Fiscal policy in a negative interest rate-growth differential environment – new evidence

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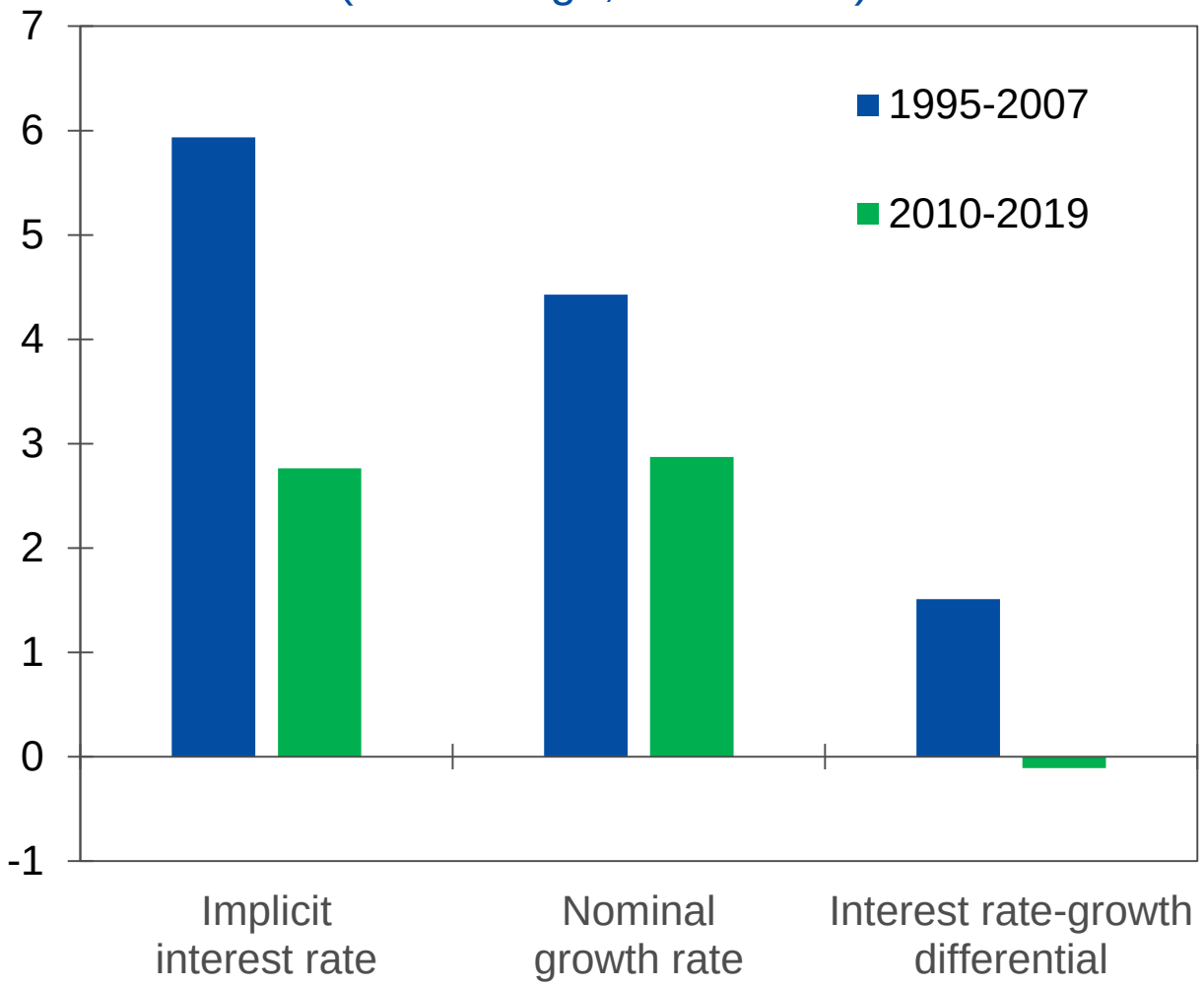
Introduction

Implicit interest rate and nominal growth
(EU average, 1995-2019)



- Long-term decline in implicit interest rates
- Moderate decrease in nominal growth

Literature focused the drivers of low safe interest rates (Lunsford and West, 2019), the stabilising role of fiscal policy (Miyamoto et al., 2018), or the welfare cost of public debt (Blanchard, 2019)

- This paper investigates the behaviour of fiscal policy **when** 'r-g <0', which has received much less attention.

→ Findings released in COM Report on Public Finances in EMU 2020

This study

- Starts from the debt accumulation equation:

$$\Delta debt = \underbrace{(r-g).debt}_{snowball\ effect} - primary\ surplus$$

- Assumption: primary balances reflect government choices and depend on the economic environment:

$$primary\ surplus = f(debt; cycle; \ldots; r-g?)$$

➔ Overall impact of a decrease in (r-g) on the pace of debt reduction:

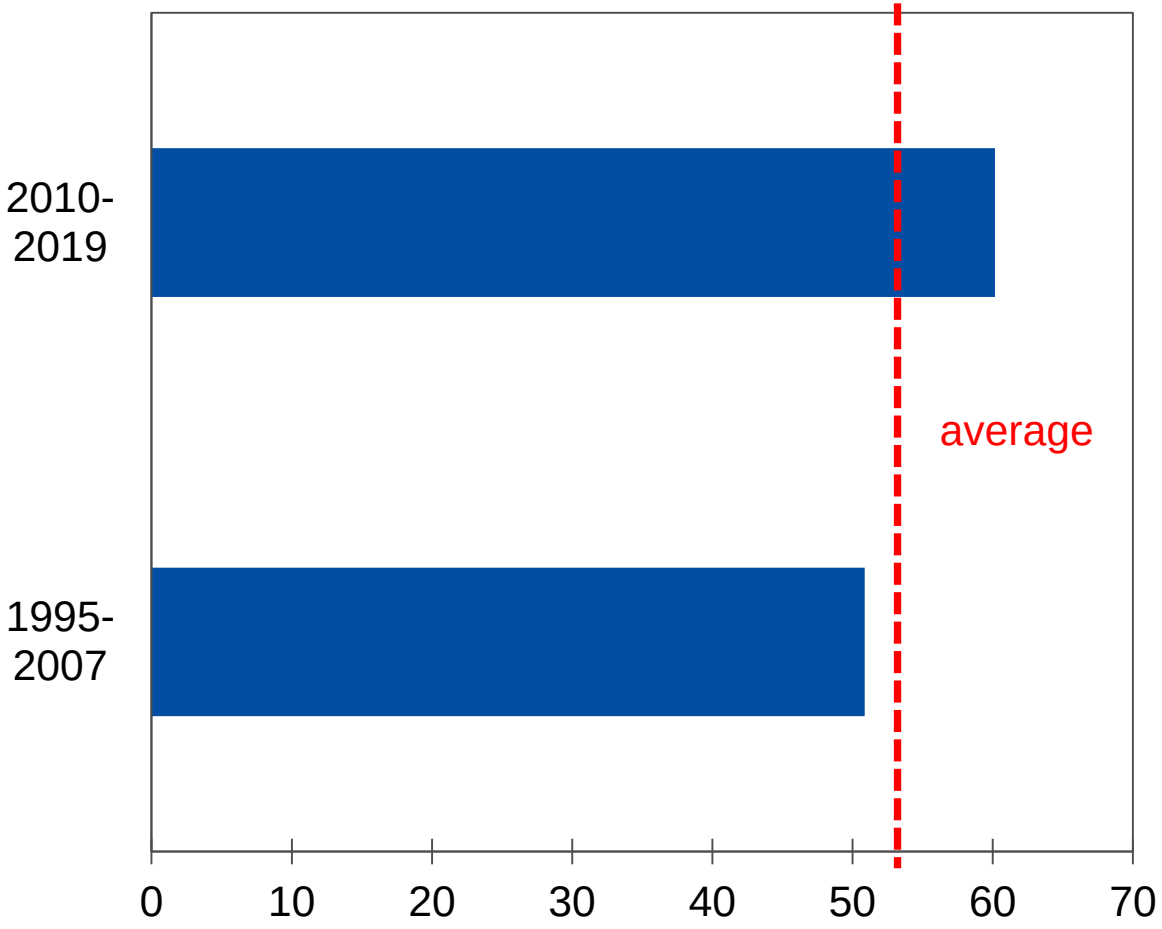
  - The automatic 1-for-1 effect on the snowball effect
  - + opposite effect on the primary surplus?

Outline

1. Stylised facts on debt dynamics during ‘r-g<0’
2. Empirical assessment
    a) Impact of ’r-g’ on discretionary fiscal policy
    b) Impact of ‘r-g’ on the pace of debt reduction
3. Conclusions

Negative “r-g” episodes are not a recent phenomenon in the EU

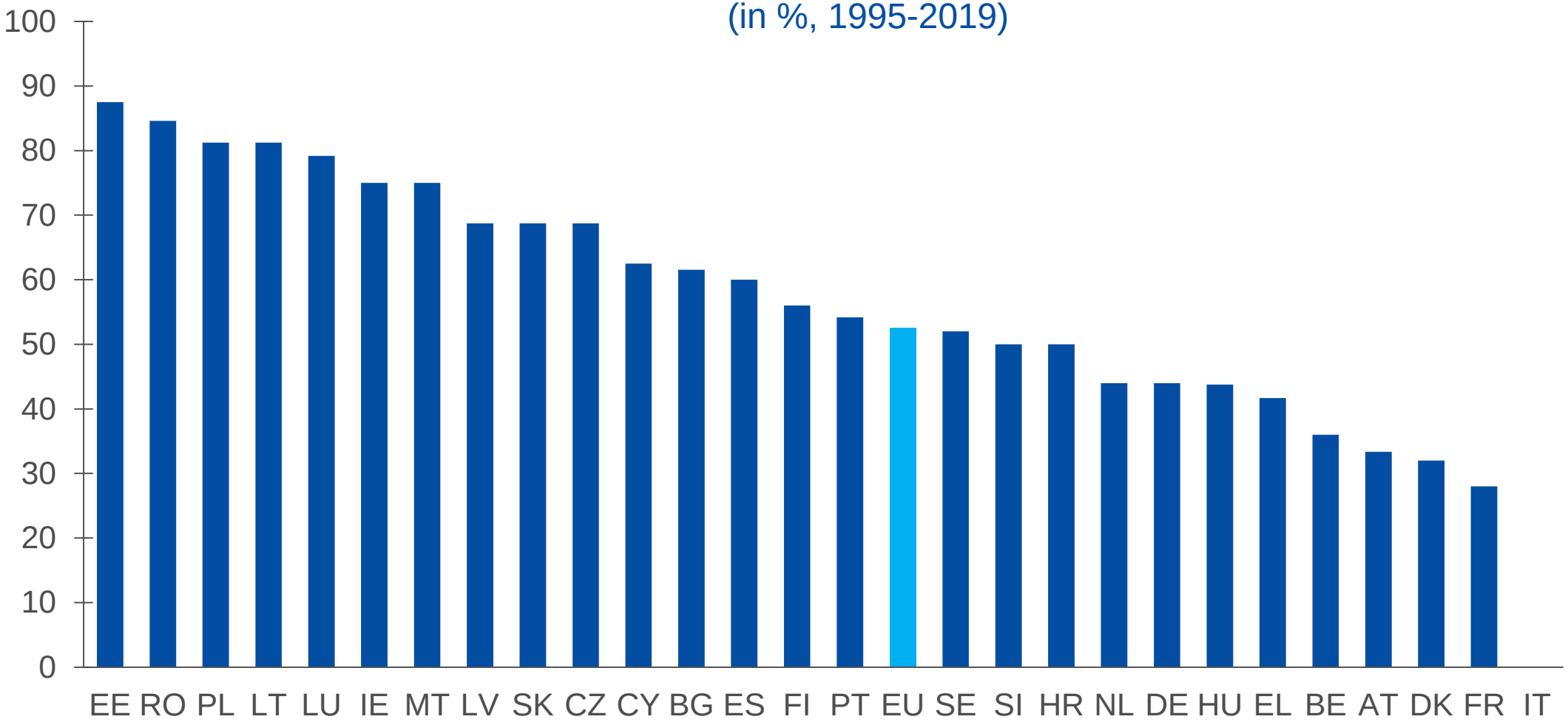
Frequency of negative r-g differential episodes
(in %, EU average, 1995-2019)



Member States experienced ‘r-g<0’ episodes around 50% of the time before the Global Financial Crisis.

Frequency differs across Member States

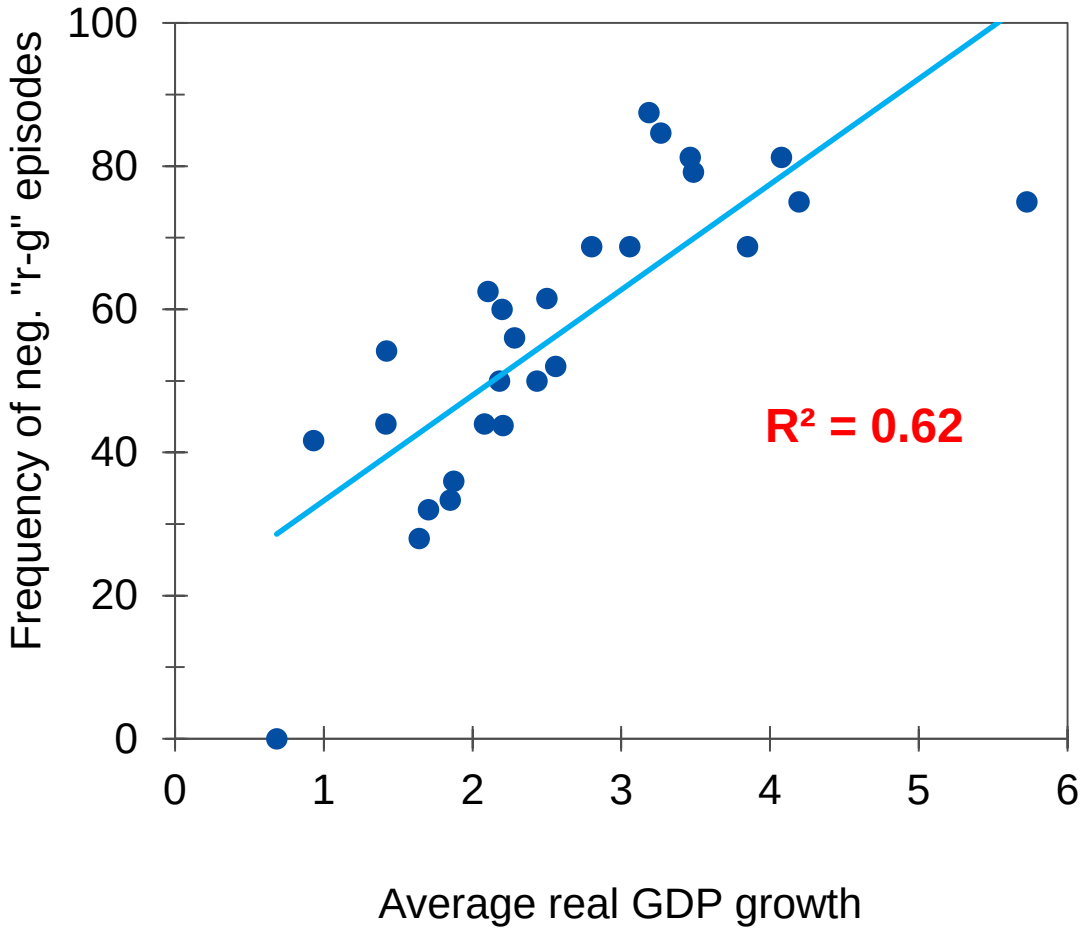
Frequency of negative r-g differential episodes by Member State
(in %, 1995-2019)



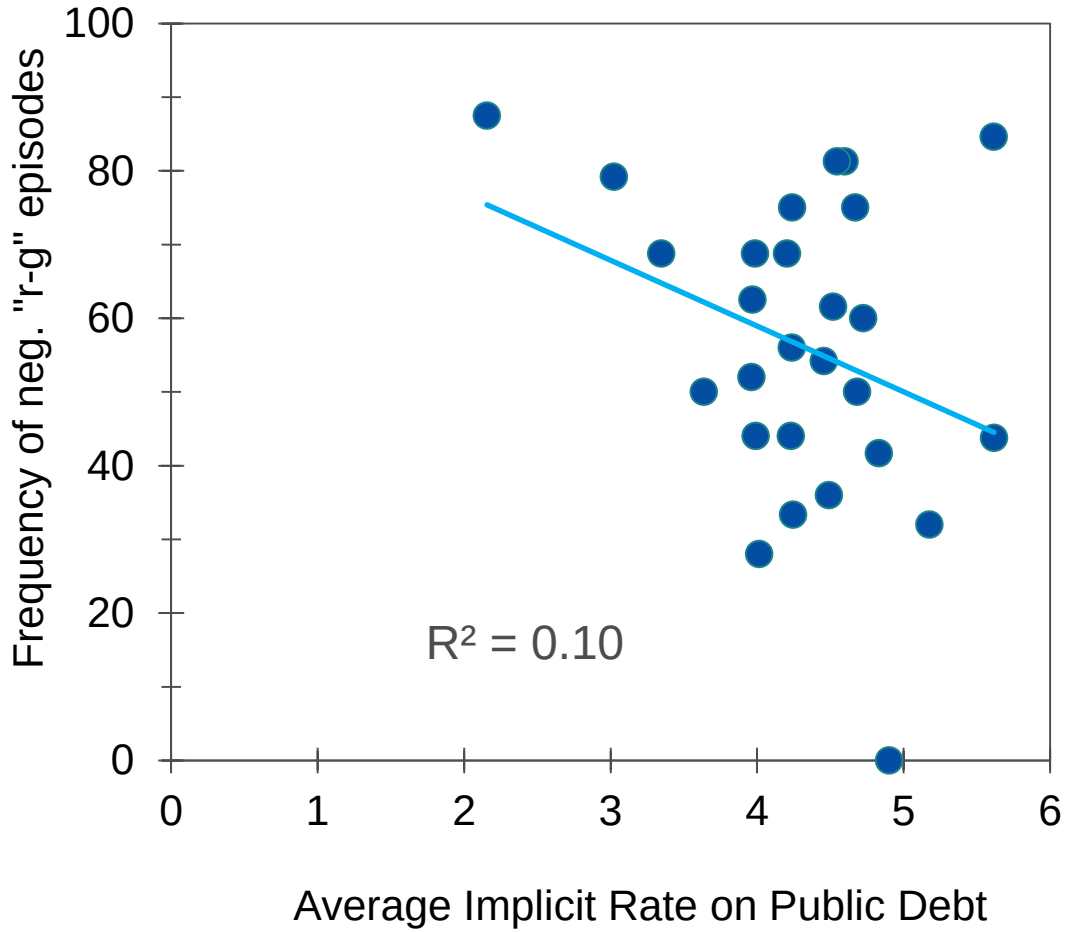
Frequency of negative “r-g” episodes mostly associated with higher growth, not lower rates

Relationship between frequency of negative “r-g” episodes and …

A. Real GDP growth



B. Implicit rate on debt



Empirical framework of fiscal reaction function

- **Empirical approach**: Panel estimation with 27 EU Member States, 2000-2020

- **Two dependent variables**
  1. Structural primary balance (real-time data)
  2. Change in public debt (ex-post data)

- **Key variables**
  lagged debt, interest-rate growth differential, economic cycle.

- **Our extension:**
  - Debt interacted with ‘r-g’
  - Non-linear effect of debt

- **Estimation technique:** ‘r-g’ and cycle instrumented by lagged value and past forecast errors

Empirical specification

$$
\begin{aligned}
fp_{i,t} = \; & \alpha . fp_{i,t-1} + \rho_{11} d_{i,t-1} + \rho_{12} d_{i,t-1}^2 \\
& + \rho_2 (r_{i,t} - g_{i,t}) \\
& + (r_{i,t} - g_{i,t}) \cdot (\rho_{31} d_{i,t-1} + \rho_{32} d_{i,t-1}^2) \\
& + \gamma \; cycle_{i,t} \\
& + \theta_t + \phi_i + \; \epsilon_{i,t}
\end{aligned}
$$

$fp_{i,t}$: fiscal policy indicator
$d_{i,t-1}$: lagged debt-to-GDP ratio
$r_{i,t} - g_{i,t}$: interest rate – growth differential
$cycle_{i,t}$: output gap change
θ_t : year t fixed-effect
ϕ_i : country i fixed-effect

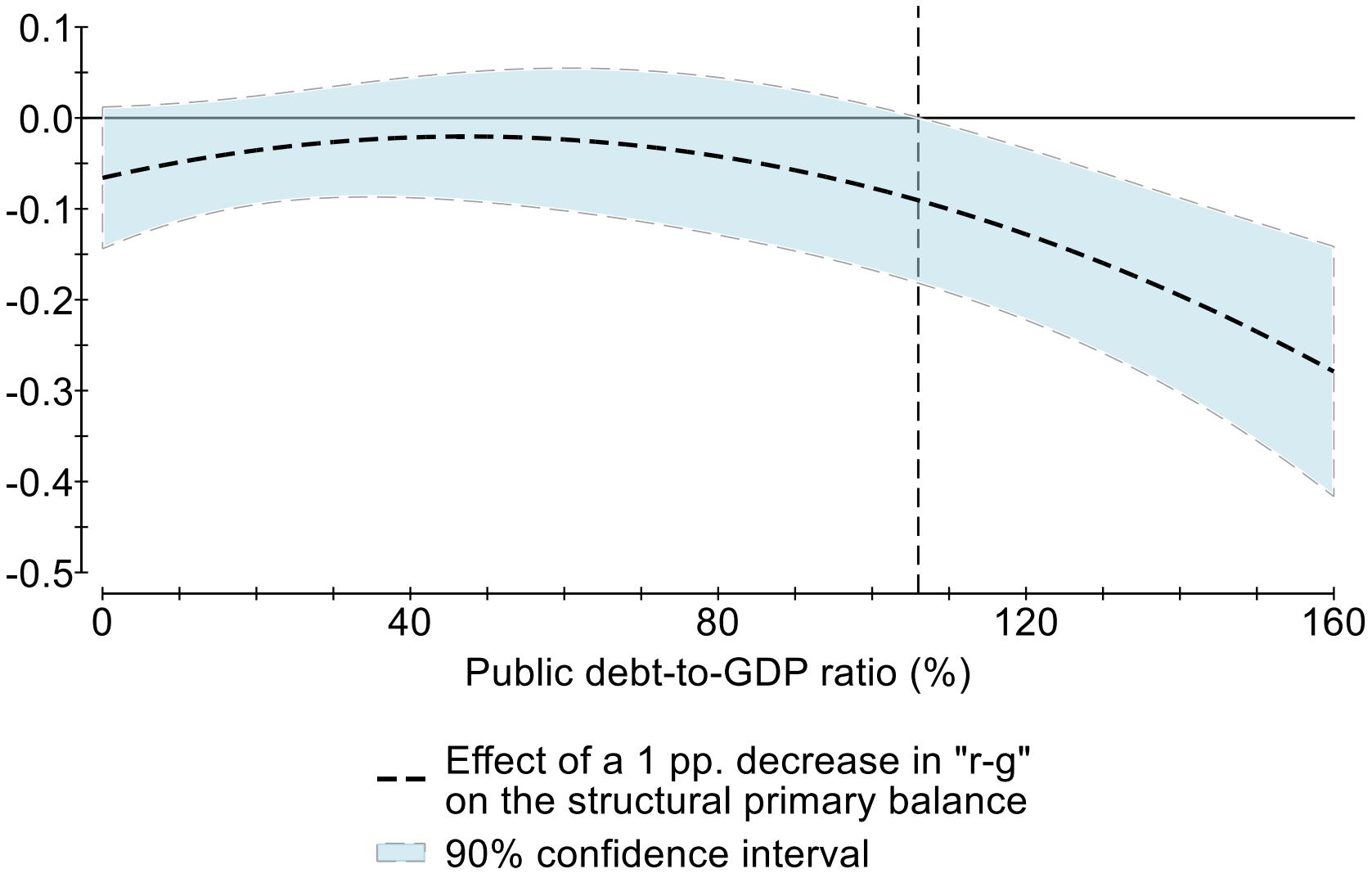
Reduced fiscal effort

	Structural primary balance		
	(1)	(2)	(3)
Lagged dependent variable	**0.810*** **	**0.810*** **	**0.805*** **
	(0.027)	(0.027)	(0.028)
Lagged debt - 60%	**0.014*** **	**0.013*** **	**0.015*** **
	(0.003)	(0.003)	(0.004)
(Lagged debt - 60%)^2		0.002	0.000
		(0.003)	(0.004)
"r-g"	**0.011**	**0.011**	**-0.036**
	(0.028)	(0.028)	(0.042)
"r-g" x (lagged debt - 60%)			-0.013
			(0.060)
"r-g" x (lagged debt - 60%)^2			**0.203****
			(0.089)
Output gap change	**-0.187***	**-0.215****	**-0.221****
	(0.106)	(0.097)	(0.097)
Observations	455	455	455

Discretionary fiscal policy reaction:

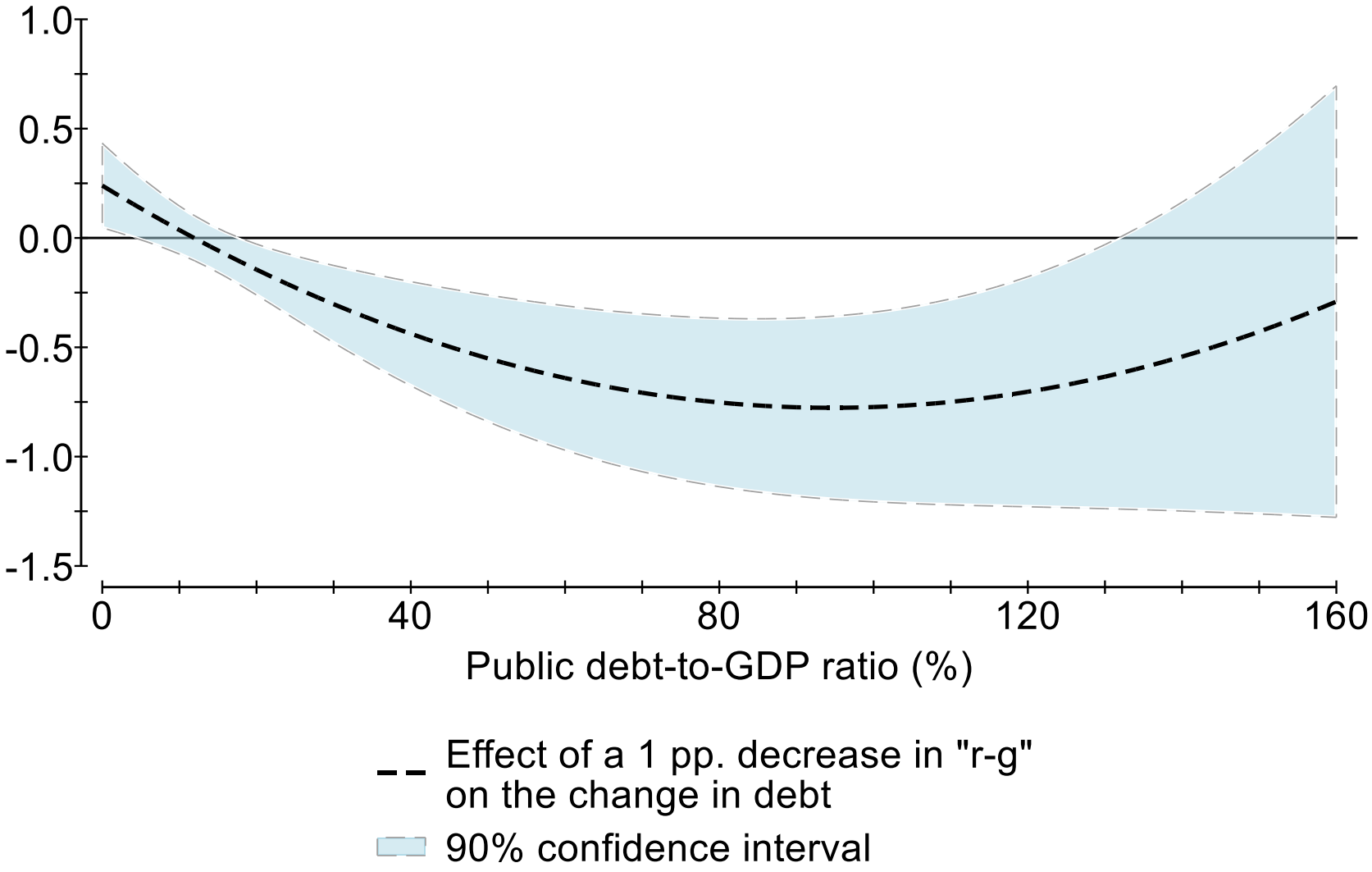
- **Strong path dependency**
- **Tightening when debt is high.**
- **Pro-cyclicality**
- **No effect of ‘r-g’ on average.**
- **Tightens when ‘r-g’ increases at high debt levels**

Effect of lower ‘r-g’ on discretionary fiscal policy



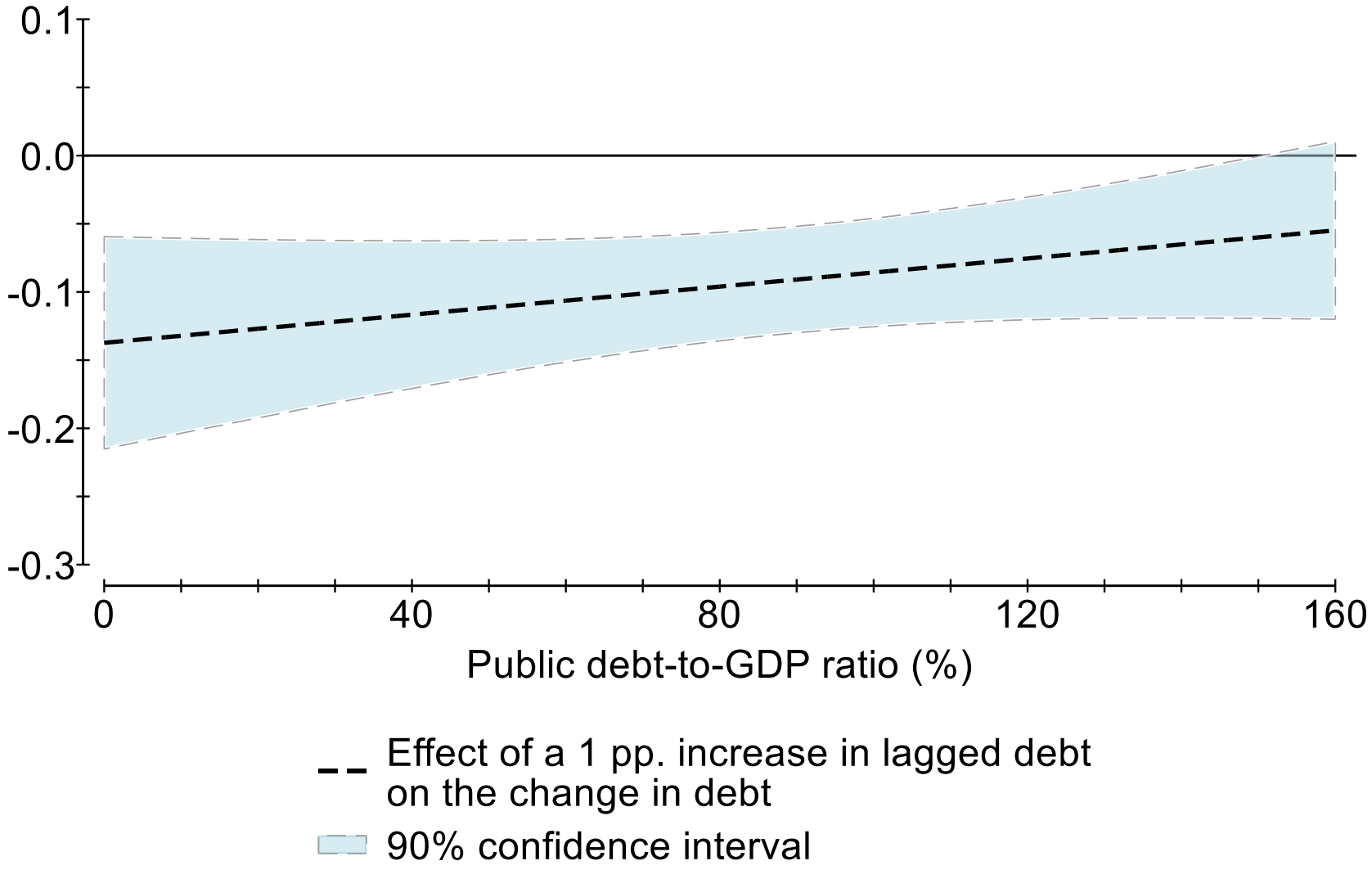
- **Reduced fiscal effort only in Member States with high debt**

Effect of lower ‘r-g’ on pace of debt reduction



- **Debt reduction effect increases with the level of debt**
- **But up to a point only.**

Effect of higher debt on pace of debt reduction, ‘r-g<0’



- Debt reduction easier to achieve
- 16-20 years to return to pre-shock level when debt=80%
- Longer in high-debt Member States.

Conclusions

- **Negative ‘r-g’ supports debt reduction**
  - Effect partly offset by reduced fiscal effort
  - Debt reduction easier to achieve but less so in high-debt Member States
- **Caveats**
  - Panel estimation approach has limitations
- **Call for caution**
  - Uncertainty on the long-term sign and size of ‘r-g’
  - Countries will emerge from the COVID-19 crisis with higher public debt

Thank you

Background slides

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This study

- Starts from the debt accumulation equation:

$$\Delta debt = (r - g)debt - primary\ surplus$$

- Assumption: primary balances reflects government choices and depend on the economic environment:

$$primary\ surplus = f(debt; cycle; \ldots; r - g?)$$

- Impact of a decrease in (r-g) :

$$effect = -\frac{\partial\left(-\frac{\Delta debt}{debt}\right)}{\partial(r-g)} = 1 - \frac{1}{debt}.\frac{\partial f}{\partial(r-g)}$$

- Less than 1-for-1 effect on the pace of debt reduction.

Literature

Fiscal policy

- Fiscal policy more effective when ‘r’ is low
  - ➢ Miyamoto, Nguyen, and Sergeyev (2018), Ramey and Zubairy (2014)
- Trade-off between debt and consolidation.
  - ➢ Barro (1979)
- Fiscal reaction function
  - ➢ Bohn (1998) , Ghosh et al. (2013), Checherita-Westphal and Žďárek (2017), Everaert and Jansen (2018), Aldama and Creel (2019)

‘r-g<0’

- Permanent or temporary drivers
  - ➢ Borio (2014) Lunsford and West (2019) Jordà, Singh, and Taylor (2020)
- Reversal risk
  - ➢ Checherita-Westphal and Semeano (2020), Lian, Presbitero, and Wiriadinata (2020)
- Low welfare cost of debt
  - ➢ Blanchard (2019)

Questions

Q1: How frequent are ‘r-g<0’ episodes?

→Different experiences depending on macroeconomic characteristics

Q2: Do countries adjust their fiscal stances when ‘r-g<0’?

→Insights from political economy

Q3: What are the implications for the pace of debt reduction when ‘r-g<0’?

→ Negative snowball effects might be partially offset

Key findings

High degree of variation across Member States

→ Average EU frequency: 50%

→‘r-g<0’ more frequent in countries with high real GDP growth and/or low debt

‘r-g < 0’ helps reduce public debt

→1.7 pps average decrease when ‘r-g<0’, against 3.0 pps increase when ‘r-g>0’

Member States tend to reduce their fiscal effort when r-g<0

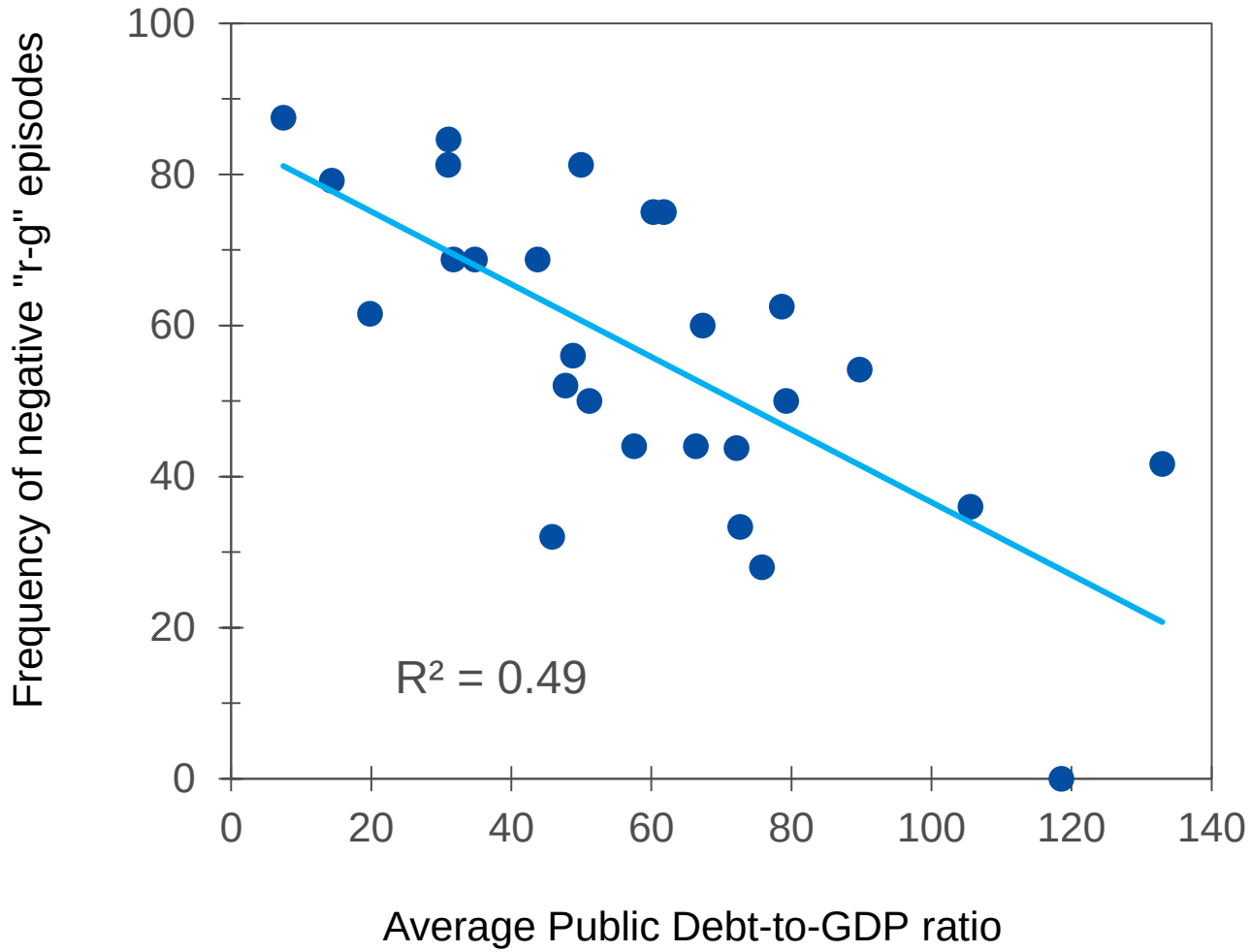
→ Especially in high-debt Member States

Debt mean-reversion property

→ Caution needed with regard to longer-term implications.

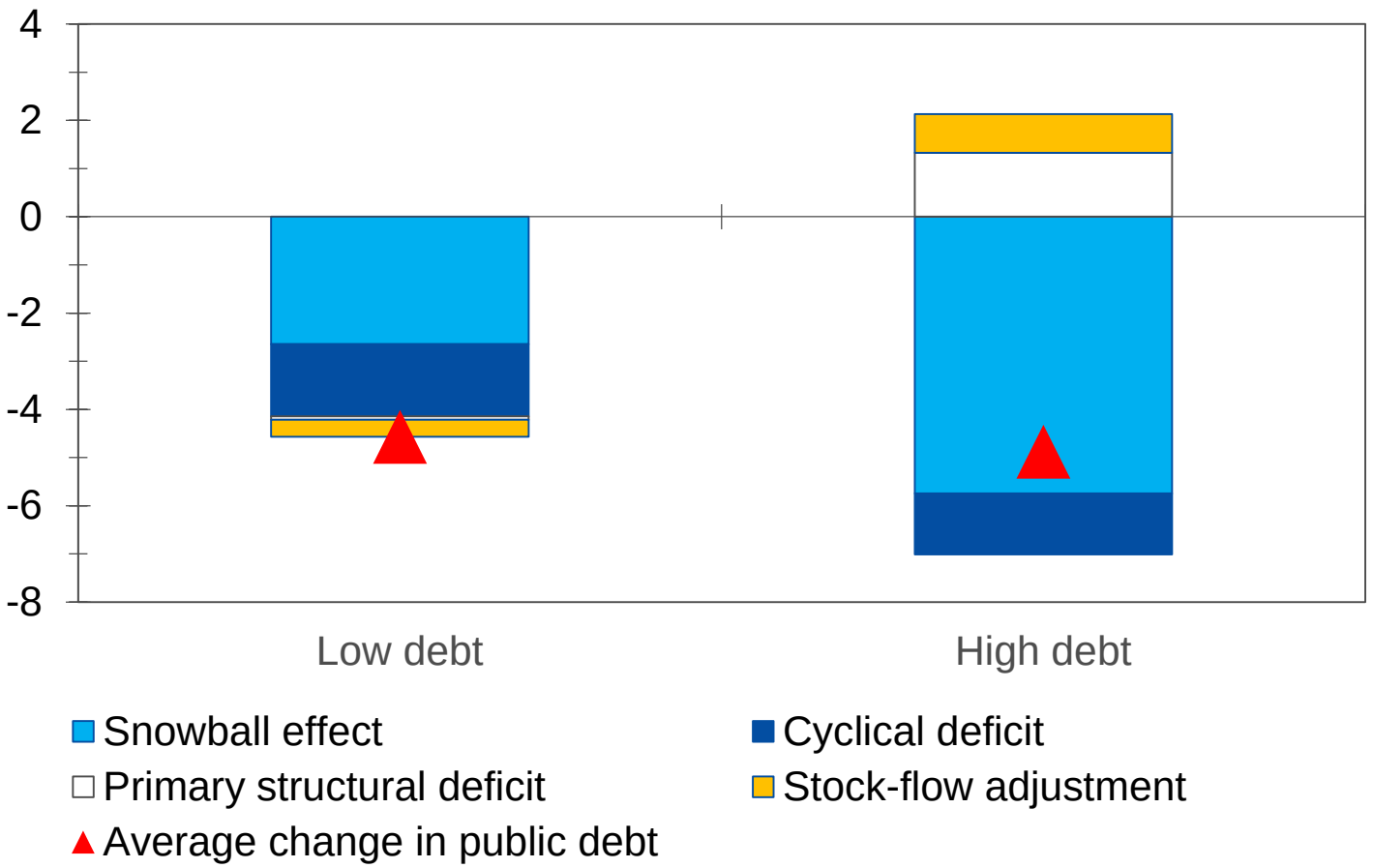
… and lower public debt

Relationship between frequency of negative “r-g” episodes and public debt



Reduced fiscal effort when ‘r-g’<0

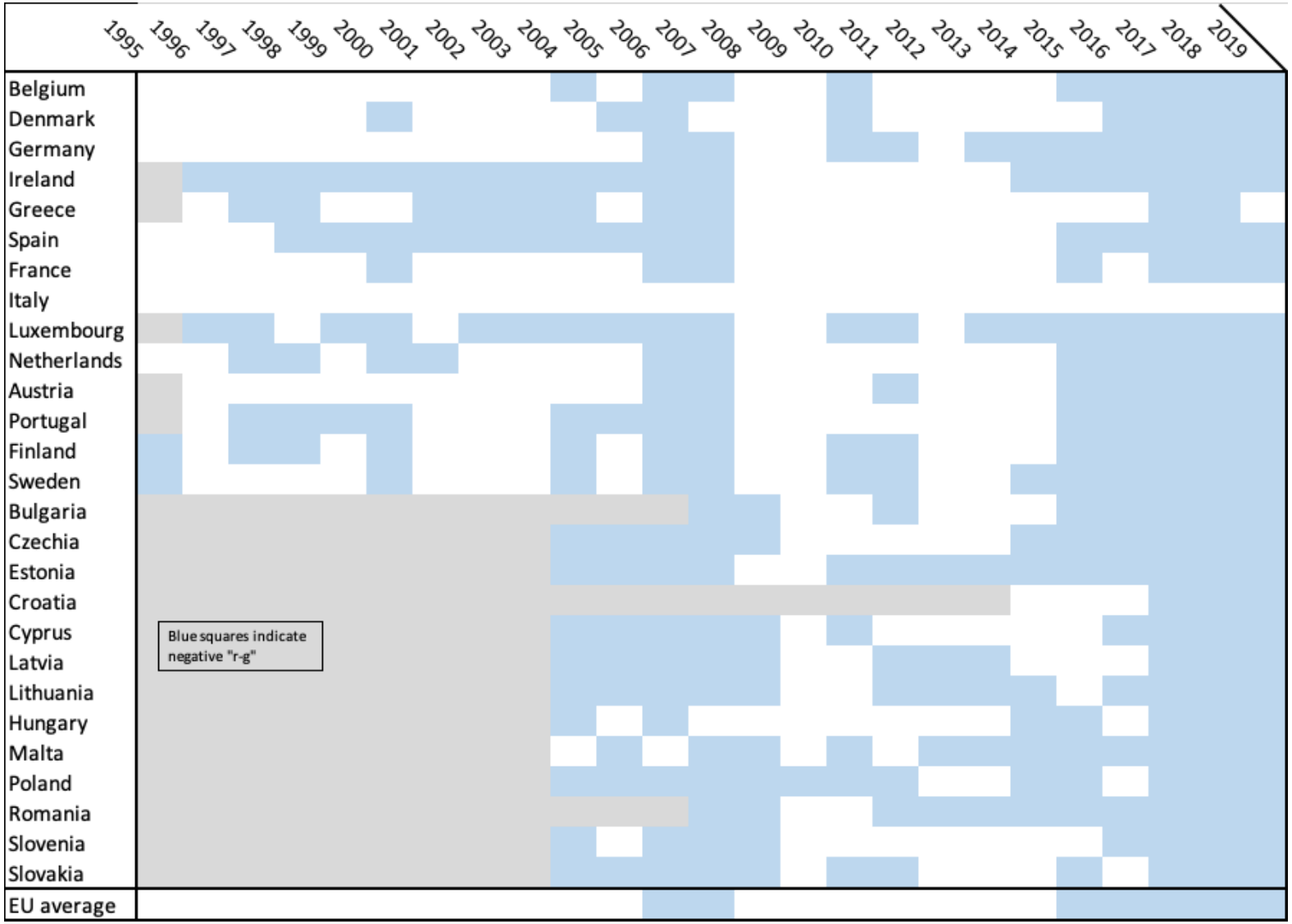
***Contributions to changes in public debt during negative <u>minus</u> positive* “r-g” episodes**



- Member States with high debt benefit more of negative “r-g”
- Reduced fiscal effort when debt is high
- Same for stock-flow adjustment

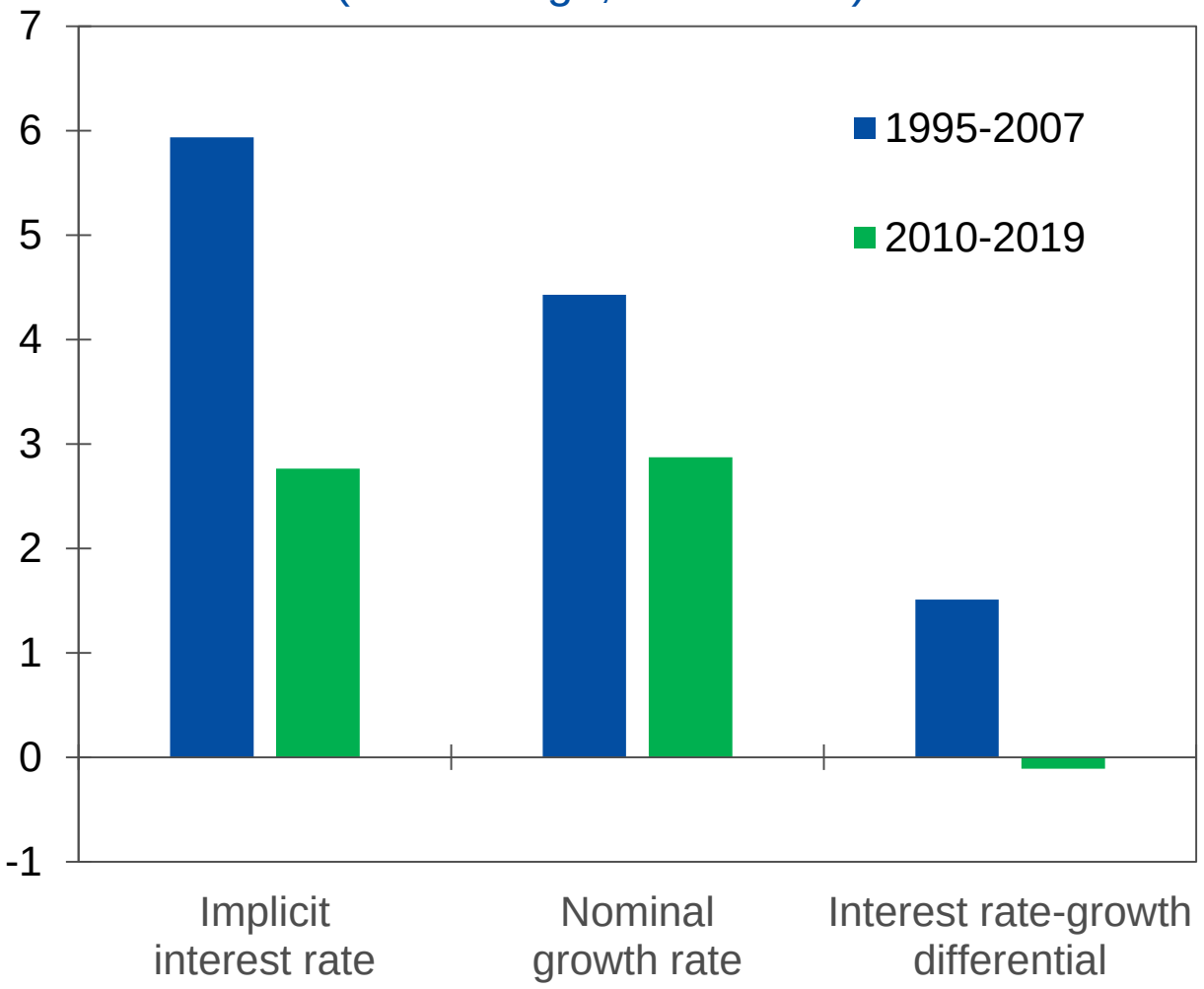
➢ Offsets 40% of the reduction of the snowball effect.

Negative ’r-g’ occurrences



Declining trend in “r-g” in the EU

Implicit interest rate and nominal growth
(EU average, 1995-2019)



- Interest rates have decreased significantly faster than nominal GDP growth rates
- **“r-g” on a decades-long declining trend**

Smaller debt reduction when debt is high

	Change in public debt		
	(1)	(2)	(3)
Lagged debt - 60%	**-0.071*** (0.023)**	**-0.072** (0.028)**	**-0.083*** (0.027)**
(Lagged debt - 60%)^2		0.003 (0.024)	-0.008 (0.021)
"r-g"	**0.274*** (0.080)**	**0.274*** (0.081)**	**0.641*** (0.197)**
"r-g" x (lagged debt - 60%)			**0.786*** (0.285)**
"r-g" x (lagged debt - 60%)^2			**-1.135** (0.572)**
Output gap change	-0.03 (0.453)	-0.049 (0.387)	0.107 (0.393)
Observations	543	543	543

Public debt dynamic:

- **Mean reversion**
- **Faster reduction when 'r-g<0'**
- **Debt reduction grows less than proportionally with debt**