Comply and invest: The effect of EU fiscal rules on public investment

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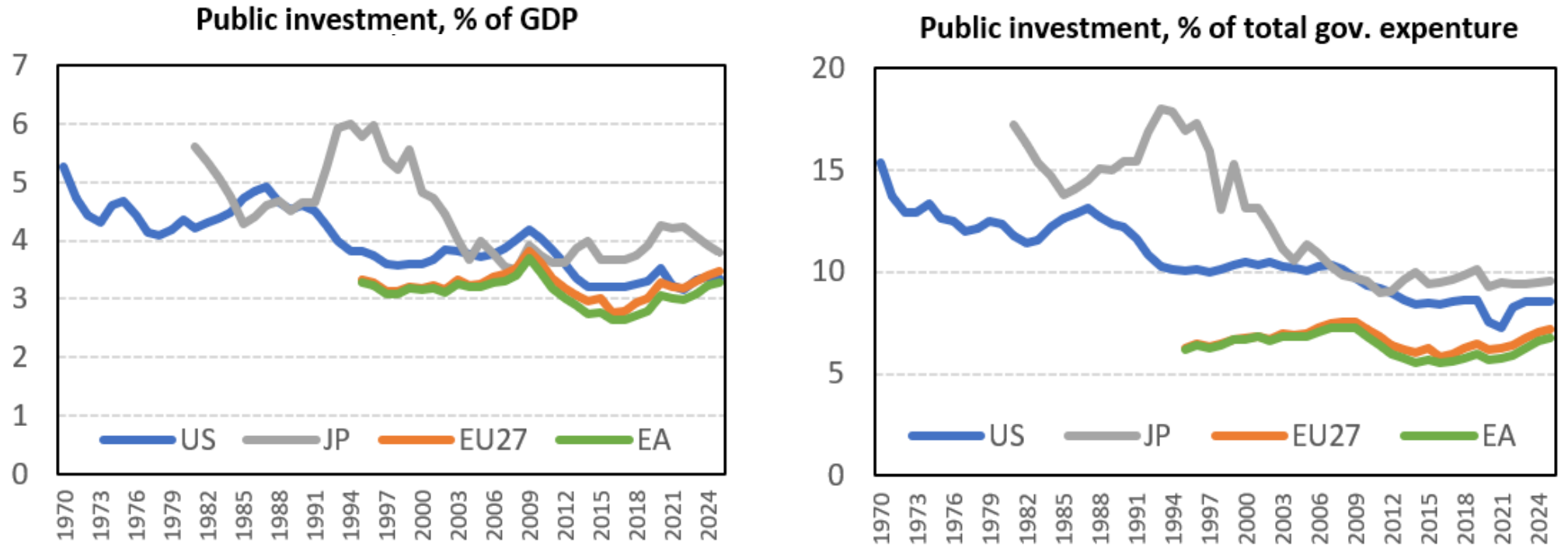
Introduction

- In the late 1990s, the EU adopted common fiscal rules to keep national public finances on a sustainable path
- After the global financial crisis, when public investment posted a particularly sharp decline, the same fiscal rules were seen as culprits
  - Policy makers tend to sacrifice public investment expenditure when they face trade-offs within the more general constraints on public finances

Introduction

Figure 1: Public investment in % of GDP and total government expenditure



Introduction

- In the late 1990s, the EU adopted common fiscal rules to keep national public finances on a sustainable path
- After the global financial crisis, when public investment posted a particularly sharp decline, the same fiscal rules were seen as culprits
  - Policy makers tend to sacrifice public investment expenditure when they face trade-offs within the more general constraints on public finances

- We take a fresh look at the interplay between public investment and EU fiscal rules
- We examine potential drivers of public investment in the 27 EU member states with a special focus on compliance with EU fiscal rules

Literature

Literature looking at the interplay between fiscal rules and public investment:

- Bacchiocchi et al. (2011) conclude that high government debt-to-GDP ratios – a proxy for the sustainability of public finances – tend to be associated with lower public investment
- Dahan and Strawczynski (2013) do not find a significant effect of fiscal rules on public investment
- Focusing on governments' fiscal reaction to major economic downturns since the 70s, Larch et al. (2024) draw similar conclusions
- In a recent review covering 20 empirical studies, Blesse et al. (2023) do not find any evidence suggesting that fiscal rules systematically weigh on public investment yet conclude that the design of rules matters

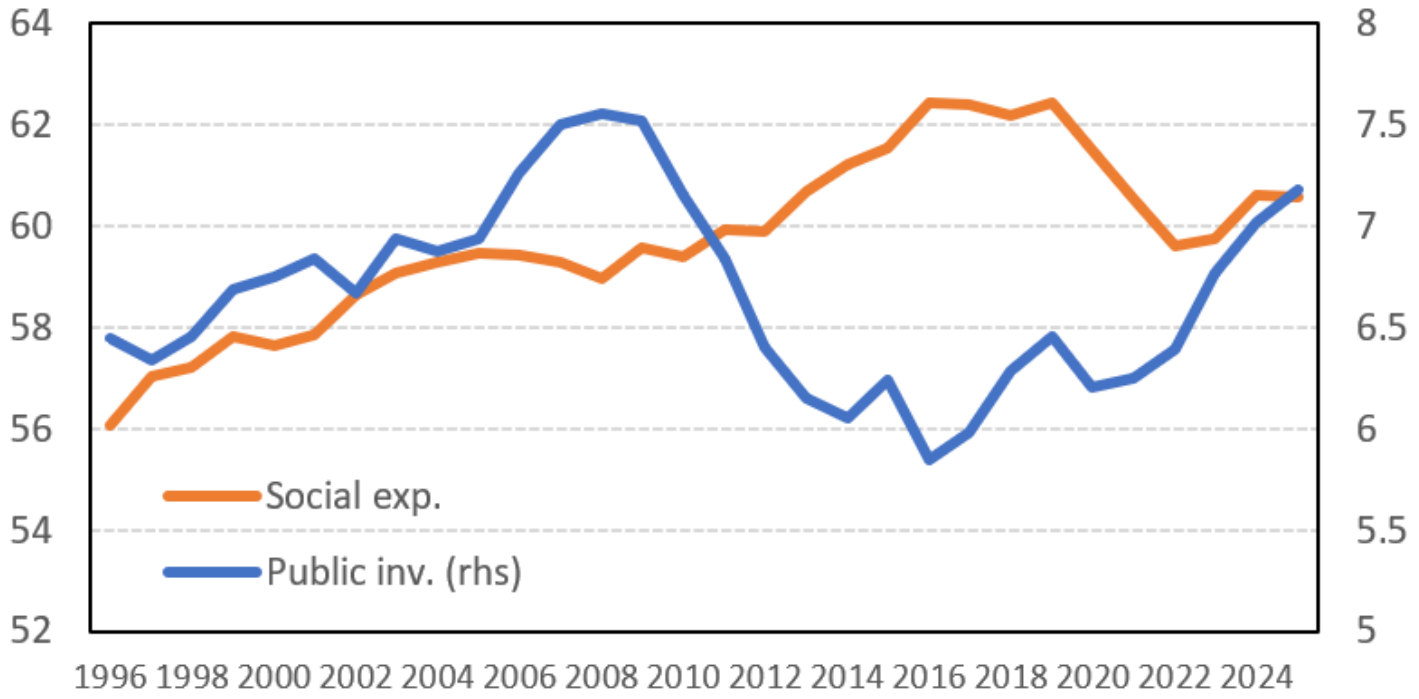
! No paper controls for the effect of rule compliance.

Literature

- Yet, earlier studies suggest that investment is a typical victim of governments' attempts to consolidate public finances
  - see for instance Balassone and Franco, 2000; Castro, 2017; De Haan et al., 1996; Välilä and Mehrotra, 2005; Bamba et al., 2019; Ardanaz et al., 2021
- However, at the same time, we know that the right type of fiscal consolidation may actually boost output and total investment in the medium term
  - see Balasundharam et al., 2023 for a comprehensive literature review or Alesina et al., 2017 for a comprehensive empirical analysis
- Trade-offs in the composition of government spending: a negative trend in public investment mainly results from the fact that governments prefer to prioritise social expenditure ("social dominance hypothesis")
  - e.g., Delgado-Tellez et al. (2022) conclude that fiscal rules can indirectly relax the pressure of social expenditure on public investment

Literature

Figure 2: Public investment and social spending in % total government expenditure (EU27)



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Contribution

- We discriminate between two competing narratives:
  1. Fiscal rules weigh on public investment because, when they start biting, policy makers will minimise the political fallout and cut investment as opposed to other spending items
  2. Compliance with fiscal rules safeguards governments' room for manoeuvre including to protect or even increase public investment when needed
- We use a comprehensive dataset covering 25 years and all EU countries
  - also allows us to take a closer look at what happened before and after 2008 when fiscal policy makers faced important if not unprecedented challenges
- Our analysis is centred on compliance by EU countries with fiscal rules as opposed to their existence or their design
  - mere existence of rules does not necessarily mean that governments will follow them
  - compliance tracker of the European Fiscal Board (EFB)

Methodology

We estimate the following panel regression with country and year fixed effects:

$$\Delta\, pinv_{i,t} = \alpha \cdot \Delta\, yield_{i,t} + \beta \cdot growth_{i,t-1} + \delta \cdot \Delta\, psoc_{i,t-1} + \xi \cdot comp_{i,t} + \mu \cdot X_{i,t} + \gamma_i + \theta_t + \varepsilon_{i,t}$$

where:

- $\Delta\, pinv_{i,t}$ = change of public investment over GDP or the growth rate of real public investment
- $\Delta\, yield_{i,t}$ = yield of 10-year sovereign bonds
- $growth_{i,t-1}$ = real GDP growth
- $\Delta\, psoc_{i,t}$ = change of social spending over total government spending
- $comp_{i,t}$ = numerical compliance with the EU's 3% of GDP deficit threshold
- $X_{i,t}$ = controls

Estimation results

Table 1: y-o-y growth rate of general government real gross fixed capital formation (GFCF) in %

	1	2	3	4	5	6	7	8
Sovereign bond yield (%)	-1.58**	-1.91**	-1.06**	-1.09**	-1.89**	-1.69**	-1.33**	-1.39 ***
	(0.03)	(0.04)	(0.02)	(0.01)	(0.01)	(0.02)	(0.03)	(0.00)
Real GDP growth (%), t-1	0.59	0.34	0.49*	0.62**	0.59*	0.61	0.36	0.59*
	(0.11)	(0.35)	(0.07)	(0.03)	(0.05)	(0.10)	0.31)	(0.05)
Budget balance rel. to 3% of GDP , t-1		1.08***	0.52**				1.11***	
		(0.00)	(0.04)				(0.00)	
Δ social spending (% of tot. spending)			-2.99***	-2.92***	-3.13***			-3.09***
			(0.00)	(0.00)	(0.00)			(0.00)
Δ social spending (% of tot. spending), t-1			-0.87**	-0.73*	-0.75*			-0.73*
			(0.05)	(0.09)	(0.09)			(0.08)
Consolidation (dummy)				-4.82***				
				(0.00)				
Compliance with deficit rule (dummy)					1.84			6.81***
					(0.19)			(0.01)
Debt-to-GDP ratio (%), t-1						0.05	0.06	0.10***
						(0.19)	(0.12)	(0.00)
Compliance with deficit rules (dummy) * debt-to-GDP ratio (%), t-1								-0.08**
								(0.02)
Constant	12.45**	10.78**	9.93**	9.99**	9.01**	11.12**	8.516	4.83
	(0.01)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.16)	(0.33)
Adjusted R-squared	0.15	0.17	0.31	0.32	0.31	0.15	0.17	0.31
Obs	654	654	654	654	654	651	651	651
Countries	27	27	27	27	27	27	27	27

Notes: Fixed effects regression model using EU country-year panel (1998-2023). The dependent variable is the y-o-y growth rate of general government real gross fixed capital formation (GFCF) in %. Standard errors are clustered at the country level. p-values in parentheses: * p<0.10, ** p<0.05, *** p<0.01.

Estimation results

Table 2: Δ general government GFCF in % of GDP

	1	2	3	4	5	6	7	8
Sovereign bond yield (%)	-0.04*	-0.03	-0.03	-0.03*	-0.03*	-0.05*	-0.03	-0.03**
	(0.08)	(0.16)	(0.11)	(0.09)	(0.07)	(0.07)	(0.13)	(0.04)
Real GDP growth (%), t-1	0.01	0.00	0.01	0.01	0.01	0.01	0.00	0.01
	(0.62)	(0.94)	(0.65)	(0.46)	(0.49)	(0.60)	(0.98)	(0.47)
Budget balance rel. to 3% of GDP , t-1		0.04***	0.02*				0.04***	
		(0.00)	(0.07)				(0.00)	
Δ social spending (% of tot. spending)			-0.11***	-0.10***	-0.11***			-0.11***
			(0.00)	(0.00)	(0.00)			(0.00)
Δ social spending (% of tot. spending), t-1			-0.02	-0.02	-0.02			-0.02
			(0.15)	(0.21)	(0.22)			(0.22)
Consolidation (dummy)				-0.17***				
				(0.01)				
Compliance with deficit rule (dummy)					0.04			0.09
					(0.44)			(0.34)
Debt-to-GDP ratio (%), t-1						0.001	0.002	0.002**
						(0.26)	(0.14)	(0.03)
Compliance with deficit rules (dummy) * debt-to-GDP ratio (%), t-1								-0.001
								(0.51)
Constant	0.22	0.16	0.12	0.12	0.11	0.19	0.09	0.03
	(0.28)	(0.46)	(0.53)	(0.53)	(0.55)	(0.39)	(0.70)	(0.87)
Adjusted R-squared	0.15	0.16	0.29	0.3	0.29	0.14	0.16	0.29
Obs	654	654	654	654	654	651	651	651
Countries	27	27	27	27	27	27	27	27

Notes: Fixed effects regression model using EU country-year panel (1998-2023). The dependent variable is Δ general government gross fixed capital formation (GFCF) in % of GDP. Standard errors clustered at the country level. p-values in parentheses: * p<0.10, ** p<0.05, *** p<0.01.

Robustness checks

a. Re-estimate baseline models as dynamic panel models, i.e. including the lagged dependent on the right-hand side
b. Re-estimate baseline models with a shortened window, up to 2008
c. Re-estimate baseline models using average lagged compliance
d. Compliment analysis with binomial panel logit models

Robustness checks – Average lagged compliance

Table 3: Fixed effects panel models

Dependent variable:	y-o-y growth rage of gen. gov. GFCF in %	Δ gen. gov. GFCF in % of GDP
Sovereign bond yield (%)	-1.791***	-0.052***
	(0.311)	(0.014)
Real GDP growth (%), t-1	0.415	0.002
	(0.323)	(0.014)
Δ social spending (% of tot. spending)	-3.161***	-0.116***
	(0.648)	(0.026)
Δ social spending (% of tot. spending), t-1	-0.808*	-0.023
	(0.414)	(0.017)
Compliance with deficit rule (dummy), average (t-3 to t-1)	13.942**	0.457**
	(5.434)	(0.175)
Debt-to-GDP ratio (%), t-1	0.171***	0.006***
	(0.053)	(0.002)
Compliance with deficit rules (average) * debt-to-GDP ratio (%),	-0.150*	-0.006**
	(0.075)	(0.002)
Constant	2.540	0.067
	(4.889)	(0.167)
Adjusted R-squared	0.326	0.304
Obs	600	600
Countries	27	27

Notes: Fixed effects regression model using EU country-year panel (2001-2023). Standard errors are clustered at the country level. p-values in parentheses: * p<0.10, ** p<0.05, *** p<0.01.

Robustness checks – Logit models

- By categorising the evolution of public investment into discrete classes we abstract from small and possibly purely random or very idiosyncratic variations in public investment and focus on significant drops
- We use two binary indicators of the evolution of public investment:
  - 1 if the level of real public investment drops by more than two per cent on the previous year, and 0 otherwise; and
  - 1 if public investment over GDP drops by more than 0.25 percentage points on the previous year, and 0 otherwise.
- i.e. thresholds where 23% to 29% of country-year observations of the binary variable are set equal to one, respectively
- Results are robust to more strict cut offs

Robustness checks – Logit models

Table 4: y-o-y growth rate of general government real GFCF in % < -2 %

	1	2	3	4
Real GDP growth (%), t-1	-0.05	-0.04	-0.03	-0.01
	(0.22)	(0.28)	(0.49)	(0.85)
Debt-to-GDP ratio (%), t-1	-0.011	-0.014*	-0.008	-0.007
	(0.13)	(0.06)	(0.26)	(0.35)
Change in social spending over total spending (%)	0.33***	0.25***	0.33***	0.36***
	(0.00)	(0.00)	(0.00)	(0.00)
Change in social spending over total spending (%), t-1	0.10**	0.10**	0.11**	0.12***
	(0.02)	(0.02)	(0.01)	(0.01)
Consolidation (dummy)		1.24***		
		(0.00)		
Compliance with deficit rule (dummy)			-0.63**	
			(0.02)	
Deviation from deficit rule (% of GDP)				-0.18***
				(0.00)
Observations	699	696	699	699
Countries	27	27	27	27
Chi-squared	127.9	152.4	133.7	140.9

Notes: Panel logit models using EU country-year panel (1998-2023). The dependent variable is a dummy equal to 1 for the y-o-y growth rate of real gross fixed capital formation (GFCF) of the general government below -2%. p-values in parentheses: * p<0.10, ** p<0.05, *** p<0.01.

Robustness checks – Logit models

Table 5: Δ general government GFCF in % of GDP < -0.25 percentage points

	1	2	3	4
Real GDP growth (%), t-1	0.01	0.02	0.03	0.04
	(0.84)	(0.71)	(0.48)	(0.27)
Debt-to-GDP ratio (%), t-1	-0.015*	-0.02**	-0.01	-0.01
	(0.06)	(0.03)	(0.12)	(0.18)
Change in social spending over total spending (%)	0.34***	0.25***	0.34***	0.37***
	(0.00)	(0.00)	(0.00)	(0.00)
Change in social spending over total spending (%), t-1	0.08*	0.08*	0.09**	0.09**
	(0.07)	(0.09)	(0.05)	(0.05)
Consolidation (dummy)		1.21***		
		(0.00)		
Compliance with deficit rule (dummy)			-0.73**	
			(0.01)	
Deviation from deficit rule (% of GDP)				-0.17***
				(0.00)
Observations	647	644	647	647
Countries	25	25	25	25
Chi-squared	120.9	141.8	127.0	132.7

Notes: Panel logit models using EU country-year panel (1998-2023). The dependent variable is a dummy equal to 1 for the change in gross fixed capital formation (GFCF) of the general government in % of GDP < -0.25 percentage point. p-values in parentheses: * p<0.10, ** p<0.05, *** p<0.01.

Conclusions

- We evaluate the proposition according to which EU fiscal rules weigh on public investment
- Drawing on the compliance tracker of the secretariat of the EFB, we focus on the actual compliance with the EU fiscal rules (rather than their mere existence)
- In the EU, countries with a better compliance record manage to safeguard fiscal space that can be used for different purposes including public investment
- Our findings also corroborate the so-called “social dominance hypothesis”
  - Within the more general constraints on governments’ finances policy makers tend to sacrifice investment expenditure when social expenditure increases

! Our findings do not defend or justify low levels of public investment. We merely make the important point that compliance with EU fiscal rules is not the culprit.