EUROPEAN CENTRAL BANK
EUROSYSTEM

The decline in public investment: "social dominance" or too-rigid fiscal rules?

Mar Delgado, Esther Gordo (AIReF),

Iván Kataryniuk and Javier J. Pérez (BdE)

PFN webinar on "Challenges of fiscal policy" 23/03/2022
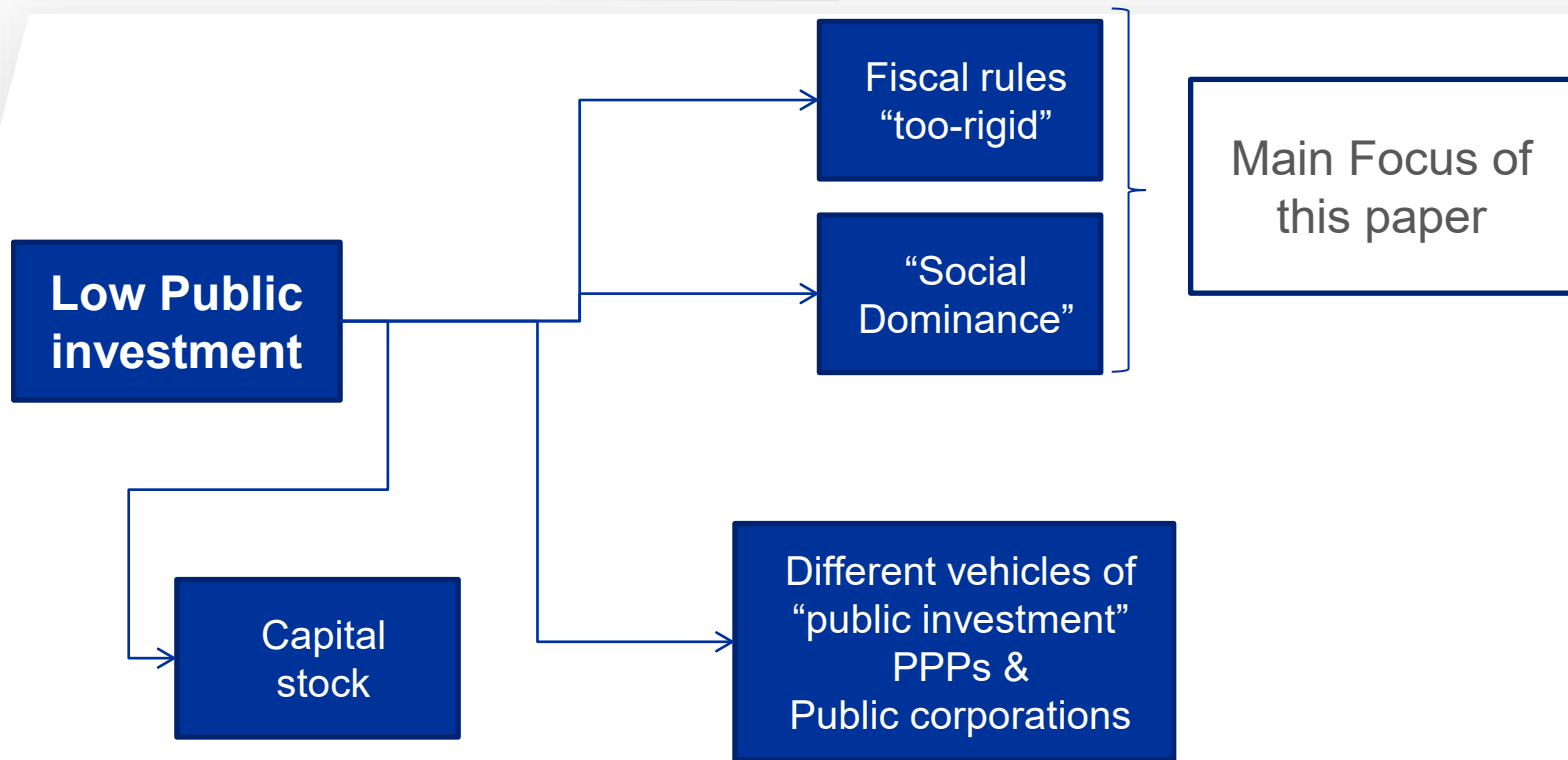
Mar Delgado Téllez
ECB

Motivation

• **Post-covid** economic strategy → Investment = stabilisation tool & source of economic growth.

• Low interest rates and **limited room of manoeuvre for Monetary Policy** → Fiscal Policy as the key tool for recovery

• **New challenges**: Climate change + Digitalisation

• **Consensus** in literature: beneficial economic effects of effective government investment (infrastructures, R&D)

Motivation

• Public investment has followed a decreasing trend since the 1980's and is now at a historical low.

• Two main hypothesis for the lower investment:

  – "Social Dominance hypothesis"

  – Too-rigid fiscal rules

• Other: Investment by Public Corporations & PPPs (Public-Private Partnerships).

Main Hypothesis for low Investment

```
                              ┌──────────────────┐
                         ┌───▶│   Fiscal rules   │──┐
                         │    │   "too-rigid"    │  │
                         │    └──────────────────┘  │   ┌──────────────────┐
┌──────────────┐         │                          │   │  Main Focus of   │
│ Low Public   │─────────┤    ┌──────────────────┐  ├──▶│   this paper     │
│ investment   │         └───▶│     "Social      │──┘   └──────────────────┘
└──────────────┘              │    Dominance"    │
       │                      └──────────────────┘
       │         │
       │         │            ┌──────────────────────┐
       ▼         └───────────▶│ Different vehicles of │
┌──────────────┐              │  "public investment" │
│   Capital    │              │       PPPs &         │
│   stock      │              │  Public corporations │
└──────────────┘              └──────────────────────┘
```

Overview

1. **Literature review**

2. Two relevant trends: Public spending & Fiscal rules

3. Empirical analysis

   1. Social spending

   2. Public investment

Literature Review

Procyclicality	Main contribution
Gali and Perotti (2003); Breunig and Busemeyer (2012); Lane (2003)	**Common investment cuts in fiscal consolidation** episodes (procyclicality).
Bamba et al. (2019)	Investment tends to fall more in countries with **high debt**, in **spending-based consolidation** episodes and **after debt and financial crises**.

Level of development	Main contribution
Haan and Sikken (1996)	**Level of development** → high stock of Capital

Privatisations and PPPs	Main contribution
Mehrotra and Välilä (2006)	Privatisations are unlikely to account for the continuous fall in investment.
Engel et al. (2019)	PPPs very recent and not very significant.

Literature Review: Main focus

Social Dominance	Main contribution
Schuknecht & Zemanek (2021)	Population ageing→ investment **crowding out**
Jäger and Schmidt (2016)	**aged voters** → higher intertemporal discount factor → value less economic growth.
Ardanaz & Izquierdo (2017).	**Politically more acceptable** to cut investment than social expenditure

Fiscal Rules (FR)	Main contribution
Debrun et al. (2008)	FR→ healthier public finances
Mehrotra & Välilä (2006)	**No significant impact** of FR over investment
Ardanaz et al. (2019) & Tkacevs (2020)	Effect of FR depends on the level of intended protection for investment.
European Commission (2017)	Stronger fiscal rules might **mitigate** the negative **effect of high public debt** on public investment

Overview

1. Literature review

2. **Two relevant trends: Public spending & Fiscal rules**

3. Empirical analysis
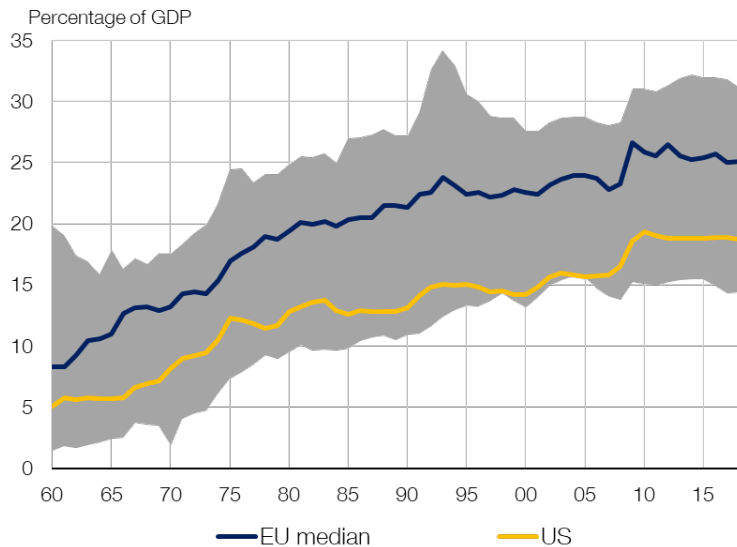
   1. Social spending

   2. Public investment

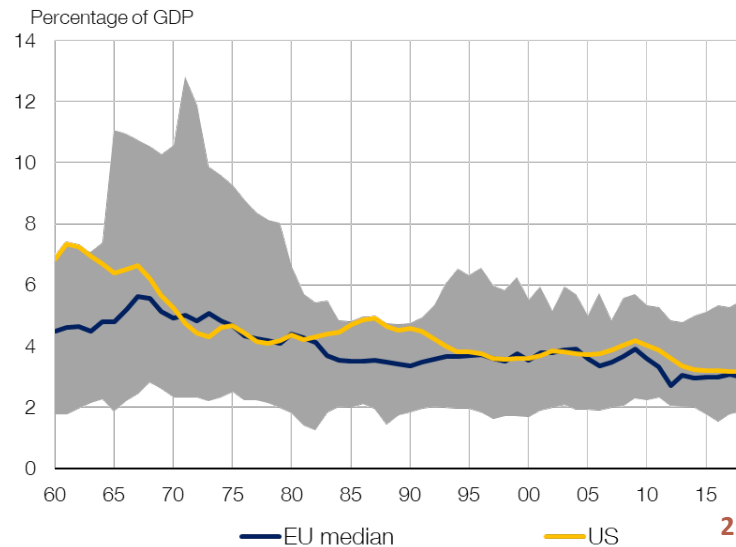# Trend of the two main public expenditure items

Trends are common in most developed countries:

Increase in social expenditure + loss in weight of public investment.

Social Spending
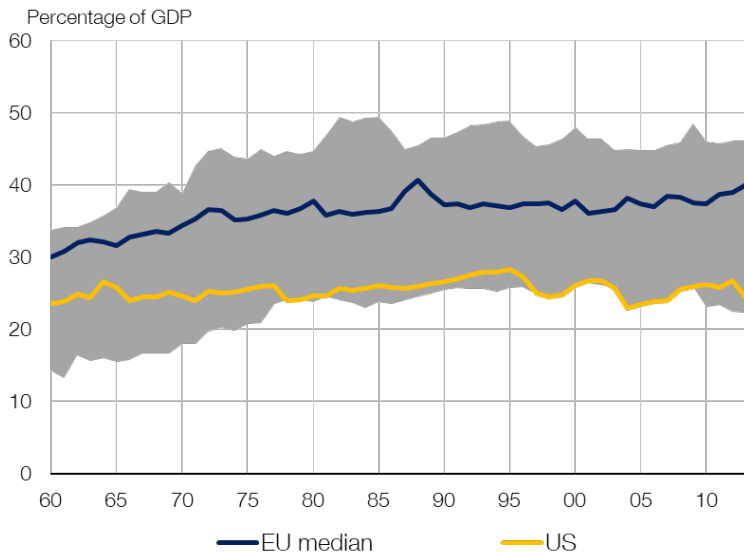
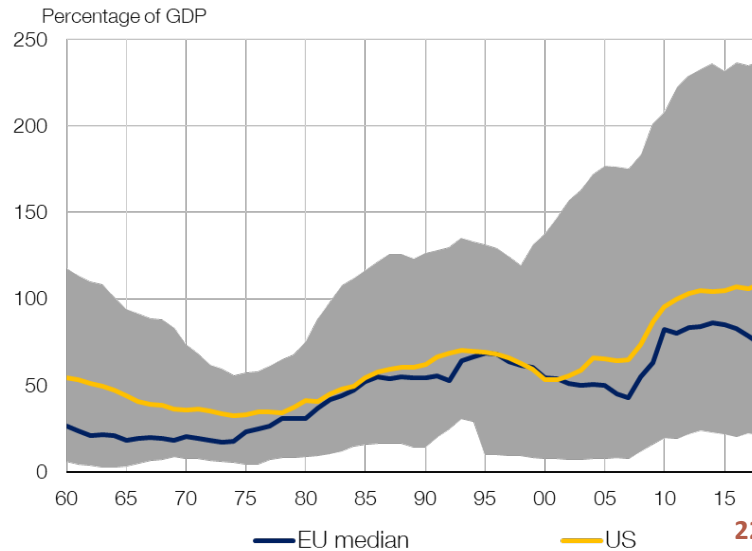**Public Investment**

22 OECD countries

Revenues & Debt

Despite the increase in public revenues,

Public deficits have been common→ Accumulation of public debt

Tax revenues

Percentage of GDP

EU median   US

Public Debt

Percentage of GDP

EU median   US

22 OECD countries
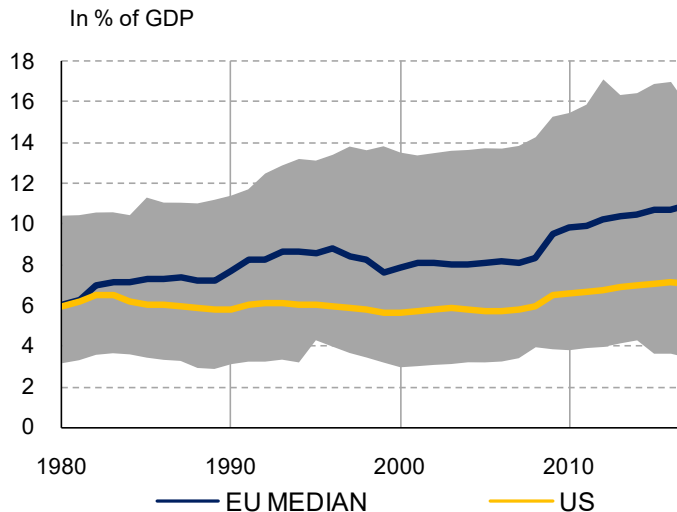
Social dominance hypothesis

Social expenditure= Public benefits with a social purpose (old age + survivors + incapacity-related benefits + health + family + active labour programmes + unemployment + housing other social areas (OECD database)

Population ageing → continuous increase in expenditure in health and pensions.

Health expenditure

In % of GDP
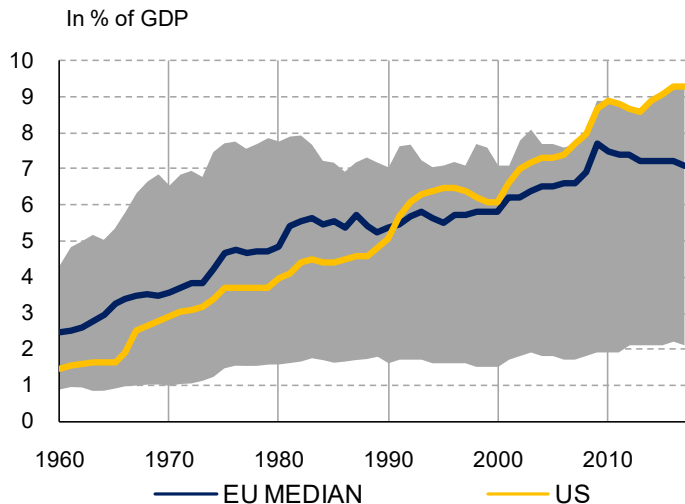
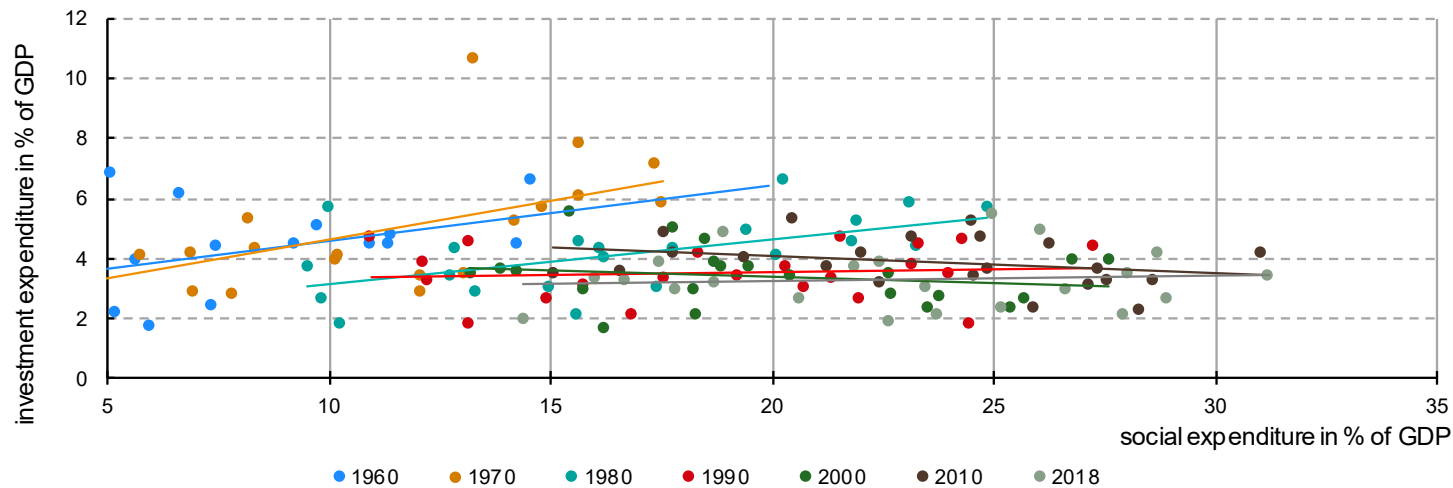**Old age pension expenditure**

In % of GDP

22 OECD countries

Social dominance hypothesis

Over the last sixty years, there has been a clear movement of public expenditure preferences favouring social expenditure over public investment.

SOCIAL EXPENDITURE AND INVESTMENT EVOLUTION (1980-2018): UE AND OTHER ADVANCED ECONOMIES

Fiscal rules evolution

Simultaneously, countries have implemented fiscal rules, with an increasing level of flexibility (escape clauses, investment protection clauses, cyclically-adjusted target…).

Evolution of countries with a Fiscal Rules and a Flexible Fiscal Rule
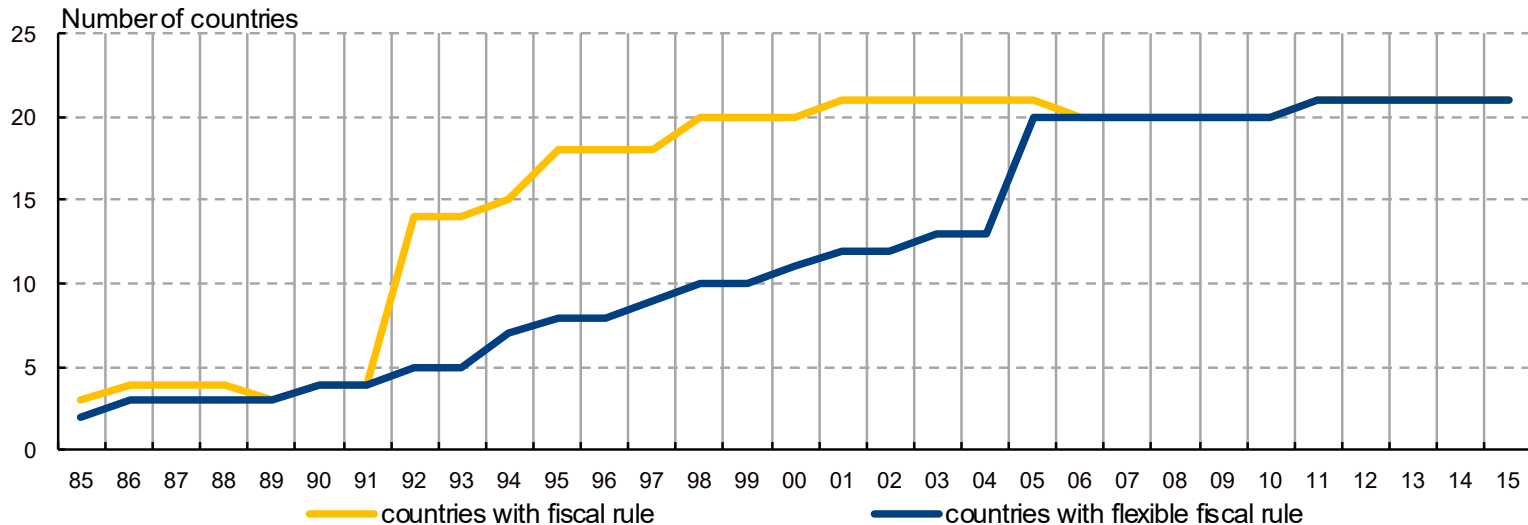
Overview

1. Literature review

2. Two relevant trends: Public spending & Fiscal rules

3. **Empirical analysis**

   1. Social spending

   2. Public investment

Main Variables: Long panel 1960-2015 for 22 OECD developed countries

Variables	Availability
Social Expenditure (in % of GDP)	1960-2018
Public investment (in % of GDP)	1960-2018
Real GDP growth	1960-2018
GDP per capita	1960*-2018 (DE 1970)
Demographic variables	1960-2018
Averaged cabinet composition ideology (1= right, 2= center, 3=left) Armingeon et al. (2019)	1960-2018
Fiscal Rules Dummy	1960-2015
Fiscal Rules Flexibility	1960-2015
Fiscal consolidation Alesina and Ardagna (2013)	1960-2015

Country list

AT BE ES
FI FR GR
IE IT LU NL
PT DK GB
HU SE PO
AU CA CH
JP US NO

Empirical analysis

- Panel of 22 OECD countries for the period 1960-2018

- Topic: the determinants of **public investment** and the existence of "social dominance" versus the impact of fiscal rules.

- Fixed effects panel data model + Driscoll and Kraay (1998)

- Robustness check: Least Squared Dummy Variable method (Bruno, 2005)

- Dynamic response of a fiscal rule implementation by Local projections (Jordà, 2005)

The model: Public investment

$$\Delta inv_{it} = \alpha + \beta_{db}Debt_{i\,t-1} + \beta_{st}Stock_{it} + \beta_{soexp}\Delta soexp_{it} + \beta_{gc}\Delta lGDPc_{it} + \beta_x X_{it} + \mu_i + \epsilon_{it}$$

Investment   Public debt   Capital stock   Soc. expenditure   GDPpc   Cycle, ideology, FR

	1960-2015				
Debt$_{t-1}$	-0.001	-0.001*	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
GDPpc growth$_t$	-0.007*	-0.007*	-0.004	-0.007	-0.007*
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Capital Stock$_{t-1}$	-0.006***	-0.006***	-0.005***	-0.006***	-0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Cycle	-0.007	-0.007	-0.010	-0.008	-0.007
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Ideology$_{t-1}$	-0.009	-0.012	-0.010	-0.009	-0.011
	(0.016)	(0.016)	(0.016)	(0.016)	(0.015)
Δ Social expenditure$_{t-1}$	-0.014	-0.014	-0.020*	-0.023**	-0.023**
	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)
Δ Social expenditure$_{t-2}$	-0.043**	-0.042**	-0.045**	-0.047**	-0.046**
	(0.018)	(0.017)	(0.018)	(0.018)	(0.018)
Δ Social expenditure$_{t-3}$	-0.037**	-0.035**	-0.035***	-0.036***	-0.035***
	(0.014)	(0.014)	(0.013)	(0.013)	(0.012)
Rules dummy	-0.057*			-0.049	
	(0.030)			(0.030)	
Flexibility dummy		-0.072*			-0.072**
		(0.037)			(0.034)
Fiscal Cons. Alesina			-0.099**	-0.064	-0.088
			(0.042)	(0.078)	(0.060)

Main results: public investment

- Evidence of crowding-out of public investment by social expenditure.

  - Stronger effect in the second part of the sample

- Higher stock of capital → less investment (catching-up process before 1985)

- No strong procyclical behaviour of $\frac{Inv}{GDP}$, but effect on investment growth rates.

- Fiscal consolidation episodes → stronger reduction of investment

- Fiscal rules & Flexibility → ⬇ Public investment

- No impact of ideology & small impact of stock of debt

Local projections (Jordà 2005)

$$\Delta inv_{i,t+h} = \alpha_{i,h} + \beta_{fr,h} Fiscalrule_{it} + \beta_{soexp,h} \Delta soexp_{it-1} + \beta_{x,h} X_{it} + \mu_{i,h} + \epsilon_{it+h}$$

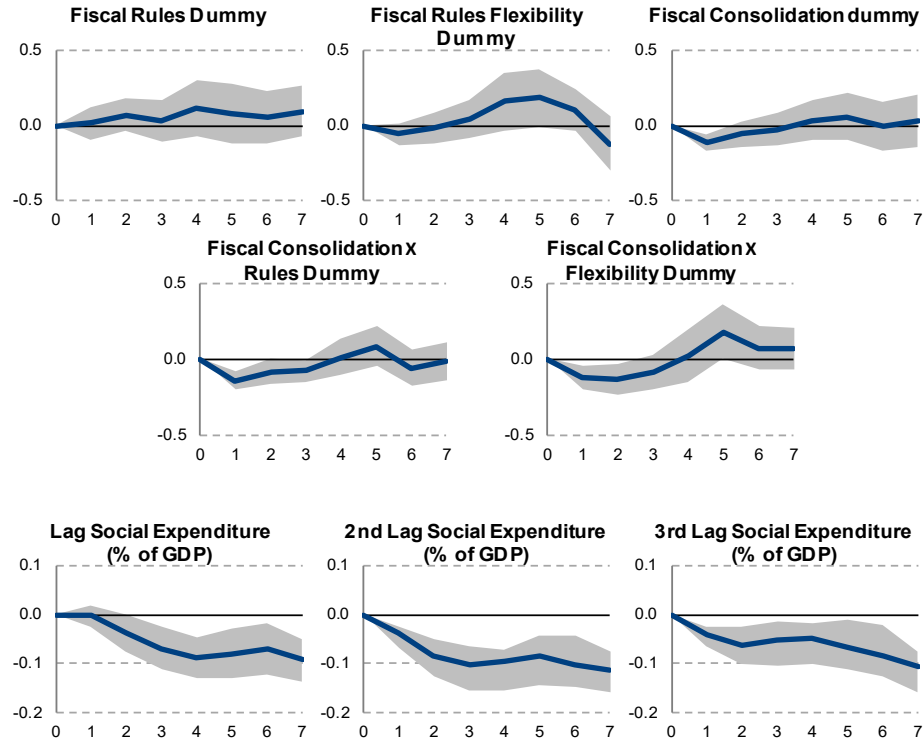| Investment | Fiscal Rules indicator | Social expenditure | Control variables |

Where $h = [0, 7]$ represent the coefficients taken from this regression h periods ahead. We estimate one regression for each value of h:

$\beta_{soexp,h}$ impact of an increase in social expenditure on

$\beta_{fr,h}$ impact of the presence of a fiscal rule

Local projections: dependent variable investment

Conclusions

- Public investment key for the **upcoming challenges**: Post-covid era, climate change & digitalisation.

- Preserving Public investment from excessive cuts **must be a priority** as it is the main tool for increasing productivity and economic growth potential.

- In the last decades, public resources have been allocated to social expenditure, as ageing and health costs have increased → crowding out of investment

- Despite the effort to create fiscal rules with flexibility clauses, investment has continuously decrease → Debate for a new fiscal rules framework: In practice fiscal rules have displayed a pro-cyclical bias as regards their implementation, i.e. they have been applied more strongly bad times.

Thank you very much for you attention

Main references

- **Alesina, A., and S. Ardagna. 2013**. "The Design of Fiscal Adjustments." In Tax Policy and the Economy, 19–68 Vol. 27. Chicago, Illinois: University of Chicago Press. NBER. https://doi.org/10.1086/671243
- **Ardanaz, M., E. Cavallo, A. Izquierdo, and J. Puig. 2021**. "Growth-friendly Fiscal Rules? Safeguarding Public Investment from Budget Cuts through Fiscal Rule Design." Journal of International Money and Finance 111: 102319. doi:10.1016/j.jimonfin.2020.102319
- **Ardanaz, M., and A. Izquierdo. 2017**. "Current Expenditure Upswings in Good Times and Capital Expenditure Downswings in Bad Times?: New Evidence from Developing Countries." IDB Working Paper No. IDB-WP-838.
- **Armingeon, K., V. Wenger, F. Wiedemeier, C. Isler, L. Knöpfel, D. Weisstanner, and S. Engler. 2019**. "Comparative Political Data Set 1960-2017." In Institute of Political Science. University of Berne.
- **Bruno, G. S. 2005**. "Approximating the Bias of the LSDV Estimator for Dynamic Unbalanced Panel Data Models." Economics Letters 87 (3): 361–366. doi:10.1016/j. econlet.2005.01.005
- **Delgado-Téllez, M., E. Gordo, I. Kataryniuk and Javier J. Pérez**. 2022. "The decline in public investment:``social dominance''or too-rigid fiscal rules?" Applied Economics, 54 (10). https://doi.org/10.1080/00036846.2021.1990841
- **European Commission. 2017**. "Government Investment in the EU: The Role of Institutional Factors." Report on Public Finances in EMU 2017.
- **IMF. 2017**. "Fiscal Rules Dataset: 1985-2015." International Monetary Fund, https://www.imf.org/external/datamap per/fiscalrules/map/map.htm
- **IMF. 2019**. "Investment and Capital Stock Dataset, 1960- 2017." International Monetary Fund, https://www.imf. org/external/np/fad/publicinvestment/
- **Mehrotra, A., and T. Välilä. 2006**. "Public Investment in Europe: Evolution and Determinants in Perspective." Fiscal Studies 27 (4): 443–471. doi:10.1111/j.1475- 5890.2006.00042.x.
- **Schuknecht, L. , and Zemanek, H., et al. 2021.** "Public Expenditures and the Risk of Social Dominance." Public Choice 188 , 95–120 doi:https://doi.org/10.1007/s11127- 020-00814-5.

Fiscal Rules definition: based on IMF fiscal rules database

- Strength is a composite index of: sectoral coverage, enforcement mechanisms, legal basis and supporting procedures (it ranges between 0 and 4). For flexibility, we consider a cyclically-adjusted target, protection of investment and escape clauses (between 0 and 3).

- Only the strongest one between national and supranational rules is taken into account.

- For example, in Germany, the score is the maximum between the national and supranational scores. In Italy, the score is equal to the supranational part, until the fiscal compact reform.
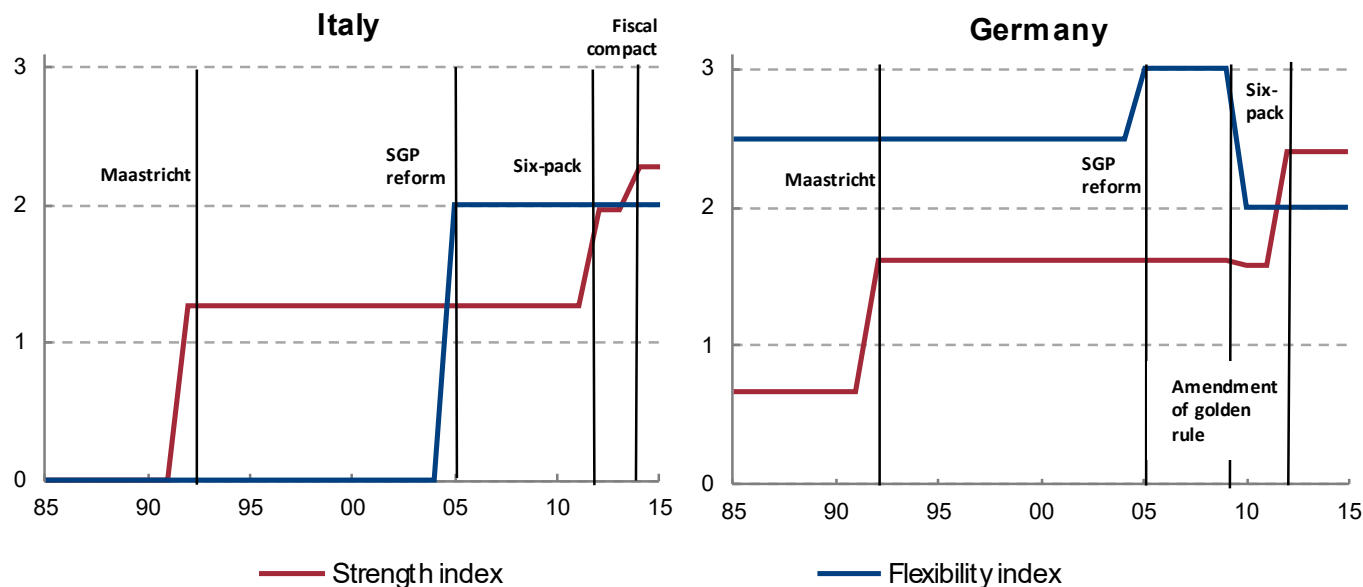
Granger Causality by country: Social expenditure and Investment

$$Y_t = \alpha + \beta Y_{t-1} + \gamma X_{t-1} + \epsilon_t$$

↓ **Investment or Social expenditure**

↓ **Social expenditure or Investment**

Dependent variable	AT	BE	DE	ES	FI	FR	GR	IE
Social expenditure	0.00	0.15	-0.09	0.08	0.12	-0.15	0.18	0.64***
Investment	-0.08***	-0.01*	-0.07***	0.00	0.01	-0.02***	0.01	-0.05***

	IT	LU	NL	PT	DK	GB	SE
Social expenditure	0.24	0.06	0.26**	0.14	-0.05	0.01	-0.01
Investment	-0.02**	-0.00	-0.03***	-0.01	-0.01	-0.02	-0.02***

	AU	CA	CH	JP	US	NZ	NO
Social expenditure	-0.36	-0.17	0.21	0.01	0.13	0.17*	0.25
Investment	0.00	-0.00	-0.02***	-0.03***	-0.02*	-0.03	0.00

***, **, *: significance at the 1 percent, 5 percent and 10 percent levels.

Robustness checks

Table A2. Robustness exercises: different methodological approaches.

	Dependent lag		Time effect		LSDV[a]		GMM[b]	
	1	2	3	4	5	6	7	8
Δ Investment/GDP $_{t-1}$	0.038	0.036			0.058	0.056		
	(0.037)	(0.038)			(0.000)	(0.000)		
Δ Social expenditure $_{t-1}$	−0.028 **	−0.027 **	−0.018	−0.018	−0.027 **	−0.026 **	−0.115 ***	−0.125 ***
	(0.013)	(0.013)	(0.016)	(0.016)	(0.000)	(0.000)	(0.032)	(0.036)
Δ Social expenditure $_{t-2}$	−0.053 ***	−0.052 ***	−0.019	−0.019	−0.051 ***	−0.050 ***		
	(0.017)	(0.017)	(0.016)	(0.016)	(0.000)	(0.000)		
Δ Social expenditure $_{t-3}$	−0.032 **	−0.030 **	−0.033 ***	−0.032 ***	−0.030 **	−0.028 **		
	(0.012)	(0.012)	(0.012)	(0.012)	(0.000)	(0.000)		
Fiscal Cons. Alesina	−0.057	−0.064	−0.024	−0.028	−0.059	−0.065	−0.186 ***	−0.170 ***
	(0.063)	(0.048)	(0.072)	(0.054)	(0.000)	(0.000)	(0.063)	(0.057)
Rules dummy	−0.059 *		−0.024		−0.060 *		−0.193	
	(0.031)		(0.044)		(0.000)		(0.149)	
Fiscal Cons. Al. × Rules dummy	−0.037		−0.061		−0.035		0.049	
	(0.071)		(0.077)		(0.000)		(0.078)	
flexibility dummy		−0.052		−0.018		−0.049		0.126
		(0.034)		(0.035)		(0.000)		(0.196)
Fiscal Cons. Al. × Flexibility		−0.046		−0.078		−0.043		0.031
		(0.063)		(0.066)		(0.000)		(0.073)
Debt $_{t-1}$	−0.001	−0.001	−0.000	−0.000	−0.001 *	−0.001 **	−0.009 *	−0.011 **
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.005)	(0.005)
GDPpc growth $_t$	−0.007 *	−0.006 *	−0.010 **	−0.010 **	−0.007 **	−0.006	0.004	0.002
	(0.003)	(0.003)	(0.004)	(0.004)	(0.000)	(0.000)	(0.019)	(0.017)
Cycle	−0.006	−0.007	0.014	0.014	−0.010	−0.011	−0.041 *	−0.043 *
	(0.008)	(0.008)	(0.010)	(0.010)	(0.000)	(0.000)	(0.021)	(0.022)
Capital Stock $_{t-1}$	−0.004 ***	−0.004 ***	−0.004 ***	−0.004 ***	−0.004 ***	−0.004 ***	−0.007	0.004
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.010)	(0.011)
Ideology $_{t-1}$	−0.010	−0.012	−0.013	−0.013	0.002	0.000	−0.010	−0.017
	(0.014)	(0.014)	(0.015)	(0.015)	(0.000)	(0.000)	(0.042)	(0.043)
# Observations	1,073	1,073	1,074	1,074	1,075	1,075	1,083	1,083
Sargan test p-value							0.000	0.000
AR(2) test p-value							0.042	0.031

Table 1. Δ Investment Expenditure / GDP determinants.

	1960–2015					1960–1985		1985–2015	
Δ Social expenditure $_{t-1}$	−0.014 (0.012)	−0.014 (0.011)	−0.020 * (0.011)	−0.023 ** (0.011)	−0.023 ** (0.011)	−0.003 (0.014)	−0.003 (0.014)	−0.031 (0.021)	−0.034 (0.021)
Δ Social expenditure $_{t-2}$	−0.043 ** (0.018)	−0.042 ** (0.017)	−0.045 ** (0.018)	−0.047 ** (0.018)	−0.046 ** (0.018)	−0.013 (0.020)	−0.013 (0.020)	−0.056 ** (0.027)	−0.058 ** (0.027)
Δ Social expenditure $_{t-3}$	−0.037 ** (0.014)	−0.035 ** (0.014)	−0.035 *** (0.013)	−0.036 *** (0.013)	−0.035 *** (0.012)	−0.001 (0.012)	−0.001 (0.012)	−0.055 *** (0.017)	−0.055 *** (0.016)
Rules dummy	−0.057 * (0.030)				−0.049 (0.030)	0.026 (0.202)		−0.044 (0.026)	
Flexibility dummy		−0.072 * (0.037)				−0.072 ** (0.034)	0.026 (0.202)		−0.072 * (0.037)
Fiscal Cons. Alesina			−0.099 ** (0.042)	−0.064 (0.078)	−0.088 (0.060)	0.063 (0.159)	0.063 (0.159)	−0.215 *** (0.060)	−0.178 *** (0.030)
Fiscal Cons. Al. × Rules dummy				−0.064 (0.083)		−0.169 (0.131)		0.081 (0.068)	
Fiscal Cons. Al. × Flexibility					−0.044 (0.076)		−0.169 (0.131)		0.042 (0.043)
Debt $_{t-1}$	−0.001 (0.001)	−0.001 * (0.001)	−0.001 (0.001)	−0.001 (0.001)	−0.001 (0.001)	−0.001 (0.003)	−0.001 (0.003)	−0.001 (0.001)	−0.001 (0.001)
GDPpc growth $_t$	−0.007 * (0.004)	−0.007 * (0.004)	−0.004 (0.004)	−0.007 (0.004)	−0.007 * (0.004)	−0.013 ** (0.006)	−0.013 ** (0.006)	−0.003 (0.017)	−0.011 (0.016)
Capital Stock $_{t-1}$	−0.006 *** (0.001)	−0.006 *** (0.001)	−0.005 *** (0.001)	−0.006 *** (0.001)	−0.006 *** (0.001)	−0.018 *** (0.004)	−0.018 *** (0.004)	−0.006 ** (0.002)	−0.007 ** (0.003)
Output gap	−0.007 (0.008)	−0.007 (0.008)	−0.010 (0.008)	−0.008 (0.008)	−0.007 (0.008)	−0.012 (0.015)	−0.012 (0.015)	−0.001 (0.017)	0.009 (0.018)
Ideology $_{t-1}$	−0.009 (0.016)	−0.012 (0.016)	−0.010 (0.016)	−0.009 (0.016)	−0.011 (0.015)	−0.055 (0.046)	−0.055 (0.046)	−0.002 (0.016)	−0.006 (0.016)
# Observations	1,075	1,075	1,074	1,074	1,074	404	404	586	586
Countries	22	22	22	22	22	21	21	22	22
R-squared	0.0723	0.0738	0.0766	0.0799	0.0816	0.0782	0.0782	0.115	0.117

***, **, * : significance at the 1%, 5% and 10% levels.