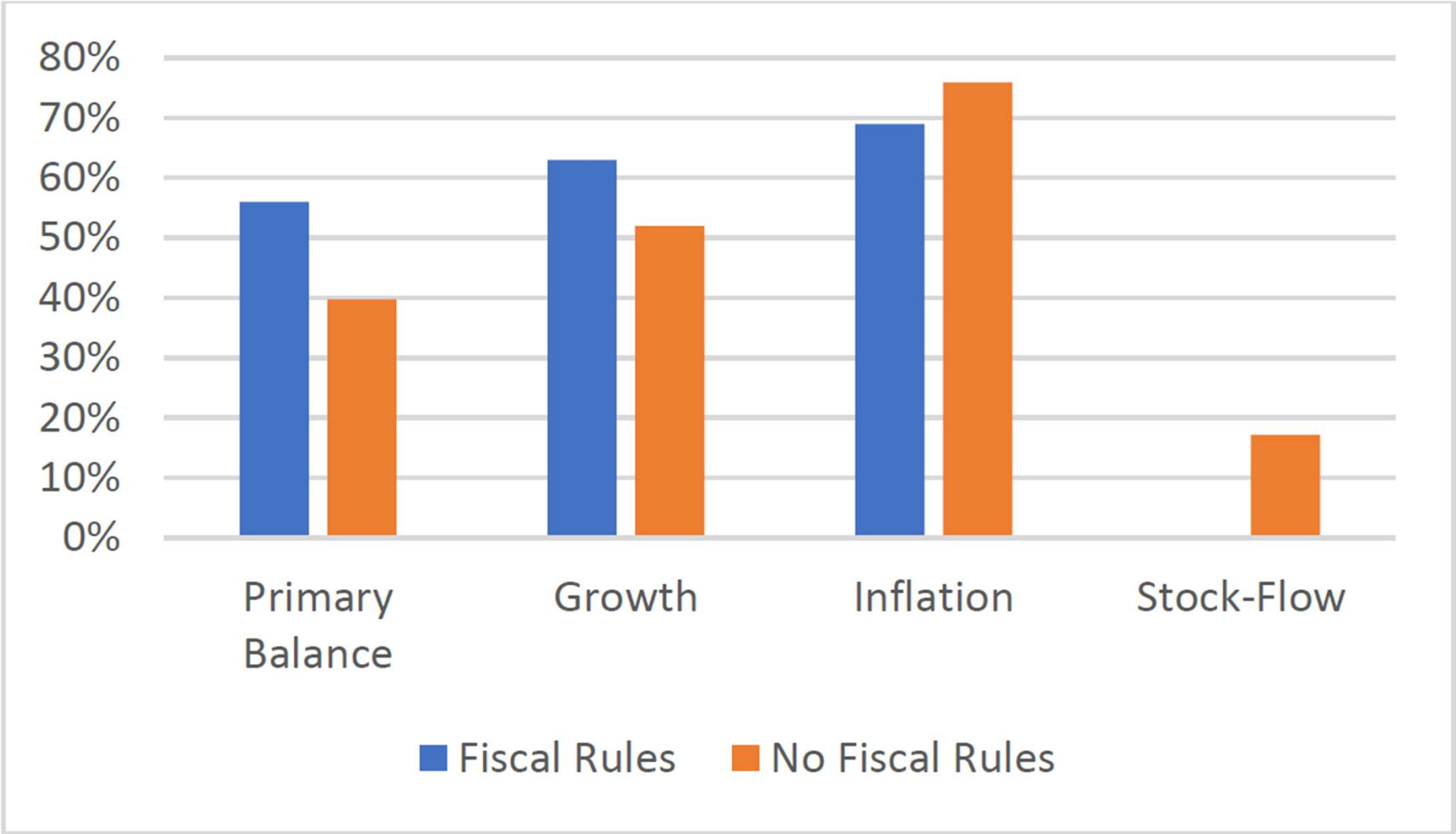


# The drivers of debt reductions and spikes



Source: Panizza and Powell (2023)

# Probability of different types of debt reduction episodes



Source: Panizza and Powell (2023)

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# Takeaways

- Debt levels are high and borrowing costs are high and volatile
  - Especially in low income economies (and Sub-Saharan Africa)
  - Good news: more liquidity than solvency problems
- Fiscal risk and debt spikes are high in Sub-Saharan Africa
  - Invest in forecasting capacity
  - Data quality and transparency are key
- The main driver of debt growth, fiscal risk, and debt spikes is the “unexplained part of debt”
  - Strongly correlated with exchange rate depreciations when FX debt is large
  - Good debt management is very important
- Debt reductions are often driven by inflation and rarely driven by fiscal consolidation
  - But fiscal rules help