EUROPEAN CENTRAL BANK

EUROSYSTEM

Debt rule design in theory and practice - the SGP's debt benchmark revisited

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The views expressed are those of the authors and do not necessarily reflect those of the ECB or the Eurosystem.

Context (I): SGP debt rule - status quo

- **SGP debt rule introduced in 2011 as part of Six-Pack reform** to operationalise the Treaty debt criterion
- The **implementation for high debt countries has been difficult in the "lowflation" environment**:
  - continued "prima facie" breaches of debt criterion (IT, BE) ...
  - ... but relevant factors taken into account in Art. 126(3) reports to avoid opening of EDPs (incl. low growth/inflation)
  - ECB (2016): adjustment requirements under the debt rule react sensitively to changes in inflation and growth

Context (II): debt sustainability implications of low interest-growth differentials

- **Blanchard (2019)**: "public debt may have no fiscal cost" in times of negative interest-growth differentials
- **Blanchard et al. (2019)**: EU fiscal framework needs rebalancing from focus on debt externalities to demand externalities (given more important role of fiscal policies when ECB at the ELB)
- **Economic rationale for reducing public debt** to prudent levels when markets perceive government bonds as risky (e.g., Lorenzoni and Werning (2019)):
- **Sovereign risk considerations important** when designing optimal debt policies in EMU

Context (III): SGP reform debate

- upcoming **'Six-pack' and 'Two-pack' review** opportunity to discuss effectiveness of SGP framework
- **broad consensus on simplification**: single operational indicator and debt anchor (EC, EFB, IMF, 14 FR/DE economists)
- **SGP's debt rule predestined to fulfil the role of debt anchor** and form core of a reformed EU fiscal governance framework

This paper

- **Analysis suggests that**
  - the existing design of the debt rule gives rise to a **pro-cyclical bias** ...
  - ... which has hampered its implementation in the low-growth low-inflation environment.
- **We propose two parametric changes to the debt rule** to better balance the objectives of macroeconomic stabilisation and debt sustainability:
  - accounting for persistent deviations of inflation from the central bank's objective
  - a reduced speed of adjustment.

Debt rule design (I)

- **Debt accumulation equation**:

$$d_t = \frac{1 + i_t}{1 + y_t} d_{t-1} - pb_t$$

  - d_t: debt-to-GDP ratio at time t
  - i_t: nominal (implicit) interest rate
  - y_t: nominal GDP growth rate
  - pb_t: primary balance ratio

- **Introducing a SGP-type debt rule**:

$$pb_t = \frac{i_t - y_t}{1 + y_t} d_{t-1} + \alpha \left(d_{t-1} - d^* \right)$$

  - α: debt adjustment coefficient (SGP: 0.05)
  - d^*: debt target (SGP: 60% of GDP)

Debt rule design (II): adjustment speed

		target primary balance ratio		
		debt-to-GDP =		
		60%	**100%**	**140%**
α=0.05	**i-y = 1%**	0.6	3.0	5.4
	i-y = 0%	0.0	2.0	4.0
	i-y = -1%	-0.6	1.0	2.6
α=0.03	**i-y = 1%**	0.6	2.2	3.8
	i-y = 0%	0.0	1.2	2.4
	i-y = -1%	-0.6	0.2	1.0

Debt rule design (III): pro-cyclicality

- **Components of debt adjustment**:

$$\alpha\left(d_{t-1}-d^{*}\right)=capb_t+\mu og_t-\frac{i_t-y_t}{1+y_t}d_{t-1}$$

  - $capb_t$: cyclically adjusted primary balance ratio
  - μ: cyclical sensitivity of budget balance
  - og_t: output gap

- **SGP debt rule prone to pro-cyclicality**: fixed adjustment requirement implies that shocks to og_t and y_t need to be absorbed by $capb_t$

Debt rule design (IV): "nominal" cyclical adjustment

$$d_t^{nca} = \frac{1 + i_t}{(1 + y_t^{pot})(1 + y^{def2\%})} d_{t-1}^{nca} - capb_t$$

– d_t^{nca}: nom. cyclically adjusted debt
– y_t^{pot}: potential GDP growth
– $y^{def2\%}$: GDP deflator growth rate set at 2%

- **Application of SGP debt rule based on d_t^{nca} would imply**:
  - treatment of $(y_t^{real} - y_t^{pot})$ and $(y^{def} - y^{def2\%})$ as cyclical factors
  - enhanced smoothing of adjustment requirements over the cycle (compared to existing SGP method, i.e. real adjustment)
  - more fiscal space in times of below-target inflation

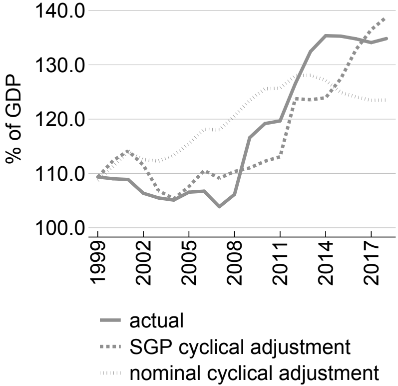
Simulations (I): Data / assumptions

- **Data**: European Commission AMECO database
- **Fiscal / macroeconomic projections**: Autumn 2019 EC forecast until 2021; as of 2022: 2018 Fiscal Sustainability Report / T+10 assumptions from EPC Output Gaps Working Group
- **Fiscal adjustment scenarios**:
  - aggregate **fiscal multiplier** of 0.7 (0.5 real GDP growth, 0.2 GDP deflator growth)
  - **Debt targets** according to

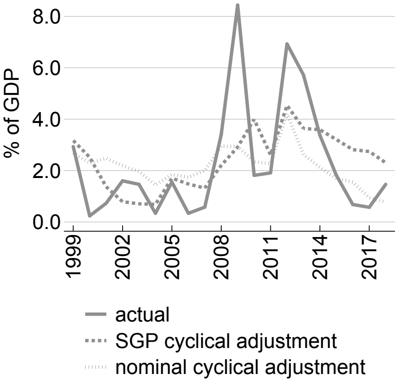
$$d_{0+N} = (1-\alpha)^N (d_{t-1} - d^*) + d^*$$

Simulations (II): Italy - actual versus cycl. adj. debt developments

debt ratio



snowball effect



Source: AMECO and own computations (link to slide 17)

Simulations (III): overview

% of GDP	d	pb	$(i-y)^{1)}$		$pb^*_{2020/29}$ $\alpha = 0.05$	$pb^*_{2020/29}$ $\alpha = 0.05$	$pb^*_{2020/29}$ $\alpha = 0.03$
	2019	2019	2019	2020 – 29		$nca^{2)}$	$nca^{2)}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
AT	69.9	1.9	-1.4	-1.0	-0.3	-0.5	-0.6
BE	99.5	0.2	-0.7	-0.4	1.3	1.2	0.7
DE	59.2	2.1	-1.1	-0.9	-0.5	-0.6	-0.6
ES	96.7	-0.1	-1.0	0.0	1.5	1.2	0.7
FI	59.2	-0.3	-1.4	-1.1	-0.6	-0.6	-0.6
FR	98.9	-1.6	-1.1	-0.4	1.3	1.0	0.4
IE	59.0	1.6	-4.1	-1.9	-1.1	-1.3	-1.3
IT	136.2	1.3	1.9	1.1	4.5	4.1	3.1
NL	48.9	2.2	-2.6	-0.6	-0.7	-0.9	-0.7
PT	119.5	3.0	-0.8	0.3	2.9	2.6	1.8
EA	85.0	0.8	-0.9	-0.4	0.8	0.6	0.3

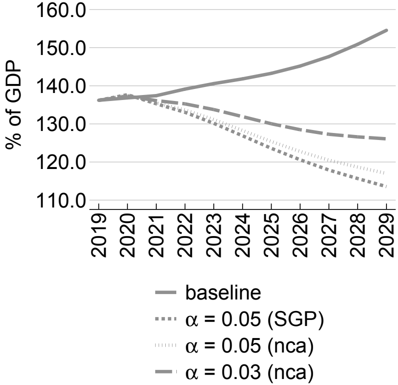
Source: AMECO and own computations

1) Interest-growth differentials are shown in percent.

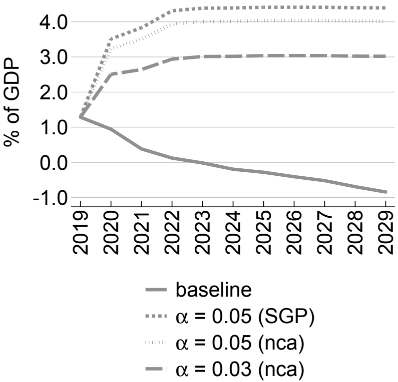
2) Nominal cyclically adjusted targets are labelled "nca".

Simulations (IV): Italy - adjustment scenarios

debt ratio

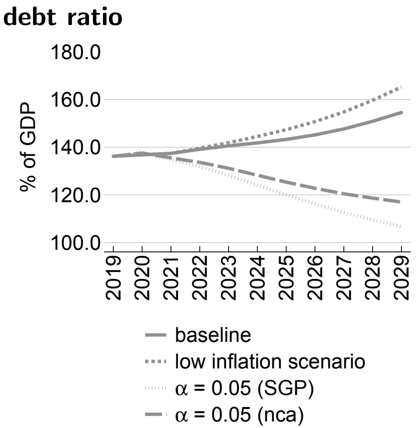


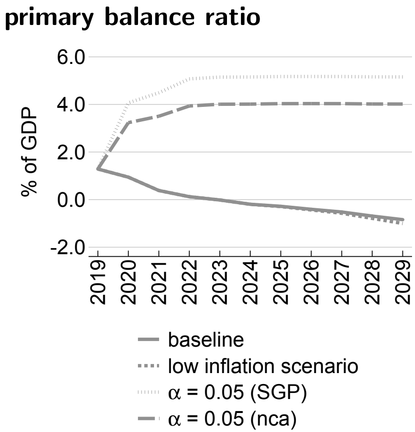
primary balance ratio



Source: AMECO and own computations

Simulations (V): Italy - low inflation scenarios





Source: AMECO and own computations
Notes: For 2022-2029, the low inflation scenario assumes fixed GDP deflator growth at the level of 2021 (1.1%).

Conclusions

- SGP reform discussion stresses the importance of debt as anchor
- The SGP debt rule introduced in 2011 is in line with this idea but has been difficult to implement.
- Our paper tries to address the economic weaknesses of the current debt rule, proposing:
    - parametric changes to the existing framework: "nominal" cyclical adjustment of debt + lower debt adjustment speed ($0.05 \rightarrow 0.03$)
    - (poss.) symmetry around the 60% of GDP debt reference value which increases fiscal space in low debt countries
    - limited changes to the legal framework (political feasibility)

BACKGROUND

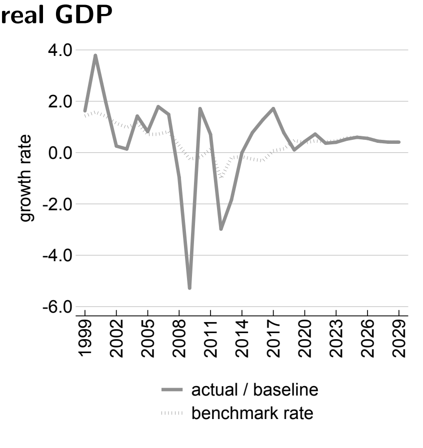
Table B.1: Overview of debt accumulation parameters

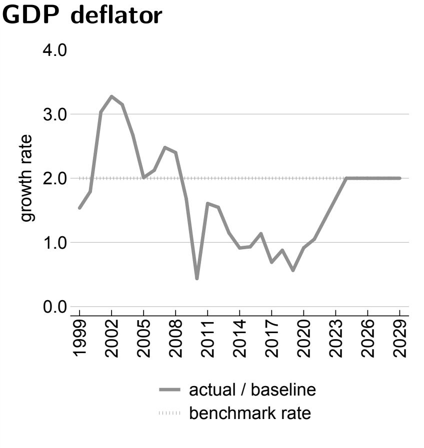
		2018	2019	2020-29[1)]
DE	debt ratio	61.9	59.2	47.3
	primary balance ratio	2.8	2.1	0.2
	(implicit) interest rate	1.5	1.4	2.0
	nom. GDP growth	3.1	2.5	2.9
	differential	-1.6	-1.1	-0.9
ES	debt ratio	97.6	96.7	109.5
	primary balance ratio	-0.1	-0.1	-1.3
	(implicit) interest rate	2.5	2.3	2.7
	nom. GDP growth	3.5	3.3	2.6
	differential	-1.0	-1.0	0.1
FR	debt ratio	98.4	98.9	112.2
	primary balance ratio	-0.8	-1.6	-2.0
	(implicit) interest rate	1.7	1.5	2.2
	nom. GDP growth	2.5	2.7	2.7
	differential	-0.8	-1.2	-0.5
IT	debt ratio	134.8	136.2	153.4
	primary balance ratio	1.5	1.3	-0.8
	(implicit) interest rate	2.7	2.6	3.1
	nom. GDP growth	1.7	0.7	2.0
	differential	1.0	1.9	1.1
NL	debt ratio	52.4	48.9	37.6
	primary balance ratio	2.4	2.2	0.5
	(implicit) interest rate	1.6	1.5	1.9
	nom. GDP growth	4.9	4.2	3.0
	differential	-3.3	-2.7	-1.1
EA	debt ratio	87.9	86.4	86.2
	primary balance ratio	1.3	0.9	-0.6
	(implicit) interest rate	2.0	1.9	2.5
	nom. GDP growth	3.2	2.7	2.9
	differential	-1.2	-0.8	-0.4

Sources: AMECO, EC FSR 2018

[1)] The 2029 values are reported for the debt and primary balance ratio .

B.2 - Italy: growth & inflation versus benchmark rates

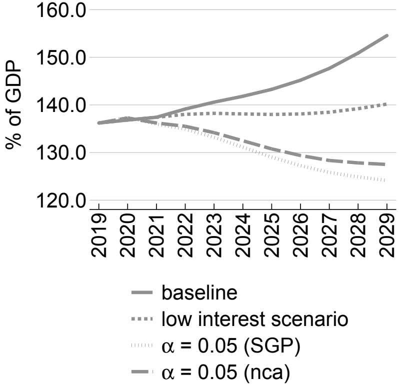




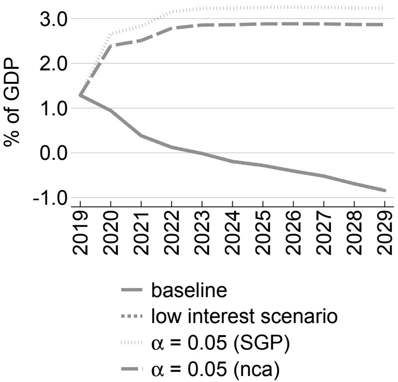
Source: AMECO, assumptions based on EC 2018 FSR / EPC OG WG (link to slide 10)

B.3 - Italy: low interest scenario

debt ratio

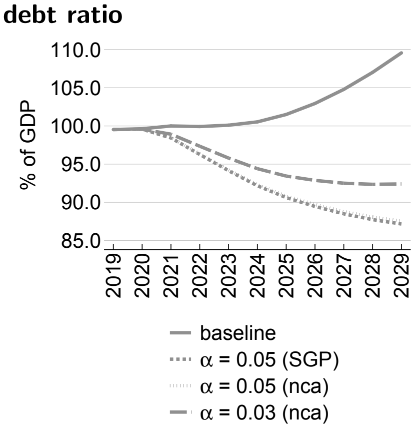


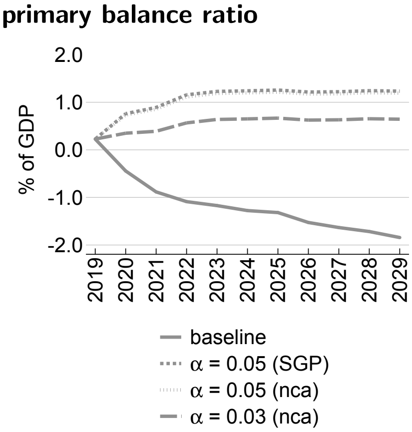
primary balance ratio



Source: AMECO and own computations
Notes: For 2022-2029, the low interest scenario assumes a fixed implicit interest rate at the level of 2021.

B.4 - Belgium: adjustment scenarios

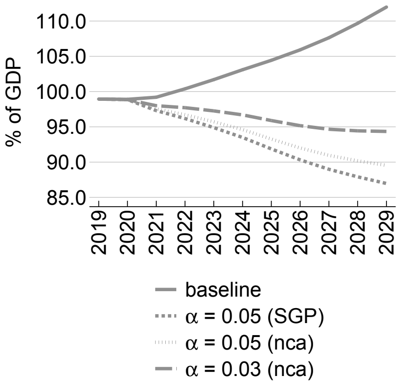




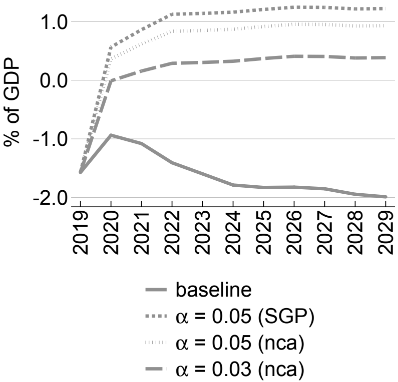
Source: AMECO and own computations

B.5 - France: adjustment scenarios

debt ratio



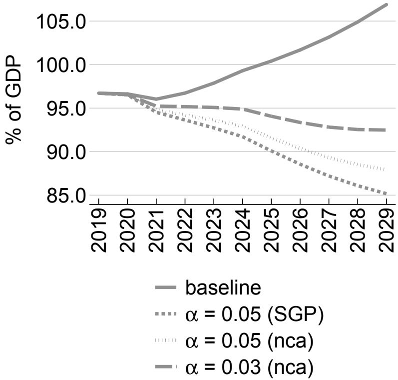
primary balance ratio



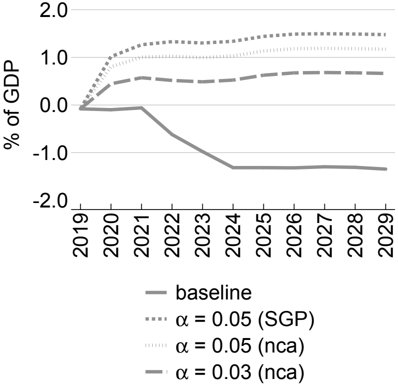
Source: AMECO and own computations

B.6 - Spain: adjustment scenarios

debt ratio

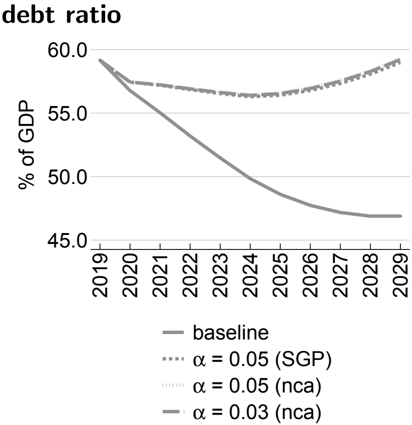


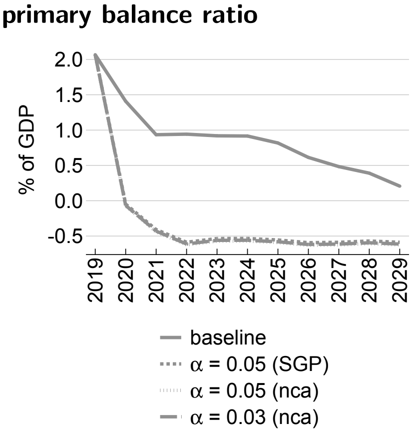
primary balance ratio



Source: AMECO and own computations

B.7 - Germany: adjustment scenarios

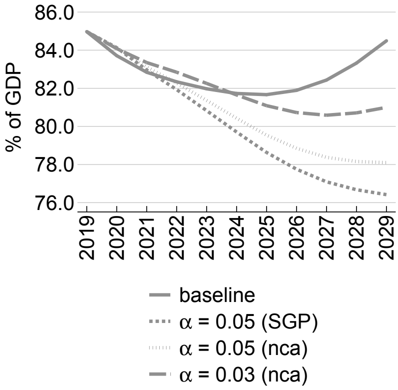




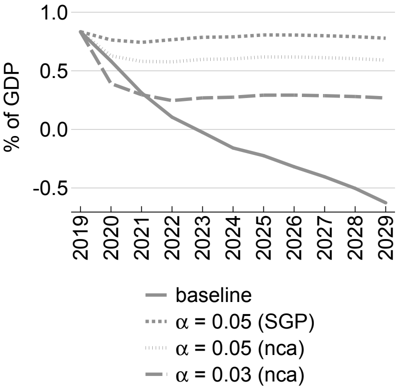
Source: AMECO and own computations

B.8 - Euro area: adjustment scenarios

debt ratio



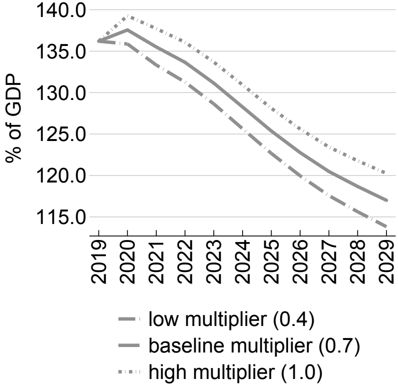
primary balance ratio



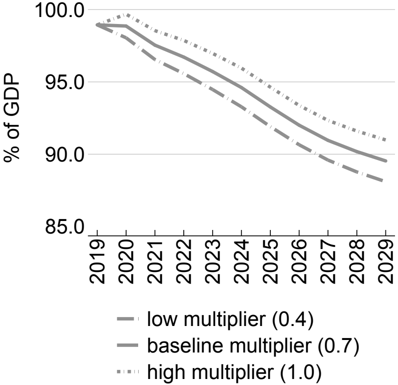
Source: AMECO and own computations

B.9 - Sensitivity to fiscal multiplier assumptions

Italy



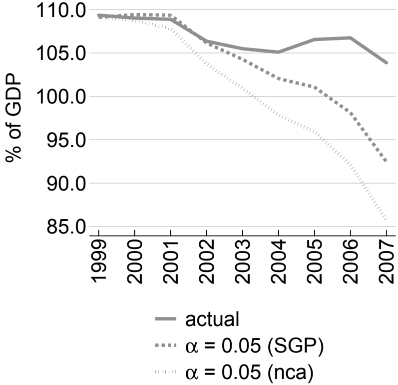
France



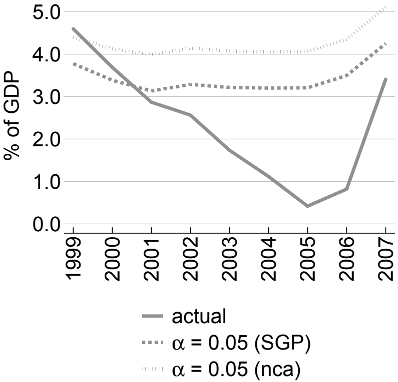
Source: AMECO and own computations

B.10 - Italy: backward-looking adjustment scenarios

debt ratio



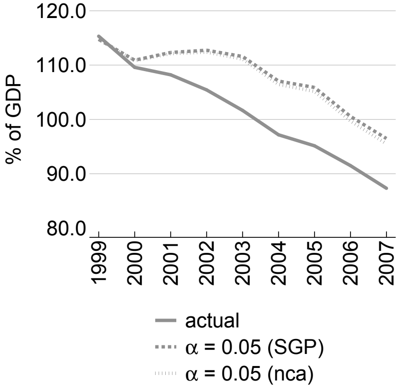
primary balance ratio



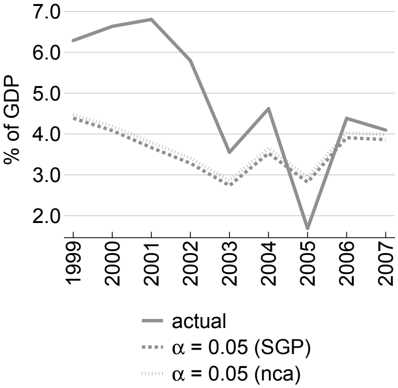
Source: AMECO and own computations

B.11 - Belgium: backward-looking adjustment scenarios

debt ratio



primary balance ratio



Source: AMECO and own computations