

# EU Growth Prospects in the Shadow of the Crisis

## Austerity and Economic Growth

Policy insights for the euro area from the  
NIME world macroeconomic model



# Structure of the presentation

1. An overview of the NIME model
2. A review of the essential recent literature on austerity and growth
3. The NIME baseline projection 2012-2025
  - i. The core steady state assumptions
  - ii. The main macroeconomic and budgetary results
4. The austerity policy scenarios
  - i. Austerity in the EA
  - ii. Internationally synchronised austerity
  - iii. Delayed austerity in the EA

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# The NIME model

1. **A world area model:**
  - i. Primary economic areas are: EA, NE, US, JP
  - ii. Secondary economic areas are: EC, RW
  
2. **A representative agent framework with 5 aggregate sectors**
  - i. An aggregate household sector
  - ii. An aggregate private business sector
  - iii. A general government sector
  - iv. Monetary authorities
  - v. An export sector

# Structure of the primary economic areas: EA, NE, US, JP

## An aggregate household sector

- i. Households consume a bundle of goods and services based on current income and present discounted wealth
- ii. Households invest in dwellings
- iii. Households hold a stock of assets composed of:
  - residential buildings
  - equities
  - net bonds
  - money balances
- iv. Households provide labour services to the public sector and the private business sector
- v. Households are paid a wage income for their labour services
- vi. Households receive income streams from financial assets (equities and bonds)
- vii. Households receive transfers from government, pay taxes on consumption and income and pay social security contributions

## Structure of the main areas: EA, NE, US, JP

### An aggregate private business sector

- i. The private sector produces a homogenous output for consumption and investment using capital services, labour services and imported intermediate inputs
- ii. The equilibrium (long-run) production technology is represented by a Cobb-Douglas function with constant returns to scale
- iii. Staggered Calvo-type price dynamics
- iv. The corporate veil is pierced: households own all financial assets and there is no financial intermediation

## Structure of the main areas: EA, NE, US, JP

### An aggregate general government sector

- i. The public sector consumes goods & services
- ii. The public sector invests in capital goods
- iii. The public sector uses labour services
- iv. The public sector's revenue comes from direct taxes on income and wealth, from indirect taxes on production and imports and from social security contributions
- v. The public sector provides transfers to households and subsidies to the private business sector

## Structure of the main areas: EA, NE, US, JP

### A monetary authority

- i. Monetary authorities determine the level of the short-term interest rate so as to achieve their long-term objective
- ii. The monetary authority's balance sheet is not modelled



## Structure of the main areas: EA, NE, US, JP

### An export sector

- i. Exports depend on foreign demand, international relative prices and nominal effective exchange rate developments
- ii. Nominal exchange rates follow an uncovered interest parity condition

## Structure of the secondary EC and RW areas

- Similar structure to the primary economic areas
- But modelling of equations is simplified

## General properties of the NIME model

- The model has **dynamic** properties, generating business cycle movements in the short to medium term
- The model converges to a long-run **general equilibrium** growth path
- In the long run, the model is only affected by **stochastic** shocks to technology, demographics and agents' preferences
- The long-run equilibrium model is based on intertemporal optimisation and has expectations schemes that can be adaptative or model consistent

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# Budgetary Austerity and Growth in the Euro Area: A review of the recent relevant literature

## 1. Reinhart and Rogoff (2009), “Growth in a Time of Debt”

- i. Nations’ debts have been rising
- ii. The 90% GDP threshold is being breached
- iii. Negative effects on real GDP growth to be expected

## 2. Alesina and Ardagna (2009), “Large Changes in Fiscal Policy: Taxes versus Spending”

- i. Fiscal consolidation can be associated with economic expansions
- ii. Influential: Views implicitly endorsed by Madrid Ecofin meeting of April 2010

# Budgetary Austerity and Growth in the Euro Area: A review of the recent relevant literature

## 1. Subsequent rebuttals:

- i. Bivens and Irons (2010), “Government Debt and Economic Growth”
- ii. Almunia *et al* (2009), “From Great Depression to Great Credit Crisis”
- iii. IMF (2010), “WEO, Oct., Chapter 3: Macroeconomic effects of fiscal consolidation”
- iv. Guajardo *et al* (2011), “Expansionary Austerity: New International Evidence”
- v. DeLong and Summers (2012), “Fiscal policy in a depressed economy”

## 2. Professional (not policymaking) consensus around a nuanced NK view:

- i. Blanchard and Cottarelli (2010), “Ten Commandments for Fiscal Adjustment”
- ii. Perotti (2011), “The “Austerity Myth”: Gain Without Pain?”
- iii. Corsetti, editor (2012), “Austerity: Too much of a good thing?”

# Structure of the presentation

1. An overview of the NIME model
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  - i. Built-in budgetary austerity assumptions
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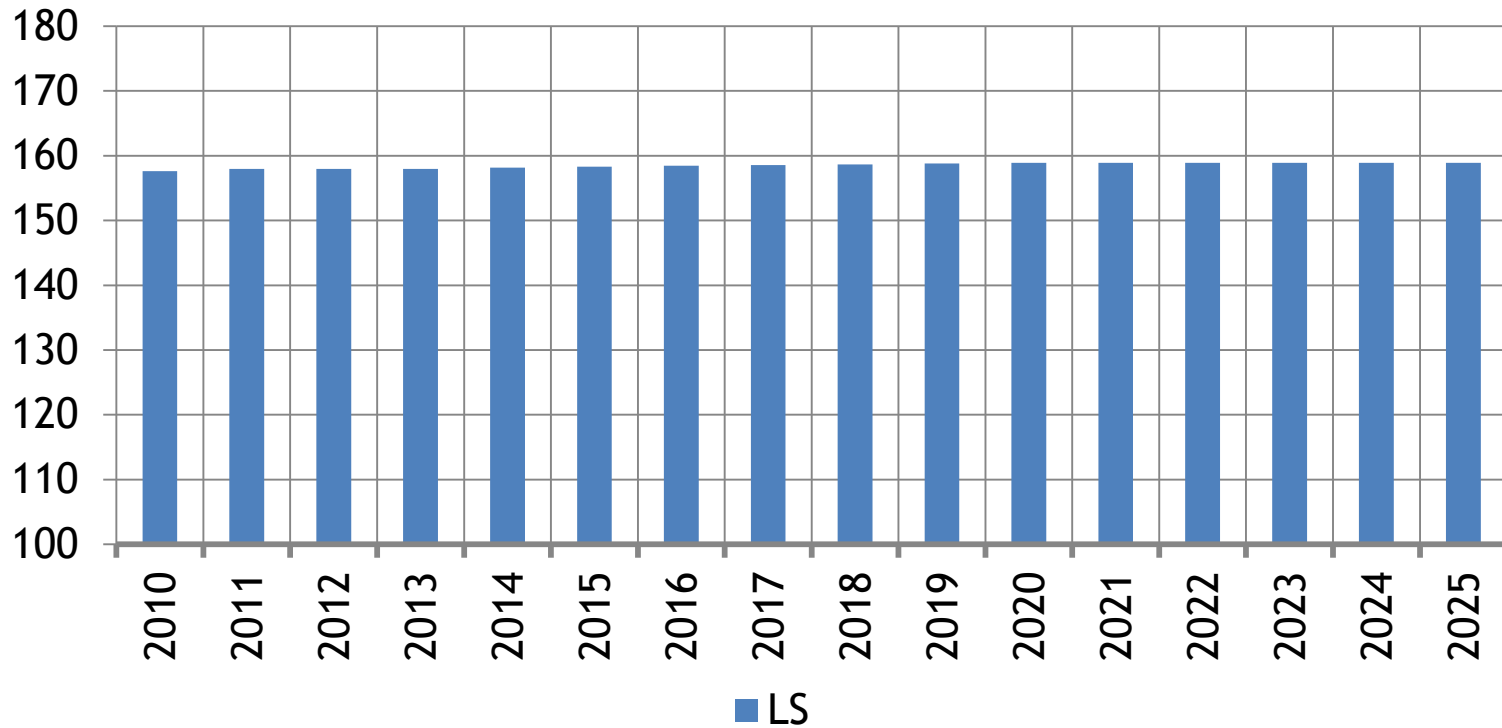
## Budgetary Austerity and Growth in the Euro Area: The NIME baseline projection 2012-2025

### Baseline projection: Built-in austerity in the euro area

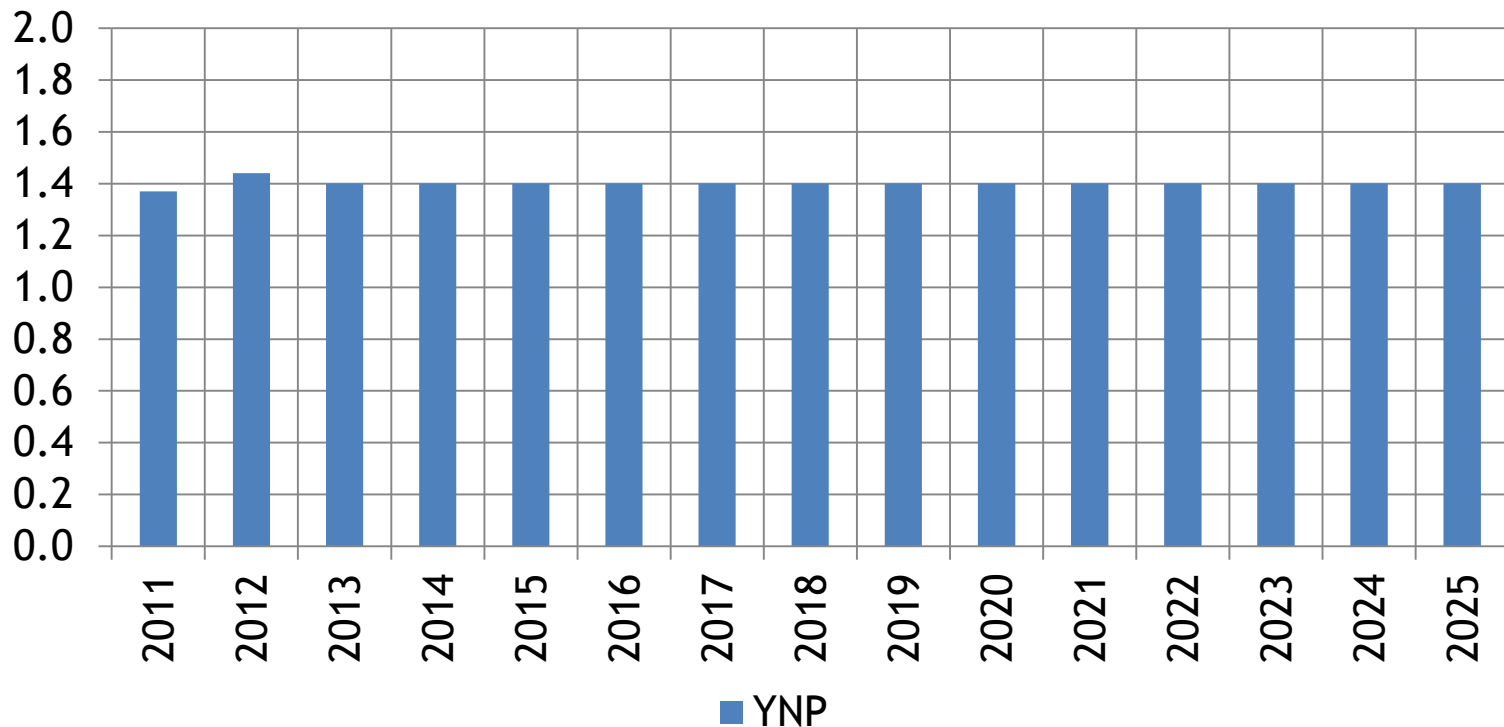
- i. For 2012 and 2013, the projection replicates the EU Commission's short-term forecasts for Government spending and tax rates
- ii. Government employment (in volume terms) growth falls to nil over the period 2014-2025
- iii. Government real wage rates are held constant over 2014-2025
- iv. Government consumption (goods & services) is held constant in real terms over 2014-2025
- v. Tax rates and social contributions rates are held constant over 2014-2025



## The EU baseline projection: Labour supply (level, millions)



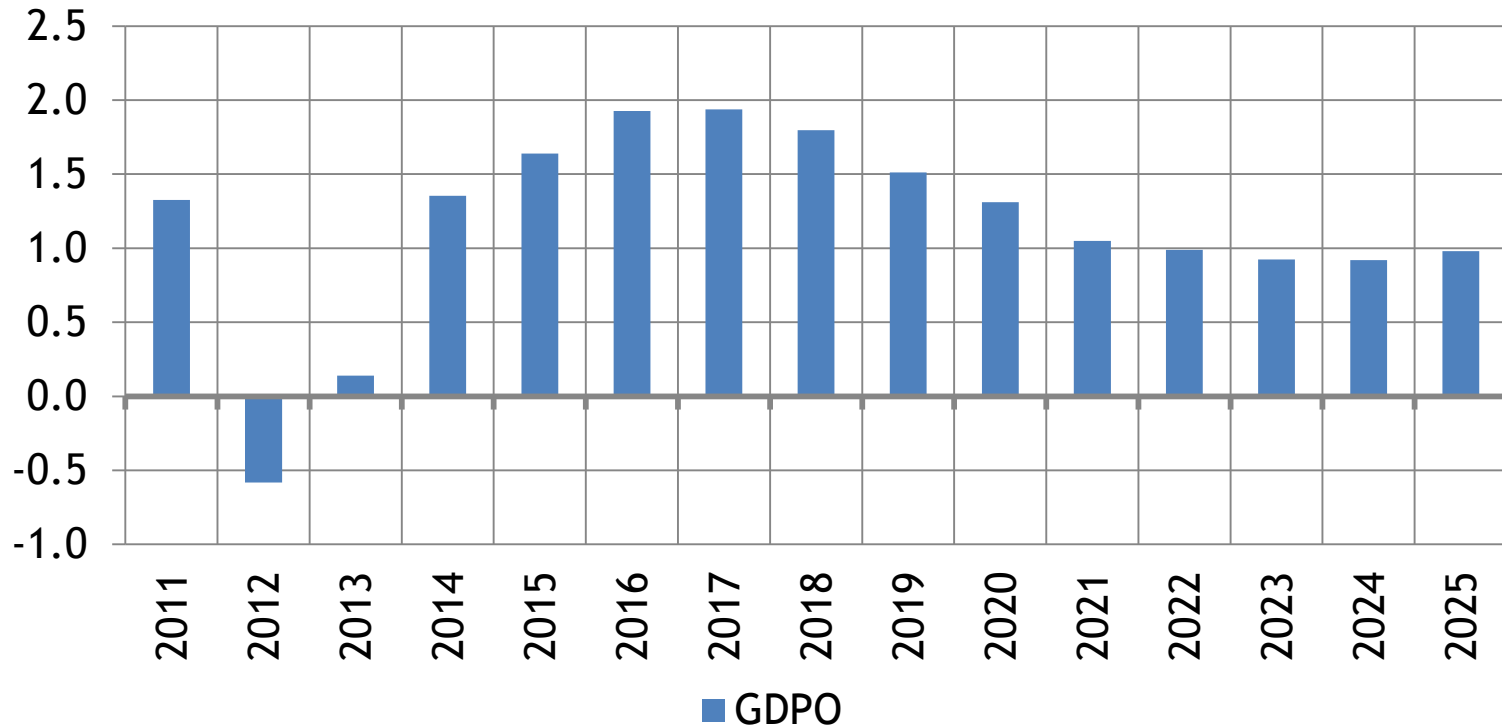
# The EU baseline projection: Trend hourly labour productivity growth, private sector (YoY % change)



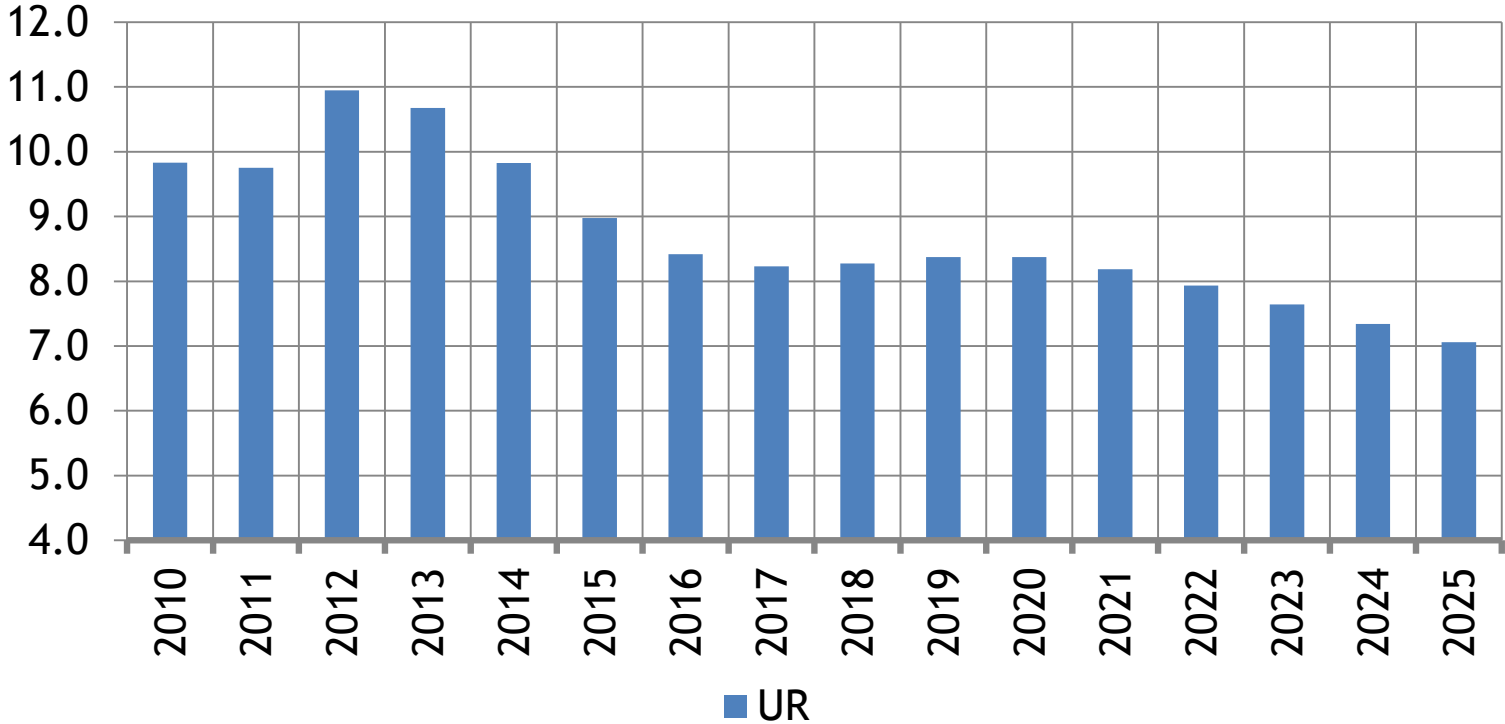
## The EU baseline projection: Private sector real potential output growth (YoY % change)



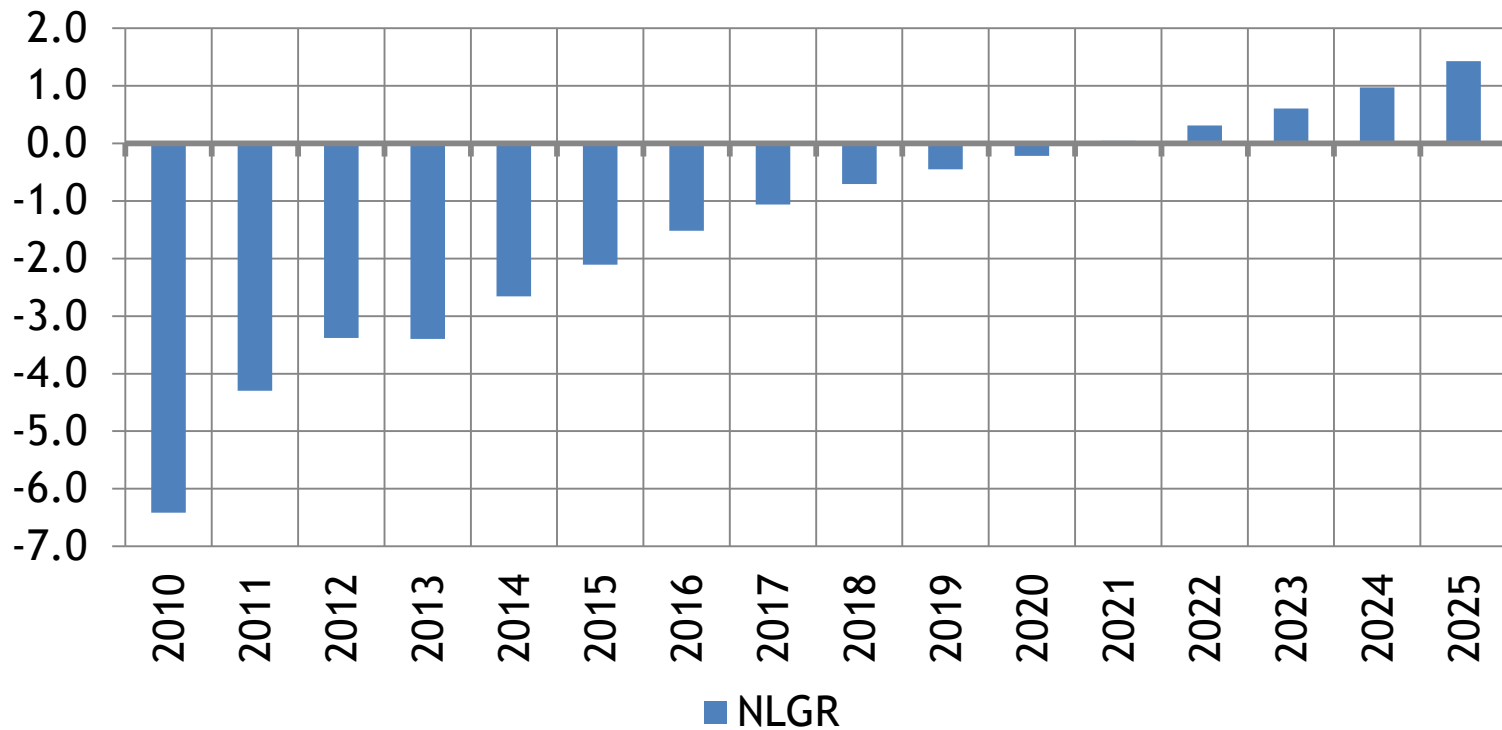
## The EU baseline projection: Real GDP (YoY % change)



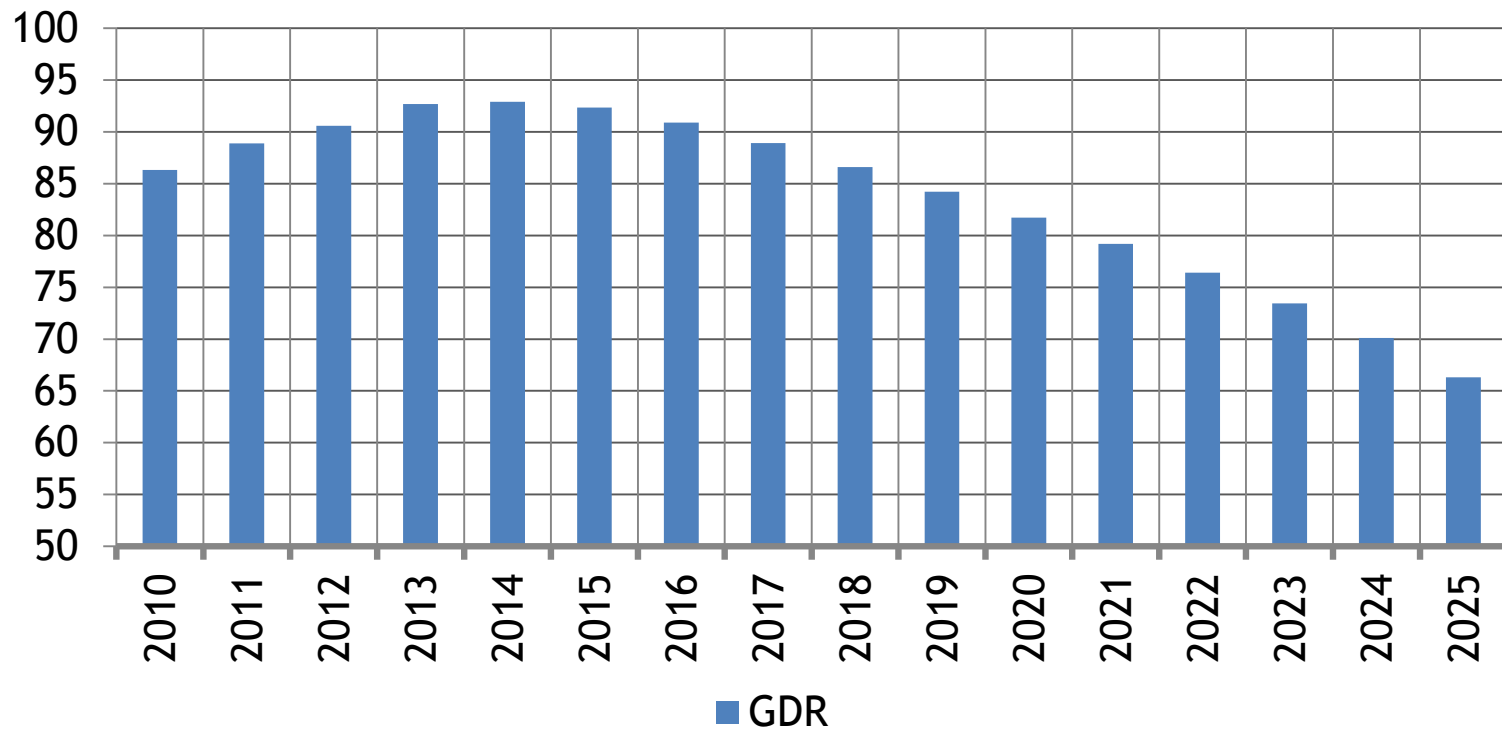
# The EU baseline projection: Unemployment rate (in % labour force)



# The EU baseline projection: Public sector net borrowing (-) / lending (+), in % of GDP



## The EU baseline projection: Public sector debt, in % GDP



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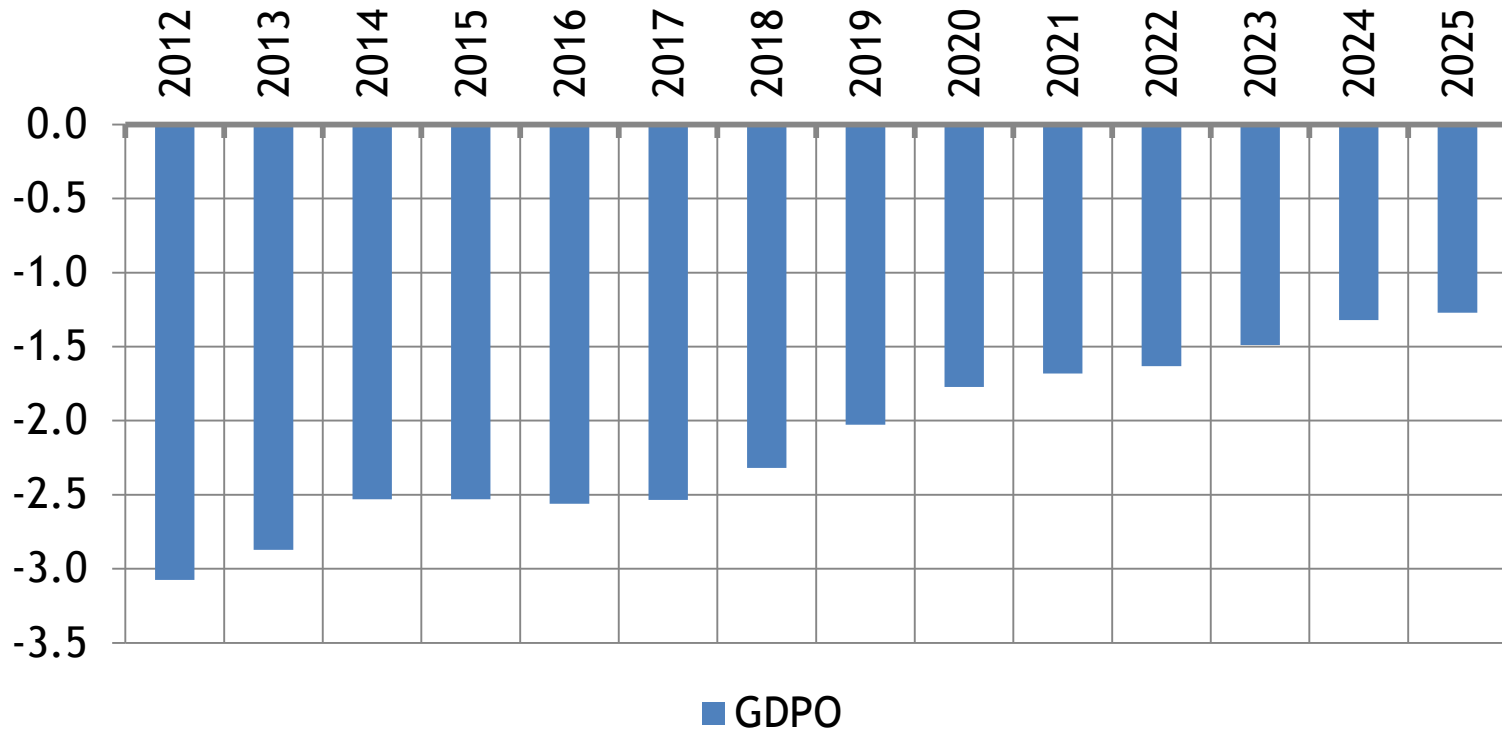


## Budgetary Austerity and Growth in the Euro Area: Simulation of policy alternatives

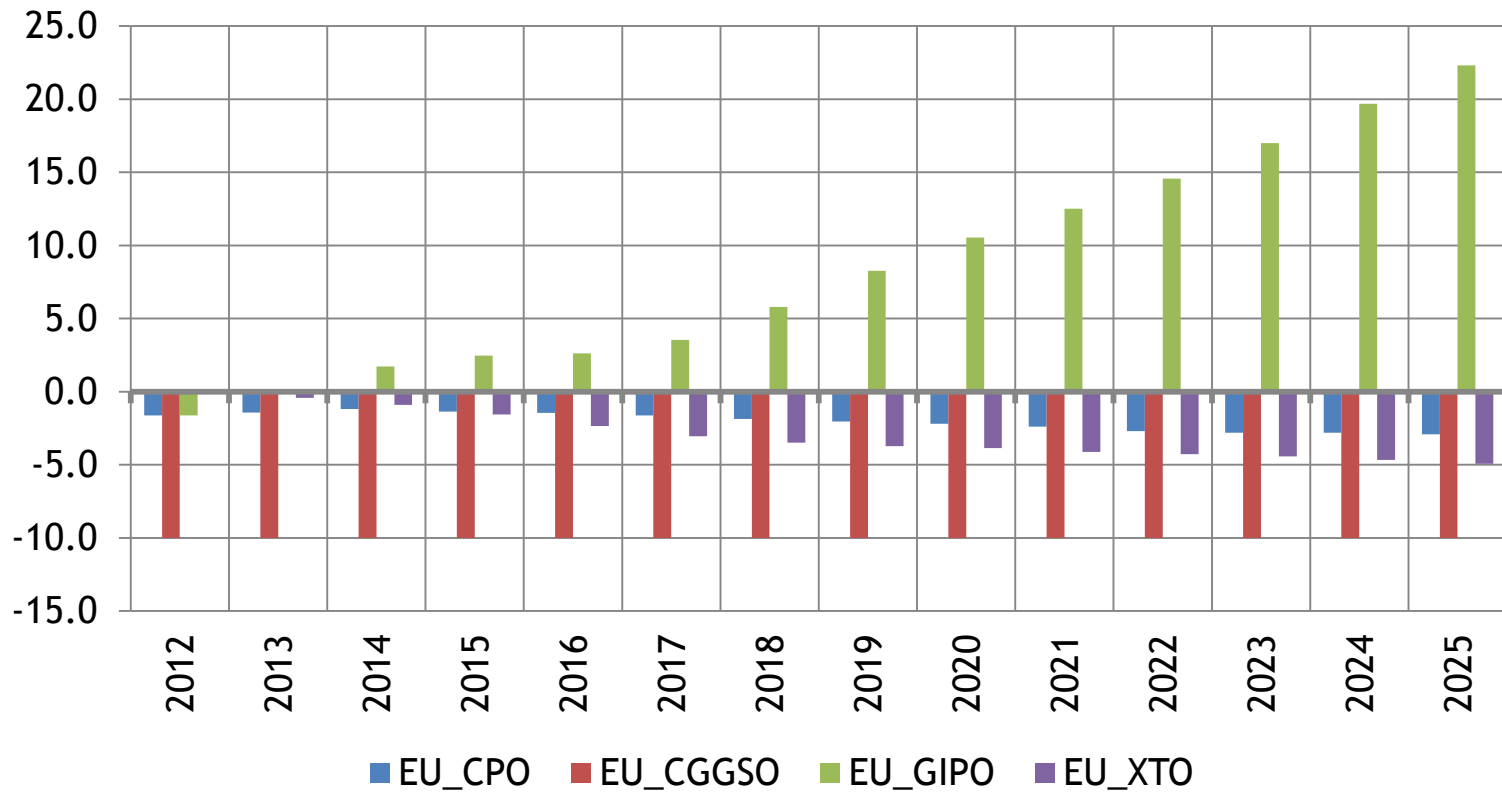
### Scenario 1: Austerity (supplementary) in the euro area

- i. The euro area only
- ii. The implicit direct tax rate on household labour income is raised by 1 percentage point w.r.t. baseline over 2012-2025
- iii. The implicit indirect tax rate is raised by 1 percentage point w.r.t. baseline over 2012-2025
- iv. Government employment is reduced by 10 percent w.r.t. baseline over 2012-2025
- v. Government consumption volume (goods & services) is reduced by 10 percent w.r.t. baseline over 2012-2025

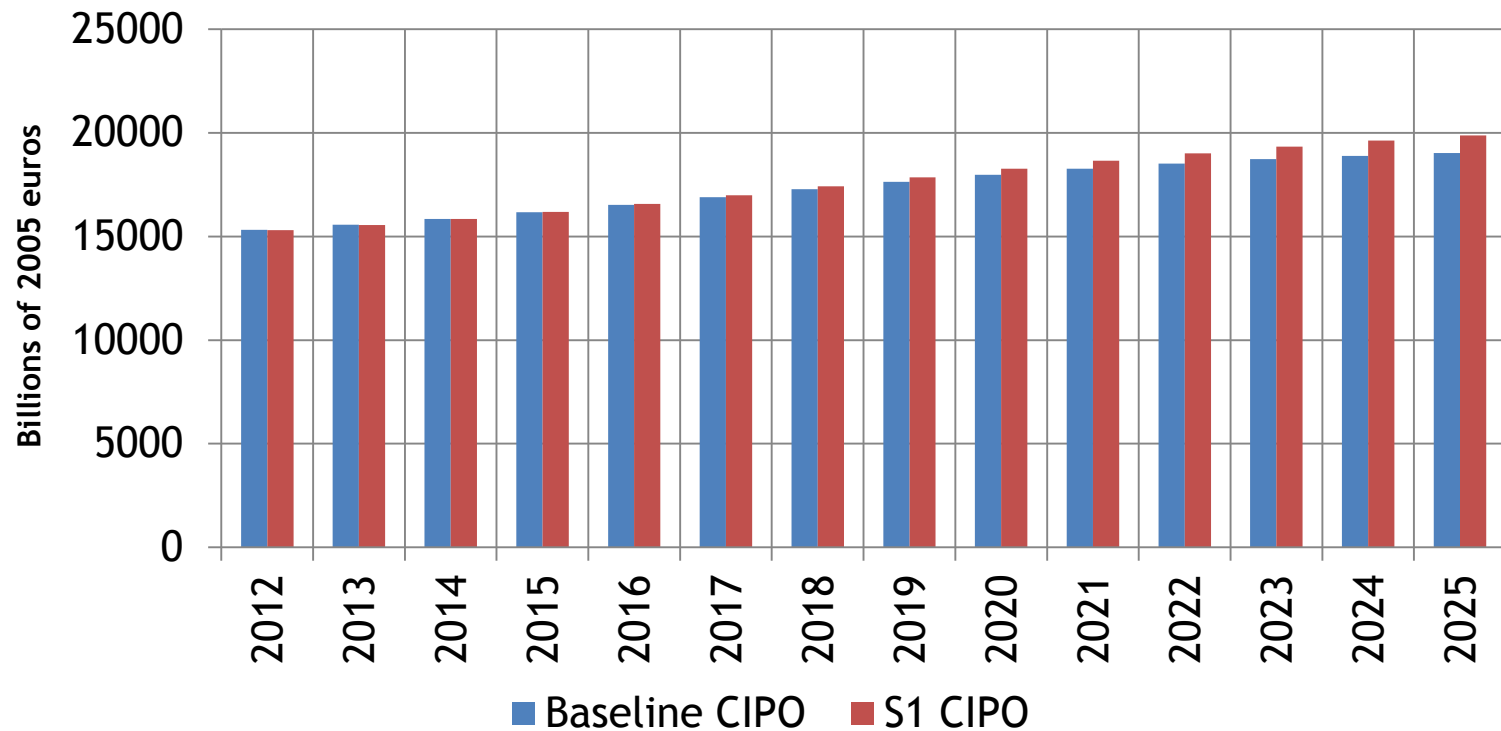
## Austerity in the EA: Real GDP (% deviation w.r.t. baseline)



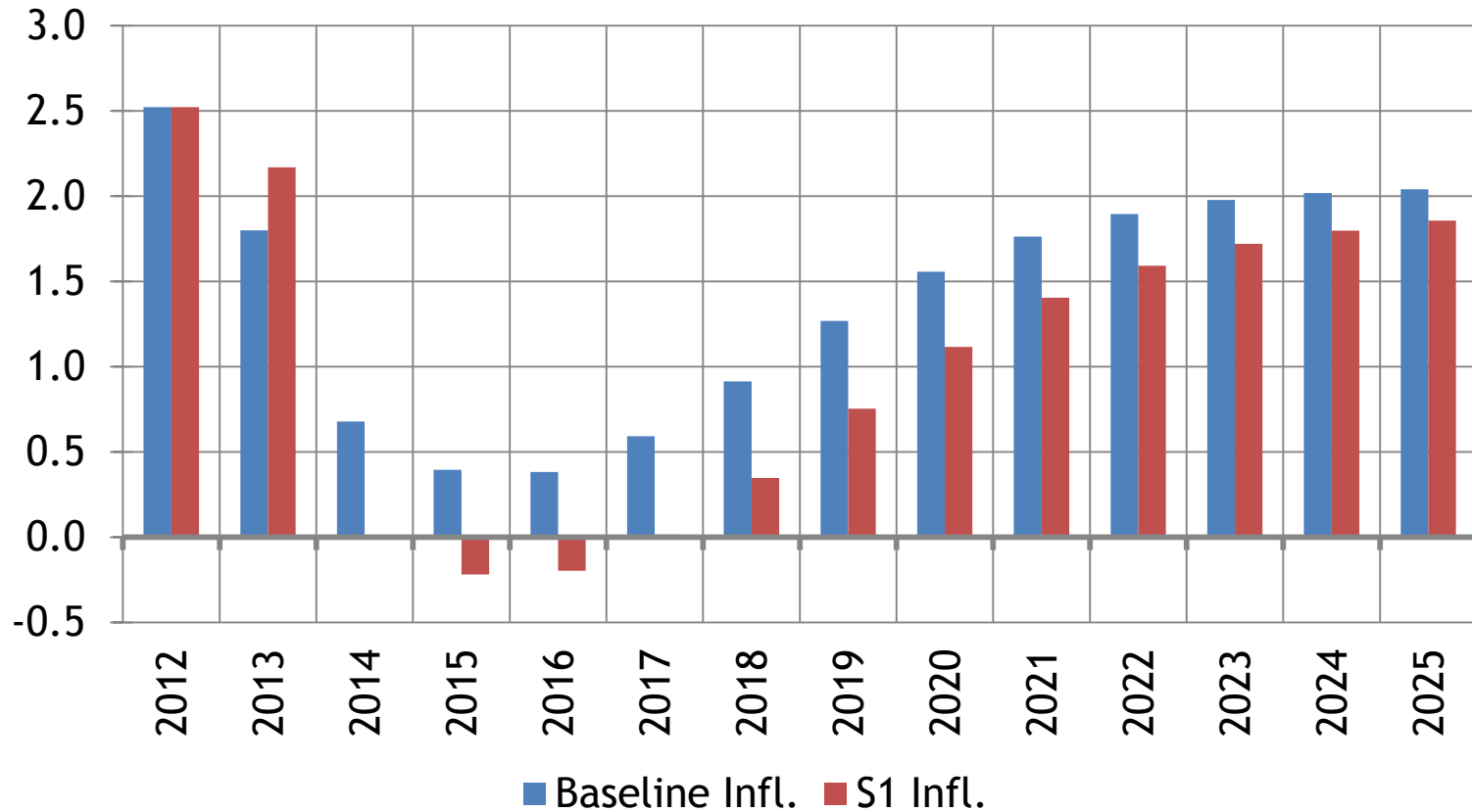
## Austerity in the EA: Selected components of final demand (% deviation w.r.t. baseline)



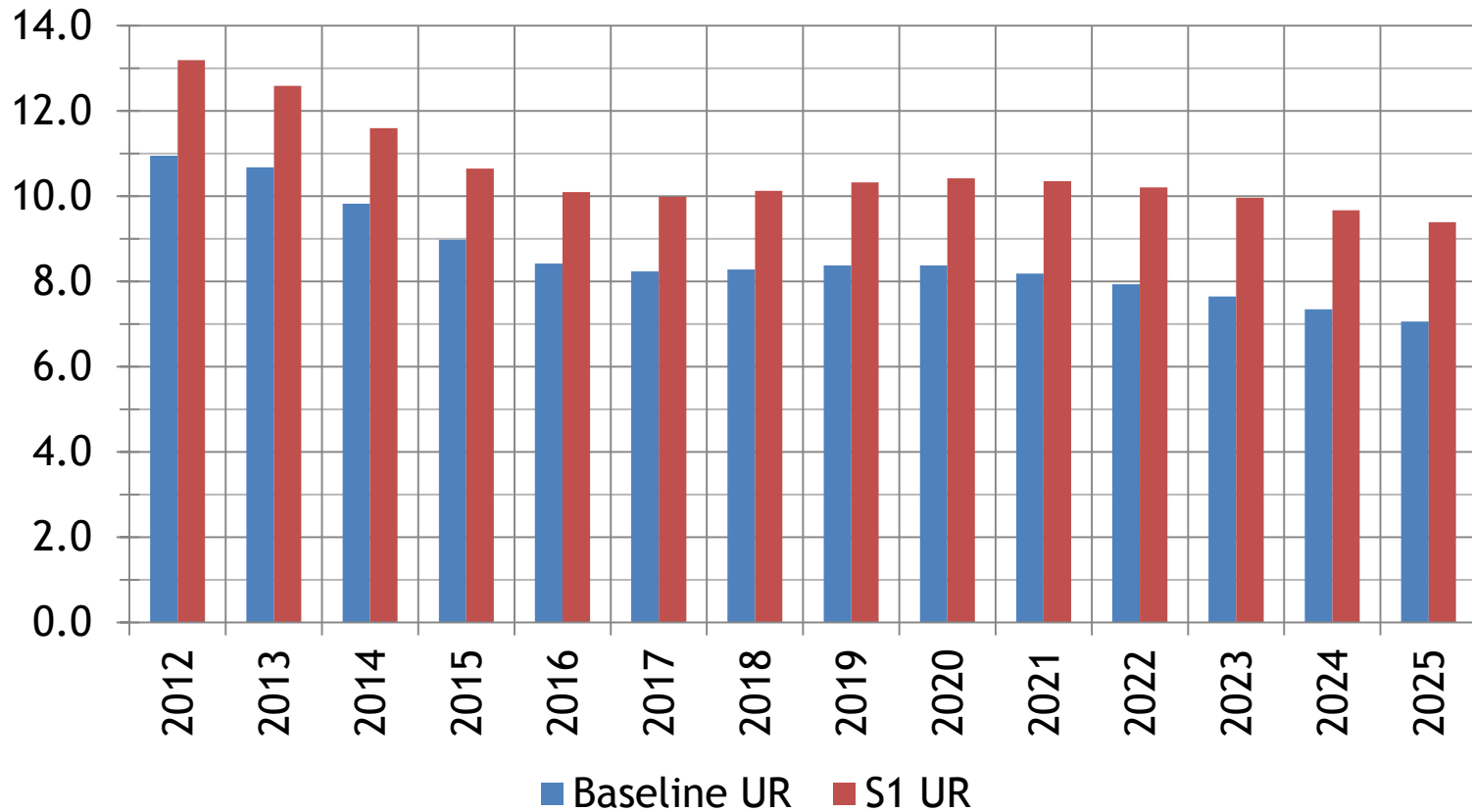
# Austerity in the EA: Business sector real capital stock, levels



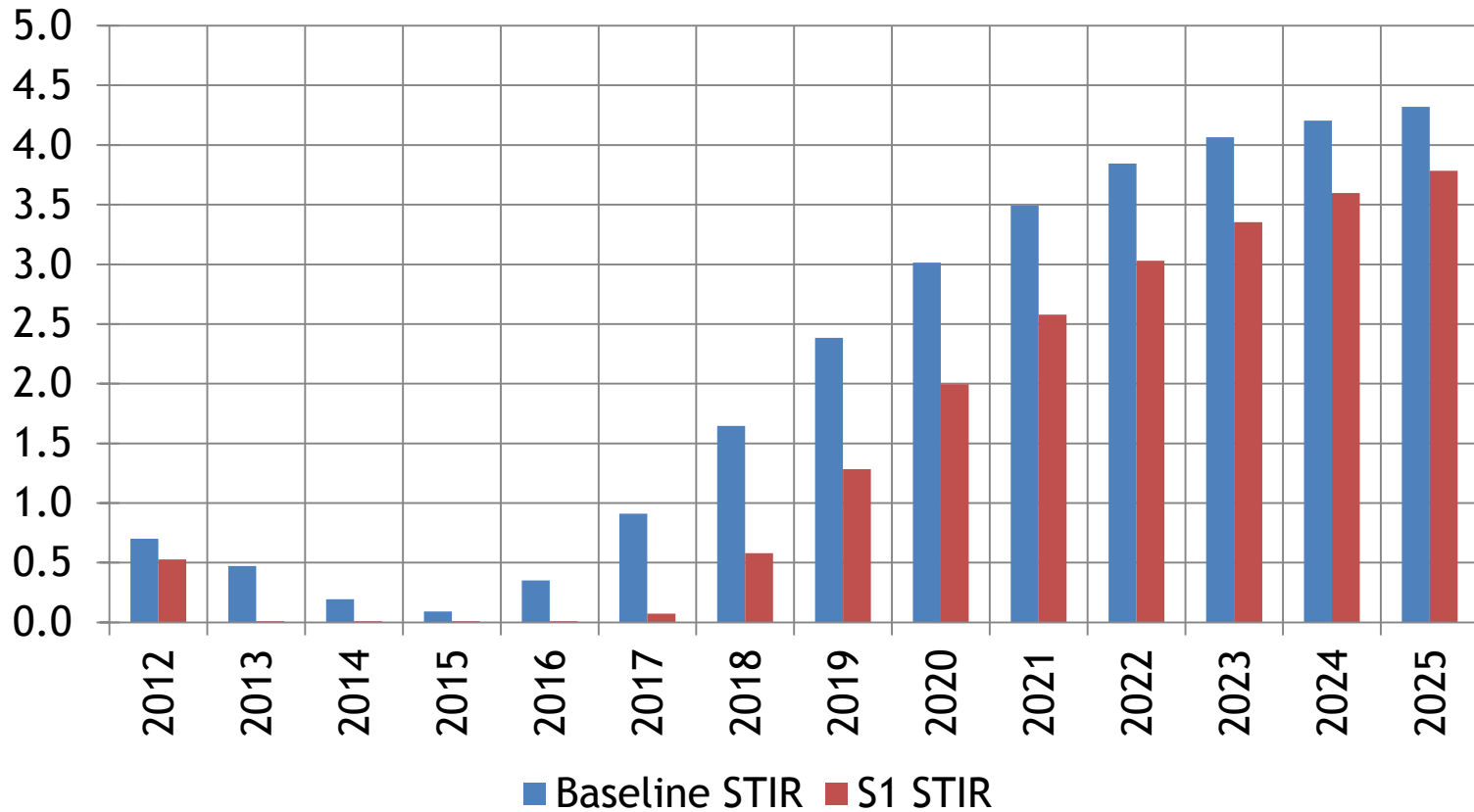
## Austerity in the EA: Inflation rate (CPI, yoy, in %)



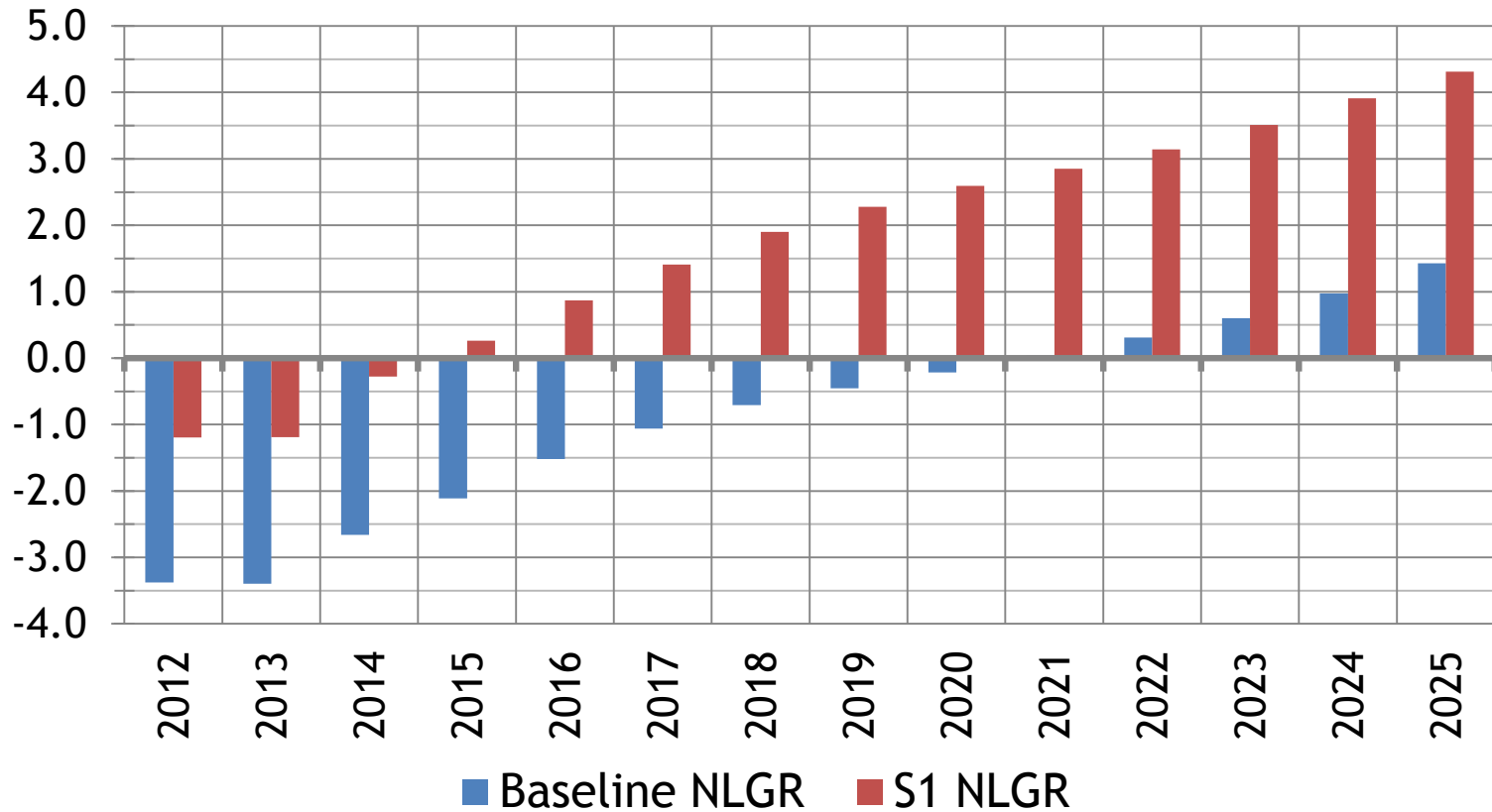
## Austerity in the EA: Unemployment rate, %



## Austerity in the EA: Short term interest rate, in %

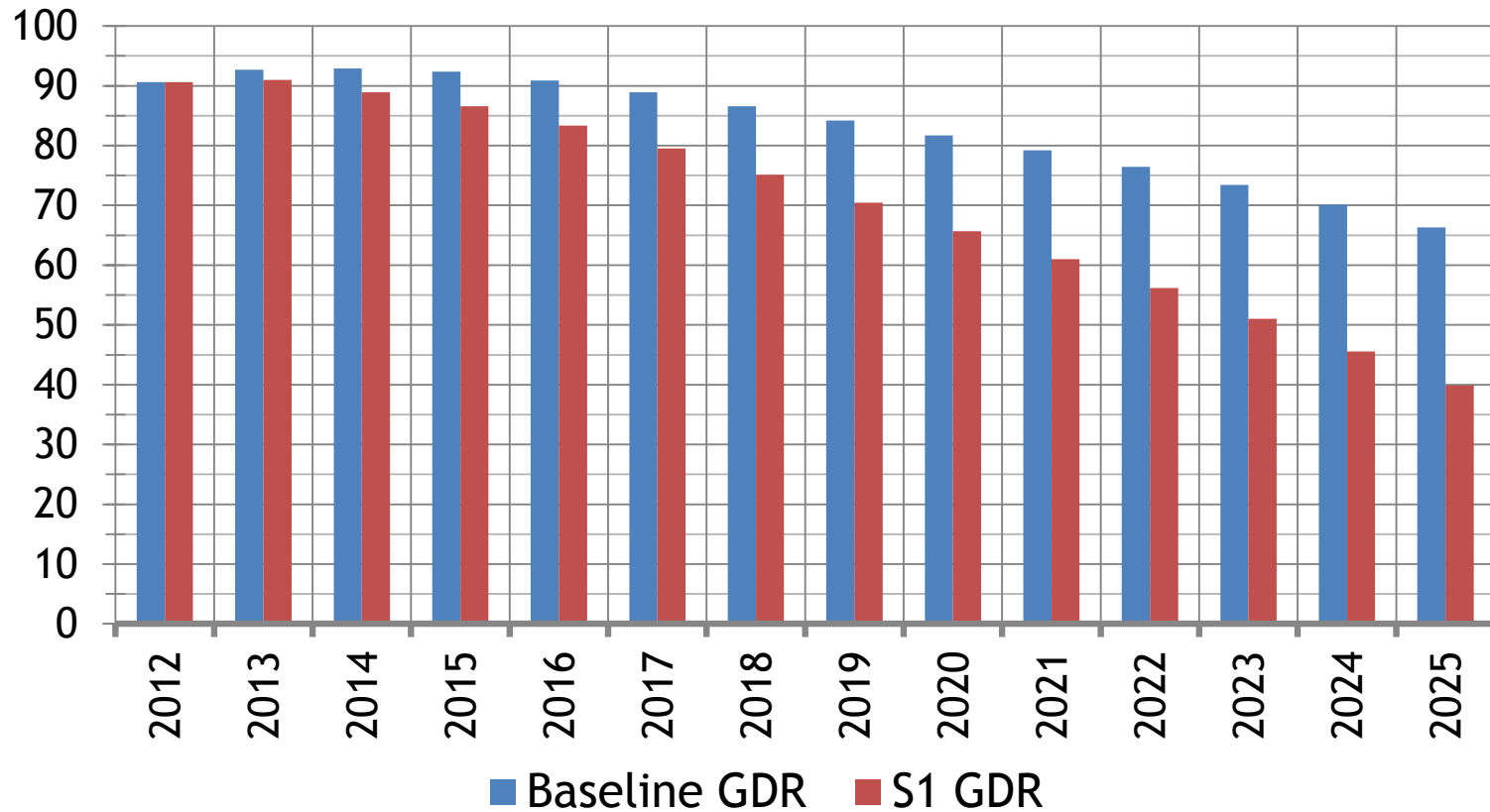


# Austerity in the EA: Public sector net borrowing (-) / lending (+), in % GDP





## Austerity in the EA: Public sector debt, in % GDP



## Austerity in the Euro Area

The main results are that:

1. Over 2012-2025, the EA austerity lowers cumulative real GDP by 2.1% of baseline cumulative real GDP
2. Over 2012-2025, the EA austerity raises unemployment by 23.3% w.r.t. baseline unemployment
3. In 2025, the EA austerity lowers the public sector debt level by 43.7% w.r.t. baseline debt of 2025

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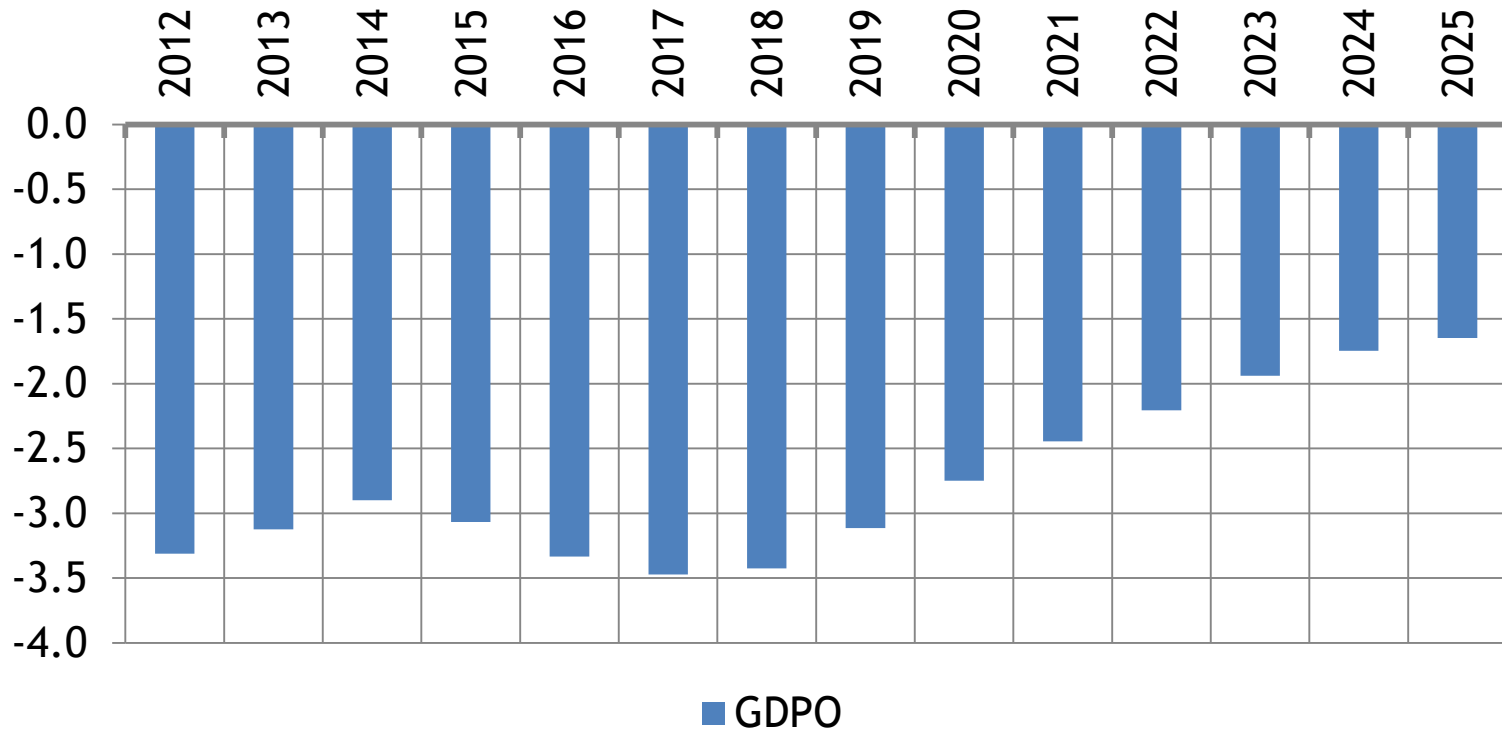
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# Budgetary Austerity and Growth in the Euro Area: Simulation of policy alternatives

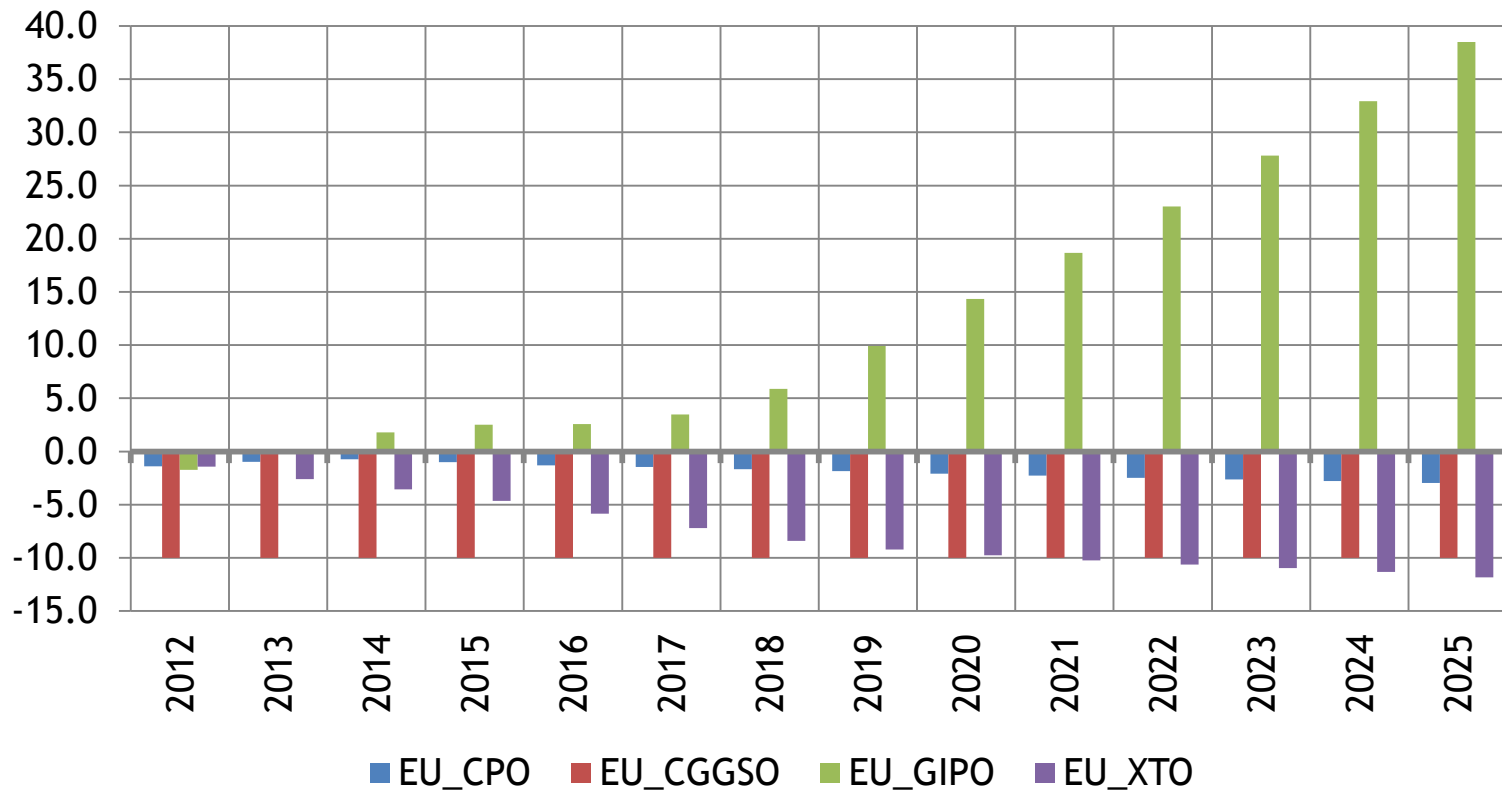
## Scenario 2: Internationally synchronised austerity

- i. The EA, NE, US, JP areas
- ii. The implicit direct tax rate on household labour income is raised by 1 percentage point w.r.t. baseline over 2012-2025
- iii. The implicit indirect tax rate is raised by 1 percentage point w.r.t. baseline over 2012-2025
- iv. Government employment is reduced by 10 percent w.r.t. baseline over 2012-2025
- v. Government consumption volume (goods & services) is reduced by 10 percent w.r.t. baseline over 2012-2025

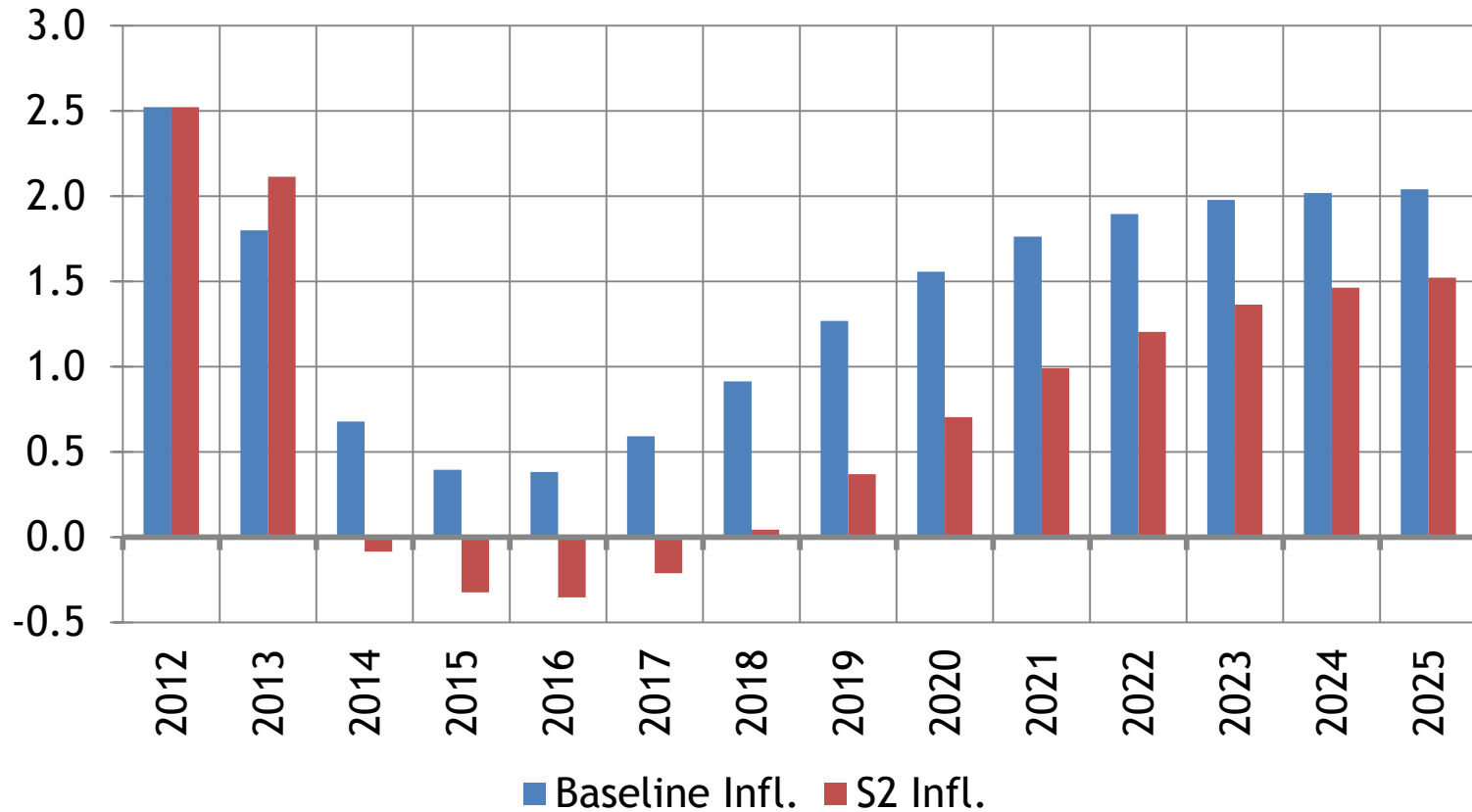
## Internationally synchronised austerity: Real GDP (% deviation w.r.t. baseline)



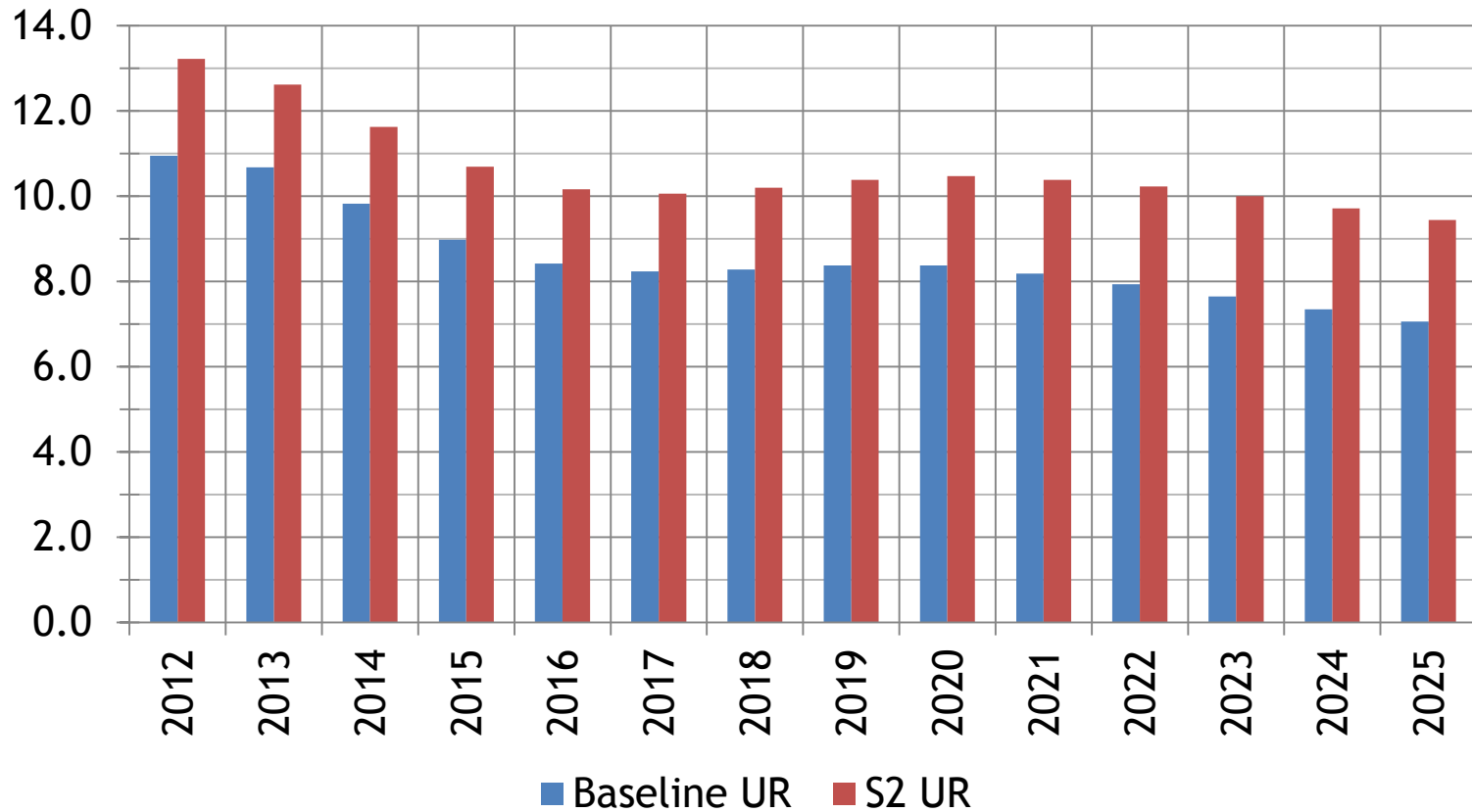
# Internationally synchronised austerity: Selected components of final demand (% deviation w.r.t. baseline)



## Internationally synchronised austerity: Inflation rate (CPI, yoy, in %)

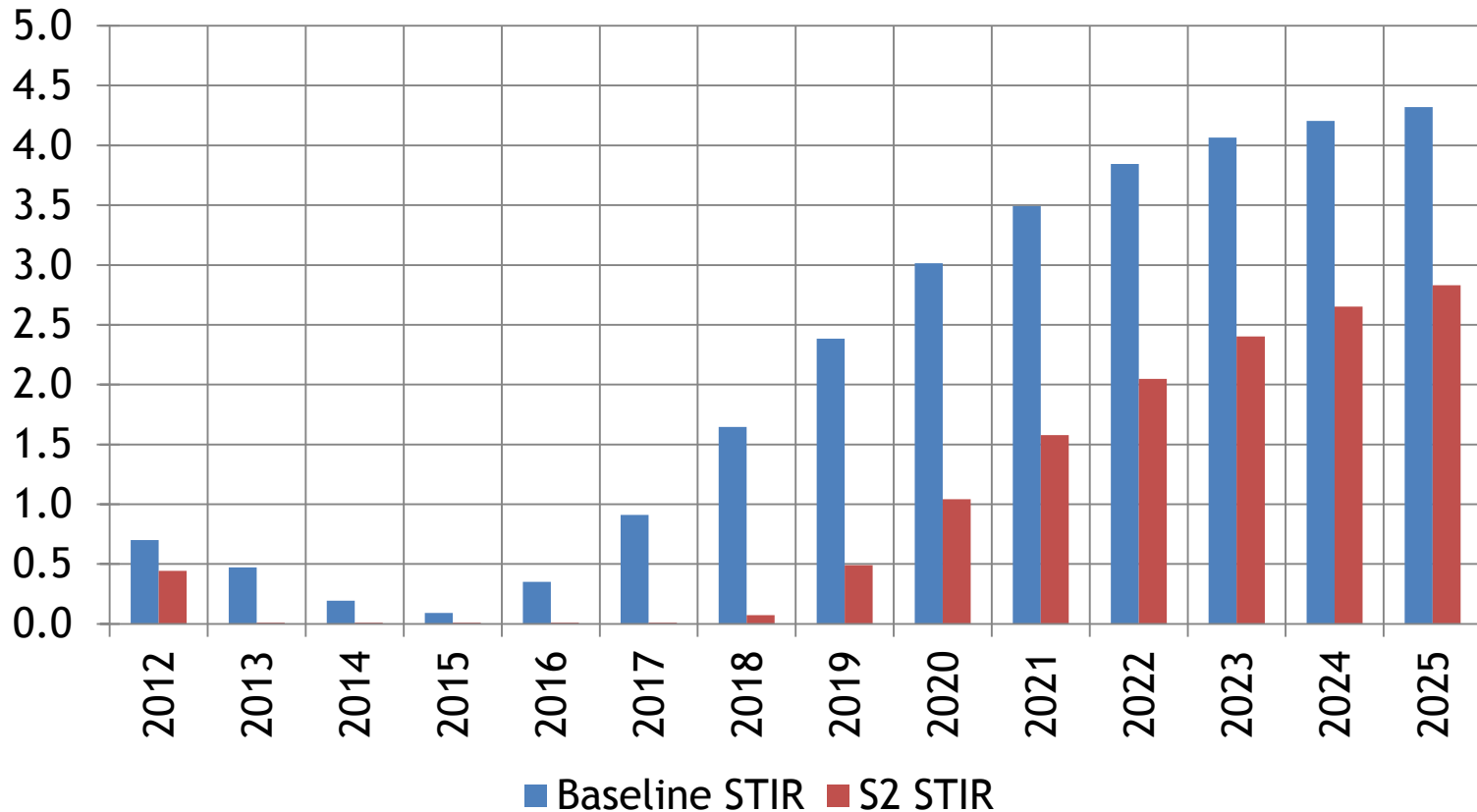


# Internationally synchronised austerity: Unemployment rate, %

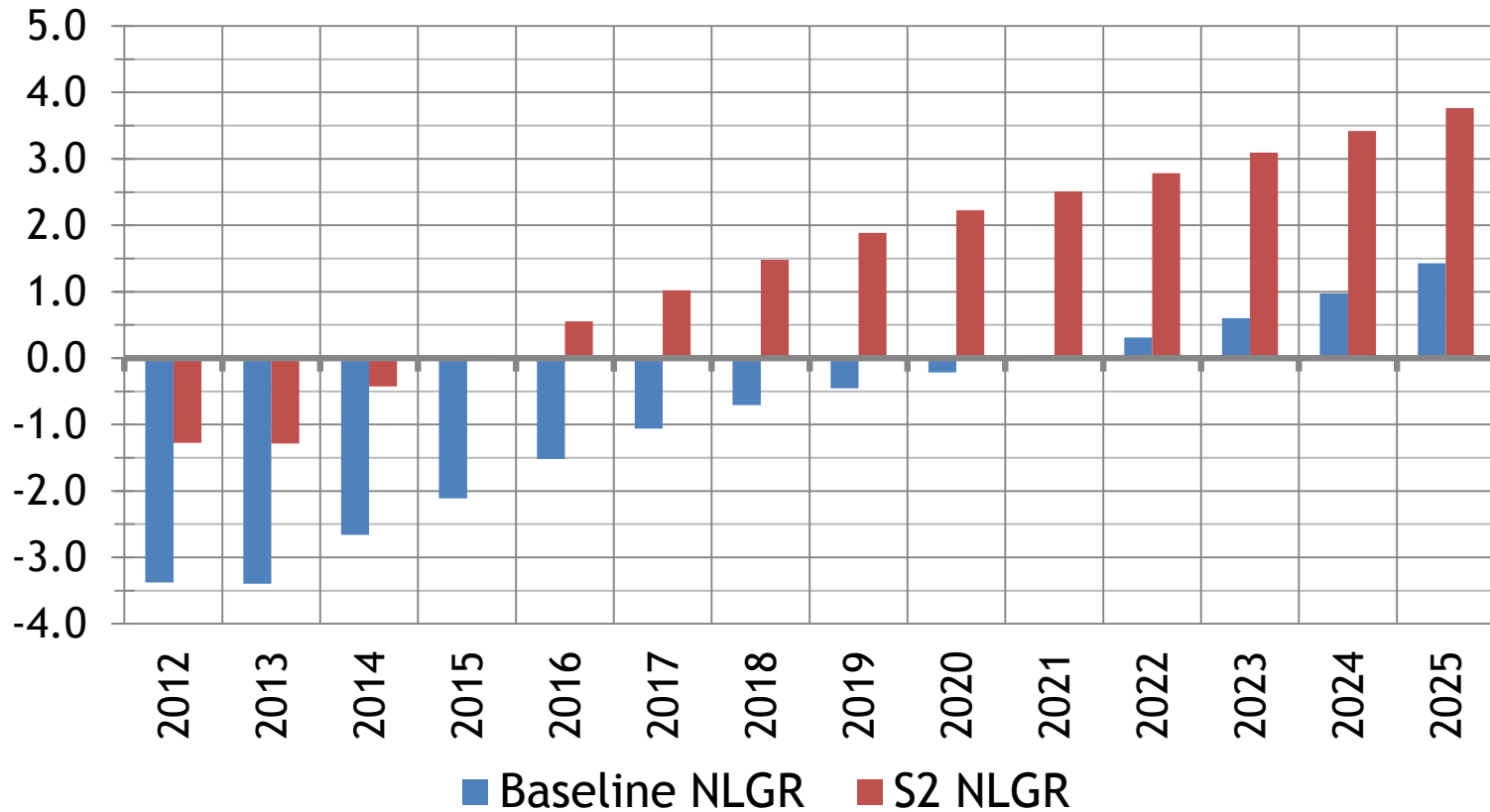




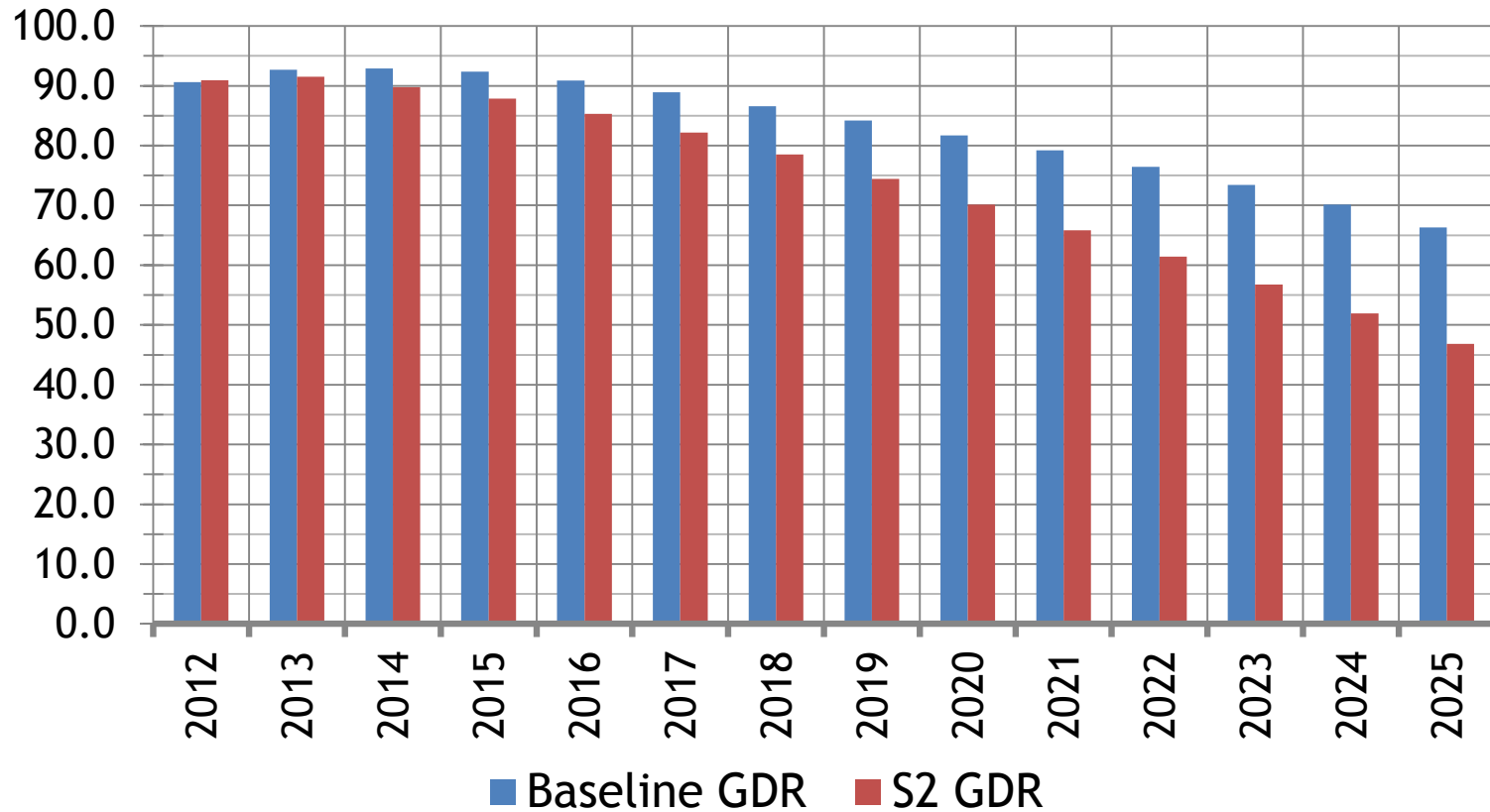
## Internationally synchronised austerity: Short term interest rate, in %



# Internationally synchronised austerity: Public sector net borrowing (-) / lending (+), in % GDP



## Internationally synchronised austerity: Public sector debt, in % GDP



## Internationally synchronised austerity

The main results are that:

1. Over 2012-2025, the internationally synchronised austerity lowers EA cumulative real GDP by 2.7% of baseline cumulative real GDP
2. Over 2012-2025, the internationally synchronised austerity raises EA unemployment by 23.8% w.r.t. baseline unemployment
3. In 2025, the internationally synchronised austerity lowers the EA public sector debt level by 37.0% w.r.t. baseline debt of 2025

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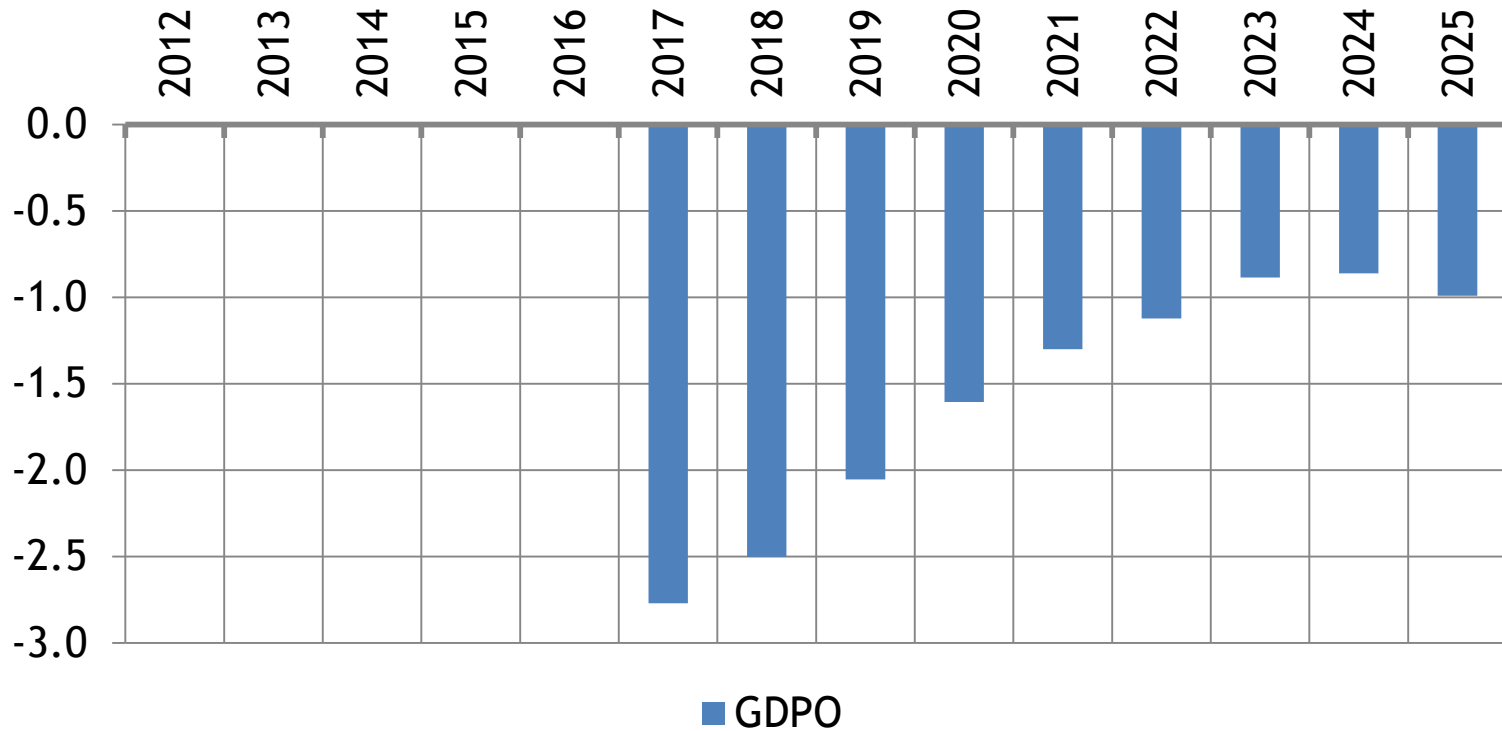
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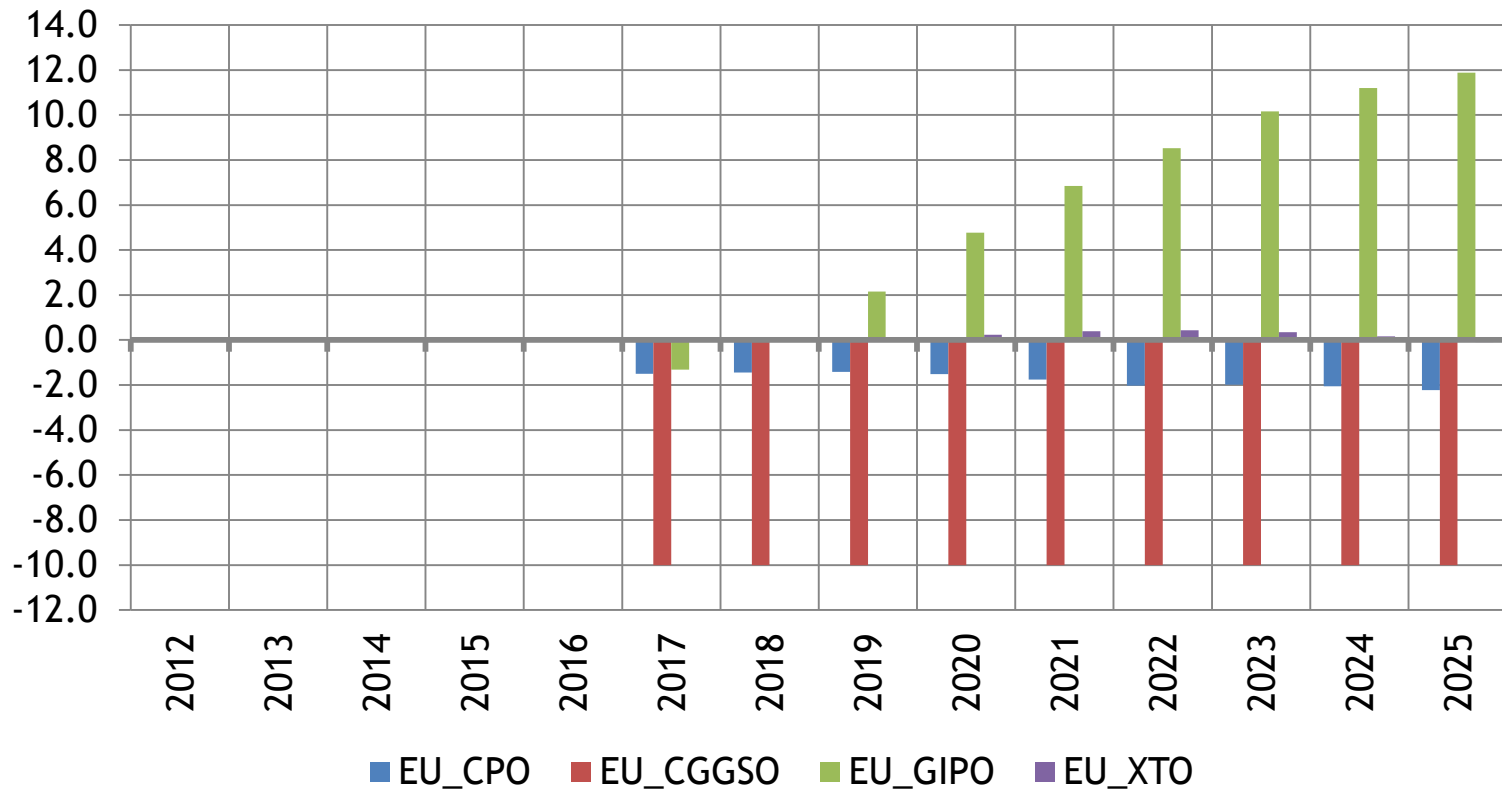
### Scenario 3: Delayed austerity in the euro area

- i. The euro area only
- ii. The implicit direct tax rate on household labour income is raised by 1 percentage point w.r.t. baseline over 2017-2025
- iii. The implicit indirect tax rate is raised by 1 percentage point w.r.t. baseline over 2017-2025
- iv. Government employment is reduced by 10 percent w.r.t. baseline over 2017-2025
- v. Government consumption volume (goods & services) is reduced by 10 percent w.r.t. baseline over 2017-2025

## Delayed austerity in the EA: Real GDP (% deviation w.r.t. baseline)

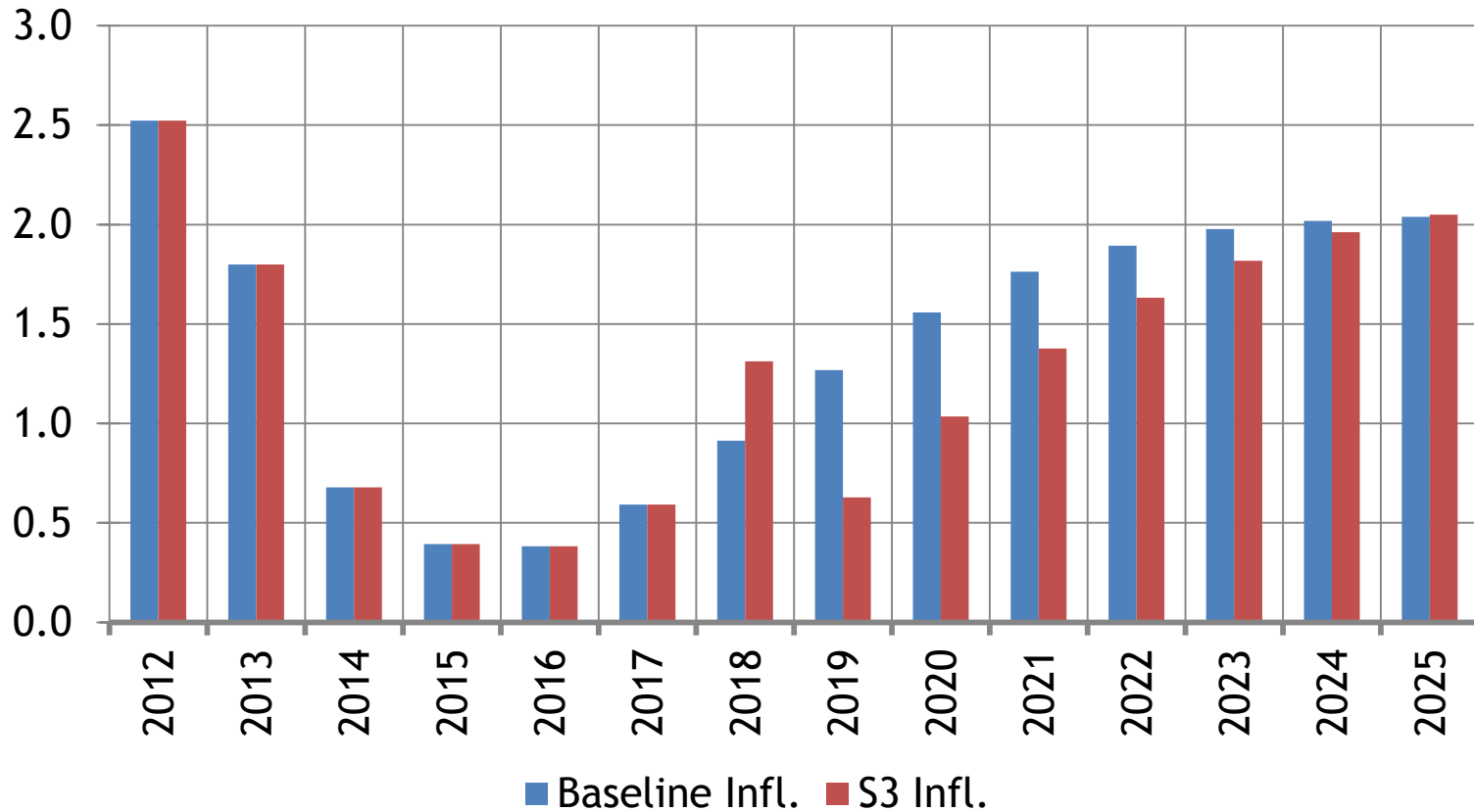


## Delayed austerity in the EA: Selected components of final demand (% deviation w.r.t. baseline)

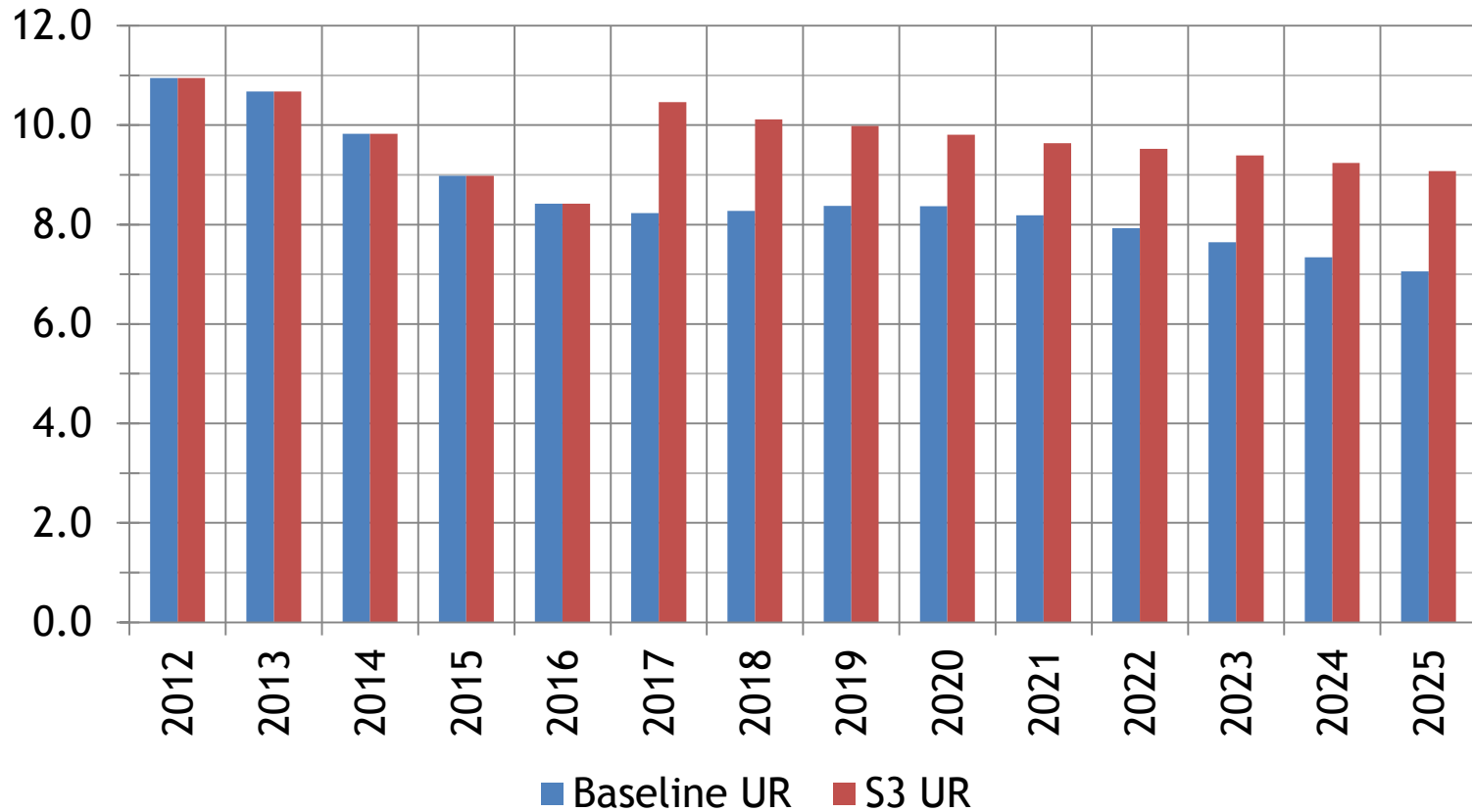




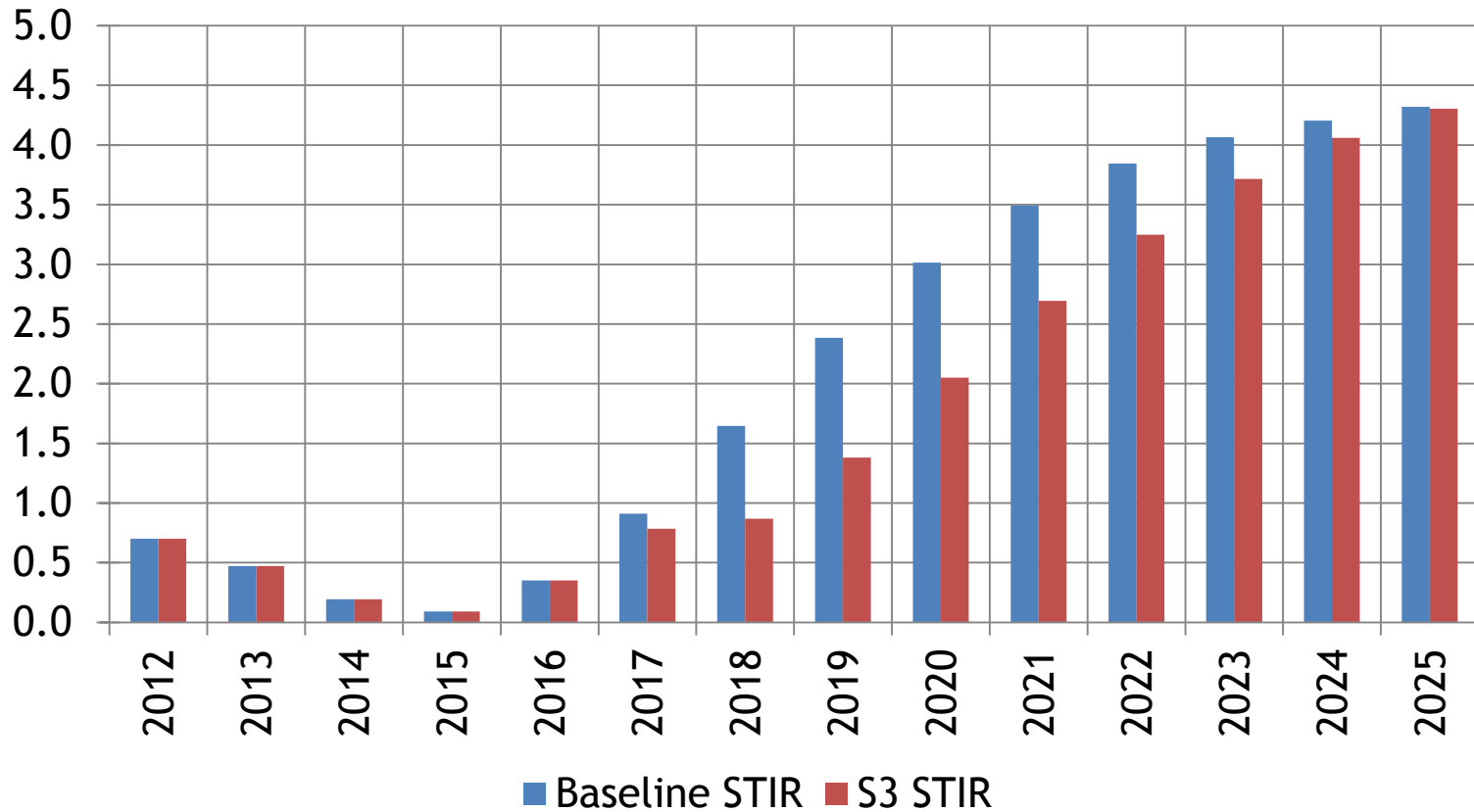
## Delayed austerity in the EA: Inflation rate (CPI, yoy, in %)



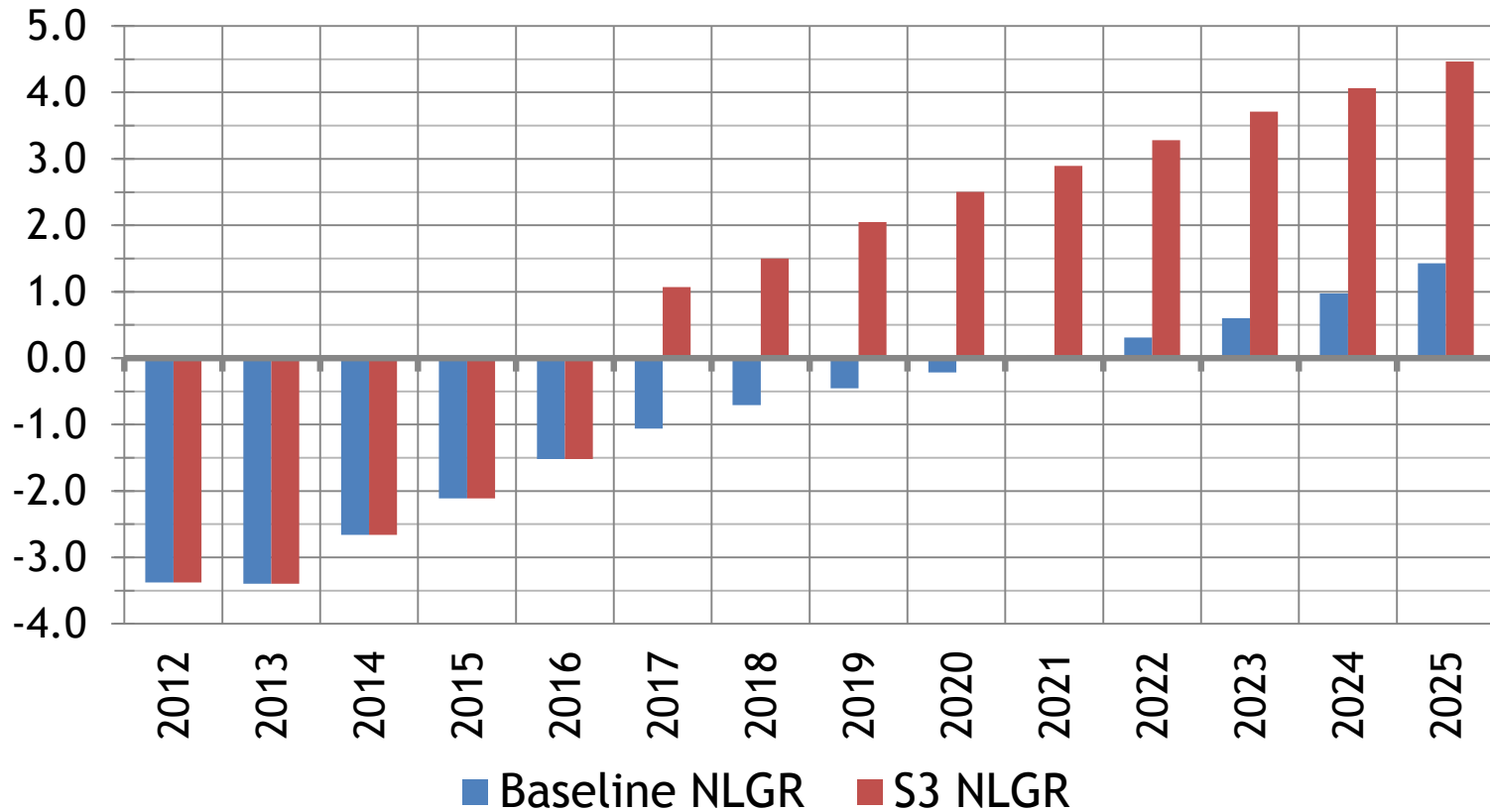
## Delayed austerity in the EA: Unemployment rate, %



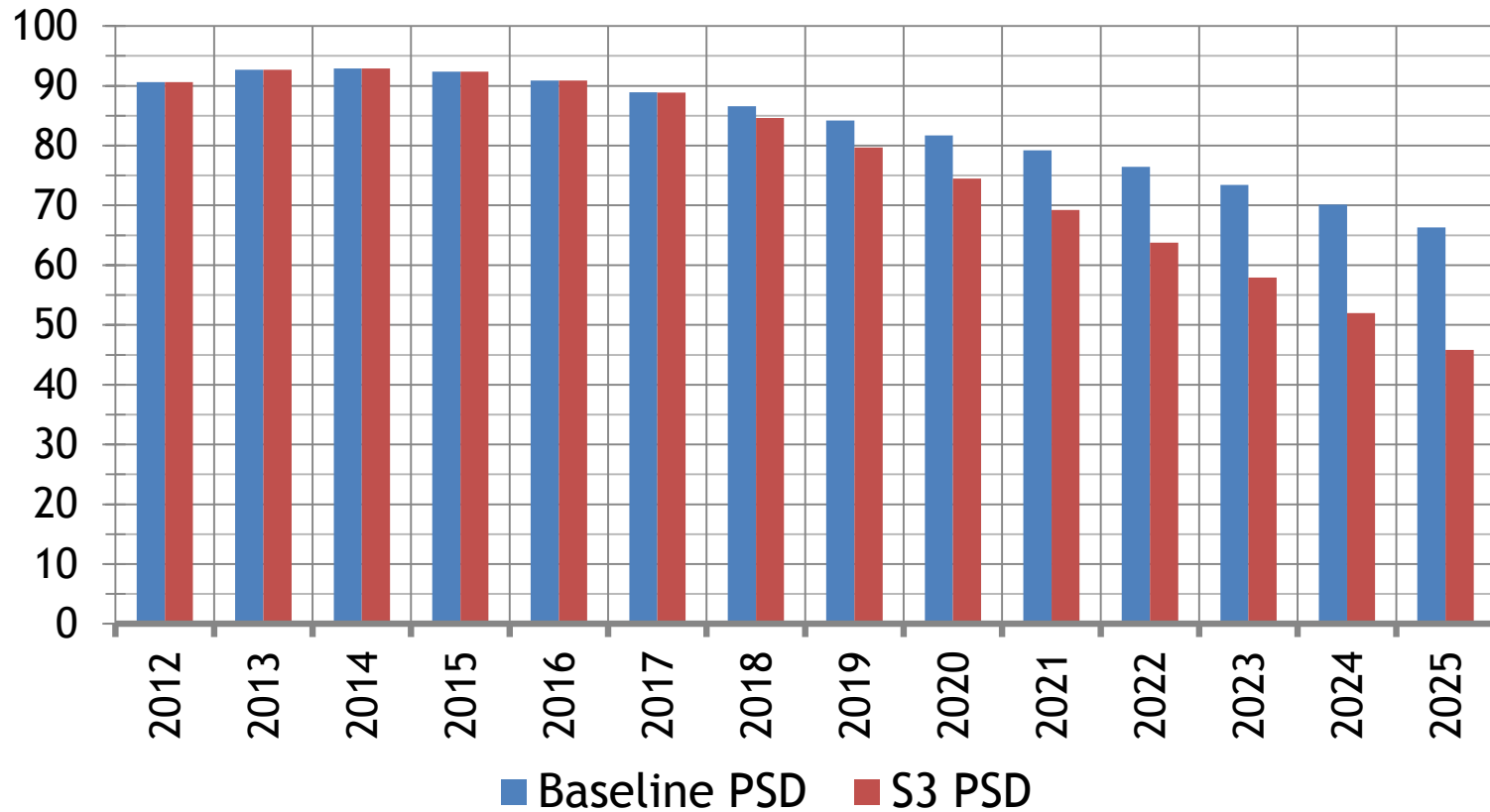
## Delayed austerity in the EA: Short term interest rate, in %



## Delayed austerity in the EA: Public sector net borrowing (-) / lending (+), in % GDP



## Delayed austerity in the EA: Public sector debt, in % GDP



## Delayed austerity in the Euro Area

The main results are that:

1. Over 2012-2025, the delayed austerity lowers EA cumulative real GDP by 1.0% of baseline cumulative real GDP
2. Over 2012-2025, the delayed austerity raises EA unemployment by 13.1% w.r.t. baseline unemployment
3. In 2025, the delayed austerity lowers the EA public sector debt level by 32.4% w.r.t. baseline debt of 2025

## Summary Table: Effects of Scenarios w.r.t. Baseline

	Cumulative Real GDP	Cumulative Unemployment	Debt ratio in 2025
EA austerity	-2.1 %	23.3 % (+44 million)	-26.4 p.p.
Internationally synchronised austerity	-2.7 %	23.8 % (+45 million)	-19.5 p.p.
Delayed EA austerity	-1.0 %	13.1 % (+25 million)	-20.5 p.p.

Baseline euro area 2012-2025 cumulative real GDP = 129.9 trillion euros (of 2005)

Baseline euro area 2012-2025 cumulative unemployment = 190 million persons

## Summary and Policy Implications

1. Fiscal consolidation is always contractionary... at least in the absence of strong confidence effects on sovereign risk premia (no confirmation of the Alesina & Ardagna views)
2. Fiscal consolidation always allows for a reduction in deficits and debt (no confirmation of the DeLong & Summers views)
3. Internationally synchronised budgetary consolidation in a recession is a very bad idea... unless the alternative is a sudden stop in capital flows! Better to postpone consolidation until the end of the downturn and to avoid internationally synchronised recessions



# EU Growth Prospects in the Shadow of the Crisis

That's it,  
Thanks very much!

