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European Commission  
Directorate-General for Economic and Financial Affairs

# Report on Public Finances in EMU

## 2022

## ABBREVIATIONS

BE	Belgium	HU	Hungary
BG	Bulgaria	MT	Malta
HR	Croatia	NL	The Netherlands
CZ	Czech Republic	AT	Austria
DK	Denmark	PL	Poland
DE	Germany	PT	Portugal
EE	Estonia	RO	Romania
EL	Greece	SI	Slovenia
ES	Spain	SK	Slovakia
FR	France	FI	Finland
IE	Ireland	SE	Sweden
IT	Italy	EA	Euro area
CY	Cyprus	EU	European Union
LV	Latvia	EU27	European Union, 27 Member States
LT	Lithuania	EA19	Euro Area, 19 Member States
LU	Luxembourg		
UK	United Kingdom (as of 1 February 2020, the UK is no longer a Member State of the EU) <sup>(1)</sup>		

### Other

AMECO	Macro-economic database of the European Commission
CAB	Cyclically-adjusted budget balance
CAPB	Cyclically-adjusted primary budget balance
COFOG	Classification of the functions of government
COM	European Commission
CSR	Country-specific recommendations
DBP	Draft Budgetary Plan
DFE	Discretionary fiscal effort
DG ECFIN	Directorate-General Economic and Financial Affairs
DRM	Discretionary revenue measures
EB	Expenditure benchmark
EC	European Commission
ECB	European Central Bank
ECOFIN	Economic and Financial Affairs Council configuration
EDP	Excessive deficit procedure
EFC	Economic and Financial Committee
EFC-A	Alternates of the Economic and Financial Committee
EMU	Economic and Monetary Union
EPC	Economic Policy Committee
ESA	European system of national and regional accounts
ESM	European Stability Mechanism
GDP	Gross domestic product
HICP	Harmonised index of consumer prices
IMF	International Monetary Fund
MFF	Multiannual financial framework
MTO	Medium-term budgetary objective
NGEU	Next Generation EU

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(1) The United Kingdom left the European Union on 31 January 2020 on the basis of the Agreement on the withdrawal of the United Kingdom of Great Britain and Northern Ireland from the European Union and the European Atomic Energy Community (“the Withdrawal Agreement”, OJ C 384 I, 12.11.2019, p. 1). Union law, including fiscal surveillance, continued to apply to and in the United Kingdom for the duration of the transition period ending on 31 December 2020.

OECD	Organisation of Economic Co-operation and Development
OG	Output gap
OGWG	Output Gap Working Group
PFR	Report on Public Finances in EMU
PEPP	Pandemic Emergency Purchase Programme
RRF	Recovery and Resilience Facility
RRP	Resilience and Recovery Plans
SB	Structural balance
SCP	Stability and Convergence Programme
SDP	Significant deviation procedure
SGP	Stability and Growth Pact
SPB	Structural primary balance
SURE	European instrument for temporary Support to mitigate Unemployment Risks in an Emergency
TSCG	Treaty on Stability Coordination and Governance
TFEU	Treaty on the Functioning of European Union (TFEU)

#### Units

bn	Billion
mn	Million
pp./pps.	Percentage point(s)
rhs	Right-hand scale
tn	Trillion
y-o-y	year-on-year

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## FOREWORD

The pandemic marked the start of a period of heightened turbulence that had strong implications for public finances and brought to the fore new challenges for fiscal policy. This report helps to shed light on these issues by taking stock of the recent fiscal developments, by examining the role of a reformed fiscal governance, and by providing an in-depth analysis of the fiscal implications of the recent surge in inflation.

Fiscal policy has played an important role in helping the European economy weather the recent economic turbulences unleashed by the pandemic and Russia's war of aggression against Ukraine. Yet, as recalled in Part I of the report, this period has left a legacy of record-high debt in the euro area, while long-term challenges such as ageing and the need to support the green and digital transitions continue to put pressure on public finances. The country-specific recommendations adopted by the Council in July 2023 call for prudent fiscal policies in 2023-2024. More specifically, they urge Member States to wind down as soon as possible energy support measures, barring renewed energy price increases. The Council also recommends that Member States preserve public investment, particularly to foster the green and digital transitions. Additionally, concrete guidance for Member States' fiscal policies in 2024, including a quantified requirement, is provided.

Part II of the report reviews recent developments in fiscal surveillance. The surveillance cycle in 2022 was shaped by the continued activation of the Stability and Growth Pact general escape clause and by the preparation of a reform of the EU's economic governance framework. After having published orientations for a reform in November 2022, the Commission tabled legislative proposals in April 2023. A swift agreement on reform is key to reinforce credibility of the framework and to have the new rules in operation by the time the general escape clause is deactivated. Part II also reviews the performance of national fiscal frameworks during recent turbulent times, pointing to their sufficient degree of resilience and flexibility. It additionally provides examples of good practices across all stages of the public investment management cycle in certain countries and highlights the need to efficiently channel resources in the face of large investment needs.

Part III of the report focuses on the fiscal implications of the recent surge in inflation. Evidence points at the differentiated impact of inflation on fiscal variables across the EU. Simulations of a rise in inflation purely driven by a terms-of-trade shock show that this leads to higher debt levels in the medium to long term. In this context, prudent fiscal policies would underpin a credible commitment to fiscal sustainability and help to contain inflation pressures.

I trust this edition of the Report on Public Finances in the EMU will support discussions among policy-makers, academics and other stakeholders on these trends and challenges.

Maarten Verwey  
Director General Economic and Financial Affairs



## EXECUTIVE SUMMARY

The European economy withstood the turbulences unleashed by the pandemic and Russia's aggression against Ukraine remarkably well.

According to the Commission 2023 spring forecast, euro area real GDP is projected to grow at 1.1% and 1.6% in 2023 and 2024 respectively, after a substantial growth of 3.5% in 2022. But core inflation remains high at 5.8% in 2023, after peaking at 8.4% in 2022.

The fiscal positions are expected to improve in 2023 and, especially, in 2024, largely reflecting the phasing out of energy support measures. The euro area general government deficit is projected to drop to 3.2% and 2.4% of GDP in 2023 and 2024, respectively, following 3.6% of GDP in 2022. The euro area debt-to-GDP ratio decreased to around 93% in 2022 from its historical peak of almost 100% of GDP in 2020 and is projected to further decline to around 90% by 2024.

The fiscal stance was significantly expansionary in 2022 at around 2¼% of GDP, following expansionary stances also in 2020 and 2021. In 2023, the fiscal stance is projected to be slightly contractionary at around 0.5% of GDP, though highly heterogeneous across countries. By 2024, all euro area countries would have a contractionary fiscal stance, based on unchanged policies.

Fiscal policy has played an important role in weathering the past years of economic turbulences.

During the pandemic, unprecedented support measures of around 3% of GDP were deployed in the euro area in both 2020 and 2021. In 2022, the European economy transitioned from a pandemic to an energy crisis. National governments relied, again, on large support measures to cushion the impact of the high energy prices for households and firms. The net budgetary cost for the euro area of these measures reached 1,3% of GDP in 2022 and is expected to amount to 1.2% of GDP in 2023.

The COVID-19 pandemic has left a legacy of record-high debt in the euro area while longer term trends such as ageing and the twin transition put increasing pressure on public finances.

Public finances took a serious hit as a result of the crisis and the necessary policy response. For the euro area as a whole, debt reached a historical peak of 99% of GDP in 2020.

Moreover, public finances continue to be put under pressure by the investment needs related to the twin green and digital transition, objectives that are supported by EU funding via NGEU and REPowerEU until 2026. The ageing of the European population will also add mounting pressure on public finances in the coming decades, as the EU's working age-population is decreasing and expenditures on pension, health care and long-term care are set to increase over the long term at the euro area aggregate level and in most Member States. The more tense geopolitical context may also lead to a significant increase in defence spending, which will also need to be factored in (analytical insights are provided to gauge the impact of this potential new trend).

The report provides an overview of the main developments related to the fiscal governance framework in 2022. The fiscal surveillance cycle in 2022 was shaped by the continued activation of the general escape clause of the Pact.

After having published orientations for a new EU economic governance framework in November 2022, the Commission tabled legislative proposals in April 2023.

National fiscal frameworks proved flexible and resilient during the Covid-19 crisis.

In May 2022, the Commission issued a report under Article 126(3) of the Treaty on the Functioning of the EU for 18 EU Member States. The Commission concluded that, at that juncture, taking into account the prevailing exceptional uncertainty, a decision on whether to place Member States under an excessive deficit procedure should not be taken.

The Council adopted qualitative fiscal Recommendations with a quantitative underpinning for 2023, differentiated between low/medium and high debt Member States.

The legislative proposals follow a debate on the review of the economic surveillance framework first launched in February 2020. The contributions to the debate from a wide range of stakeholders in various fora and an online public survey provided valuable input to the Commission's reform orientations published in November 2022. In March 2023, the Economic and Financial Affairs Council (ECOFIN) adopted conclusions on the Commission's orientations and the European Council confirmed the objective of concluding the legislative work by the end of 2023.

The proposals address shortcomings in the current framework. They take into account the need to ensure fiscal sustainability and promote sustainable and inclusive growth, building on the lessons learned from the EU policy response to the COVID-19 crisis and tackling the challenges to reduce much-increased public debt levels and to support progress towards a green, digital, inclusive and resilient economy and make the EU more competitive. The reform would simplify economic governance, improve national ownership, place a greater emphasis on the medium term and strengthen enforcement, within a transparent common EU framework.

The COVID-19 pandemic brought severe challenges to fiscal policy and constituted an important test for the changes in national fiscal frameworks and institutions that were introduced after the Great Financial Crisis. Fresh evidence from the European Commission Fiscal Governance Database, confirms the strengthening of national frameworks since 2011 and highlights aspects that provided resilience during the pandemic.

The improved statistical reporting proved useful, in particular as regards contingent liabilities. Most relevant national rules contained escape clauses which were triggered and allowed sufficient flexibility in a pre-defined framework. The role of Independent Fiscal Institutions in assessing macroeconomic forecasts of the governments was maintained. Scope for further improvement however remains, with evidence of insufficient reliance on medium-term approaches to budgeting and sometimes not-yet-strong-enough independent fiscal institutions. Addressing remaining issues is warranted to enhance the quality of public finance and ensure strong priority-setting for the green and digital transition. Evidence on progress made on gender budgeting is also provided in a dedicated box.

New survey evidence points to good practices across all stages of the public investment management cycle, though room for improvement remains in most Member States.

The new evidence on public investment management draws on (i) in-depth interviews with representatives of selected countries, (ii) exchanges with a group of experts from Member States on national public investment and (iii) a dedicated survey, covering all EU Member States.

This evidence points at a wide range of public investment management approaches reflecting diverse institutional set-up, project size, sector of investment and source of financing. Examples of good practices include strategic investment planning effectively linked to the budgetary allocation and relying on asset registers for estimates of existing capital stock and maintenance needs; standardised procedures for appraisal and selection, whose outcomes are centrally reviewed; sound medium-term budgeting tool for timely capital availability; monitoring at the central or sub-national level, as appropriate; ex-post reviews and asset registers.

The analytical part of the report discusses the impact of inflation on public finances from a theoretical and an empirical angle.

Chapter 1 (in Part III) recalls that, in general, inflation affects public finances through several channels: first, inflation decreases the real value of outstanding public debt. Second, it affects both government revenues and the expenditures, therefore affecting the primary balance. Third, central banks will attempt to counter inflation by raising their policy interest rates, thereby gradually increasing interest expenditure for the government. Finally, inflation affects the size and composition of economic growth, which in turn will have consequences for public finances.

Inflation affects public finances through different channels, and the effect on public finances largely depends on the type of inflationary shock.

After a prolonged period of inflation moderation, from the second half of 2021, the Euro Area has lived a period of historically high inflation, driven in the beginning by the combined effects of lockdowns, large government support measures and supply bottlenecks, and later exacerbated by the economic consequences of the Russian invasion of Ukraine. This inflationary episode on the one hand led to a falling debt-to-GDP ratio and increased government revenues, and on the other reduced economic growth and prompted governments to enact generous support measures to households and firms, thus mitigating the economic shock. The inflationary environment will also lead to gradually increasing nominal expenditures and weigh on interest expenditures in the coming years, thereby leading to upwards pressure on public debt levels.

Evidence points at differentiated short-term positive impacts of inflation on fiscal variables across the EU and suggests that inflation affects the ability to forecast fiscal developments.

Chapter 2 (in Part III) presents new panel-based evidence showing that surprise inflation tends to increase public revenue and expenditure though the budget balance appears not to be significantly affected. Yet, these estimates based on the past two decades of data reflect the impact of moderate inflation. Under higher inflation circumstances, such as seen in 2022, stronger positive impacts would arise.

EUROMOD simulations aimed at focusing on the recent surge in inflation and at illustrating the differentiated short-term impact of inflation on fiscal outcomes under those circumstances, point at a favourable impact on the budget balance ranging from 0.5 to 1.5 percent of GDP across the EU countries.

Finally, we provide evidence showing that higher inflation leads to larger short-term forecasting errors of fiscal variables, as assessing the inflationary impact on the various budgetary items is a complex task that requires accounting effect of inflation on the rest of the economy and accounting for

New debt simulations show that inflation that is purely driven by a terms-of-trade shock leads to higher debt levels in the medium to long term.

the fact that relative price dynamics across different price indices matters as well, as different budgetary items are affected by different price pressures.

Chapter 3 (in Part III) presents new debt simulations carried out with the Commission's medium-term public debt projection model which underpins its Debt Sustainability Analysis (DSA). In order to assess the impact of higher inflation on debt dynamics, an 'inflation shock scenario' is set up, calibrated based on the results of the Commission's macroeconomic model QUEST.

The simulations show that, all else being equal, higher inflation caused by a terms-of-trade shock has a direct debt-reducing impact through the denominator effect. However, this effect is outweighed by the debt-increasing effects of three other channels, namely a slower real GDP growth, a weaker primary balance and a higher interest rate channel. Overall, a terms-of-trade shock raising inflation by 1pp leads to a higher GDP deflator by 0.8 pp., which is in turn found to increase public debt in the EU by about 2 pps of GDP on average in the longer run.

The effect varies across Member States. It appears to be particularly large in Member States with high public debt and/or high interest rates, and short debt maturities.

# Part I

## Public finances in EMU

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## KEY FINDINGS

**This part provides an overview of the economic and fiscal situation in the EMU <sup>(2)</sup>.**

**The European economy withstood the turbulences unleashed by the pandemic and Russia's aggression against Ukraine remarkably well.**

- According to the Commission 2023 spring forecast, euro area real GDP is projected to grow by 1.1% and 1.6% in 2023 and 2024 respectively, after a substantial growth of 3.5% in 2022. But core inflation remains high at 5.8% in 2023, after peaking at 8.4% in 2022.
- The fiscal positions are expected to improve in 2023 and, especially, in 2024, largely reflecting the phasing out of energy support measures. The euro area general government deficit is projected to drop to 3.2% and 2.4% of GDP in 2023 and 2024, respectively, following 3.6% in 2022. The euro area debt-to-GDP decreased to around 93% in 2022 from its historical peak of almost 100% of GDP in 2020 and is projected to further decline to around 90% by 2024.
- The fiscal stance was significantly expansionary in 2022 at around 2¼% of GDP, following expansionary stances also in 2020 and 2021. In 2023, the fiscal stance is projected to be slightly contractionary at around 0.5% of GDP, though highly heterogeneous across countries. By 2024, all euro area countries would have a contractionary fiscal stance, based on unchanged policies.

**Fiscal policy has played an important role in weathering the past years of economic turbulences.**

- During the pandemic, unprecedented support measures of around 3% of GDP were deployed in the euro area in both 2020 and 2021. In 2022, the European economy transitioned from a pandemic to an energy crisis. National governments relied, again, on large support measures to cushion the impact of the high energy prices for households and firms. The net budgetary cost for the euro area of these measures reached 1.3% of GDP in 2022 and is expected to amount to 1.2% of GDP in 2023.

**Yet, the COVID-19 pandemic has left a legacy of record-high debt in the euro area.**

- Public finances took a serious hit as a result of the crisis and the necessary policy response. For the euro area as a whole, debt reached a historical peak of 99% of GDP in 2020.

**At the same time, longer term trends such as ageing and the twin transition need to be accounted for when calibrating fiscal policy.**

- In this context of economic turbulence, public finances continued to also be affected by long-term trends. Those included the twin green and digital transition, with NGEU and REPowerEU providing a consistent framework for reforms and investment to do so. The twin transition calls for high level of investment, the bulk of which will come from the private sector. It also calls for higher public investment, backed by a good composition and quality of public finances. Additionally, the ageing of the European population is putting mounting pressure on public finances in the coming decades, as the EU's working age-population is decreasing and expenditures on pension, health care and long-term care are set to increase over the long term, at the euro area aggregate level and in most Member States.

**The expected rise in defence spending also needs to be factored in.**

- The considerably more tense geopolitical context is contributing to a significant increase in defence spending. Analytical insights are provided to gauge the impact of this potential new trend.

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<sup>(2)</sup> While this report mainly aims at focussing on euro area countries, in some (sub)chapters EU figures are discussed as well.

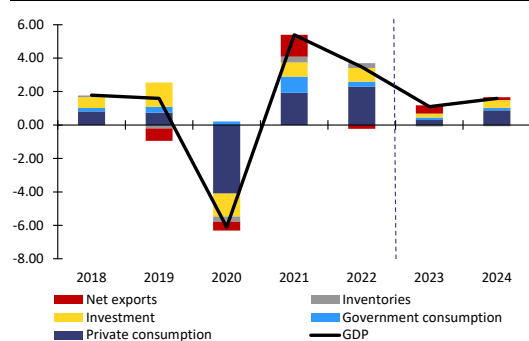
# 1. ECONOMIC AND FISCAL ENVIRONMENT

## 1.1. ECONOMIC ACTIVITY

**Economic activity is set to decelerate markedly in the euro area in 2023.** According to the Commission 2023 spring forecast <sup>(3)</sup>, euro area real GDP is expected to decelerate in 2023, growing by 1.1% after 3.5% in 2022, before regaining some strength in 2024, to 1.6% <sup>(4)</sup>. The different impact of the two recent large shocks – COVID-19 and the energy crisis related to Russia’s war of aggression against Ukraine – implied large heterogeneity in the growth performance across countries in 2020-22. In 2022 growth ranged from 1.3% in Estonia to 12% in Ireland. Over the 2023-24 forecast horizon, some convergence in economic performance is expected, with a dispersion in real GDP growth going down to around 4 pps. in 2024 (ranging from 1.1% in Italy to 5% in Ireland).

**Private consumption, the main engine of the euro area recovery in 2021 and 2022, is set to moderate markedly in 2023.** High inflation is projected to further erode households’ purchasing power. This, together with tighter credit conditions, is expected to hold consumption back to 0.6% this year, after the strong performance registered in 2022 (4.3%). Pent-up demand related to the extra savings accumulated during the pandemic is projected to fade <sup>(5)</sup>. The saving rate of households reached a peak in the euro area of 19.7% in 2020. Then it fell in 2021, to 17.9%, and more significantly in 2022, to 14.3%. It is predicted to further diminish marginally over the 2023-24 forecast horizon, remaining around 1 pp. above the average recorded in the decade before the pandemic. Private consumption growth is set to rebound to 1.8% in 2024 as inflation eases and employment and wages accelerate, entailing a recovery in households’ real disposable income.

Graph I.1.1: Real GDP growth and its components (euro area, in percentage points of GDP)



Source: Commission 2023 spring forecast

**Investment is set to continue growing in the euro area in 2023, but at subdued pace.** The projected annual increase of 0.9% represents a strong deceleration after the exceptionally high increase (4%) recorded in 2022, reflecting especially a slowdown in business and construction investment, both particularly sensitive to higher interest rates. Going forward, the ongoing implementation of the Member States’ Recovery and Resilience Plans (RRPs) and (slightly) improved economic prospects are predicted to boost investment to 2.1% in 2024.

**Net exports are expected to contribute positively to real GDP growth in 2023 and 2024** (by 0.6 pps. and 0.2 pps. respectively). Exports and imports are forecast to both strongly decelerate in 2023 to 3.0% and 2.1%, respectively, reflecting weak prospects for global trade growth, related to geopolitical tensions. In 2024 they are both set to only slightly accelerate.

**Core inflation, though declining significantly, is set to remain above 3% in 2024.** After peaking at 8.4% in 2022, HICP annual headline inflation is set to remain strong in the euro area in 2023, at 5.8%, before moderating to 2.8% in 2024 driven by lower energy prices. The surge in core inflation is set to be

<sup>(3)</sup> [European Economic Forecast, Spring 2023 \(europa.eu\)](#)

<sup>(4)</sup> The Commission 2023 summer interim has downgraded real GDP growth in the euro area to 0.8% in 2023 and 1.3% in 2024 ([European Economic Forecast, Summer 2023 \(Interim\) \(europa.eu\)](#)). No new projections for public finances are however available and therefore this publication only refers to the to Commission 2023 spring forecast.

<sup>(5)</sup> See Box I.2.4: Which Factors Shape Growth and Inflation Going Forward? Model-Based Insights into the Spring Forecast; *European Economic Forecast Spring 2023*; European Economy, Institutional Paper 200, May 2023 [European Economic Forecast, Spring 2023 \(europa.eu\)](#) and “Box 1: The consumption impulse from pandemic savings – does the composition matter?”, *Economic Bulletin*, Issue 4, ECB, 2023 [Economic Bulletin Issue 4, 2023 \(europa.eu\)](#)

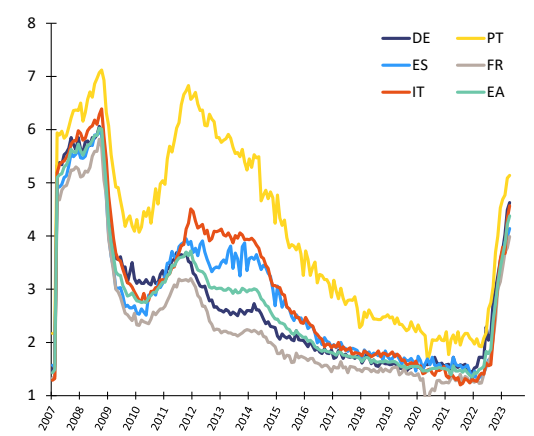
more persistent. HICP excluding energy and unprocessed food (i.e., the Commission’s definition of core inflation) is expected to increase by 6.1% in 2023, from 4.9% in 2022, before slowing down to 3.2% in 2024 <sup>(6)</sup>.

**Financing conditions continue to tighten.** While reduced supply bottlenecks and lower commodity and transportation prices should contribute to a gradual slowdown in core inflation, the projected increases in unit labour costs and unit profit margins above 2% in 2023-24 point to tight monetary conditions going forward. Based on market expectations, short-term interest rates are predicted to peak in 2023-Q3, followed by a partial reversal of the tightening cycle in 2024. The euro area GDP-weighted average 10-year sovereign bond yield is expected to remain at around 2.9% in 2023-24, following the sharp rise seen since the end of 2021, when it was slightly negative. As regards bank lending, survey evidence suggests continued tightening of credit standards for firms and households in 2023, which should reinforce the transmission of monetary policy tightening.

**The slowing down of economic activity is not expected to derail the labour market.** After reaching a record low in 2022 (6.8%), the euro area unemployment rate is expected to remain stable in 2023 before further decreasing marginally in 2024. Employment is at record highs. Employment growth is forecast at 0.6% this year, before edging down to 0.5% in 2024 <sup>(7)</sup>. Sustained wage rises (outpacing productivity growth) are expected given continued labour market tightness, significant increases in minimum wages, and, more broadly, worker’s pressure to recuperate lost purchasing power.

**The balance of risk surrounding the forecast is tilted to the downside.** In particular, higher-than-forecast core inflation could trigger stronger reaction from monetary policy. The evolution of Russia’s war of aggression against Ukraine remains another sizeable downside risk for economic development going forward, including as a source of uncertainty for the evolution of energy and food prices. Furthermore, export market developments remain uncertain, affected by heightened financial sector risks and broader geopolitical tensions.

Graph I.1.2: Interest rates on loans to non-financial corporations (selected Member States)



Source: Commission 2023 spring forecast

## 1.2. BUDGETARY DEVELOPMENTS

**The phasing out of energy support measures is expected to drive deficit reductions in 2023 and, especially, in 2024** (Table I.1.1). The euro area general government deficit is projected to decrease to 3.2% of GDP in 2023, from 3.6% in 2022 (after reaching a historically high level of 7.1% in 2020). The Commission 2023 spring forecast anticipates a further deficit decline in 2024, to 2.4% of GDP, based on unchanged policies. Changes in the cyclical component of the budget are set to provide only small contributions in 2023 and 2024 and be overall neutral over these two years. Interest expenditure is set to further increase slightly, as higher interest rates gradually feed into the cost of servicing government debts. By contrast, the deficit-increasing impact of discretionary policy is set to diminish, due to the full phasing out of pandemic-related emergency measures by 2023, and (almost full) phasing out of energy

<sup>(6)</sup> See also “Box I.2.3: Profit margins and their role in euro area inflation” in European Economic Forecast, Spring 2023: [European Economic Forecast, Spring 2023 \(europa.eu\)](https://ec.europa.eu/economy_finance/economic_bulletin_issue_4_2023) and “Box 3: How have unit profits contributed to the recent strengthening of euro area domestic price pressures?”, *Economic Bulletin*, Issue 4, ECB, 2023 [Economic Bulletin Issue 4, 2023 \(europa.eu\)](https://www.ecb.europa.eu/press/pr/economic_bulletin_issue_4_2023/).

<sup>(7)</sup> 0.7% and 0.6% respectively in full-time equivalents.

support measures by 2024 <sup>(8)</sup>. In 2023, lower subsidies to private investments as well as lower unemployment benefits are also expected to reduce the euro area deficit.

Table I.1.1: Breakdown of the general government budget balance (euro area, % of GDP)

	2017	2018	2019	2020	2021	2022	2023	2024
Total revenue (1)	46.2	46.4	46.3	46.4	47.3	47.1	46.4	46.3
Total expenditure (2)	47.1	46.9	46.9	53.5	52.6	50.7	49.6	48.8
Actual balance (3) = (1) - (2)	-0.9	-0.4	-0.6	-7.1	-5.3	-3.6	-3.2	-2.4
Change in actual balance:		0.5	-0.2	-6.4	1.7	1.7	0.4	0.7
- Cycle		0.0	0.7	-4.0	2.3	1.2	-0.1	0.1
- Interest (reverse sign)		0.1	0.2	0.1	0.0	-0.2	-0.1	-0.1
- One-offs		0.0	-0.1	0.1	0.1	-0.1	0.0	0.0
- Structural primary balance		0.1	-0.6	-2.7	-0.6	0.8	0.6	0.8

Note: Differences between totals and the sum of individual figures are due to rounding.

Source: Commission 2023 spring forecast

**The expenditure and revenue ratios are both expected to further decline in 2023-24** (Table I.1.1). In 2022, the expenditure ratio fell by 1.9 pps. of GDP in the euro area, thanks to smaller pandemic-related emergency measures, to the economic recovery and to the delayed impact of high inflation on government expenditure <sup>(9)</sup>. A reversal of the impact of inflation is expected in 2023-24 due to (delayed) indexation taking place for large expenditure items like pensions and other social benefits and to a tendency for public wages and new public procurements to eventually reflect inflationary pressures. Despite this, the expenditure-to-GDP ratio is projected to further decline by 1.9 pps. in the euro area in 2023-24, driven by reduced discretionary expenditure related to the full phasing out of emergency spending and lower subsidies to private investments, as explained above. Over the same period, the revenue ratio is expected to fall by 0.8 pps. of GDP, due to the reversal of the (estimated) sizable revenue windfalls in most Member States of 2020-22. <sup>(10)</sup> These windfalls were driven by a favourable composition of nominal economic growth, notably an increased share of consumption of goods, and increased tax returns on imported energy due to significant increases in energy prices. Noteworthy, despite increases in revenue windfalls in 2022, the revenue-to-GDP ratio declined also that year (by 0.2 pps. of GDP), mainly due to the lowering of VAT rates and excise duties on energy products, which were common energy-related support measures put in place in 2022.

<sup>(8)</sup> Energy support measures mainly consist of measures that decrease government revenues (e.g. reduction of indirect taxes and levies on energy products) and those that increase government expenditures (e.g., subsidies on energy production, transfers to households and corporations for energy consumption, and temporary increases to social benefits). The Commission 2023 spring forecast estimates the net budgetary cost of these measures at 1.2% of GDP in 2023 in the euro area, compared to 1.3% of GDP in 2022, with a high degree of variation among the Member States.

<sup>(9)</sup> Such delays cause the ratio to decline due to a so-called denominator effect as inflation (GDP deflator) is directly reflected in nominal GDP (i.e. the denominator).

<sup>(10)</sup> Revenue windfalls (shortfalls) are estimated through the increase (decrease) in the revenue-to-GDP ratio that is not explained by discretionary measures or transfers from the EU budget. Based on the Commission 2023 spring forecast, revenue windfalls in the euro area are estimated at 0.3% of GDP in 2022, after windfalls of 0.5% and 0.9% in 2020 and 2021, respectively. A partial reversal is expected in 2023 and 2024, with projected revenue shortfalls of 0.7% and 0.1% of GDP, respectively.

**Nine euro area Member States are set to have a deficit exceeding 3% of GDP in 2023 (Graph I.1.3).**

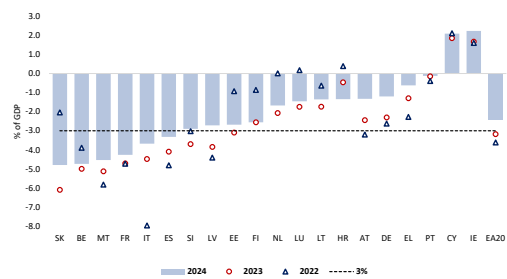
In 2024, this number is forecast to fall to six, under unchanged policies. Except for Cyprus and Ireland, all Member States are projected to have a budget balance in 2024 lower than before the pandemic in 2019.

**Despite the rather strong post-pandemic recovery, budget balances in 2024 are planned to remain below 2019 (pre-pandemic) levels in all EA countries, with the exceptions of Ireland and Cyprus.**

This points to the permanent nature of some of the deficit-increasing policies implemented since the outbreak of the pandemic, which is corroborated by the overall expansionary stance of national budgets in 2020-24, mostly on the expenditure side of the government balance and in part related to higher nationally financed public investment (see Table I.1.1).

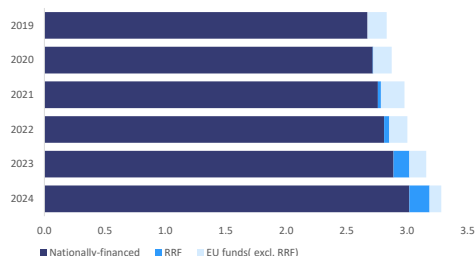
**Rising public investment is improving the composition of expenditure.** In 2024, public investment in the euro area is expected to rise to 3.3% of potential GDP (Graph I.1.4), compared to 2.8% in 2019, 3% in 2022 and 3.1% in 2023. One third of the projected increase in public investment between 2019 and 2024 is due to new investment financed by RRF grants. At the same time, by 2024 most euro area countries are set to spend more on nationally financed public investment than they did in 2019.

Graph I.1.3: General government balance (in Member States, 2022-2024, in % of GDP)



Source: Commission 2023 spring forecast

Graph I.1.4: Public investments in the euro area; 2019-24 (% of potential GDP)



Source: Commission 2023 spring forecast

### 1.3. GENERAL GOVERNMENT DEBT

**Inflation surprises and strong economic growth have driven some reduction of the debt-to-GDP ratio over 2021-2022 (Graph I.1.5).**

In 2022, the debt ratio fell significantly in the euro area as a whole, to roughly 93% of GDP, from a historically high level of around 99% in 2020 and 97% in 2021, despite persistent debt-increasing primary deficits<sup>(11)</sup>. The strong economic recovery and high inflation (based on the GDP deflator) were the main drivers of this post-pandemic fall in the debt ratio.

The pass-through of higher market interest rates into costs of servicing public debts is relatively slow, reflecting a lengthening of the residual maturity of sovereign bonds in the euro area (around eight years at the end of 2022). In the short term, the combination of stronger nominal GDP growth and only gradually increasing implicit interest rates paid on debts ( $r < g$ ) resulted in a bigger debt-decreasing ‘snowball effect’<sup>(12)</sup>. In 2023, the euro area debt-to-GDP ratio is expected to fall further (to around 91%), reflecting the further acceleration in the GDP deflator. By 2024, only a slight further reduction in the debt ratio is projected (less than 1 pp. of GDP), due to the smaller debt-decreasing ‘snowball’ effect, as the GDP deflator is set to decelerate and interest expenditure to continue to rise, while primary deficits are set to continue to weigh on euro area debt developments, based on unchanged policies.

<sup>(11)</sup> These debt data are not consolidated for intergovernmental loans.

<sup>(12)</sup> The “snowball effect” captures the impact of interest expenditure on the annual accumulation of debt, as well as the impact of real GDP growth and inflation (GDP deflator) on the debt ratio.

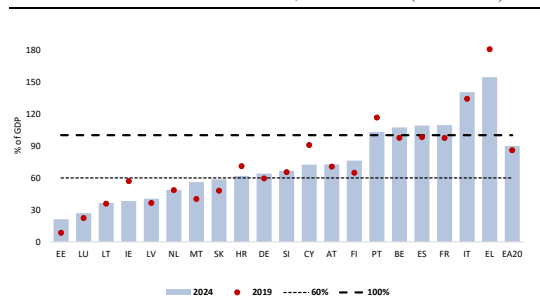
Table I.1.2: General government debt and its drivers (% of GDP)

	Government debt ratio							Change in debt ratio in 2022-24	Change in the debt ratio in 2022-24 due to:		
	2018	2019	2020	2021	2022	2023	2024		Primary balance	Snowball effect	Stock-flow adjustment
BE	99.9	97.6	112.0	109.1	105.1	106.0	107.3	2.2	6.0	-5.1	1.3
DE	61.3	59.6	68.7	69.3	66.3	65.2	64.1	-2.2	1.8	-4.6	0.6
EE	8.2	8.5	18.5	17.6	18.4	19.5	21.3	2.9	4.7	-1.9	0.0
IE	63.0	57.0	58.4	55.4	44.7	40.4	38.3	-6.5	-5.1	-5.9	4.5
EL	186.4	180.6	206.3	194.6	171.3	160.2	154.4	-16.8	-4.5	-12.6	0.2
ES	100.4	98.2	120.4	118.3	113.2	110.6	109.1	-4.2	2.5	-7.2	0.5
FR	97.8	97.4	114.6	112.9	111.6	109.6	109.5	-2.1	5.1	-6.8	-0.3
IT	134.4	134.1	154.9	149.9	144.4	140.4	140.3	-4.1	0.0	-6.7	2.5
CY	98.1	90.8	113.8	101.2	86.5	80.4	72.5	-14.1	-6.6	-7.7	0.2
LV	37.0	35.5	42.0	43.7	40.8	39.7	40.5	-0.3	5.1	-4.6	-0.9
LT	33.7	35.8	46.3	43.7	38.4	37.1	36.6	-1.8	2.0	-4.8	0.9
LU	20.9	22.4	24.5	24.5	24.6	25.9	27.0	2.4	2.6	-2.5	2.3
MT	43.7	40.3	52.9	55.1	53.4	54.8	56.1	2.7	6.9	-5.1	0.9
NL	52.4	48.5	54.7	52.5	51.0	49.3	48.6	-2.2	2.3	-4.2	-0.3
AT	74.1	70.6	82.9	82.3	78.4	75.4	72.7	-5.7	1.4	-7.3	0.2
PT	121.5	116.6	134.9	125.4	113.9	106.2	103.1	-10.8	-4.6	-8.1	1.9
SI	70.3	65.4	79.6	74.5	69.9	69.1	66.6	-3.9	4.1	-7.4	0.0
SK	49.8	48.0	58.9	61.0	57.8	58.3	58.7	0.9	8.7	-8.1	0.4
FI	64.9	64.9	74.7	72.6	73.0	73.9	76.2	3.1	3.1	-3.9	4.0
EA	87.9	85.9	99.1	97.2	93.1	90.8	89.9	-3.2	2.1	-6.1	0.9
BG	22.1	20.0	24.5	23.9	22.9	25.0	28.1	5.2	8.5	-2.8	-0.5
CZ	32.1	30.0	37.7	42.0	44.1	42.9	43.1	-1.0	4.0	-5.2	0.2
DK	34.0	33.7	42.2	36.7	30.1	30.1	28.8	-1.3	-4.7	-0.1	3.5
HR	73.2	71.0	87.0	78.4	68.4	63.0	61.8	-6.5	-0.6	-6.7	0.7
HU	69.1	65.3	79.3	76.6	73.3	70.7	71.1	-2.2	0.2	-4.9	2.6
PL	48.7	45.7	57.2	53.6	49.1	50.5	53.0	3.9	4.6	-5.4	4.6
RO	34.5	35.1	46.9	48.6	47.3	45.6	46.1	-1.2	5.6	-6.3	-0.5
SE	39.2	35.5	39.8	36.5	33.0	31.4	30.7	-2.3	0.1	-1.2	-1.2
EU	81.4	79.3	91.7	89.5	85.3	83.4	82.6	-2.7	2.1	-5.9	1.0

Source: Commission 2023 spring forecast

At the end of 2024, 12 euro area Member States are projected to have debt ratios greater than 60% of GDP. Six of them (Belgium, Greece, Spain, France, Italy, and Portugal) are set to be greater than 100% (Graph I.1.6). Ireland, Greece, Croatia, Cyprus, and Portugal are the only euro area Member States expected to have public debt ratios in 2024 lower than in 2019 (Table I.1.2).

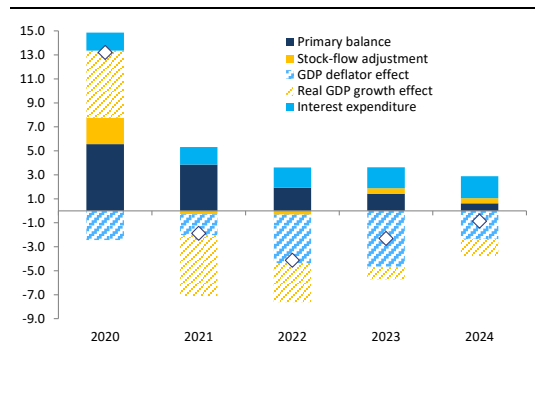
Graph I.1.6: General government debt developments in euro area Member States, 2019 vs 2024 (% of GDP)



Source: Commission 2023 spring forecast

A significant expansionary contribution came also from other capital expenditure, which increased further in 2022 (following the strong increase in 2021). This was mainly related to governments' subsidies to private investment. Nationally financed investment continued to provide a marginally expansionary contribution to the euro area fiscal stance in 2022, whereas the contribution from expenditure financed by RRF grants and other EU funds was neutral (after being expansionary in 2021) (14).

Graph I.1.5: Drivers of changes in the debt-to-GDP ratio, euro area



Source: Commission 2023 spring forecast

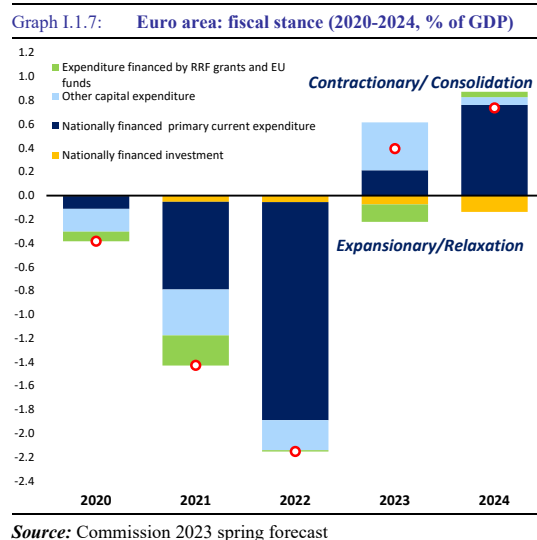
#### 1.4. FISCAL STANCE OF THE EURO AREA

The euro area fiscal stance was significantly expansionary in 2022, at around 2¼% of GDP (13). This followed an overall expansionary stance estimated at around 1¾% of GDP for 2020-21 (Graph I.1.7). Primary current expenditure - net of discretionary revenue measures - financed by national budgets contributed significantly to the 2022 expansionary fiscal stance. In particular, energy support measures implemented by governments in response to energy price hikes supported that trend.

(13) The fiscal stance, over the horizon 2020-2023, is measured through the Discretionary Fiscal Effort (see Nicolas Carnot, Francisco de Castro 2015, The Discretionary Fiscal Effort: an Assessment of Fiscal Policy and its Output Effect, European Economy, Economic Papers 543). For more details on the computations see European Commission (2023), The 2023 Stability & Convergence Programmes, Institutional Paper 253, footnote 12.

(14) The support of the EU budget to investments (and reforms), especially through the RRF, provides a boost to aggregate demand, but also lead to productivity improvements and thus lower inflationary pressures in the medium term.

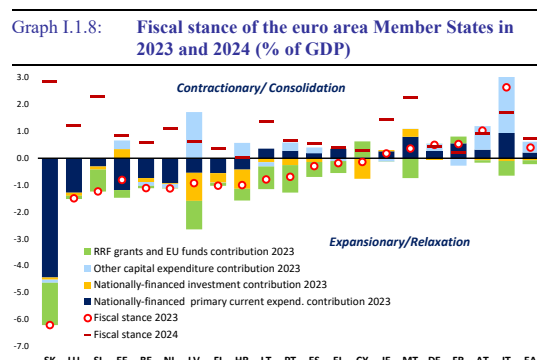
**In 2023, the euro area fiscal stance is projected to be slightly contractionary, by close to ½% of GDP.** This is mainly related to the reversal of subsidies to private investment (especially in Italy), reflected in the contractionary contribution to the fiscal stance from other capital expenditure. Primary current expenditure - net of discretionary revenue measures - is expected to provide a slightly contractionary contribution to the euro area fiscal stance, also due to the expected small reduction in energy support measures. By contrast, higher expenditure financed by RRF grants and other EU funds and investment financed by national budgets are set to provide slightly expansionary contributions to the euro area fiscal stance in 2023.



**Fiscal stance projections for 2023 are very heterogeneous across countries** (Graph I.1.8). The fiscal stance is set to range from a contractionary stance of more than 2% of GDP in Italy to an expansionary stance of more than 6% in Slovakia. Primary current expenditure financed by national budgets (net of discretionary revenue measures) reflects the expected change (decrease or increase) in energy support measures relative to 2022. Other capital expenditure is set to provide contractionary contributions in Austria, Latvia, and Italy, after the sizeable expansions recorded in 2021-22. Finally, in the majority of Member States, the spending financed by RRF grants and other EU funds is projected to provide a further expansionary contribution.

Source: Commission 2023 spring forecast

**In 2024, the euro area fiscal stance is projected to be contractionary, by around ¼% of GDP, based on unchanged policies.** This contractionary stance is driven by the announced phasing out of almost all energy support measures, driving the contractionary contribution from net primary current expenditure. Nevertheless, the contractionary contribution of this net primary current expenditure is smaller than that mechanically resulting from the phasing out of energy support measures, reflecting delayed impact of inflation on some expenditure items and instatement of further subsidies and tax cuts in some Member States<sup>(15)</sup>. Some small contractionary contributions to the euro area fiscal stance also come from expenditure financed by the EU budget and other capital expenditure, whereas investment financed by national budgets is the only component projected to provide a slightly expansionary contribution in 2024. Noteworthy, the Council recommendation to phase out the temporary energy support measures by 2024 and to use related savings to reduce government deficits (see Box II.1.1) implies a contractionary euro area fiscal stance of around 1¼% of GDP in 2024 (Graph I.1.9).

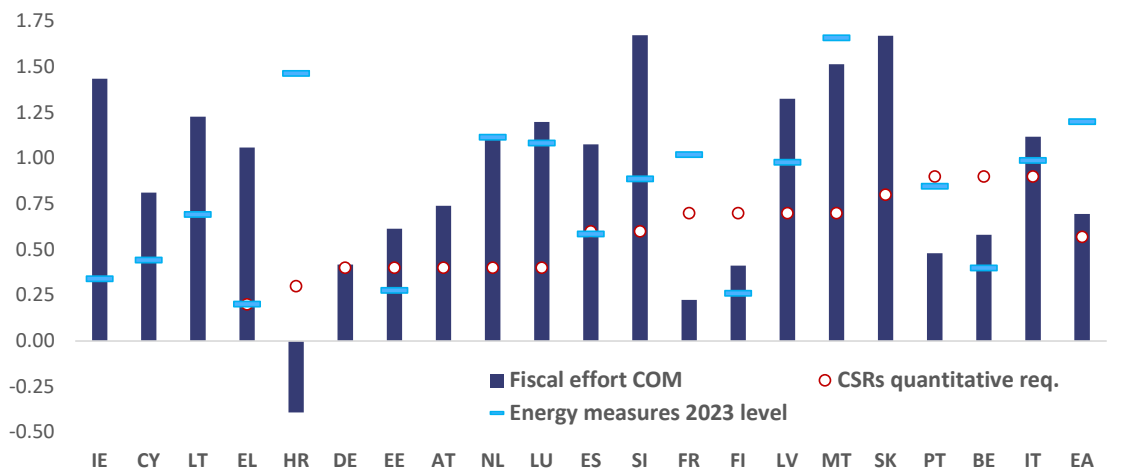


Fiscal policy is not expected to fuel additional inflationary pressures in the euro area in 2024, avoiding burdening the ongoing needed tightening of monetary policy.

<sup>(15)</sup> This is the case in particular for Germany, Austria and to a lesser extent France and Portugal. For more information see: [https://commission.europa.eu/publications/2023-european-semester-country-specific-recommendations-commission-recommendations\\_en](https://commission.europa.eu/publications/2023-european-semester-country-specific-recommendations-commission-recommendations_en)

All the euro area countries are set to have a contractionary fiscal stance in 2024, based on unchanged policies (Graph I.1.8 and I.1.9).

Graph I.1.9: Fiscal efforts in 2024 based on net primary expenditure; COM vs CSRs and energy support in 2023 (% of GDP)



Source: Commission 2023 spring forecast (COM) and fiscal Country-specific recommendations for 2024.



## 2. FROM PANDEMIC TO WAR AND BEYOND

**Looking back, the pandemic outbreak has marked the start of a longer period of volatility and headwinds for economic and fiscal developments.** The pandemic caused sharp recessions and the need to enact swift policy support. In turn, Russia's war of aggression against Ukraine put additional strain via various channels and eventually ignited high and persistent inflation (see Part III on the impact of inflation on public finances).

**During these challenging times, policy support of an unprecedented scale was put in place to soften the impact of the different shocks and bolster economic and social resilience and EU cohesion.** At the EU-level, support was provided through wide-ranging initiatives, notably under the NGEU, and well-targeted instruments such as SURE, illustrating the agility and coordination ability of the EU in emergency situations, on the back of lessons learned from past crises.

**Beyond the challenges stemming from the pandemic and the high inflation environment, fiscal policymaking continues to have to contend with a series of long-term trends that pose a challenge to the fiscal outlook.** These include the transition towards a greener and more digital economy and society, and the consequences of population ageing. In turn, new trends also need to be monitored and analysed to assess potential fiscal policy implications. One such trend is a potentially steady increase in defence spending, linked to a more tense geopolitical context.

**This chapter takes stock of the challenging environment under which fiscal policy had to operate since the pandemic.** It reviews support measures put in place and recalls long-term trends that put steady pressure on public finances. Finally, the potentially steady surge in defence spending is featured here in a special focus.

### 2.1. VOLATILE TIMES: FROM COVID TO ENERGY CRISIS

**Since early 2020, fiscal policy has operated under volatile times.** National and EU-level measures cushioned the impact of extraordinary events including a pandemic, a war and commodity markets tensions. These measures protected households and firms and fostered economic resilience, avoiding dearer consequences and setting the EU economy on a sounder footing. The legacy of increased governments' debt and heterogeneous outcomes across countries however warrants fiscal prudence henceforth<sup>(16)</sup>. This section takes stock of the various support measures put in place since 2020.

#### 2.1.1. A very effective fiscal policy response to the pandemic

**The COVID-19 outbreak was met by a swift and forceful policy response.** As the COVID-19 virus spread around the world, many governments were forced to take extreme precautionary public health measures to save lives and prevent health care systems from being overwhelmed.

**The Stability and Growth Pact (SGP) allowed Member States to deal with the sizeable challenges resulting from the COVID-19 crisis.** As the gravity of the economic downturn resulting from the COVID-19 outbreak became apparent, the Commission considered in its Communication of 20 March 2020<sup>(17)</sup> that the economic conditions warrant the activation of the general escape clause of the Stability and Growth Pact. This allowed Member States to depart temporarily from their fiscal adjustment path. Swift enactment of supportive measures both at the national and EU-level cushioned the impact of the crisis and fostered economic and social resilience.

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<sup>(16)</sup> For latest available assessment of fiscal sustainability risks by the European Commission see the 2022 Debt Sustainability Monitor, EC Institutional Paper 199, 14 April 2023.

<sup>(17)</sup> [https://ec.europa.eu/info/sites/info/files/economy-finance/2\\_en\\_act\\_part1\\_v3-adopted\\_text.pdf](https://ec.europa.eu/info/sites/info/files/economy-finance/2_en_act_part1_v3-adopted_text.pdf)

**Most of the COVID-19-temporary emergency support measures that Member States implemented consisted of additional spending.** From the first quarter of 2020, government spending on the immediate healthcare costs, short-time work schemes, extensions of sick pay and unemployment benefits, subsidies to firms and public investment increased substantially. At the euro area aggregate level, COVID-19-related expenditure measures corresponded to 3.1% of GDP in 2020, 3.2% in 2021 and 0.7% in 2022 (Table I.2.1).

**On the revenue side, some Member States provided tax relief by outright cancelling certain taxes and social security contributions.** On average, COVID-19 related tax relief amounted to 0.2% of GDP in 2020 and 0.1 % of GDP in 2021. Only in Greece revenue-side measures were above 1% of GDP in the first year of the pandemic. Overall, the discretionary response to the pandemic exceeded 4% of GDP in one or more years in several countries (Belgium, Germany, Greece, Spain, Italy, Latvia, Malta, Austria, Slovenia and Poland).

Table I.2.1: COVID 19 temporary emergency measures (% of GDP, in level)

	2020		2021		2022	
	EXP	REV	EXP	REV	EXP	REV
BE	4.0	-0.5	2.6	-0.3	0.4	0.0
CY	2.9	-0.7	2.6	-0.3	0.3	0.0
DE	2.2	-0.4	3.9	-0.3	0.8	0.0
EE	1.1	0.0	2.3	0.0	0.0	0.0
EL	5.8	-1.7	5.5	-1.0	1.0	-0.4
IE	3.7	0.0	2.8	0.0	0.7	0.0
ES	4.0	0.8	3.2	0.1	0.5	0.0
FR	3.3	0.0	2.6	0.0	0.5	0.0
IT	3.9	-0.4	3.4	0.0	1.1	0.0
LV	2.2	-0.5	4.9	-0.1	1.2	0.0
LT	1.4	-0.1	0.4	-0.1	0.2	-0.2
LU	2.0	-0.4	0.7	0.0	0.1	0.0
MT	5.2	-0.6	3.1	-0.2	0.9	0.0
NL	2.4	0.0	1.8	0.0	0.3	0.0
AT	4.0	-0.7	3.6	-0.7	0.5	-0.3
PT	1.9	0.0	2.0	0.0	0.7	0.0
SI	4.8	0.0	4.1	0.0	1.0	0.0
SK	2.2	-0.1	3.2	0.0	0.8	0.0
FI	2.3	-0.4	2.0	0.0	0.2	0.0
BG	2.8	0.0	3.7	0.0	1.0	0.0
CZ	2.3	-0.6	1.9	0.0	0.1	0.0
DK	2.6	0.0	4.0	0.0	0.0	0.0
HR	2.1	0.0	1.3	0.0	0.1	0.0
HU	3.7	-0.2	1.6	-0.2	0.1	0.0
RO	1.5	-0.1	0.8	0.0	0.0	0.0
PL	4.5	0.0	2.4	0.0	0.7	0.0
SE	2.6	-0.7	1.9	-0.1	1.0	-0.1
EU	3.1	-0.2	3.0	-0.1	0.6	0.0
EA	3.1	-0.2	3.2	-0.1	0.7	0.0

Source: European Commission 2023 spring forecast

**The majority of the measures were used to support corporations.** Table I.2.2 shows to what extent the support measures have been directed towards different beneficiaries. In the euro area, 2% of GDP was transferred to firms (largest in Austria) in 2021<sup>(18)</sup>. Households were the largest beneficiaries in 11 countries (largest support in Latvia in the euro area and in Denmark in the EU). The phasing out of these measures started in 2021 and has been completed in 2023 (Graph I.2.1).

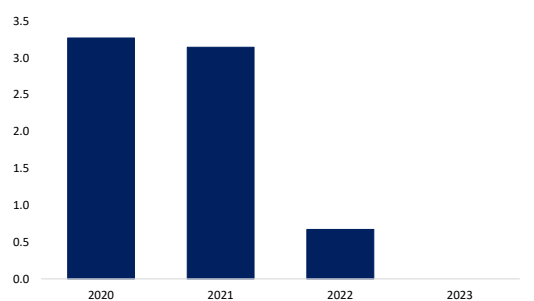
Table I.2.2: Beneficiaries of the COVID 19 temporary emergency measures (% of GDP, in level)

	2020			2021			2022		
	HOUSEHOLD	CORPORATIONS	DIRECT GOV. EXP.	HOUSEHOLD	CORPORATIONS	DIRECT GOV. EXP.	HOUSEHOLD	CORPORATIONS	DIRECT GOV. EXP.
BE	2.9	1.4	0.1	2.0	0.7	0.3	0.3	0.1	0.1
CY	0.8	2.4	0.3	0.4	2.2	0.4	0.0	0.0	0.3
DE	1.1	1.0	0.6	0.4	3.0	0.8	0.0	0.5	0.3
EE	0.1	0.9	0.0	0.2	1.4	0.7	0.0	0.0	0.0
EL	1.8	1.2	0.7	1.1	1.1	0.6	0.1	0.2	0.4
ES	2.4	4.7	0.4	2.3	3.5	0.7	0.3	0.6	0.5
FR	1.6	0.4	1.2	0.7	1.3	1.1	0.1	0.2	0.2
IT	2.1	0.9	0.2	1.0	1.2	0.4	0.3	0.1	0.2
LV	1.2	2.1	1.0	1.0	1.7	0.7	0.1	0.5	0.5
LT	0.8	1.6	0.3	2.6	2.0	0.4	0.8	0.1	0.3
LU	1.3	0.3	0.0	0.4	0.2	0.0	0.2	0.2	0.0
MT	1.7	0.6	0.1	0.4	0.4	0.0	0.1	0.0	0.0
NL	1.5	3.8	0.6	0.6	2.6	0.1	0.0	0.8	0.0
AT	0.3	2.1	0.0	0.1	1.7	0.0	0.0	0.3	0.0
PT	0.7	4.0	0.0	0.5	3.8	0.0	0.1	0.7	0.0
SI	0.4	1.2	0.3	0.9	0.9	0.2	0.4	0.3	0.1
SK	2.1	2.4	0.3	2.1	1.3	0.6	0.8	0.1	0.1
FI	1.6	0.3	0.4	2.1	0.3	0.8	0.5	0.2	0.2
HR	1.0	1.3	0.5	0.2	1.0	0.8	0.0	0.2	0.0
BG	0.0	2.1	0.0	0.1	1.2	0.0	0.0	0.1	0.0
CZ	0.9	1.8	0.1	2.3	1.3	0.1	0.8	0.2	0.0
DK	1.2	1.4	0.2	0.5	1.3	0.1	0.0	0.1	0.0
PL	2.6	0.0	0.0	3.1	0.9	0.0	0.0	0.0	0.0
HU	0.9	2.0	1.1	0.6	1.0	0.3	0.0	0.0	0.1
RO	0.6	3.8	0.1	0.9	1.0	0.6	0.5	0.0	0.2
SE	0.3	1.0	0.4	0.3	0.3	0.2	0.0	0.0	0.0
EA	1.8	1.0	0.5	1.2	0.3	0.5	0.7	0.0	0.4
EU	1.4	1.4	0.5	0.8	2.0	0.6	0.1	0.3	0.3
EA	1.4	1.4	0.5	0.8	1.8	0.6	0.2	0.3	0.2

Source: European Commission 2023 spring forecast.

<sup>(18)</sup> The fact that funds have been transferred to firms, does not automatically mean that households have not benefited from those support measures, as often firms would receive funds in the context of short-term work schemes.

Graph I.2.1: EU COVID-19 emergency measures over the horizon 2020-2023



Source: European Commission 2023 spring forecast.

**EU-wide concerted efforts provided strong additional support during the pandemic via various channels.** The ECB’s announcement of the Pandemic Emergency Purchase Programme (PEPP), together with the European Commission’s announcement of NextGenerationEU (NGEU) coincided with a strong reduction in government financing costs (see Graph I.2.2) pointing at favourable confidence effects, while the more recent increase is notably related to the surge in inflation<sup>(19)</sup>. The debt issued to finance the NGEU package, next to reducing the borrowing costs for Member States, also contributed to a lengthening of average debt maturity across the EU, further

insulating Member States’ financing costs from short-term fluctuations and thereby reducing rollover risks.

**NGEU also helped preserve EU cohesion by channelling relatively more support to the countries most affected by the pandemic via its centrepiece tool, the Recovery and Resilience Facility (RRF, see Box I.2.1).** In turn, the positive spillovers generated across the EU by this temporary EU instrument are an important aspect. They ensure that even economies with relatively smaller grant allocations are benefitting from NGEU, via significant cross-country spillovers in the highly integrated EU economy<sup>(20)</sup>.

**EU policies were also specifically designed to boost resilience both during and beyond the crisis.**

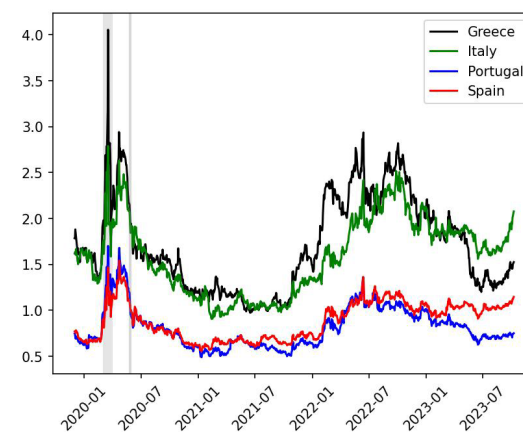
Targeted EU-level support via the Temporary Support to mitigate Unemployment Risks in an Emergency (SURE, see Box I.2.2) helped contain crisis scarring effects by helping retain workers attachment to the labour force during the pandemic. Similarly, to foster resilience beyond the recovery phase, the RRF incentivises needed transitions such as those related to climate change and the advent of the digital economy, both through relevant strategic investments and structural reforms.

**2.1.2. Energy price support measures: timely but untargeted policy response**

**Since autumn 2021, unprecedented energy price increases have prompted most Member States to put in place budgetary policy measures to reduce the economic and social impact on households and firms.**

While many measures were initially expected to provide a very temporary support to counter the impact of a short-lived peak in energy prices, with tensions on energy markets persisting, it soon became clear that support would have to stay in place longer than anticipated. The Commission frequently called for a more efficient design of the measures, as budgetary costs were rising and possible adverse effects of these measures on the incentives or disincentives for energy savings became clear.

Graph I.2.2: 10 year government bond yields against German bonds



(1) Shaded areas highlight the COVID-19 outbreak (March 2020) and the NGEU proposal by the European Commission (27 May 2020).  
Source: Bloomberg

<sup>(19)</sup> Part III of this report is devoted to in-depth analysis of the implication of the surge in inflation for public finances.

<sup>(20)</sup> For details on the relevance of spillover effects in the context of the RRF see Pfeiffer et al. (2021), “Quantifying the spillovers of Next Generation EU investment”, European Economy Discussion paper 144, July 2021.

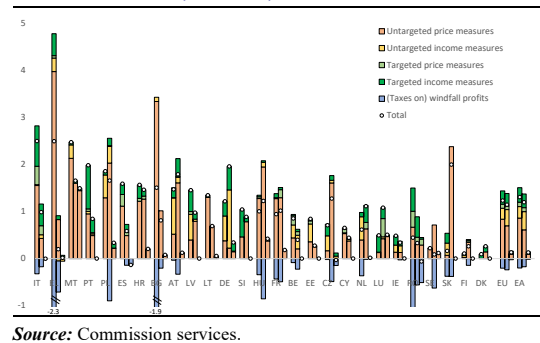
**The Commission monitors the aggregate budgetary impact on the general government balance of such energy support to households and firms.** For the purposes of this estimation, ‘energy support measures’ are defined as: (1) measures that have a direct impact on the marginal cost of energy consumption for households and/or firms (‘price measures’); (2a) measures that provide temporary income support to households (hence, permanent increases in wages and salaries, pensions or other social benefits are not considered to be energy measures, as they are not to be reversed when energy prices decrease again); (2b) measures that provide compensation to firms (other than price measures) in energy-intensive industries (both ‘income measures’); and (3) revenues from (new taxes or levies on) windfall profits by energy companies. Purely regulatory measures or measures without a direct budgetary impact for the government are not included.

**The net budgetary cost of measures to mitigate the impact of high energy prices on households and businesses is projected by the Commission to amount to 1.2% of the euro area GDP in 2023, compared to 1.3% of euro area GDP in 2022.** Several support measures have already been phased out. Moreover, lower energy prices are also reducing the budgetary impact of some existing support measures (e.g. subsidies to energy providers as compensation for maintaining a price ceiling). Assuming unchanged policies, support measures are projected to be phased out almost entirely by 2024, with a remaining budgetary impact of 0.1% of the euro area GDP. If used to reduce the government deficit (as recommended by the Council), the corresponding savings from phasing out support measures could contribute to an improvement in public finances in most Member States.

**At Member State level, there are significant differences in the overall impact of energy support measures as well as in their composition.** In 2023, in seven euro area countries <sup>(21)</sup> (Greece, Finland, Denmark, Estonia, Ireland, Belgium and Cyprus) the net budgetary impact of these measures is projected at below 0.5% of GDP, while in five euro area countries (Slovakia, Germany, Austria, Poland, Malta) is projected at above 1.5% of GDP. Graph I.2.3 provides an overview of the overall estimated budgetary cost in the period 2022-2024, as well as a breakdown by type of measure.

**To reconcile fiscal affordability with the need to properly protect the most vulnerable and to preserve the right incentives for the energy transition, the quality of the fiscal measures is key.** Only ¼ of the adopted measures is targeted. Therefore, most of the energy measures apply to the majority of households and/or firms regardless of their income situation or of the energy intensity of their production respectively. Moreover, around ⅔ of all measures are price measures, muting the signalling effect of higher energy prices on demand and, as such, reduce incentives to increase energy efficiency or to shift to alternative energy sources. Finally, some measures (like reductions in taxation on energy products) may prove difficult to reverse when they are no longer needed.

Graph I.2.3: Budgetary cost of fiscal measures to mitigate the impact of energy price increases in 2022, 2023 and 2024 (% of GDP)



Source: Commission services.

**At European level, on 18 May 2022 the Commission presented REPowerEU, a plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition.** The support measures implemented by Member States have been effective in reducing the economic impact for households and firms of the energy price increases. In addition, REPowerEU aims to focus on a long-lasting solution to the energy crisis. First, it aims at diversifying the European energy supply, by establishing agreements with other countries and investing in the common purchase of Liquefied Natural Gas (LNG). Second, it launched the EU Energy Platform, which helps coordinate EU negotiations with

<sup>(21)</sup> And in two non-euro area countries (Sweden and Romania).

external gas suppliers to prevent EU countries from outbidding each other. Third, Member States committed to voluntarily reduce gas use by 15% and agreed to the introduction of a gas price cap and a global oil price cap. Fourth, REPowerEU is speeding up the energy transition and promoting massive investment in renewable energy in Member States, with available loans and additional grants under the Recovery and Resilience Facility (RRF) contributing to related investments and with relevant reforms.

**Box 1.2.1: Steady implementation of the recovery and resilience facility is supporting investments and reforms**

**The Recovery and Resilience Facility (RRF) is a temporary instrument that is the centrepiece of NGEU - the EU's plan to emerge stronger and more resilient from the Covid crisis.** Through the Facility, the Commission raises funds by borrowing on the capital markets (issuing bonds on behalf of the EU). These are then available to the Member States in the form of grants and loans, to implement reforms and investments with clear eligibility criteria, including responding to the country-specific recommendations adopted by the Council in the context of the European Semester. Following the guidance by Eurostat <sup>(1)</sup>, grants from the RRF are recorded by analogy to the traditional EU funds, that is, by matching the time of recording of revenue from the EU to the time of recording of expenditure that is financed by the grant. This approach is referred to as 'the principle of neutrality of the EU flows' and it ensures that timing differences (leads or lags) between revenue and expenditure do not have a direct effect on the government balance. While the borrowing undertaken by the Commission to finance the RRF is considered as debt of the EU, loans extended by the RRF to Member States would add to their government's debt. No neutralisation takes place in case of loans, as these are financial instruments, whereas the neutralisation principle only applies to revenue in national accounts terms.

**Following the entry into force of the Recovery and Resilience Facility (RRF) regulation on 19 February 2021, the implementation of Member States' Recovery and Resilience Plans (RRPs) is moving forward.** According to the Commission 2023 spring forecast, around 21% of the total grant allocations were 'absorbed' by end 2022, meaning that Member States have incurred costs for this amount in 2020-2022, which they expect to fund by RRF grants. These costs typically take the form of expenditure (mostly gross fixed capital formation and investment grants), but they may also include revenue reduction measures and financial transactions. The absorption is recorded on an accrual basis, i.e. when the actual expenditure (or other costs) takes place and impacts on economic activity as measured by national accounts. With the exception of the financial transactions, their budgetary impact has been neutralised in line with Eurostat's guidance. The Recovery and Resilience Facility is however performance-based, meaning that payments of the pre-agreed amounts depend on the satisfactorily fulfilment of milestones and targets, rather than actual costs incurred by the Member States <sup>(2)</sup>. The payment profile differs from the absorption profile, as cash payments may take place ahead (e.g. in the case of pre-payments) or after the time of absorption. By end 2022, 28% of the grant allocation was paid by the RRF.

**The Commission 2023 spring forecast projects the absorption of RRF grants to accelerate further in 2023 and 2024.** For the EU as a whole, absorption of RRF grants increased to 0.3% of GDP in 2022 (from 0.2% in 2021). It is set to increase further in 2023, to 0.4% of GDP, and to broadly stabilise in 2024. Over the 2021-24 period, expenditure financed by RRF grants as a share of GDP is expected to be above 3.5% in Spain and Greece, more than 3% in Croatia and Portugal, around 2.5% in Slovakia and Italy, around 2% in Latvia, Bulgaria and Romania, close or above 1.5% in Lithuania, Poland, Hungary, Cyprus and Czechia, and more than 1% in Slovenia, Malta, Estonia, and France (see Graph 1).

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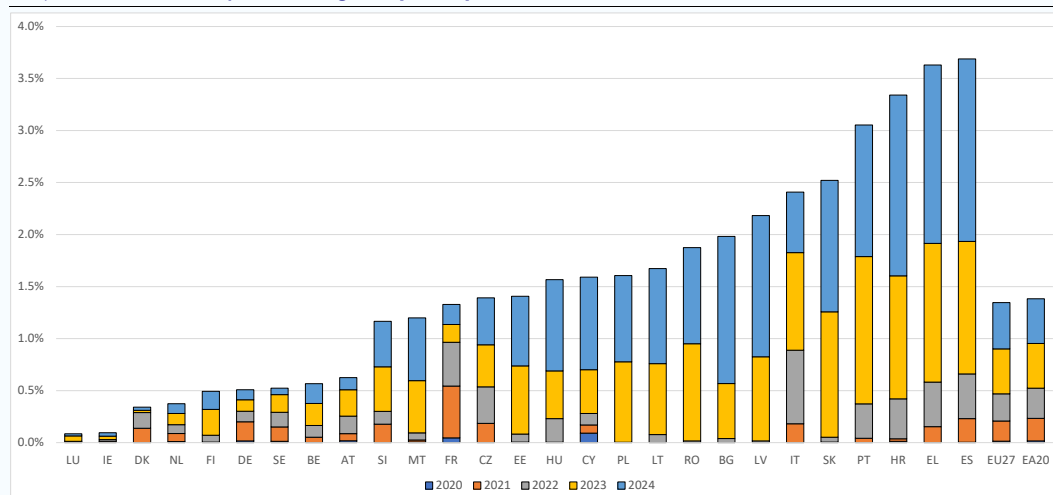
<sup>(1)</sup> Available at: <https://ec.europa.eu/eurostat/documents/1015035/12618762/GFS-guidance-note-statistical-recording-recovery-resilience-facility.pdf>. A special treatment applies to some costs made before the draft regulation was adopted in February 2021, which were still eligible for RRF financing. Revenue corresponding to the retroactive costs was not to be recorded in 2020, but at the time of the adoption of the Council Implementing Decision, which in most cases occurred in 2021 and in few cases in 2022. Overall, such retroactive costs were generally not very common and, where they existed, limited in size.

<sup>(2)</sup> The total estimated costs of each recovery and resilience plan are considered ex-ante, at the time of approval of each recovery and resilience plan and provided by the RRF Regulation. At that moment, the Commission controls that the total estimated costs of all the measures foreseen in the draft plan are at least equivalent to the grant and/or loan envelope requested by the Member State.

*(Continued on the next page)*

Box (continued)

Graph 1: Annual absorption of RRF grants (% GDP)



Source: Commission services.

### Box 1.2.2: The socio-economic impact of the SURE instrument

This box describes the main objectives and features of the European instrument for temporary support to mitigate unemployment risks in an emergency (SURE). As calls on the use of this instrument drew to an end on 1 January 2023, we review its socio-economic impacts and the lessons learned since its inception. Further assessment will be provided in the ex-post evaluation of SURE scheduled for Q3 2024.

#### Part of a comprehensive EU response to help Member States manage the COVID-19 crisis

**The SURE instrument was a crucial part of the EU's comprehensive economic response to the COVID-19 pandemic.** The key objective of SURE was to support Member States in a targeted way by helping protect employees and the self-employed against the risk of unemployment and loss of income. SURE provided emergency financial assistance of up to EUR 100 billion in the form of back-to-back loans from the EU to affected Member States, to cover the 'sudden and severe' increase in incurred and planned public expenditure on short-time work schemes, other similar measures and some health-related measures. The SURE instrument acted as a second line of defence, complementing national efforts by funding schemes designed and implemented by Member States, fully respecting the remit of the Member States in the area of social security. SURE was a temporary instrument that ended on 31 December 2022.

**SURE proved to be very popular, providing EUR 98.4 billion to 19 Member States.** The Council approved a total of EUR 98.4 billion in financial support to 19 Member States, including additional 'top-up' financial assistance of EUR 8.9 billion to 11 of the 19. In December 2022, the final disbursement was completed, closing the final call made by the Commission for Member States to express interest in SURE loans. The remaining EUR 1.6 billion from the EUR 100 billion envelope cannot be requested for future use as the instrument has ended.

#### Aiming to protect EU workers and the self-employed against the risk of unemployment

**By supporting short-time work schemes, SURE protected jobs and secured workers' income in the face of a major external and transitory shock.** Such schemes subsidise the cost of hours not worked by staff during a severe drop in economic activity. This helps firms retain employees and the capacity to quickly resume activity in the aftermath of the temporary downturn. During the pandemic, the schemes prevented more severe and long-lasting negative consequences (i.e. scarring effects), fostering the resilience of labour markets and more generally of the European economy, while also helping sustain household incomes.

**Approximately 31½ million people and 2½ million firms are estimated to have been covered by SURE in 2020.** 9 million people and over 900,000 firms were covered by SURE in 2021 in the 15 Member States still using it, with a clear phasing out in 2022 when 350,000 people and 40,000 firms were covered in just 4 Member States. Small and medium-sized firms have been the primary beneficiaries of SURE support.

#### Assessing the impact of SURE

**Evidence shows that SURE has produced tangible effects on Member States' labour markets.** Firstly, SURE had a major positive effect on job retention in 2020. The rise in unemployment in 2020 in beneficiary Member States was very moderate, despite the large fall in economic output, and significantly lower than expected by historical standards. The policy response to the pandemic, including SURE, is estimated to have prevented 1½ million people from becoming unemployed. Additional illustrative simulations conducted by the Commission show that the national short-time work schemes funded by SURE in the euro area alone saved up to 1 million jobs, suggesting that these SURE-supported schemes likely accounted for a significant portion of the total 1½ million jobs saved. Furthermore, the dispersion of unemployment rates, both among SURE beneficiary Member States and between SURE beneficiaries and non-beneficiaries, was substantially smaller than during previous crises, showing that the policy response to COVID-19 served to decrease labour market inequality in the EU. SURE also specifically added value by fostering confidence in the economy and effectively encouraging Member States to set up wide-ranging and ambitious short-time work schemes at

*(Continued on the next page)*



Box (continued)

national level. This is evidenced by survey data, in which a majority of beneficiary Member States indicated that SURE played a role in their decision to adopt a new or modify an existing short-time work scheme.

**SURE also supported the rapid economic rebound that occurred in the second half of 2021.** Keeping workers connected to firms and boosting the confidence of businesses, households and financial markets facilitated the recovery, whereby GDP and unemployment reverted to their pre-crisis levels in SURE beneficiary Member States much faster than after the global financial crisis and euro area debt crisis. Risks of impairing labour mobility were also avoided as measures supported by SURE were swiftly scaled back as the recovery took hold by mid-2021. Survey data shows that SURE supported the activity of the economic sectors most affected by the pandemic in 2021 (accommodation, food and beverage, travel agencies, sports activities and other personal services).

**SURE also generated a total of EUR 9 billion in savings on interest payments for Member States.** These savings were generated as SURE loans offered Member States lower interest rates than those they would have paid if they had issued sovereign debt themselves, and this over an average period of close to 15 years. This is due to the EU's AAA credit rating and the liquidity of the SURE bonds.

#### Lessons learned from SURE

This section discusses three broad policy lessons that can be drawn from the success of SURE.

**Firstly, SURE was well-targeted as it responded to a well-defined emergency need that arose in the specific pandemic context, with both a social and an economic goal.** Amid the uncertainty at the outset of the pandemic, it was crucial for policymakers to take concrete steps to avoid long-term social and economic scarring due to a shock that was likely temporary. To that end, SURE served a clear and well-defined purpose, responding to a specific and pressing need agreed on by both Member States and the Commission, namely to retain workers in employment and mitigate the economic and socio-economic damage of the pandemic. The social nature of this goal was emphasised by the EU's issuance of social bonds, for the first time, which has also proven popular with investors. Accordingly, the scope of SURE was neither based on a rigid institutional definition nor limited to a narrow type of instrument, but was rather purpose-based, i.e. supporting job retention in a specific crisis context. Consequently, SURE provided operational leeway to Member States to tailor their national labour market policy in the face of unprecedented and dramatic circumstances, by offering them EU support on a wide array of measures appropriate to retain jobs in firms, while providing income support.

**Secondly, in terms of governance, SURE showed the merit of the EU method, combined with policy-based conditionality and national implementation.** SURE was initiated by the Commission following the EU Community method rather than the intergovernmental approach. This ensured accountability and solidarity among Member States, while contributing to reducing any risks of stigma. Policy-based conditionality under SURE meant that the only condition to access the scheme was that Member States had faced a severe and sudden increase in spending on short-time work schemes and similar measures due to the pandemic, and to use the SURE funds for their intended purpose. This form of conditionality, tailored to the COVID-19 circumstances and purpose of the scheme, allowed Member States to retain ownership of the measures implemented nationally, while benefitting from the financial support and policy orientations provided under SURE.

**Thirdly, the SURE instrument was underpinned by a robust financial construction.** SURE came into existence based on a guarantee system provided by Member States. All Member States, including the eight that did not benefit from SURE, provided a total of EUR 25 billion of guarantees. These guarantees were provided voluntarily, and, once granted, became irrevocable, unconditional and on-call. This guarantee system proved financially robust (while also a clear expression of solidarity through the EU budget). This paved the way for the strong investor demand for SURE bonds and the favourable assessment of them by credit rating agencies. In turn, the popularity of SURE amongst both Member States and investors has reduced the risk of stigma attached to the use of financial assistance by any particular Member State.

## 2.2. LONG-TERM TRENDS

This chapter turns to some of the main longer-term challenges by analysing two trends set to significantly affect EU public finances, namely the consequences of climate change and of the green transition and the consequences of demographic changes <sup>(22)</sup>.

### 2.2.1. The Fiscal Impact of Climate Change and the Green Transition <sup>(23)</sup>

**Climate change is one of the biggest challenges of our times.** There is broad scientific consensus that human activities are unequivocally responsible for the observed increases in greenhouse gases (GHGs) concentration in the atmosphere (IPCC, 2021). The rise in anthropogenic GHGs represents a unique and global negative externality of the consumption of carbon-intensive goods, making climate change ‘the greatest market failure that the world has ever seen’ (Stern, 2007). In turn, global temperature has increased markedly over the past century. Global mean near-surface temperature between 2012 and 2021 was 1.11°C to 1.14°C warmer than the pre-industrial level, making it the warmest decade on record. European land temperatures have increased even faster over the same period by 1.94°C to 1.99°C, depending on the dataset used (EEA, 2022).

**Higher global temperatures have so far led to increasing risks of physical hazards, endangering human and other natural systems (IPCC, 2022).** Thus far, these have occurred either in the form of more gradual (and, often, irreversible) transformation of the environment (e.g. ecosystem collapse, global sea level rise, and melting ice sheets), or more intense and frequent extreme weather events (e.g. storms, floods, droughts, heat waves). The risk of non-linearities and crossing tipping points may further increase the likelihood for catastrophic and irreversible outcomes to occur (Lenton et al., 2019). This revives calls for urgent action to mitigate climate change and implement rapid and large-scale adaptation strategies.

**At the EU level, decisive initiatives have been taken in the fight against climate change.** The recent *European Climate Law* sets the binding objective, initially set out in the *European Green Deal*, to make Europe’s economy and society climate-neutral by 2050. The law also sets the intermediate target of reducing net GHG emissions by at least 55% by 2030, compared to 1990 levels. To this purpose, the European Commission has adopted the ‘Fit for 55 package’ to make the EU’s climate, energy, land use, transport and taxation policies fit for reducing net GHG emissions. In February 2021, the European Commission adopted its *New EU Adaptation Strategy* to climate change. The new strategy sets out how the EU can adapt to the unavoidable impacts of climate change and become climate resilient by 2050 and sets out four main objectives: to make adaptation smarter, swifter and more systemic, and to step up international action on adaptation to climate change <sup>(24)</sup>.

**Additional EU efforts are made through the Next Generation EU (NGEU)’s Recovery and Resilience Facility (RRF) package.** Following the commitment by the European Council to achieve a climate-mainstreaming target of 30% for both the multiannual financial framework and NGEU, each Recovery and Resilience Plan (RRP) has to include a minimum of 37% of expenditure related to climate. In addition, all Member States’ proposed reforms and investments need to respect the ‘do no significant harm’ principle, by not being detrimental to climate and environmental objectives. The REPowerEU package further strengthened the contribution of RRP to the achievement of climate targets.

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<sup>(22)</sup> Some other important trends, such as the digital transformation, fall outside the scope of this chapter, which is therefore not intended to cover exhaustively all the long-term trends relevant for public finances.

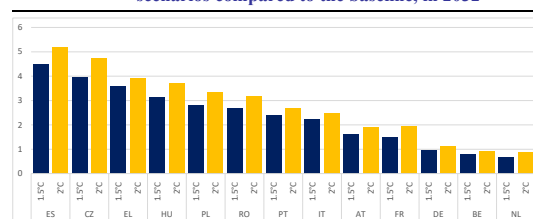
<sup>(23)</sup> This sub-section is based upon the thematic chapter published under the Fiscal Sustainability Report 2021 (European Commission, 2022) and the related DG ECFIN’s Discussion Paper (Gagliardi et al., 2022).

<sup>(24)</sup> European Commission (2021); COM(2021) 82 final.

**Inadequate climate action is likely to entail several economic and fiscal consequences.** From an economic perspective, climate change may exert an impact in the form of shocks to both the supply and demand side via *physical risks*. This is particularly the case for extreme weather events, which may cause, among others, damage and disruption to the capital stock, loss of hours worked due to extreme events, disruption to trade flows, as well as reduction in consumption and investment (Batten, 2018). We have seen clear examples of this in recent years, including the 2021 flood events in Germany, Belgium and the Netherlands (with estimated economic losses at almost EUR 50 billion). In the EU, the total economic losses from extreme weather events, cumulated over the past 40 years, have reached around EUR 500 billion (i.e. around 3.5% of the 2020 EU GDP) <sup>(25)</sup>. Such figure masks significant variation over time and across countries. Moreover, in the absence of adequate mitigation and adaptation policies, economic losses are expected to substantially increase in the coming decades as a result of climate change. Recent work of Gagliardi et al. (2022), conducting stylised stress tests on a set of 13 selected EU Member States, suggests that extreme weather events may pose risks to debt sustainability in several countries via non-negligible and persistent negative impacts on the public debt dynamic. Results are heterogeneous across countries and remain surrounded by large uncertainties. Nevertheless, simulations point at the possibility of debt-increasing effects of up to 5 pps. of GDP (compared with baseline results) in several Member States. These impacts are found to be persistent over time, adding to existing debt vulnerabilities <sup>(26)</sup>. The adverse fiscal impact is expected to be even higher under more severe projected warming scenarios. Adverse macroeconomic developments from *physical risks* could therefore put pressures on public finances and could eventually pose additional challenges to the sustainability of public finances (European Commission, 2022). This may occur *directly*, in the form of increased public spending to replace damaged assets and infrastructures, support for vulnerable households or firms, investments in adaptation policies, as well as via the materialisation of both *explicit* and *implicit* contingent liabilities (e.g. distressed financial institutions, guarantees to SOEs or PPPs). *Indirect* impacts on public finances may also occur via reduced tax revenue due to output losses, following disruptions of economic activity in climate-sensitive sectors and regions. Vulnerability to climate change might even generate increasing risk premia due to rising uncertainty, affecting the creditworthiness and the international financing cost and market accessibility of a given country (Radu, 2021; Zenios, 2021; European Commission, 2020).

**Besides risks from direct *physical* impacts, the *transition* to a low-carbon economy is also expected to exert significant effects on the economy and public finances (i.e. *transition risks* from climate change - European Commission, 2022).** Despite exerting different positive pressures on climate change itself or on resilience to climate, the different range of *mitigation* policy options are also likely to have specific impacts on the economy. The overall impact is expected to depend on the timing and design of policies to support the transition. The conventional argument is that *transition risks* underpin, at least in the short term, a *trade-off* between reduction of current emissions, which comes at a direct mitigation cost, and long-term environmental quality (Baur et al., 2021; Zenios, 2021; Feyen et al., 2020; NGFS, 2020; Batten, 2018; OECD, 2015). While this does not necessarily mean that economic growth will decline, the transition is expected to lead to asymmetrical impacts and adjustment costs at sectoral level and for parts of the society (European Commission, 2018) <sup>(27)</sup>. Additionally, the climate transition may potentially affect the

Graph I.2.4: Debt-to-GDP difference (pps.), 1.5°C and 2°C scenarios compared to the baseline, in 2032



Source: Fiscal Sustainability Report (2021); Gagliardi et al., (2022).

<sup>(25)</sup> The computation expresses the cumulated losses in 2020 prices and divides this amount by the GDP level in 2020.

<sup>(26)</sup> Such persistent impacts notably stem from our assumption of “no recovery” with the output level being permanently lower in the medium term. This is overall supported by the literature (Hallegatte et al., 2020; Batten et al., 2020).

<sup>(27)</sup> For instance, a contraction in economic activity in the mining and extraction of fossil fuels is expected. An impact on energy-intensive industries or the automotive sector can also be expected, as these sectors will need to be structurally transformed. Other sectors, such as renewable energy or construction, are expected to face stronger demand, but they may face bottlenecks. In addition, lower and higher-income households will be differently affected, due to their budget constraints but also their

underlying composition of growth, with more resources devoted to investment and less to consumption, given the expected accelerated obsolescence of certain existing capital stock (Pisani-Ferry, 2021; European Commission, SWD(2020) 176 final).

**While public finances will play a central role in the climate transition, they are also likely to be subject to significant challenges (European Commission, 2022).** On the one hand, mitigation efforts should reduce the *direct* risks and economic and fiscal costs from climate change in the long term, with milder impacts in terms of damages, growth, and borrowing needs (Zenios, 2021). On the other hand, such policies are expected to result in an upward pressure on public finances in the short and medium term. For example, higher public expenditure is likely to be required in the form of public subsidies supporting a clean energy transition as well as other social and compensatory policies. At the same time, additional revenue will be raised through carbon pricing instruments (Pisani-Ferry, 2021; European Commission, 2020a,b). For the EU as a whole, the overall additional private and public investment needs for the green transition have been estimated to around EUR 520 billion per year (around 3.7% of the 2019 EU GDP) for the period 2021-30 (European Commission, 2021c) <sup>(28)</sup>. More specifically, the additional energy system investment needs (including transport) to reach the 55% emissions reduction target have been estimated to around EUR 390 billion per year during 2021-30 relative to 2011-20, equal to an increase of 60%. The public sector will play an important role in carrying out part of these investments directly and in cooperating and/or providing support for private investors, such as via private-public partnerships and State aid schemes in support of the deployment of renewable energy or the decarbonisation of industry <sup>(29)</sup>.

## 2.2.2. The economic and budgetary impact of population ageing

### Projected demographic and macroeconomic changes

**The demographic projections over the long term reveal that the EU is ‘turning increasingly grey’ in the coming decades <sup>(30)</sup>.** The total population of the EU is projected not only to decline over the long term, but also to experience a significant change in its age structure in the coming decades. According to Eurostat, the overall population is set to shrink by 5% between 2019 (447 million) and 2070 (424 million). The working-age population (20-64) will decrease even more markedly from 265 million in 2019 to 217 million in 2070, reflecting fertility, life expectancy and migration flow dynamics. While this reduction affects all Member States, it follows different paths across Member States. By 2070, the EU's share of the total world population is forecast to shrink to 3.7%, from its current value of 5.7% (2020), and the share of the old people in its population will be the second highest globally among large economies.

**The old-age dependency ratio is projected to sharply increase over the long-term, with less than two working-age persons for every person aged 65 and more by 2070.** The demographic old-age dependency ratio (people aged 65 and above relative to those aged 20 to 64) in the EU is projected to increase from 34.4% in 2019 to 59.2% in 2070. Most of this increase is driven by the very old-age dependency ratio (people aged 80 and above relative to those aged 20-64) which is rising from 9.9% to 25.7% over this horizon <sup>(31)</sup>.

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borrowing capacity that influence their capacity to procure more efficient assets. At the same time, the transition is expected to spur growth in new sectors (i.e., ‘green growth’). See European Commission (2018), COM(2018) 773 final.

<sup>(28)</sup> See Table 7, European Commission (2021), COM(2021) 662 final. See also S. Langedijk et al. (2023), “The role of the fiscal framework to foster public investment, including in light of the green and digital transitions”, Quarterly Report on the Euro Area Volume 21, No 4 (2022), European Commission Institutional Paper 195, February 2023.

<sup>(29)</sup> See European Commission (2021), SWD (2021) 621 final; European Commission (2021), COM(2021) 662 final.

<sup>(30)</sup> This chapter mainly builds on the latest European Commission’s Ageing Report (May 2021). EMU figures therefore reflect averages without Croatia, that joined the euro only in 2023.

<sup>(31)</sup> Such figures are based on Eurostat’s EUROPOP2019 population projections. Similar overall trends are confirmed by the more recent projections (EUROPOP2023).

**In this context, despite an increase of the participation rate, total labour supply is set to decline over the long term, reflecting the powerful demographic driver.** The participation rate is expected to be affected positively by legislated pension reforms and rising participation rates for women. Yet, labour supply will decline under the effect of the projected drop of the working-age population. In the euro area, the projected fall in labour supply is 12.6% over 2019-2070.

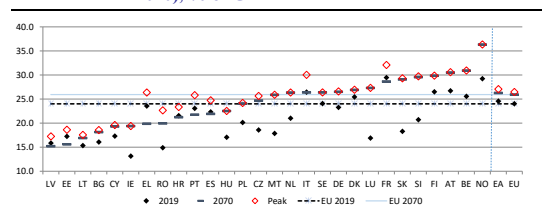
**In part, addressing this demographic trend calls for ensuring that economic growth will be able to rely on productivity increases.** While efforts to increase the employment rates will make some positive contribution to average potential GDP growth the strong decline in the share of the working-age population will tend to offset the overall contribution of employment to the boosting of potential growth. In practice, as total employment will tend to decline over time, labour input is expected to contribute negatively to output growth, on average, from the beginning of the next decade. Hence, labour productivity growth, driven by TFP growth, is projected to become the sole source of potential output growth in the euro area in the next decades.

**The projected increase in euro area productivity growth is expected to ensure that average annual GDP growth remains broadly stable over the long term.** According to the Ageing Report 2021 projections, annual growth in productivity per hour worked is projected to increase from less than 1% to remain fairly stable at around 1.4% throughout the projection period. As a result, an average annual potential GDP growth of 1.3% over 2019-2070 is projected for the euro area as a whole under the baseline scenario. However, the long-term outlook for productivity growth is surrounded by uncertainty<sup>(32)</sup>. A TFP risk scenario, with a lower TFP growth rate (converging to 0.8% instead of 1%), shows that GDP growth could be much lower if future TFP growth was less dynamic than assumed in the baseline. In this scenario, potential GDP would grow by 1.1% on average up to 2070 in the euro area, as opposed to 1.3% in the baseline.

### Long-term budgetary projections

**The total cost of ageing (including pension, health care, long-term care) is set to increase over the long-term at the euro area aggregate level<sup>(33)</sup>.** The total cost of ageing, which stood at 24.6% of GDP in 2019, is projected to rise by 1.7 pps. of GDP by 2070 (see Graph I.2.5). However, the peak in age-related expenditure as a share of GDP takes place around the middle of the projection horizon, as the impact of pension reforms often takes a long time to set in and in several countries the population ageing effect peaks before 2070. There is however considerable variety across euro area Member States and also in the profile over time in the long-term spending trends.

Graph I.2.5: Total age-related expenditure (2019, peak year and 2070), % of GDP



Source: European Commission, EPC – The Ageing Report 2021.

**Looking at the components of age-related expenditure in the baseline scenario, the increase up to 2070 is mostly driven by long-term care and health care spending.** Both spending items combined are projected to rise by 1.8 pps. of GDP in the euro area. After a projected increase of 1.2 pps. of GDP up to 2045, public pension expenditure is set to return close to its 2019 level in the latter part of the projection horizon (0.1 pps. of GDP). Education expenditure is projected to slightly decline by 2070 (Graph I.2.6). In several Member States, a decline of pension spending is projected over the long-term, as a result of past pension reforms, including measures

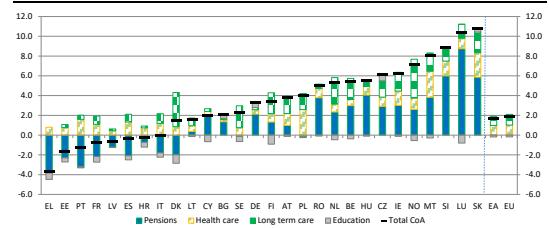
<sup>(32)</sup> See Deboeck (2023) “Prospects for long-term productivity growth”, Quarterly Report on the Euro Area, Volume 22, No 1 (2023) for an in-depth discussion on the outlook of long-term productivity growth.

<sup>(33)</sup> Results discussed in this chapter are based on the baseline scenario presented in the latest Ageing Report (2021). This report also presented a risk analysis with alternative scenarios, which are not discussed here.

reducing the benefit ratio and increasing the retirement age. These results are surrounded by uncertainty. The total cost of ageing in the euro area is projected to rise by 2.2 pps. of GDP in the TFP risk scenario, and by up to 4.4 pps. of GDP in the AWG risk scenario, over 2019-2070 (against 1.7 pps. of GDP in the baseline) <sup>(34)</sup>.

**Increasing ageing costs also affect the long-term fiscal sustainability in several Member States.** The latest Debt Sustainability Monitor <sup>(35)</sup> provides a long-term fiscal sustainability risk classification for all Member States, based on complementary fiscal gap indicators measuring the required fiscal effort to stabilise public debt over the long term (S2 indicator) and the required fiscal effort to bring the government debt-to-GDP ratio to 60% in 2070 (S1 indicator). Seven Member States (BE, LU, HU, MT, NL, SI, SK) are identified at high long-term fiscal sustainability risks. Twelve Member States are considered to have medium long-term fiscal sustainability risks (BG, CZ, DE, IE, ES, FR, HR, IT, AT, PL, RO, FI). This assessment generally reflects projected increases in ageing costs. Long-term fiscal sustainability risks are instead considered low in eight Member States (DK, EE, EL, CY, LV, LT, PT, SE).

Graph I.2.6: Projected change in age-related expenditure (2019-2070), by expenditure component, pps. of GDP



Source: European Commission, EPC – The Ageing Report 2021.

### 2.3. SPECIAL FOCUS: DEFENCE SPENDING

**Europe has been witnessing a watershed moment in its security since February 2022, as Russia's invasion of Ukraine changed the geopolitical situation, raging war on European soil.** As a result, several European countries <sup>(36)</sup> announced an increase in their defence budgets. A commitment confirmed by the EU Council in the approved Strategic Compass (Council of the European Union, 7371/22), where Member States committed to increasing their defence expenditures to close critical military and civilian capability gaps and strengthen our European Defence Technological and Industrial Base. This chapter first presents some insights in the current trends in defence spending in the EU, and then summarises the main insights from the literature on the consequences of increased defence spending for public finances.

#### 2.3.1. Trends in defence spending: some facts

**After 50 years of decreasing trend, an upward trend in defence spending has been observed in recent years in the EU.** Military spending <sup>(37)</sup> has been decreasing in the last 50 years. The decrease was most pronounced during the post-Cold War peace dividend years. The terrorist attacks of 2001 and the wars in Afghanistan and Iraq were key turning events, as evidenced by the small rebounds in the respective years and a gradual levelling-off of the decline in spending that ensued (Graph I.2.7). While the need for consolidation in some countries in the aftermath of the Great Financial Crisis led to a further significant decline in defence spending, the illegal annexation of Crimean peninsula in 2014 by the Russian Federation has put defence expenditure on an upward trend again.

<sup>(34)</sup> See Ageing Report (2021) for a detailed definition of the TFP risk and AWG risk scenarios.

<sup>(35)</sup> European Commission (2023), Debt Sustainability Monitor 2022, Institutional Paper 199.

<sup>(36)</sup> According to the 2023 Stability and convergence programmes, which are submitted every year by April 30, the majority of EU nations refer to or quantify a rise in defence spending in these documents. Box 2.3 of the European Commission (2023).

<sup>(37)</sup> Military spending accounts for more than 90% of EU military budgets. Defence spending also includes civil defence and ongoing costs from prior military activity (veterans benefits, demobilisation, conversion of arms production facilities, and weapon destruction).

**European countries exhibit very diverse patterns of defence resource allocation.**

Based on 2021 military spending data, four groups of countries can be identified according to their level of spending. The first quartile (shown in light blue in Graph I.2.8) includes mostly smaller countries (Malta, Luxembourg, and Belgium) or countries that are not members of the NATO alliance (such as Ireland, Sweden<sup>(38)</sup>, and Austria) and is characterised by an expenditure lower than 1.3 percent of GDP. With the exception of Sweden, the defence burden for this cluster has consistently been lower than the EU average over time. The larger European countries are included in the second quarter (in a darker colour), with expenditures ranging between 1.3 and 1.6 percent of GDP. The only exception is France, which is in the third quarter (mid blue) and has a level of spending of up to 2%. This higher spending is reflected in the fact that this country has a significant defence industry. The fourth quarter (dark blue) includes the Baltic republics, Poland, Portugal, and Greece, which have the highest level of expenditure ranging from more than 2% to nearly 4%. In particular, Greece consistently spends more than the EU-average, which is explained by the geopolitical position of Greece and the considerable tensions in the region. Croatia had the second highest level of spending, with defence spending exceeding 2% due to the acquisition of 12 multi-purpose fighter jets.

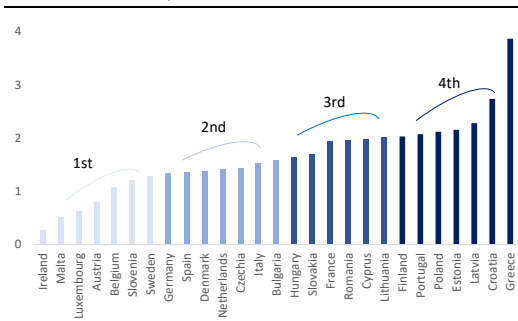
Graph I.2.7: EU/ EA military spending (% of GDP)



Source: Sipri

**In 2021, ten Member States were spending more than or equal to 2% of their GDP in defence spending,** in line with Nato<sup>(39)</sup>(2014) commitments of reaching a minimum spending of 2% of GDP in a decade.

Graph I.2.8: EU Member states defence burden in 2021 (% of GDP)



(1) The shades of blue represent the quartiles.

Source: Sipri

**Personnel spending represents the category absorbing on average almost half of the resources dedicated to defence spending<sup>(40)</sup>.**

Although there has been a downward trend in all countries, the EU's expenditure in this category remains relatively high at 48.3%, highest among the most advanced economies. In this regard, there is significant variation across EU countries, with Luxembourg spending the least (24%) and Ireland spending the most (78%) (Graph I.2.9).

In contrast, the lowest amount of resources in terms of the defence budget (around 4%) are allocated to spending on infrastructure<sup>(41)</sup>(Graph I.2.9). Equipment<sup>(42)</sup> and *other operating spendings*<sup>(43)</sup> absorb around one fourth of the total resources dedicated to the defence sector. The amount dedicated to equipment increased over time, putting the EU on track to reach the level of expenditure of other advanced economies. The spending on equipment was allocated mostly (over 95% of total spending) to investment.

<sup>(38)</sup> On 5 July 2022, all NATO member countries signed the Accession Protocol for Sweden to join the alliance. Turkey and Hungary need still to ratify the accession to become an official member.

<sup>(39)</sup> At that time the United States accounted for over 65% of all transatlantic defence spending (Becker, 2019).

<sup>(40)</sup> Personnel expenditure includes military and civilian expenditure and pensions.

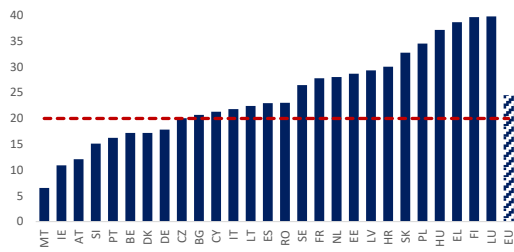
<sup>(41)</sup> Other expenditure includes operations and maintenance expenditure, other R&D expenditure and expenditure not allocated among above-mentioned categories.

<sup>(42)</sup> Equipment expenditure includes major equipment expenditure and R&D devoted to major equipment.

<sup>(43)</sup> Infrastructure expenditure includes NATO common infrastructure and national military construction.

**19 EU Member States dedicated 20% of defence expenditure to investment<sup>(44)</sup> in 2021 (Graph I.2.10).** Nato (2014) and the European Council (2017)<sup>(45)</sup> fixed a target for defence investment expenditure asking for a “medium-term increase in defence investment expenditure to 20% of total defence spending (collective benchmark)”. The current level of investment represents a real improvement, considering that only 9 Member States had reached that target by 2017. Collectively, the EU reached the 20%-target in 2021.

Graph I.2.10: Defence investment across EU countries in 2021 (in % of total defence expenditure)



(1) Malta is not committed to reach any specific target as it is not among the PESCO participating members nor a Nato ally.  
(2) Denmark, although not being a PESCO participating member (in 2021), has a commitment as a Nato ally. The data for Denmark come from Nato database and reports the percentage spent for equipments.  
**Source:** Own calculations based on EDA database.

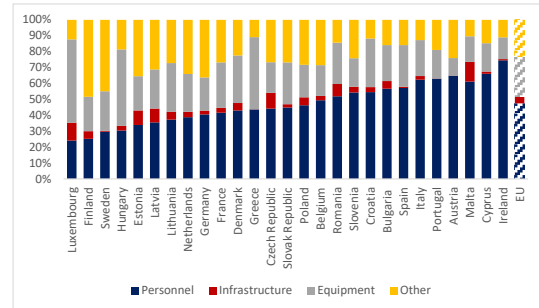
2.3.2. Consequences for public finances: a literature survey

**To highlight implications of defence spending for public finances, three main channels need to be considered.**

**Growth effect.** The empirical findings on the defence–growth nexus are not unanimous. Little consensus exists on the existence of a relationship, as well as on its direction and nature. Barro (1981) finds a transitory positive impact by considering temporary increase of defence spending on output based on US data. In their meta-analysis of 32 empirical studies, Alptekin and Levine (2012) confirm the existence of a small positive effect, at least for developed countries, using the share of military expenditure in GDP as the independent variable. On a larger sample (91 studies), Yesilyurt and Yesilyurt (2019) find evidence for the absence of effect, considering not only as dependent variable the share of military expenditure in GDP but also different specifications (logarithms, differences, etc). Dunne and Tian (2016), reviewing 168 studies, find that the horizon considered influences the results which tends to

<sup>(44)</sup> On average the EU defence investment was around 0.5% of GDP in 2021.  
<sup>(45)</sup> [Council decision \(CFSP\) 2017/2315 of 11 December 2017.](#)

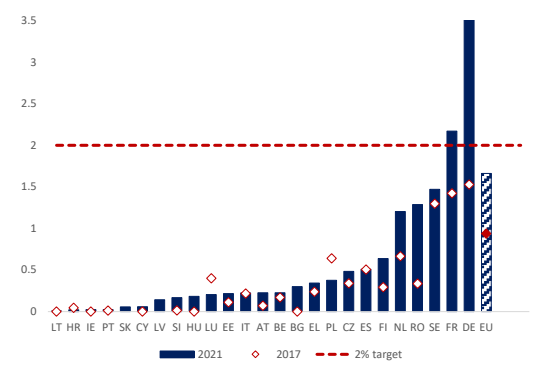
Graph I.2.9: Defence expenditure breakdown across EU countries in 2022



Source: Nato

**A positive trend is also observed when considering the defence expenditure on Research and Technology (R&T).** This component of defence spending is expected to near 2% of total defence expenditure by all Member States (European Council, 2017). Collectively the percentage spent on this item is equal to 1.7% in 2021 with an improvement of 0.7pp compared to 2017. At country level, three quarters of EU Member States have increased their spending on this item since 2017. Only two countries (Germany and France) had reached the 2% target in 2021 individually (Graph I.2.11).

Graph I.2.11: Defence expenditure on Research and Technology (R&T) (2021, % of total defence expenditure)



(1) The data for Latvia and Slovakia are not available for 2017.  
(2) Malta and Denmark are not among the PESCO participating members and so are not committed to reach any specific target.  
**Source:** Own calculations based on EDA database.



indicate a negative effect when using post-Cold war data. Indeed, 53% of authors who used post-Cold war data found that military spending had a negative impact on growth. Still, 44% of cross-country studies and 31% of case studies point a negative impact of military spending. Positive results appeared in only 20% of papers examined while about 40% reported ambiguous results. These results are confirmed by Santamaría et al. (2022). According to these authors around 25% of 162 articles examined point to a positive relationship between military spending and growth, 16% support a negative relationship while nearly 38% are either heterogeneous or inconclusive<sup>(46)</sup>. According to Churchill and Yew (2018) who conducted a meta-analysis of the empirical literature on the military spending growth nexus using 48 primary studies, the positive effects of military expenditure on growth are more pronounced for developed countries. In general, these authors also reach a negative military expenditure–growth conclusion, the magnitude of which is heavily influenced by study variations. They attribute this result to rising levels of military spending since 1998, as well as government corruption. The results are quite inconclusive even when focusing on EU countries. Panel estimates based on EU15 countries over the period 1961–2000 (Kollias et al.; 2007) support the idea that military spending induces growth both in the short and long run. On the contrary, Mylonidis (2008) and Chang et al. (2011), considering a sample of 14 and 22 European countries, find a negative influence of defence on economic growth for the period 1960–2000 and 1992–2006 respectively. Furthermore, Mylonidis (2008) observes how the magnitude of this negative impact tends to increase over time. Still negative or neutral is the effect estimated by Dunne and Nikolaidou (2012) employing an augmented Solow-Swan model for EU15 over the period 1961–2007. The neutrality of the relationship is also supported by Kollias and Paleologou (2016) employing a panel vector autoregression methodology for the case of the EU15 countries over the period 1961–2014.

According to Becker and Dunne (2021), a negative relationship could be explained by the composition of military budgets. Indeed, personnel expenditures drive the negative relationship between economic growth by considering a sample of 34 countries over a 49-year period. On the contrary, according to Moretti et al. (2019), there is evidence of ‘crowding in’ effects of public defence-related R&D investment on private R&D, with positive effects on overall productivity growth. The same authors find that, on average, a 10% increase in government-financed R&D generates a 5% to 6% additional increase in privately funded R&D, with evidence of international spillovers in the same industry in other countries. They also find that increases in private R&D induced by increases in defence R&D result in productivity gains for the entire economy. This is consistent with Antolin-Diaz and Surico (2022), who find that in the US the fiscal multiplier for military spending and other government outlays would shift from below one in the short term to above one in the long run, driven by sizeable government R&D expenditure.

**Effect on debt.** Only few studies tried to analyse the role of military expenditure on the increase of sovereign debt. If taxing is a difficult option for political reasons, borrowing may become the sole option, resulting in debt accumulation through interest payments. Although this is not specific to defence, it is still interesting to look at the findings by the empirical literature. Empirically, a minimal impact or no impact is observed by Ahmed et al. (2022) in the US and by Kollias et al. (2021) in Greece respectively. A positive relationship between military spending and public debt, focusing on advanced economies<sup>(47)</sup>, is instead observed by Alexander (2013) using high-income members of the OECD and NATO, by Paleologou (2011) using a panel of 25 EU member states and by Smith (2021) using UK data. In particular, a 1% increase in military expenditure results in a 1.4% increase in general government debt (Paleologou, 2011). Nonetheless, the effect appears to be limited to the short term (Nikolaidou, 2016) and more pronounced when debt is above 90% of GDP (Dimitraki and Kartsaklas, 2017). According to Kollias et al. (2004), in a study on Greece during the period 1960–2001, such positive relationship exists mainly with external debt.

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<sup>(46)</sup> The rest of the papers covered other types of effects.

<sup>(47)</sup> Other studies on developing countries are Azam and Feng (2017) on Asian countries; Shahbaz, Shabbir, and Butt (2016) on Pakistan, Smyth and Narayan (2009); Wolde-Rufael, Y. (2009) on Ethiopia; Dunne, Perlo-Freeman, and Soydan, (2004b) on South American countries; Sezgin (2004) on Turkey.

***Crowding-out effect on other public expenditure*** (e.g. education, health). Nikolidou (2008) and Douch and Solomon (2014) confirm the trade-off between spending on military and other public expenditure, the so-called guns-vs-butter trade-off (see e.g. Palmer 1990). A ‘crowding-out’ effect of defence spending is found when considering non-defence government expenditures among the regressors of the military demand model based respectively on a selection of EU countries (Denmark, Finland, Greece, Luxembourg and Sweden) and middle-power nations.

Overall, heterogenous results and use of diverse methodologies across studies (i.e. time horizon, econometric approaches, country coverage) point at the need for caution when attempting to anticipate the consequences of the observed increase in defence spending for public finances.

### Box 1.2.3: Defence and the role of the EU budget

**The project of European integration is strictly linked to the notion of peace and defence, since its inception, after World War II.**

**The EU does not have the legal competence to act on behalf of Member States in defence, so defence policy is mostly intergovernmental.** Decisions on the Common Defence and Security Policy (CSDP) <sup>(1)</sup> are taken by the Council by unanimity. The CSDP was introduced with the Maastricht Treaty (1992) and its development is characterized by two phases: the focus on crisis management prevailing during the 1990s-2000s and the period since 2014 with a greater attention given to deterrence and collective defence (Major and Mölling, 2020).

**In line with Treaty limitations (TEU, Art. 41),** the EU budget can only cover the operating expenditure for civilian CSDP missions <sup>(2)</sup> that contribute to maintaining regional and global security and stability, whereas the operations that have military or defence implications cannot be borne by the EU budget. In particular, the European Union Council established a specific mechanism called Athena <sup>(3)</sup>, in 2004, to finance the common costs <sup>(4)</sup> associated with such operations as well as the individual costs, such as lodging, fuel and other expenses related to national contingents. This off-budget account, funded by allocations from the Member States based on their gross national income, was replaced in 2021 by the European Peace Facility (EPF). Owing to the aforementioned Treaty limitations, the EPF has been still set outside the EU budget, even though its objectives reflect EU interest. Since its creation, the EPF has been mobilised to support military assistance measures in a number of third countries, and it has played a key role in supporting Ukraine in its response to the Russian invasion. In fact, whereas the financial ceiling of the EPF was €5.7 billion (in current prices) for the years 2021–2027 when it was established, it has then been increased to €8 billion in December 2022 and then to €12 billion in June 2023 to ensure that additional financial needs can be covered.

**The 2021–2027 multiannual financial framework includes for the first time a heading (heading 5) <sup>(5)</sup> dedicated to Security and Defence (European Commission, 2021).** Heading 5 is the smallest of all headings, accounting for 1.2% of the overall budget. In particular, the defence programmes cover 65% of the amount dedicated to this heading, the bulk of it going to the European Defence Fund-EDF (€ 7.29 billion in current prices) and Military mobility (€ 1.75 billion in current prices).

**The European Defence Fund (EDF) co-finances Member States' defence capability development costs (1/3) and provides funding for cooperative defence research initiatives at all levels of research and development (2/3).** This fund combines two pre-existing programs funded by the 2014-2020 MFF as trial or preparation actions, the Preparatory Action on Defence Research-PADR and the European Defence Industrial Development Programme, funded through the 'Smart and Inclusive Growth' heading 1.

**Military mobility is financing projects for dual-use transport infrastructure under the Connecting Europe Facility (CEF), mostly on the railway and roads infrastructures across Europe, in order to make the movement of the European armed forces faster and on a sufficient scale to respond to crises erupting at and beyond the EU's external borders.**

<sup>(1)</sup> Up to the Lisbon treaty it was called Common foreign and security policy area.

<sup>(2)</sup> The missions aim to improve security and strengthen the rule of law, supporting third countries in the fight against terrorism, people smuggling and organised crime, strengthening police and judicial authorities and monitoring compliance with international agreements”.

<sup>(3)</sup> EU (2014) The mechanism for financing military operations (Athena). Summaries of EU Legislation. <https://eur-lex.europa.eu/EN/legal-content/summary/the-mechanism-for-financing-military-operations-athena.html>

<sup>(4)</sup> These costs include: HQ implementation and running costs, including travel, IT systems, administration, public information, locally hired staff, Force Headquarters (FHQ) deployment & lodging for forces as a whole, infrastructure, medical services (in theatre), medical evacuation, identification, acquisition of information (satellite images) reimbursements to/from NATO or other organisations (e.g. the UN).

<sup>(5)</sup> For a detailed description of the negotiations of this heading please see Mazur, S. (2021).

*(Continued on the next page)*

*Box (continued)*

**Finally, to address the EU's most urgent and critical defence capability gaps, the Commission put forward a proposal for a Regulation establishing the European defence industry reinforcement through common procurement act (EDIRPA), which would create a short-term joint defence procurement instrument and incentivise the EU Member States to procure defence products jointly, and the Act in Support of Ammunition Production (ASAP), a temporary instrument ensuring that the EU can ramp-up its production capacity.** The ASAP Regulation was adopted on 20 July 2023 while the EDIRPA Regulation was adopted on 9 October 2023. Both ASAP and EDIRPA are financed via the EU Budget, with an envelope respectively of € 500 million and € 300 million.

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# Part II

## Developments in fiscal surveillance

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## KEY FINDINGS

**This part provides an overview of the main developments related to the fiscal governance framework in 2022.**

### **The fiscal surveillance cycle 2022 was shaped by the continued activation of the general escape clause of the Pact**

- In May 2022, the Commission issued a report under Article 126(3) of the Treaty on the Functioning of the EU for 18 EU Member States. The Commission concluded that, at that juncture, taking into account the prevailing exceptional uncertainty, a decision on whether to place Member States under an excessive deficit procedure should not be taken.
- The Council adopted qualitative fiscal Recommendations with a quantitative underpinning for 2023, differentiated between low/medium and high debt Member States.

### **After having published orientations for a new EU economic governance framework in November 2022, the Commission tabled legislative proposals in April 2023**

- The legislative proposals follow a debate on the review of the economic surveillance framework first launched in February 2020. The contributions to the debate from a wide range of stakeholders in various fora and an online public survey provided valuable input to the Commission's reform orientations published in November 2022. In March 2023, the Economic and Financial Affairs Council (ECOFIN) adopted conclusions on the Commission's orientations which were then endorsed by the European Council.
- The proposals address shortcomings in the current framework. They take into account the need to ensure fiscal sustainability and to promote sustainable and inclusive growth, building on the lessons learned from the EU policy response to the COVID-19 crisis and tackling the challenges to reduce much-increased public debt levels and to support progress towards a green, digital, inclusive and resilient economy and make the EU more competitive. The reform would make economic governance simpler, improve national ownership, place a greater emphasis on the medium term and strengthen enforcement, within a transparent common EU framework.

### **National fiscal frameworks proved flexible and resilient during the COVID-19 crisis**

- The COVID-19 pandemic brought severe challenges to fiscal policy and constituted an important test for the changes in national fiscal frameworks and institutions that were introduced after the Great Financial Crisis. Fresh evidence from the European Commission Fiscal Governance Database, confirms the strengthening of national frameworks since 2011 and highlights aspects that provided resilience during the pandemic.
- The improved statistical reporting proved useful, in particular as regards contingent liabilities. Most relevant national rules contained escape clauses which were triggered and allowed sufficient flexibility in a pre-defined framework. The role of Independent Fiscal Institutions in assessing macroeconomic forecasts of the governments was maintained. Scope for further improvement however remains, with evidence of insufficient reliance on medium-term approaches to budgeting and sometimes not-yet-strong-enough independent fiscal institutions. Addressing remaining issues is warranted to enhance the quality of public finance and ensure strong priority-setting for the green and digital transition. Evidence of progress on the specific issues of gender and green budgeting is also provided in dedicated boxes.

**New survey evidence points to good practices across all stages of the public investment management cycle, though room for improvement remains in most Member States**

- The new evidence on public investment management draws on (i) in-depth interviews with representatives of selected countries, (ii) exchanges with a group of experts from Member States on national public investment and (iii) a dedicated survey, covering all EU Member States.
- This evidence points at a wide range of public investment management approaches reflecting diverse institutional set-up, project size, sector of investment and source of financing. Examples of good practices include: strategic investment planning effectively linked to the budgetary allocation and relying on asset registers for estimates of existing capital stock and maintenance needs; standardised procedures for appraisal and selection, whose outcomes are centrally reviewed; sound medium-term budgeting tool for timely capital availability; monitoring at the central or sub-national level, as appropriate; ex-post reviews and asset registers. Evidence also points at relatively strict rules for EU-financed investments.



# 1. IMPLEMENTATION OF FISCAL SURVEILLANCE IN 2022

**This chapter summarises the main developments in the implementation of fiscal surveillance in the EU in 2022.** First, the chapter presents key developments and procedural steps taken under the excessive deficit procedure (Section 1.1.). It then summarises the 2022 country-specific recommendations on fiscal policy (Section 1.2.). Finally, it presents the Commission's assessment of the euro area Member States' draft budgetary plans for 2023 (Section 1.3.).

**The general escape clause of the Stability and Growth Pact continued to be applied in 2022 and 2023, and will be deactivated at the end of 2023** <sup>(48)</sup>. It was activated for the first time in March 2020, due to the unprecedented economic and social impact of the COVID-19 pandemic. On 23 May 2022, the Commission indicated <sup>(49)</sup> that heightened uncertainty and strong downside risks to the economic outlook in the context of war in Europe, unprecedented energy price hikes and continued supply chain disturbances warranted the extension of the general escape clause through 2023. The Commission was of the view that the continued activation of the general escape clause would provide the space for national fiscal policy to react promptly when needed. In turn, on 17 June 2022, the Council approved the recommendations on the 2022 National Reform Programmes and delivered opinions on the 2022 Stability and Convergence Programmes; in these recommendations and opinions, the Council took into account the continuation of the general escape clause into 2023.

## 1.1. EXCESSIVE DEFICIT PROCEDURE

**To establish the existence of an excessive deficit, fiscal developments are monitored with a view to identifying gross policy errors.** This section focuses on the implementation of the excessive deficit procedure in 2022 as assessed in May 2022 <sup>(50)</sup>. Country-specific developments are summarised in Tables II.A.1, II.A.2, II.A.3 and II.A.4 in the Annex.

**In March 2022, the Commission concluded that compliance with the debt reduction benchmark was not warranted given the exceptional economic conditions** <sup>(51)</sup>. The Commission considered that compliance with the debt reduction benchmark would have implied a too demanding frontloaded fiscal effort that risked jeopardising growth.

**The Commission did not propose to open new excessive deficit procedures in spring 2022.** Taking into account the prevailing exceptional uncertainty, the Commission considered that a decision on whether to place Member States under the excessive deficit procedure should not be taken. In autumn 2022, the Commission confirmed its decision not to propose to open new excessive deficit procedures at this stage.

### Euro area Member States

**On 23 May 2022, the Commission adopted a report in accordance with Article 126(3) TFEU on 14 euro area Member States.** The report covered Belgium, Germany, Estonia, Greece, Spain, France, Italy, Latvia, Lithuania, Malta, Austria, Slovenia, Slovakia and Finland <sup>(52)</sup>. According to data validated by Eurostat on 22 April 2022 <sup>(53)</sup>, the 2021 general government deficits exceeded the 3% of GDP Treaty reference value in Belgium, Germany, Greece, Spain, France, Italy, Latvia, Malta, Austria, Slovenia and

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<sup>(48)</sup> COM(2022) 600 final.

<sup>(49)</sup> 2022 European Semester - Spring Package, COM (2022) 600 final, 23.5.2022.

<sup>(50)</sup> For details on country-specific developments pertaining to the excessive deficit procedure, see also: [https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/stability-and-growth-pact/corrective-arm-excessive-deficit-procedure/excessive-deficit-procedures-overview\\_en](https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/stability-and-growth-pact/corrective-arm-excessive-deficit-procedure/excessive-deficit-procedures-overview_en)

<sup>(51)</sup> COM(2022) 85 final.

<sup>(52)</sup> COM(2022) 630 final, 23.5.2022.

<sup>(53)</sup> Eurostat Euroindicators 46/2022, 22.4.2022.

Slovakia. In addition, based on their Stability Programmes, the government deficits were planned to exceed 3% of GDP in 2022 in Estonia and Lithuania, which was confirmed in the Commission's 2022 spring forecast<sup>(54)</sup>. Concerning government debt, in Belgium, Germany, Greece, Spain, France, Italy, Austria, Slovenia, Slovakia and Finland, the general government gross debt at the end of 2021 exceeded 60% of GDP. However, data for 2021 imply that Germany, Greece, Austria and Slovenia respected the debt reduction benchmark or, in the case of Spain, made sufficient progress towards meeting it. Conversely, among the euro area countries, Belgium, France, Italy, and Finland did not respect the debt reduction benchmark in 2021. Slovakia breached the Treaty reference value of 60% of GDP at end-2021, having recorded a debt ratio of below 60% of GDP in the previous year.

**The Commission report assessed compliance with the deficit and debt criteria, also taking into account relevant factors.** The report examined whether the government deficits in excess of the reference value were i) exceptional and ii) temporary, and if iii) the ratio remained close to the reference value. The report considered a series of cross-country relevant factors, namely the budgetary impact of the COVID-19 pandemic and the Russian invasion of Ukraine, including the impact that the latter had on significantly higher energy, raw materials and food prices. Country specific relevant factors were also considered as appropriate. These factors included the medium-term macroeconomic outlook, the medium-term budgetary position (including public investment), the medium-term debt position, whether the Member State was experiencing macroeconomic imbalances or excessive macroeconomic imbalances, and other relevant factors put forward by the Member States.

**The report concluded that the deficit criterion was not fulfilled by 13 euro area Member States: Belgium, Germany, Estonia, Greece, Spain, France, Italy, Latvia, Lithuania, Malta, Austria, Slovenia and Slovakia.** For these Member States, while the excess over the Treaty reference value was considered to be due to the prevailing exceptional circumstances, the deficit in 2021 was (or was planned to be in 2022 in the case of Estonia and Lithuania) not close to 3% of GDP. Moreover, for Belgium, Estonia, Spain, France, Italy, Malta and Slovenia, the excess over the reference value was also not expected to be temporary.

**The report concluded that the debt criterion was not fulfilled by Belgium, France, Italy and Finland.** For Slovakia, while the debt reduction benchmark could not be meaningfully computed, general government gross debt was expected to decrease below 60% of GDP already by 2023. Therefore, the debt criterion was considered fulfilled for Slovakia.

#### Non-euro area Member States

**The report in accordance with Article 126(3) TFEU also covered Bulgaria, Czechia, Hungary and Poland.** According to Eurostat data, the 2021 general government deficits exceeded the 3% of GDP Treaty reference value in Bulgaria, Czechia, and Hungary. Moreover, based on its Convergence Programme, the government deficit in Poland was planned to exceed 3% of GDP in 2022. This expected excess was confirmed by the Commission's 2022 spring forecast. In Hungary, the general government gross debt at the end of 2021 exceeded the 60% of GDP reference value. Data for 2021 implied that Hungary did not respect the debt reduction benchmark that year.

**After taking into account relevant factors, the report concluded that the deficit and debt criteria were not fulfilled by all four Member States.** These countries exceeded the deficit Treaty reference value in 2021 (or in the case of Poland planned to exceed it in 2022) and their deficits were not close to 3% of GDP. The excesses over the Treaty reference value were considered to be exceptional as defined by the Treaty. Moreover, for Czechia, Hungary and Poland, the excesses over the reference value were expected not to be temporary.

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<sup>(54)</sup> European Economic Forecast – Spring 2022, *European Economy – Institutional Paper*, 173 (May).

**Romania is the only Member State under an excessive deficit procedure, as a result of pre-pandemic fiscal developments.** On 3 April 2020, the Council had decided that an excessive deficit existed in Romania based on the 2019 deficit. In its recommendation of 18 June 2021, the Council asked Romania to put an end to the excessive deficit situation by 2024 at the latest<sup>(55)</sup>. Romania's general government deficit in 2021 and the fiscal effort in 2021 were in line with those recommended by the Council<sup>(56)</sup>. Therefore, the procedure was kept in abeyance.

## 1.2. FISCAL RECOMMENDATIONS FOR 2023

**On 2 March 2022<sup>(57)</sup>, the Commission published a communication on fiscal policy guidance for 2023, providing Member States with guidance on the conduct and coordination of fiscal policy, contingent on the evolving economic outlook.** Based on the 2022 winter forecast<sup>(58)</sup>, the Commission was of the view that transitioning from an aggregate supportive fiscal stance in 2020-2022 to a broadly neutral aggregate fiscal stance appeared appropriate in- 2023, while standing ready to react to the evolving economic situation.

**Public finances were set to continue improving in 2023 according to the Commission 2022 spring forecast and the Stability and Convergence Programmes.** The EU aggregate headline deficit was projected to decrease from 4.7% of GDP in 2021 to 3.6% in 2022 and to 2.5% of GDP in 2023, according to the Commission 2022 spring forecast, under the no-policy-change assumption. The deficit reduction in 2022 reflected the ongoing economic recovery and the decreasing impact of COVID-19 temporary emergency measures. At the same time, the new measures adopted by governments to mitigate the impact of high energy prices on households and firms and to provide assistance to displaced persons from Ukraine weighed on the 2022 deficit in almost all Member States.

**The guidance for 2023 called for prudent fiscal policy in 2023, while standing ready to react to the evolving economic situation.**

**On 23 May 2022, the Commission published its fiscal recommendations for 2023<sup>(59)</sup>.** Based on the spring 2022 forecast, which projected GDP growth to remain in positive territory over the forecast horizon albeit amid high uncertainty and downside risks, a broad-based fiscal impulse to the economy in 2023 did not appear warranted. Fiscal policy should combine higher investment with controlling the growth in nationally financed primary current expenditure, while allowing automatic stabilisers to operate, and providing temporary and targeted measures to mitigate the impact of the energy crisis and to provide humanitarian assistance to people fleeing from Russia's invasion of Ukraine. Fiscal policy had to remain agile so as to adjust to the rapidly evolving circumstances, and be differentiated across countries depending on their fiscal and economic situation, including as regards the exposure to the crisis and the inflow of displaced persons from Ukraine.

**The fiscal recommendations for 2023 were qualitative, with a quantitative underpinning, and reflected the current challenges.** The recommendations were adopted by the Council on 12 July 2022<sup>(60)</sup>. Prudence in fiscal policy was recommended, to be achieved through a combination of higher investment and controlling the growth in nationally financed primary current expenditure, while allowing automatic stabilisers to operate, and providing temporary and targeted measures to mitigate the impact of

<sup>(55)</sup> Council Recommendation of 18 June 2021 with a view to bringing an end to the situation of an excessive government deficit in Romania (2021/C 304/24), OJ C 304, 29.7.2021, p.111.

<sup>(56)</sup> COM(2022) 600 final.

<sup>(57)</sup> COM(2022) 85 final.

<sup>(58)</sup> European Economic Forecast – Winter 2022, *European Economy – Institutional Paper*, 169 (February).

<sup>(59)</sup> [https://commission.europa.eu/publications/2022-european-semester-country-specific-recommendations-commission-recommendations\\_en](https://commission.europa.eu/publications/2022-european-semester-country-specific-recommendations-commission-recommendations_en)

<sup>(60)</sup> Council Recommendations of 12 July 2022 (2022/C 334/01 to 2022/C 334/27), OJ C 334, 1.9.2022, p. 1-228.

the energy crisis and to provide humanitarian assistance to people fleeing from Russia's invasion of Ukraine. All Member States were invited to expand public investment for the green and digital transition and for energy security. Full and timely implementation of the RRP was considered key to achieving higher levels of investment. Moreover, Member States' fiscal plans for the subsequent and beyond should be anchored by prudent medium-term adjustment paths reflecting fiscal sustainability challenges associated with high debt-to-GDP levels that have increased further due to the pandemic.

**The fiscal recommendations were differentiated between low/medium and high debt Member States.** High debt Member States were recommended to ensure prudent fiscal policy in 2023, in particular by limiting the growth of nationally financed current expenditure below medium-term potential output growth, taking into account continued temporary and targeted support to households and firms most vulnerable to energy price hikes and to people fleeing Ukraine. For the period beyond 2023, they were recommended to pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions and ensuring credible and gradual debt reduction and fiscal sustainability in the medium term through gradual consolidation, investment and reforms. For low/medium debt Member States, current expenditure was recommended to be in line with an overall neutral policy stance in 2023, taking into account continued temporary and targeted support to households and firms most vulnerable to energy price hikes and to people fleeing Ukraine. For the period beyond 2023, these Member States were recommended to pursue a fiscal policy aimed at achieving prudent medium-term fiscal positions.

**The Council also recommended policy action on fiscal-structural issues.** These recommendations concerned several Member States and covered issues such as sustainability of pensions (Czechia, Ireland, Germany, France, Luxembourg, Hungary and Poland), sustainability of long term care (Belgium, Austria, Slovenia and Finland), taxation systems (Belgium, Germany, Greece, Italy, Latvia, Hungary, Portugal, Austria, Slovakia, Estonia, Luxembourg, Malta, the Netherlands, Sweden and Denmark) and public administration and expenditure efficiency (Austria, Poland and Lithuania).

### 1.3. ASSESSMENT OF DRAFT BUDGETARY PLANS

**In autumn 2022, the Commission assessed the consistency of the 2023 Draft Budgetary Plans, submitted by the euro area Member States with the recommendations adopted by the Council on 12 July 2022** (Table II.1.1). The Draft Budgetary Plan of Latvia was submitted by the outgoing government on the basis of unchanged policies in view of their political cycle (elections on 25 September). Therefore, the figures shown for the 2023 government deficit and other fiscal variables in the Latvian Draft Budgetary Plan did not represent policy targets<sup>(61)</sup>. The outgoing Italian government also submitted a Draft Budgetary Plan. This plan was not assessed by the Commission as it was superseded by a plan by the new government, assessed by the Commission by mid-December<sup>(62)</sup>. In the perspective of joining the euro area in 2023, Croatia submitted a Draft Budgetary Plan for the first time in autumn 2022.

**The Draft Budgetary Plans projected a further decline in the euro area deficit in 2023, whereas the Commission autumn forecast expected a mild increase.** For 2023, the Draft Budgetary Plans pointed to a further reduction by 0.7 pps of GDP in the government deficit for the euro area as a whole, to 3.2% of GDP. This deficit projection was more favourable than the Commission autumn forecast, which instead projected a 0.2 pps of GDP deficit increase in 2023, to 3.7%. This mild increase was assessed to be driven by automatic fiscal stabilisers given the expected economic slowdown, higher interest expenditure and revenue shortfalls due to a less tax-rich composition of growth. The Draft Budgetary Plans also projected the debt ratio for the euro area to decrease to 94% of GDP in 2022 and to around 92% in 2023.

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<sup>(61)</sup> As usual in these cases, Latvia was invited to submit to the Commission and to the Eurogroup an updated Draft Budgetary Plan as soon as possible, and at least one month before the draft budget law is planned to be adopted by the national parliament.

<sup>(62)</sup> C(2022) 9622 final.

The Commission Opinions can be summarised as follows:

- Regarding the high debt Member States, the Commission concluded that the Draft Budgetary Plans for **Greece, Spain, France and Italy** were in line with the fiscal guidance, **Belgium**'s Plan was partly in line with the recommendation, while that of **Portugal** risked being only partly in line.

When the temporary and targeted support to households and firms most vulnerable to energy price hikes and the cost to assist people fleeing Ukraine is taken into account, the growth of nationally financed primary current expenditure in **Greece, Spain, France and Italy** was deemed consistent with the Council recommendation. **Belgium** was the only Member State for which the growth of nationally financed current expenditure was projected to exceed potential growth in 2023. For **Portugal**, the growth of nationally financed current expenditure was projected to be close to the medium-term potential output growth, assuming the planned reduction in measures in response to high energy prices, including in temporary and targeted support to vulnerable households and firms.

All high debt Member States planned to finance public investment for the green and digital transitions and for energy security, including by making use of the RRF and other EU funds. Total public investment as a percentage of GDP was set to either increase or remain stable in 2023 with respect to 2022 in all high debt Member States except for **France and Greece**. **Belgium, France, Greece, Portugal and Spain** planned to preserve nationally financed investment, as it was projected to increase or remain stable from 2022 to 2023. The contribution of expenditure financed by RRF grants and EU funds to the overall fiscal stance was expansionary or neutral in all Member States, except in **France and Greece**.

- Regarding the low/medium debt Member States, the Commission concluded that, overall, the Draft Budgetary Plans for **Croatia, Cyprus, Finland, Ireland, Latvia and Malta** were in line with the fiscal guidance. The Draft Budgetary Plans of **Austria, Lithuania, Germany, Estonia, Luxembourg, the Netherlands, Slovenia and Slovakia** were partly in line with the recommendation (see Table II.1.1 for more details).

The overall fiscal policy stance in 2023 varied across low/medium debt Member States. **Lithuania, Germany, Estonia, Luxembourg, the Netherlands, Slovenia and Slovakia** were projected to have an expansionary overall fiscal policy stance in 2023. **Croatia, Austria and Finland** were projected to have a broadly neutral fiscal stance, while **Latvia, Ireland, Cyprus and Malta** were expected to have a contractionary stance in 2023.

The contribution of nationally financed current expenditure (net of new revenue measures) to the overall fiscal stance in 2023 also varied across low/medium debt Member States. For **Austria, Lithuania, Germany, Estonia, Luxembourg, Slovenia and Slovakia** it was projected to have an expansionary contribution, and this was not the result of temporary and targeted support to households and firms most vulnerable to energy price hikes and to people fleeing Ukraine. The contribution of nationally financed current expenditure to the overall fiscal stance in 2023 was projected to be broadly neutral in **Finland** and the **Netherlands**, while it was projected to have a contractionary contribution in **Croatia, Latvia, Ireland, Cyprus and Malta**.

All low/medium debt Member States planned to finance public investment for the green and digital transitions and for energy security, including by making use of the RRF and other EU funds, as recommended by the Council. Total public investment as a percentage of GDP was set to either increase or remain stable in 2023 with respect to 2022 in all low/medium debt Member States. All Member States planned to preserve nationally financed investment, with the exception of **Cyprus, Latvia and Malta** where it was projected to decrease from 2022 to 2023. The contribution of expenditure financed by RRF grants and EU funds to the overall fiscal stance was expansionary or neutral in all Member States, except **Germany**.

**The Commission invited ten euro area Member States to take the necessary measures to ensure that the implementation of the 2023 budget will be made consistent with the Council recommendations.** This concerned Belgium, Portugal, Austria, Lithuania, Germany, Estonia, Luxembourg, the Netherlands, Slovenia and Slovakia.

**The fiscal costs of measures to mitigate the social and economic impact of high energy prices was assessed as likely to be higher than planned in the 2023 Draft Budgetary Plans.** The Commission recalled to all Member States that a prolongation of existing and/or an enactment of new support measures in response to high energy prices would contribute to higher growth in net nationally financed current expenditure and to an increase in the projected government deficit and debt in 2023. Therefore, it was important that Member States better focus such measures on the most vulnerable households and exposed firms, to preserve incentives to reduce energy demand, and withdraw them as energy price pressures diminish.

Table II.1.1: Summary of assessment of the 2023 Draft Budgetary Plans' consistency with the Council Recommendations

	Overall fiscal stance	Contribution of nationally financed primary current expenditure to the fiscal stance  Taking into account targeted energy and refugee related costs: no change in conclusion	Growth of nationally financed primary current expenditure below medium-term potential output growth  Taking into account targeted energy and refugee related costs: no change in conclusion	Public investment for the green and digital transitions, and for energy security	Overall Assessment*	Preservation of nationally financed investment	Contribution of expenditure financed by RRF grants and EU funds
<b>Low/medium debt</b>							
<b>Member States</b>							
Austria	✓	X	*	✓	X	✓	✓
Croatia	✓	✓	*	✓	✓	✓	✓
Cyprus	✓	✓	*	✓	✓	X	✓
Estonia	X	X	*	✓	X	✓	✓
Finland	✓	✓	*	✓	✓	✓	✓
Germany	X	X	*	✓	X	✓	X
Ireland	✓	✓	*	✓	✓	✓	✓
Latvia	✓	✓	*	✓	✓	X	✓
Lithuania	X	X	*	✓	X	✓	✓
Luxembourg	X	X	*	✓	X	✓	✓
Malta	✓	✓	*	✓	✓	X	✓
Netherlands	X	✓	*	✓	X	✓	✓
Slovenia	X	X	*	✓	X	✓	✓
Slovakia	X	X	*	✓	X	✓	✓
<b>High-debt</b>							
<b>Member States</b>							
Belgium	*	*	X	✓	X	✓	✓
France	*	*	✓	✓	✓	✓	X
Greece	*	*	✓	✓	✓	✓	X
Italy	*	*	✓	✓	✓	✓	✓
Portugal	*	*	X <sup>(1)</sup>	✓	X	✓	✓
Spain	*	*	✓	✓	✓	✓	✓

Notes: \* The first three columns in the table are directly drawn from the Council recommendation and therefore considered for the purpose of the overall assessment. For low/medium debt Member States the recommendation refers to the overall fiscal stance and the contribution of nationally financed primary current expenditure to the fiscal stance, while for high debt Member States the recommendation was for the growth of nationally financed primary current expenditure to be below medium-term potential output growth.

(1) For Portugal, the growth of nationally financed current expenditure is projected to be close to the medium-term potential output growth, assuming the planned reduction in measures in response to high energy prices, including in temporary and targeted support to vulnerable households and firms.

Source: COM(2022) 900 final.

**Box II.1.1: Establishing the Quantitative country-specific recommendations for fiscal policies in 2024 (1)**

**The country-specific recommendations for 2024: bridging two frameworks**

**The 2023 spring economic surveillance package marked a return to differentiated country-specific recommendations for fiscal policies set out in quantitative terms.** The Commission’s Communication on the “*Fiscal policy guidance for 2024*”<sup>(2)</sup> confirmed that the ‘general escape clause’ (GEC)<sup>(3)</sup> of the Stability and Growth Pact (SGP) will be deactivated at the end of 2023. This decision comes against the backdrop of the European economy emerging from a period of severe economic downturn, having now recovered beyond its pre-pandemic output level and withstood the acute phase of the energy price shock. In this context, after three years of qualitative recommendations, the country-specific recommendations for fiscal policies in 2024 set out quantitative fiscal targets, establishing how prudent fiscal policies should look like in the light of the specific situation of each Member State.

**The country-specific recommendations for fiscal policies in 2024 provide a bridge between the current and the new economic governance framework, whose discussion is ongoing.** On the one hand, the Commission’s legislative proposals<sup>(4)</sup> are currently being discussed with the Parliament and Council. Therefore, the current economic governance framework is still in force and the country-specific recommendations for fiscal policies in 2024 had to observe it. On the other hand, selected elements in the spirit of the Commission’s legislative proposals that are considered compatible with existing legislation were incorporated into the recommendations. Notably, this concerned establishing the recommendations in terms of a single operational fiscal indicator –net nationally financed primary expenditure growth<sup>(5)</sup>–, factoring in country-specific medium-term debt sustainability challenges.

**Establishing the Quantitative fiscal targets for 2024**

**For Member States projected to be at their medium-term budgetary objectives (MTO) in 2023, no fiscal adjustment is recommended in 2024.** According to the Commission 2023 spring forecast, five Member States –Denmark, Ireland, Cyprus, Lithuania, and Sweden– are projected to achieve their MTOs in 2023. Based on this projection, no additional fiscal adjustment is expected from these Member States. In turn, Romania is subject to an excessive deficit procedure<sup>(6)</sup> and the applicable fiscal requirements have been established in that context.

**For those Member States that are not yet projected to reach their MTO in 2023, three considerations were taken into account in determining the recommended fiscal adjustment for 2024.** For the 21 such Member States, the recommended fiscal adjustment was modulated around the benchmark fiscal adjustment of 0.5% of GDP, as provided for by the Regulation<sup>(7)</sup>. The modulation was carried out within a range of +/- 0.2% of GDP, setting a minimum of 0.3% and a maximum of 0.7% of GDP. The following three

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- (1) This box is based on the Commission Staff Working Document accompanying the recommendations on the 2023 Stability or Convergence programmes (SWD(2023) 600 final).
- (2) See Commission Communication: “*Fiscal policy guidance for 2024*”, COM(2023) 141 final, 8 March 2023.
- (3) The EU economic governance framework allows for a temporary deviation from the normal requirements for all Member States, in a situation of generalised crisis caused by a severe economic downturn of the euro area or the EU as a whole (see Articles 5(1), 6(3), 9(1) and 10(3) of Regulation (EC) 1466/97 and Articles 3(5) and 5(2) of Regulation (EC) 1467/97). The general escape clause was activated through the endorsement of Commission Communication: “*on the activation of the general escape clause of the Stability and Growth Pact*”, COM(2020) 123 final, 20 March 2020.
- (4) The Commission presented a set of legislative proposals to implement a comprehensive reform of the EU economic governance framework in April 2023; see COM(2023) 240-242 final, 26 April 2023.
- (5) Net nationally financed primary expenditure is defined as government expenditure net of discretionary revenues measures, and excluding interest, EU-funded, one-off, and cyclical unemployment benefit expenditure.
- (6) See Council Recommendation of 18 June 2021: “with a view to bringing an end to the situation of an excessive government deficit in Romania”, OJ C 304, 29.7.2021, p. 111–115.
- (7) See Articles 5(1) and 9(1) of Regulation (EC) No 1466/97.

(Continued on the next page)

Box (continued)

considerations were taken into account to determine the recommended adjustment. The *first* consideration, fully imbued with the spirit of the Commission’s legislative proposals, related to taking into account medium-term debt sustainability challenges. In practice, the Commission chose the fiscal adjustment corresponding to the average annual increase in the structural (primary) balance <sup>(8)</sup> needed to achieve a plausible debt reduction or ensure that government debt remains at prudent levels over the medium term, defined on the basis of a debt sustainability analysis (DSA) (Table 1). *Second*, the Commission also took into consideration that the recommended fiscal adjustment should not push Member States above their MTOs. This meant that the recommended fiscal adjustment for 2024 was never greater than the distance to the MTO. *Third*, where applicable, the Commission considered the need for Member States to bring the general government deficit below the Treaty reference value of 3% of GDP. In these cases, a minimum annual improvement in the structural balance of 0.5% of GDP towards the MTO was set for 2024 <sup>(9)</sup>.

**The country-specific recommendations for fiscal policy in 2024 were ultimately established in terms of a maximum growth rate of net nationally financed primary expenditure.** After determining the fiscal adjustment for 2024 in terms of an annual improvement in the structural balance ‘ $\Delta SB_{2024}$ ’, the effort was translated into a corresponding maximum growth rate of net nationally financed primary ‘ $\Delta NNPE_{2024}$ ’, which is a more tangible and operational indicator for budgetary planning and monitoring. In line with the Commission’s legislative proposals in the context of the economic governance review, the country-specific recommendations for fiscal policies in 2024 were effectively established in terms of such a maximum growth rate (Formulae (1) and (2)). To do so, the first step was to translate the needed fiscal adjustment for 2024 into the corresponding annual improvement in the structural primary ‘ $\Delta SPB_{2024}$ ’, taking into consideration interest expenditure developments ‘ $\Delta I_{2024}$ ’, as projected according to the Commission 2023 spring forecast. This ensured consistency with the concept of net nationally financed primary expenditure, while reflecting the fact that fiscal space in several Member States is expected to be reduced by the effect of rising interest expenditure in 2024.

Algebraically, net nationally financed primary expenditure  $NNPE_{2023}$  was derived as:

$$NNPE_{2023} = G_{2023} - I_{2023} - U_{2023} - EU_{2023} - one_{offs_{2023}}^G \quad (1)$$

where it comprises primary expenditure –that is, total expenditure  $G_{2023}$  less interest expenditure  $I_{2023}$ – net of cyclical unemployment benefit expenditure  $U_{2023}$ , EU-funded expenditure  $EU_{2023}$ , and one-off expenditure  $one_{offs_{2023}}^G$ , in 2023.

On that basis, the recommended maximum growth rate of net nationally financed primary expenditure in 2024 was established as:

$$\Delta NNPE_{2024}^* = (1 + Pot_{2024}) \cdot (1 + \pi_{2024}) - 1 - \text{convergence margin} = (1 + Pot_{2024}) \cdot (1 + \pi_{2024}) - 1 - \frac{\Delta SPB_{2024}^*}{NNPE_{2023} - 100 \cdot GDP_{2024}} \quad (2)$$

where  $Pot_{2024}$  is medium-term (10-year) <sup>(10)</sup> potential GDP growth and  $\pi_{2024}$  the projected GDP deflator.

<sup>(8)</sup> This estimate was based on the Commission 2022 autumn forecast. The starting point for this estimate was the projected general government deficit and debt for 2024, which assumed the withdrawal of energy support measures in 2024. Importantly, the reference adjustment period for Member State to achieve a plausible debt reduction was differentiated according to their respective debt levels and dynamics. In detail, Member States with a ‘substantial public debt challenge’ should put public debt on a sustained declining path at the latest within four years. In turn, Member States with a ‘moderate public debt challenge’ were granted more time, having to put public debt on a sustained declining path at the latest within seven years. Finally, Member States experiencing ‘low public debt challenges’ did not need to deliver any fiscal adjustment from a debt sustainability perspective.

<sup>(9)</sup> This is without prejudice to the need to respect the deficit criterion laid down in Article 126 of the Treaty.

<sup>(10)</sup> Geometric average over a 10-year horizon, including five years of backward-looking estimates, two years of fully fledged Commission’s forecasts, and three years where a mechanical closure rule is applied to the outstanding output gap.

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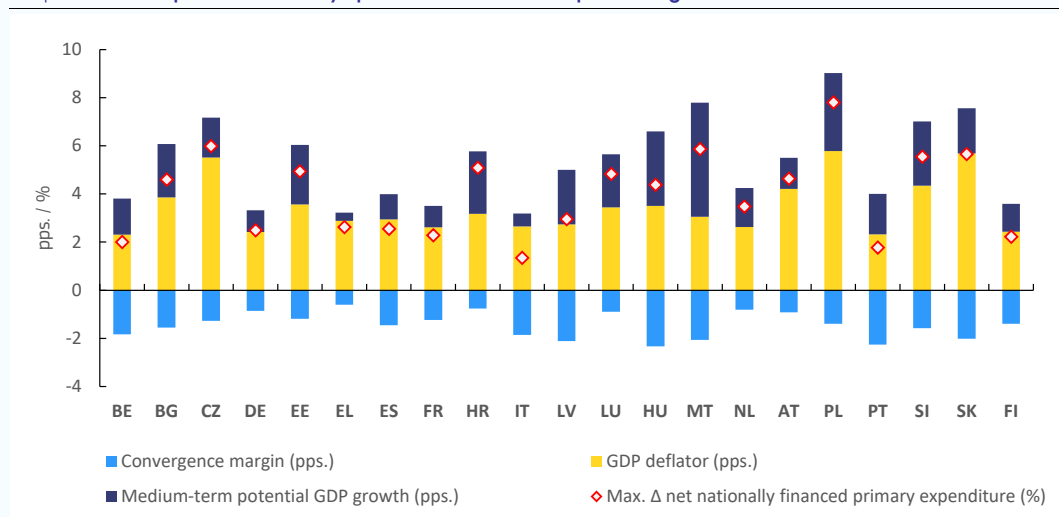
Box (continued)

The ‘convergence margin’ is subtracted from medium-term nominal potential GDP growth to ensure the needed fiscal adjustment – that is, an annual improvement in the structural balance. It reflects the corresponding annual improvement in the structural primary balance and the size of the general government sector in each country.

**Differentiated fiscal targets: dictated by country-specificities**

**For a given annual improvement in the structural balance, the corresponding maximum growth rate of net nationally financed primary expenditure is due to country-specific characteristics.** To ensure the necessary fiscal adjustment –itself determined by taking into account the aforementioned three country-specific- considerations–, annual expenditure growth should be kept below a reference medium-term rate of potential GDP growth (unless the excess is matched by discretionary revenue measures). The shortfall in the growth rate of net nationally financed primary expenditure compared to the country-specific reference nominal rate of medium-term potential GDP growth depends on the needed improvement in the structural (primary) balance and the size of the general government sector of each Member State. Hence, for a given annual improvement in the structural balance, different country-specific combinations of interest spending, potential GDP growth, price developments and size of general government <sup>(11)</sup> lead to different recommendations in terms of the maximum growth rate of net nationally financed primary expenditure (Table 2 and Graph 1).

Graph 1: **Decomposition of country-specific maximum net expenditure growth rates recommended**



Notes: The ‘stacked columns’ show the summands (in pps.) adding up to the recommended maximum growth rate of net nationally financed primary expenditure. This build on the derivation shown in formula (2) above, considering that it can be approximated as:

$$\Delta NNPE_{2024}^* \cong Pot_{2024} + \pi_{2024} - \text{convergence margin} = Pot_{2024} + \pi_{2024} - \frac{ASP_{2024}}{GDP_{2024}} \cdot \frac{NNPE_{2023}}{GDP_{2023}} \cdot 100 \quad (3)$$

where ‘Pot<sub>2024</sub>’ is medium-term (10-year) potential GDP growth and ‘π<sub>2024</sub>’ the projected GDP deflator.

The ‘δ’ corresponds to the resulting recommended maximum growth rate of net nationally financed primary expenditure (in %).

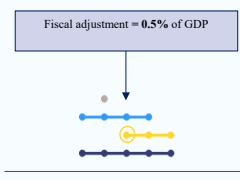
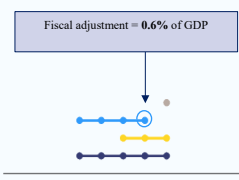
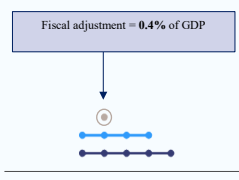
**Source:** Commission 2023 spring forecast and Commission’s calculations.

<sup>(11)</sup> In this context, the size of the general government sector is measured by the ratio-to-GDP of net nationally financed primary expenditure  $\frac{NNPE_{2023}}{GDP_{2024}}$ . It is worth noting that larger governments require relatively less (net) expenditure restraint to achieve a given fiscal adjustment.

(Continued on the next page)

Box (continued)

Table 1: Examples of derivations of the necessary fiscal adjustment in 2024

	Stylised example 1 Binding factor: <i>Sustainability considerations</i>	Stylised example 2 Binding factor: <i>Distance to MTO</i>	Stylised example 3 Binding factor: <i>Deficit &gt; 3% of GDP</i>
<i>Considerations taken into account when choosing the necessary fiscal adjustment within the range of 0.3%-0.7% of GDP</i>	0.4% of GDP 0.6% of GDP < 3% of GDP	0.7% of GDP 0.6% of GDP > 3% of GDP	0.4% of GDP 0.6% of GDP > 3% of GDP
<b>Rationale underpinning choice of binding factor</b>	As the deficit is below 3% of GDP, the minimum annual improvement in the structural balance is the range's lower bound of 0.3% of GDP. The DSA-based fiscal adjustment of <b>0.4% of GDP</b> supersedes the (necessarily greater) maximum possible fiscal adjustment of 0.6% of GDP, corresponding to the distance to the MTO.	As the deficit is above 3% of GDP, the minimum annual improvement in the structural balance is 0.5% of GDP. To avoid overachieving the MTO, the maximum possible fiscal adjustment of <b>0.6% of GDP</b> , corresponding to the distance to the MTO, supersedes the greater DSA-based fiscal adjustment of 0.7% of GDP.	As the deficit is above 3% of GDP, the minimum annual improvement in the structural balance is <b>0.5% of GDP</b> . This supersedes the smaller DSA-based fiscal adjustment of 0.4% of GDP, while remaining below the maximum possible fiscal adjustment of 0.6% of GDP, corresponding to the distance to the MTO.
	Fiscal adjustment = 0.5% of GDP	Fiscal adjustment = 0.6% of GDP	Fiscal adjustment = 0.4% of GDP
			
	<ul style="list-style-type: none"> <li>Range around benchmark fiscal adjustment</li> <li>Range taking into account deficit &gt; 3% of GDP</li> <li>Range taking into account distance to MTO</li> <li>DSA-based adjustment</li> </ul>	<ul style="list-style-type: none"> <li>Range around benchmark fiscal adjustment</li> <li>Range taking into account deficit &gt; 3% of GDP</li> <li>Range taking into account distance to MTO</li> <li>DSA-based adjustment</li> </ul>	<ul style="list-style-type: none"> <li>Range around benchmark fiscal adjustment</li> <li>Range taking into account distance to MTO</li> <li>DSA-based adjustment</li> </ul>

Source: Commission services.

Table 2: Examples of derivations of the maximum growth rate of net nationally financed primary expenditure

	Contribution to maximum net expenditure growth (+/-)	Stylised example 1 'Low-growth, big government, rising interest expenditure'	Stylised example 2 'High-growth, small government, stable interest expenditure'
<b>Needed improvement in structural balance</b>	-	+0.5% of GDP	+0.5% of GDP
<i>Country-specific characteristics</i>			
• Medium-term potential growth	+	1%	5%
• GDP deflator	+	3%	3%
• Size of general government sector	+	50% of GDP	25% of GDP
• Change in interest expenditure	-	+0.25% of GDP	0% of GDP
<b>Corresponding maximum growth rate of net nationally financed primary expenditure</b>		$1\% + 3\% - \frac{0.5 + 0.25}{50\% - 100} = 2.5\%$	$5\% + 3\% - \frac{0.5 + 0}{25\% - 100} = 6\%$

Note: "Size of general government sector" is measured by the ratio-to-GDP of net nationally financed primary expenditure  $\frac{NNPE_{2023}}{GDP_{2024}}$ .

Source: Commission services.

## 2. REFORM OF THE SGP - KEY ASPECTS OF A PROPOSAL

This chapter summarises the legislative proposals that the Commission presented on 26 April 2023 to implement a reform of the economic governance framework. After providing the relevant background and briefly describing the ongoing legislative process, it describes the main elements of the proposals.

### 2.1. BACKGROUND AND ONGOING PROCESS

**On 26 April 2023, the Commission presented legislative proposals for the most comprehensive reform of the EU's economic governance framework since the aftermath of the economic and financial crisis** <sup>(63)</sup>. The EU's economic governance framework consists of the EU fiscal policy framework (i.e. the Stability and Growth Pact and the requirements for national fiscal frameworks) and the Macroeconomic Imbalances Procedure, which are implemented in the context of the European Semester for policy coordination, as well as the framework for macroeconomic financial assistance programmes.

**The legislative proposals follow a debate on the review of the economic surveillance framework first launched in February 2020.** Stakeholders widely contributed to the debate on the future of the framework through various fora, including an online public survey. The Commission summarised its main takeaways on the online consultation in a report published in March 2022 <sup>(64)</sup>. These contributions provided valuable input to the Commission's reform proposals. In November 2022, the Commission presented orientations for a reformed EU economic governance framework <sup>(65)</sup>. In March 2023, the Economic and Financial Affairs Council (ECOFIN) adopted conclusions <sup>(66)</sup> on the Commission's orientations which were then endorsed by the European Council.

**Swift agreement on revising the EU fiscal rules and other elements of the economic governance framework is a pressing priority at the current critical juncture for the EU economy.** In its conclusions, the Council has called for the legislative work to be concluded in 2023. The Commission called on the European Parliament and the Council to reach agreement on the legislative proposals as quickly as possible, so as to adequately respond to the challenges ahead.

### 2.2. KEY ASPECTS OF THE PROPOSAL

#### **Stronger national ownership with comprehensive medium-term plans, based on common EU rules**

**National fiscal-structural plans are the cornerstone of the Commission's reform proposals.** Member States will design and present medium-term plans setting out their fiscal targets, measures to address macroeconomic imbalances and priority reforms and investments over a period of at least four years. These plans will be assessed by the Commission and endorsed by the Council based on common EU criteria.

**Integrating fiscal, reform and investment objectives into a single medium-term plan will help to create a coherent and streamlined process and will strengthen national ownership.** It will provide Member States with greater leeway in setting their fiscal adjustment paths and reform and investment commitments. Member States will present annual progress reports to facilitate more effective monitoring and enforcement of the implementation of these commitments. The new fiscal surveillance process will be integrated in the European Semester, which will remain the central framework for economic policy coordination.

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<sup>(63)</sup> [New economic governance rules fit for the future \(europa.eu\)](#)

<sup>(64)</sup> [swd\\_2022\\_104\\_2\\_en.pdf \(europa.eu\)](#)

<sup>(65)</sup> [com\\_2022\\_583\\_1\\_en.pdf \(europa.eu\)](#)

<sup>(66)</sup> [Economic governance framework: Council agrees its orientations for a reform - Consilium \(europa.eu\)](#)

### **Simpler rules taking account of different fiscal challenges**

**The reform consists of a country-specific approach differentiating between Member States taking into account their debt sustainability challenges.** The economic governance framework of the Union should put debt sustainability and sustainable and inclusive growth at its core. Fiscal situations, challenges and economic prospects vary greatly across the EU. Hence, a one-size-fits-all approach is not advisable. The proposals seek to move to a more risk-based surveillance framework that differentiates between Member States by taking into account their public debt challenges and allowing country-specific fiscal trajectories.

**Member States' plans will set out their fiscal paths.** After a positive assessment by the Commission, the Council should endorse the Member State's planned fiscal path. This will be formulated in terms of multi-year expenditure targets, which will be the single operational indicator for EU fiscal surveillance, thereby simplifying the fiscal rules.

**In order to guide Member States in the preparation of their plans, the Commission will issue a country-specific "technical trajectory" for each Member State with a government deficit above 3% of GDP or public debt above 60% of GDP.** This trajectory will be based on the Commission's debt sustainability analysis and will ensure that debt is put on a plausibly downward path or stays at prudent levels, and that the deficit remains or is brought and maintained below 3% of GDP in the medium term. For Member States below both reference values, the Commission will only provide guidance in the form of technical information on the budgetary position that needs to be maintained to ensure that the government deficit remains below the 3% of GDP reference value also over the medium term.

**The 3% and 60% of GDP Treaty reference values for deficit and debt will remain unchanged and common safeguards will apply to ensure debt sustainability.** The ratio of public debt to GDP will have to be lower at the end of the period covered by the plan than at the start of that period; and a minimum fiscal adjustment of 0.5% of GDP per year as a benchmark will have to be implemented so long as the deficit remains above 3% of GDP. Furthermore, Member States benefitting from an extended fiscal adjustment period will need to ensure that the fiscal effort is not postponed to the outer years.

**General and country-specific escape clauses will allow deviations from the expenditure targets in exceptional circumstances.** These clauses will be activated in case of a severe economic downturn in the EU or the euro area as a whole or of exceptional circumstances outside the control of the Member State with a major impact on public finances. The Council will decide on the activation and deactivation of these clauses, based on a recommendation from the Commission.

### **Facilitating reforms and investment for EU priorities**

**Reforms and investment are both essential for tackling common challenges and maintaining sound public finances.** The green and digital transitions, the strengthening of economic and social resilience and the need to bolster Europe's security capacity will require large and sustained public investment in the years to come. Reforms enhancing sustainable and inclusive growth remain an essential component of credible debt-reduction plans.

**The proposals therefore aim to facilitate and encourage Member States to implement important reform and investment measures.** Member States will benefit from a more gradual fiscal adjustment path if they commit in their plans to a set of reforms and investment that meet specific criteria, namely being growth-enhancing, supporting fiscal sustainability, being consistent with common priorities of the Union, addressing relevant country-specific recommendations and ensuring that the overall level of nationally financed public investments increases.

### Providing for effective enforcement

**The proposals provide Member States with more control over the design of their medium-term fiscal paths, but also put in place a more stringent enforcement regime.** This will ensure that Member States deliver on the commitments they undertake in their medium-term fiscal-structural plans. For Member States that face substantial public debt challenges, departures from the endorsed fiscal path will by default lead to the opening of an excessive deficit procedure. Failure to deliver on the reform and investment commitments justifying an extension of the fiscal adjustment period could result in the adjustment period being shortened.

**To inform enforcement actions, the Commission will set up a control account.** When small deviations are repeated over time, they might lead to a cumulative large deviation and might therefore be problematic for debt sustainability. Therefore, a control account will be set up to keep track of cumulative upward and downward deviations of actual net expenditures from the fiscal path set in the plan. This would strengthen the medium-term memory of the framework.

**To enhance national ownership, new minimum requirements and tasks are introduced for Independent Fiscal Institutions.** Independent Fiscal Institutions will prepare or endorse Member States' budgetary forecasts, as well as assess sustainability analyses and the impact of policies. The independence and accountability of these institutions, as reflected in standards identified by international organisations, is also further ensured and the multiannual budgetary dimension in the forecast will be more systematically specified.

## 3. NATIONAL FISCAL FRAMEWORK DURING THE CRISIS

### 3.1. INTRODUCTION

**Fiscal frameworks performed well during “normal times”; yet, how was their resilience and flexibility during the COVID-19 pandemic?** This analysis focuses on the role of national fiscal frameworks of EU Member States during the pandemic. To understand how they coped with this crisis, a look back at their development since the global financial crisis is warranted. The global financial crisis triggered significant changes in national fiscal frameworks within the EU, mainly via the Budgetary Framework Directive <sup>(67)</sup>, the regulation on draft budgetary plans <sup>(68)</sup> and the Fiscal Compact <sup>(69)</sup>. This new legislation aimed at strengthening national fiscal frameworks to remedy weaknesses that had become apparent during the crisis. Yet, the recent crisis raised the question of/on how these frameworks would cope with the challenges brought by the pandemic. Did the strengthened framework prove to be flexible enough in the crisis? Was transparency ensured and the role of relevant institutions respected? Which lessons can be drawn for a post-COVID world?

**The remainder of the analysis addresses in turn the central elements of fiscal frameworks which are covered by EU legislation, i.e. fiscal statistics, national fiscal rules, independent fiscal institutions (IFIs) and medium-term budgetary frameworks (MTBFs).** The empirical analysis is based on the Fiscal Governance Database of the European Commission <sup>(70)</sup>, including results for the year 2021.

Evidence of progress on the specific issues of gender and green budgeting is also provided in dedicated boxes at the end of this chapter.

### 3.2. FISCAL STATISTICS

**The European sovereign debt crisis was, among other causes, also linked to weak reporting of fiscal data.** Transparency of national reporting was limited, common standards were missing in some areas, and the scope for external quality checks was insufficient. In some Member States, the build-up of extra-budgetary obligations became apparent only at times of very critical indebtedness – adding dire strain to public financial management. For example, some spending obligations were shifted outside the budget, with a loss of control by the government over indebtedness by local governments and autonomous bodies, and a build-up of contingent liabilities through PPPs and SOEs. In some other Member States, deficient data of public sector performances and poor risk estimates contributed to much turmoil in government bonds markets <sup>(71)</sup>. Once the crisis unfolded, accounting for its effects on fiscal statistics, in particular in real time, was made particularly difficult by the very heavy incidence of interventions in the banking sector.

**To address these challenges, fiscal statistics were strengthened.** This concerned in particular all data related to a potential excessive deficit procedure (EDP), where statistical rules and practices were further harmonised and new standards were established. EDP-related data are reported to Eurostat twice a year and thoroughly checked, including by regular Eurostat missions to each Member State. To reinforce the external quality checks, Eurostat received access to the underlying accounts of general government

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<sup>(67)</sup> [2011/85/EU](#)

<sup>(68)</sup> [regulation \(EU\) No 473/2013](#); part of the so-called “two-pack”.

<sup>(69)</sup> Title III of the [Treaty on Stability, Coordination and Governance](#) in the Economic and Monetary Union.

<sup>(70)</sup> The Fiscal Governance Database [[https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/fiscal-governance-database\\_en](https://economy-finance.ec.europa.eu/economic-research-and-databases/economic-databases/fiscal-governance-database_en)] of the European Commission includes information on fiscal rules, MTBFs and IFIs in all EU Member States, partly since 1990, including related indicators of institutional strength and scope. It is compiled with the help of national administrations and IFIs whose contribution is gratefully acknowledged.

<sup>(71)</sup> See, for example, European Commission (2014), IMF (2013), IMF (2016) and the information on the European financial assistance for Greece: [https://economy-finance.ec.europa.eu/eu-financial-assistance/euro-area-countries/financial-assistance-greece\\_en](https://economy-finance.ec.europa.eu/eu-financial-assistance/euro-area-countries/financial-assistance-greece_en)

entities<sup>(72)</sup>. Sanctions for the manipulation of relevant statistics were made possible<sup>(73)</sup>. Even when these sanctions remain small, they carry reputational weight. They are relative to the misrepresentation in question (5% of the larger impact of misrepresentation as a starting point, as laid out in the Commission delegated decision (2012/678/EU)). The size of the fine is capped at 0.2% of GDP, in line with Regulation 2011/1173/EU.

This amount can be adjusted depending on whether the problem has a serious impact on economic governance, whether it was caused by a one-time negligence or by structural behaviour, whether it was due to an individual error or to concerted action, on its repetition, frequency and duration, and also on the constructive cooperation with the Member State concerned. Such sanctions have been applied twice by now, on Austria and Spain<sup>(74)</sup>.

**EU Member States could base their agile response to the pandemic on reliable data.** This was made possible by substantial improvements in the level of harmonisation of statistical rules and practices over the last decade, as well as by the increased level of cooperation between statistical offices in the EU. In the early days of the pandemic, the EU statistical community acted very quickly to establish consistent approaches to record the effects of COVID-19 and harmonise statistical methods in all affected areas of economic, social and health statistics. Guidance on recording of main policy measures was published as early as 9 April 2020<sup>(75)</sup>. New reporting streams were put in place to support Eurostat in assessing and validating fiscal data, which helped to preserve the quality of the data despite the challenges. The new reporting notably concerned COVID-19 related measures taken by governments (compulsory from April 2021) and flows related to the Recovery and Resilience Facility (compulsory from October 2021). As a result of these proactive steps, Eurostat was able to validate the reported fiscal data in the vast majority of cases throughout 2020-2021<sup>(76)</sup>.

**Additional steps forward in fiscal reporting were new definitions and reporting standards for contingent liabilities.** Specifically, the Budgetary Framework Directive required the publication of those contingent liabilities with potentially large impacts on public budgets, including government guarantees, non-performing loans, and liabilities stemming from the operation of public corporations. It also required the publication of the participation of general government in the capital of private and public corporations. At present, this information is published regularly by Member States as well as Eurostat. When COVID-19 hit and Member States took measures to protect their economies, the publication of data on state guarantees proved to be particularly important. Given the prominent role of state guarantees among measures supporting the EU economies throughout the pandemic, this reporting allowed a much better tracking and analysis of the economic impact of COVID-19 support measures.

### 3.3. NUMERICAL FISCAL RULES

**Clearly specified numerical fiscal rules are an important element of strong fiscal frameworks** as they provide guidance and stabilise expectations regarding fiscal policy. They can take the form of budget balance rules (structural or nominal), set out a specific maximum expenditure growth or affect the revenue side or the debt level. The Budgetary Framework Directive, the Two-Pack as well as the Fiscal Compact<sup>(77)</sup>, led to the establishment of many new fiscal rules in EU Member States since 2011, from

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<sup>(72)</sup> Regulation [2009/479/EU](#)

<sup>(73)</sup> Regulation [2011/1173/EU](#)

<sup>(74)</sup> See decisions here OJ L 198, 28.07.2015, p. 19 for Spain and OJ L 137, 04.06.2018, p. 23 for Austria. More information is available here <https://ec.europa.eu/eurostat/web/government-finance-statistics/publications/other-publications>

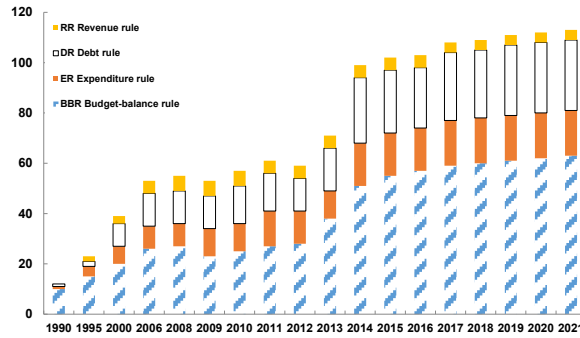
<sup>(75)</sup> See: [https://ec.europa.eu/eurostat/documents/10186/10693286/GFS\\_draft\\_note.pdf](https://ec.europa.eu/eurostat/documents/10186/10693286/GFS_draft_note.pdf)

<sup>(76)</sup> Two reservations expressed on the quality of data for Denmark (in spring 2020) and Luxembourg (in spring 2021) were short-lived and withdrawn in the subsequent notification rounds (autumn 2020 and 2021, respectively).

<sup>(77)</sup> An intergovernmental agreement valid for 22 Member States (the 19 euro area members plus Bulgaria, Denmark and Romania).

some 60 rules to 113 in 2021 (Graph II.3.1). The biggest share among them are budget balance rules, followed by debt rules.

Graph II.3.1: Number of fiscal rules in place in the EU 27



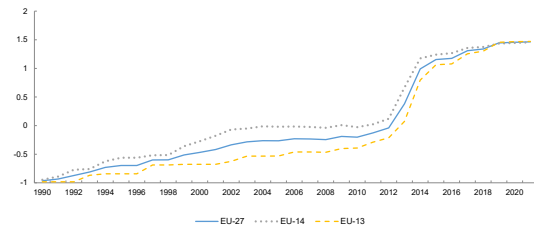
Source: European Commission Fiscal Governance Database.

**These rules are national rules, thereby different from the EU set of rules and with fully national monitoring and enforcement mechanisms.** In some cases, however, the design of national rules coincides with the design of the EU rules; both seem to reinforce each other when they are complied with and when rules are well designed (Belu Manescu et al. 2023). The strength of the national fiscal rules has increased significantly over the last ten years as documented in the European Commission Fiscal Governance Database (Graph II.3.2). The average design strength of fiscal rules is calculated taking into account the strength of the legal basis of each rule,

how binding the rule is, whether it is independently monitored, whether correction mechanisms are in place in case of non-compliance, and how resilient to shocks the rule is – including by triggering escape clauses<sup>(78)</sup>. This index rose rapidly after the entry into force of the EU provisions on national fiscal rules, contained in the Budgetary Framework Directive.

**While clear rules create stability in normal times, they also need to allow a flexible reaction in extraordinary circumstances.** Thus, the Budgetary Framework Directive as well as the Fiscal Compact call for endowing fiscal rules with escape clauses (so-called “second generation” rules). The latter enable temporary deviations from the rules in a regulated way, i.e., in limited and well-defined circumstances. Escape clauses can demand, for example, that independent fiscal institutions assess whether the necessary circumstances for triggering them are met; they can define reasons to trigger them or set the procedure on how to terminate their use. About half of the national rules in the EU have escape clauses and many of them are directly linked to the Stability and Growth Pact by a reference to the national legislation. They are present in the vast majority of rules covering general government and of structural balance rules (Graph II.3.3).

Graph II.3.2: Average score Fiscal Rule Strength Index (FRSI)



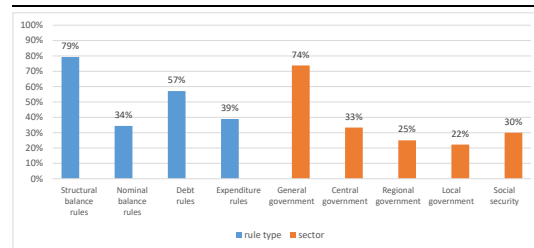
Source: European Commission Fiscal Governance Database.

<sup>(78)</sup> Based on this concept, which is relatively detailed and demanding and thus more appropriate for advanced economies, Davoodi et al. (2022) developed a lighter approach applicable for a wider circle of countries.



**The national rule-based systems worked well in the COVID-19 pandemic.** They allowed for a quick and flexible, but also clearly regulated response of fiscal policy at the national level. They allowed Member States to implement a prompt and needed fiscal stimulus to the shock by triggering escape clauses for 60 rules; 45 of them affecting general government. Member States also swiftly introduced changes to their rule-set by either establishing new rules (both in 2020 and 2021 in Finland) or modifying them (19 cases). Among the latter, in nine cases an existing escape clause was expanded, and in three cases a new one introduced.

Graph II.3.3: Percentage of rules per rule type / government sector with an escape clause at the start of 2020



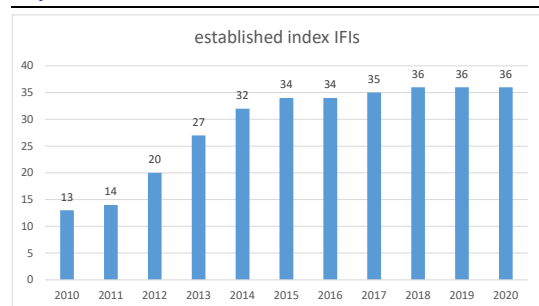
Source: European Commission Fiscal Governance Database.

**Overall, the frameworks remained sound.** Two thirds of the 52 non-suspended rules were still complied with during COVID. Some of them affected government levels (e.g. local governments) or budgetary elements (long-term targets, revenue rules, etc.) which were less sensitive to the shock. In other cases, other flexibility elements than escape clauses could be used (for example, crisis-related expenditure was excluded from the ceilings).

### 3.4. INDEPENDENT FISCAL INSTITUTIONS

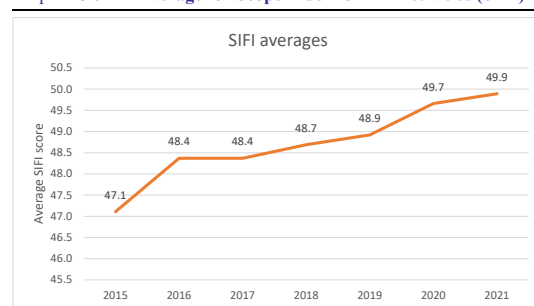
**The activities of Independent Fiscal Institutions (IFIs) can improve the quality of the national debate on public finances.** This also supports national ownership of the relevant fiscal framework. While these institutions have been well-established in some Member States since decades, their number has increased from 13 to 36 since 2010 (Graph II.3.4)<sup>(79)</sup>. Their role was strengthened in particular by the new EU legislation, which demands that the macroeconomic forecasts on which budgetary planning is based are either produced or endorsed by IFIs and that IFIs check whether national authorities comply with national fiscal rules. The scope of IFI activities has also increased (Graph II.3.5)<sup>(80)</sup>. Such scope includes activities such as the monitoring of compliance with numerical fiscal rules and the endorsement or production of macroeconomic forecasts.

Graph II.3.4: Number of IFIs in EU Member States



Source: European Commission Fiscal Governance Database.

Graph II.3.5: Average for Scope Index for IFI Activities (SIFI)



Source: European Commission Fiscal Governance Database.

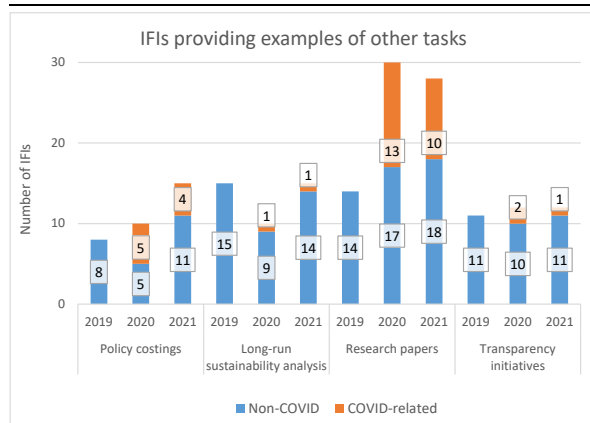
<sup>(79)</sup> In several EU Member States, separate institutions are mandated with the two legal tasks of IFIs (checking compliance with national fiscal rules, independent production or endorsement of macroeconomic forecasts which are used in budgetary planning).

<sup>(80)</sup> The European Commission Fiscal Governance Database tracks six different categories of IFI activities since 2006 and calculates a Scope of IFI indicator (SIFI) since 2015. This covers compliance monitoring, macroeconomic forecasting, budgetary forecasting and policy costing, sustainability assessments, the promotion of fiscal transparency, and normative recommendations on fiscal policy.

**IFIs continued to fill their legally defined role in macroeconomic forecasting during the COVID-19 pandemic.** In 19 euro area countries, independently produced or endorsed macroeconomic forecasts were well established and this obligation from the Two-pack was respected in very turbulent circumstances. Unusual or *ad hoc* forecast submissions happened in only two cases in the context of the 2020 Stability and Convergence Programmes: in Belgium, the traditional independent forecast producer, the Federal Planning Bureau, prepared the forecast exceptionally together with the Belgian Central Bank; in Portugal, the Stability Programme did not contain a complete macroeconomic scenario. From autumn 2020, the standard national procedures were followed in all euro area members again.

**To a certain extent, the pandemic changed the framework in which the IFIs work.** Their task of checking compliance with national fiscal rules, obviously, was put on hold given the triggering of many escape clauses. However, IFIs were involved in assessing whether the necessary circumstances for triggering them were met; this happened mainly via non-binding opinions. More broadly, their set of tasks expanded and they showed some versatility in adapting to new needs and demands.

Graph II.3.6: Number of IFIs giving examples of other tasks



Source: European Commission Fiscal Governance Database.

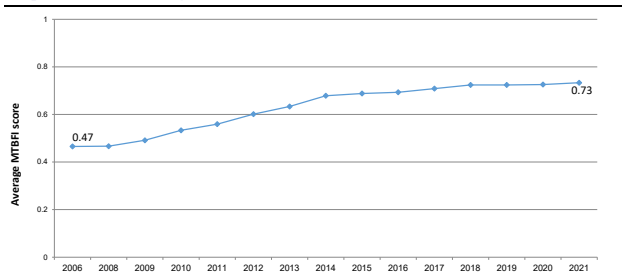
**While not explicitly in their mandates, a few IFIs were also involved in preparing the Recovery and Resilience Plans.** The RRF regulation (recital 59) encourages Member States to seek the opinion of their national productivity boards and independent fiscal institutions on their plans, including a possible validation of their elements. Based on information from the European Commission’s Fiscal Governance Database, at least nine IFIs contributed to *ex ante* assessments of the plans in some way and four expected to be involved in *ex post* analysis. Only the Italian IFI expected involvement in both. As a main reason for their limited involvement in the assessment of RRP, IFIs indicated the objective difficulties to estimate economic and fiscal variables in an

extremely uncertain economic situation, in addition to the lack of a mandate and limited access to information and resources. While the uncertainty and the time pressure can indeed explain a limited role for IFIs, in some cases their knowledge could be used during implementation of the RRP, and for an *ex post* assessment. Finally, the COVID-19 crisis entailed an expansion of the usual IFIs tasks beyond the RRP assessments. IFIs reported COVID-related activities for 2020 and 2021 mainly with regard to their research papers and to long-term sustainability analysis, i.e. tasks that are already high on their agenda (Graph II.3.6). IFIs also engaged more in COVID-related policy costing than usually.

### 3.5. MEDIUM-TERM BUDGETARY FRAMEWORKS

**A medium-term approach to budgeting should stabilise expectations,** help avoiding pro-cyclicality, and allow for a more transparent setting of political priorities. Medium-term budgetary frameworks (MTBFs) were also strengthened by the new legislation after the Great Financial Crisis. The Budgetary Framework Directive requires all Member States to establish credible and effective medium-term planning with a horizon of at least three years, including projections of major expenditure and revenue items, a description of major policy plans and their expected budgetary impact as well as on the long-term fiscal sustainability. Annual budget legislation shall be consistent with the provisions of the medium-term budgetary framework.

Graph II.3.7: Average score for MTBF-index



Source: European Commission Fiscal Governance Database.

**The Fiscal Governance Database shows a strengthening of national MTBFs in recent years, but their link with the budget remains weak (Graph II.3.7).** The index aggregates how much of general government is covered, to what degree parliament and IFIs are involved, the level of detail and, finally, the strength of the link to the annual budget process. This last element, however, appears still to be relatively weak, often because (targets in) medium-term plans can be too easily changed (thus ensuring

compliance of annual budgets but not real medium-term planning) or because they are not binding from the start. The involvement of IFIs and the level of detail could also be improved.

**During the pandemic, the guiding power of planned budget figures was weakened by the crisis throughout the EU.** Nevertheless, the MTBF-related process was generally upheld, even if sometimes in slightly adjusted formats. Some Member States had to make their MTBFs more flexible to adapt them to the conditions of the pandemic. In the Czech Republic, the ceiling for the allowed structural deficit had to be widened. In the Netherlands, COVID-related expenditure was taken out of the expenditure ceilings. In Finland, the government activated an “exceptional situation mechanism” (which had only been created in 2019) to increase spending limits for 2021.

**Ex-post compliance of the annual budget with the multiannual plans improved in 2021 compared to 2020** <sup>(81)</sup>. This situation can be explained by the forecasts for 2020 used for the annual budgets, which proved outdated by the end of the year as the crisis unfolded and in view of unanticipated support measures that had to be taken during the year.

### 3.6. CONCLUSION

**National fiscal frameworks and institutions have been strengthened following the Great Financial Crisis and showed sufficient in-built flexibility and resilience during the COVID-19 pandemic.** Fiscal statistics are more reliable and detailed, and they cover now important aspects, like contingent liabilities, that were previously neglected. The set of national fiscal rules showed sufficient in-built flexibility to allow coping with extra-ordinary demands of the pandemic in a regulated way. It is still too early to assess the return to normal times as many escape clauses still apply and are expected to be deactivated only in 2024, as, in most cases, the definition of national escape clauses mirrors the one of the General Escape Clause of the SGP. Medium-term budgeting, however, was less prominent, perhaps not surprising in crisis years. The role of independent fiscal institutions, in particular in macroeconomic forecasting, remained unaffected. Only in few cases, IFIs helped shape the policy response. Among other elements, their resource level and the understanding of their mandate played a role in this outcome.

**At the same time, the pandemic also aggravated some long-existing challenges facing fiscal frameworks in the EU and emphasised the importance of other tasks.** Debt levels rose markedly. This increased stress on the budgets and calls for more focus on the quality of public finances, specifically regarding the efficiency of public investments. Steering the policy response to the pandemic from immediate crisis reaction towards addressing pressing long-term tasks, like the green and digital transition, demands a medium-term approach to fiscal policy with stable and transparent priority-setting. There is still scope for strengthening national fiscal frameworks, in particular as regards minimum

<sup>(81)</sup> 2020 was the first year in which compliance was monitored.

standards for resources, tasks and legal status of independent fiscal institutions, as mentioned in the Commissions' legislative proposal on the new economic governance rules.

**Box II.3.1: Gender budgeting: concepts and practices across the EU**

This box presents an overview of gender budgeting concepts and approaches in selected EU Member States <sup>(1)</sup>.

**Gender budgeting is a form of priority budgeting that aims at focusing resources to help close gender gaps.** Gender budgeting is a gender-based assessment of budgets which aims to incorporate a gender perspective at all levels of the budgetary process, restructuring revenues and expenditures in order to promote gender equality (Council of Europe 2005). It includes both analysis and action, including various initiatives and measures to improve outcomes of policy making. By connecting inputs (budgetary allocations) to outcomes (gender-equality improvements), gender budgeting can help achieve important standards for public financial management and contributes to reinforcing governments' performance, accountability and effectiveness (Downes and Nicol 2020; EIGE 2019).

**Depending on the stage of the budgetary cycle, three gender budgeting tools can be identified** (OECD 2017): (i) **ex-ante approaches**, which examine the impact of measures in the draft budget on gender equality, (ii) **concurrent approaches**, which take action or prescribe performance or allocation targets based on ex-ante analysis, and (iii) **ex-post approaches**, which examine the effectiveness of the budget at improving gender equality.

**Ex-ante gender budgeting tools** include the assessment of gender-specific impacts of *proposed budgetary measures*, as conducted in Spain, Belgium and Austria, while Sweden conducts periodic analyses on the gender-equality impact of *the existing allocation* of expenditure, through inventories of measures and surveys across spending agencies or departments. Alternatively, budget tagging is also used as a tool to support budgetary preparation, as done for example in Belgium, where some expenditures are flagged as having no gender perspective <sup>(2)</sup> or as being aimed at achieving gender equality, and some credits are flagged as having a gender perspective (i.e. imply a differentiated impact across men and women).

**Concurrent gender budgeting tools** may entail specifying gender-related performance targets for all parts of the budget, as part of a performance budgeting approach, or redirecting financial allocation to promote gender equality. In Austria, each ministry, agency and department is required to consider how its activities may improve gender equality and to design its own related objectives and indicators. In the Netherlands, a 2015 agreement channelled funding to research institutions to support efforts to achieve more gender-equal conditions among their staff, including by promoting a higher share of female researchers.

**Ex-post gender budgeting approaches** include an ex-post gender impact assessment which takes place after the implementation of budgetary measures to assess their impact on gender equality, or a gender audit or scrutiny of the budget which examines the extent to which gender budgeting activities are being correctly performed. In Austria, scrutiny falls mainly on the chosen objectives and the measurement of the indicators, that is, examining if the objectives are being met.

**In the EU Member States, gender budgeting practices remain scarce, but are increasingly present.** These practices rely on diverse institutional set-ups. They all have a legal foundation, but legal requirements vary and apply to various levels of government, involving different degree of coordination. Notable examples of gender budgeting practices are:

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<sup>(1)</sup> This box draws on ECFIN Discussion Paper 2022 -165, "[Gender Budgeting Practices Concepts and Evidence](#)" by Elva Bova & Joana Jerosch Herold da Costa Reis.  
<sup>(2)</sup> Surprisingly, internal expenditures such as "personnel costs that clearly contain a gender perspective" (p.38) are nonetheless put into the first category. These expenditures are neither included in the gender note nor subject to a gender analysis.

*(Continued on the next page)*

Box (continued)

- **Austria:** The Austrian Constitution has included gender budgeting as a requirement for all levels of government since 2009. In the Federal Budget Law of 2013 <sup>(3)</sup>, gender budgeting was introduced as part of the performance budgeting framework, thus making it mandatory for all ministries to include at least one gender equality related outcome objective for each chapter of the Annual Budget. The Austrian Court of Auditors is responsible for the audit of the performance budgeting, including the gender outcomes.
- **France:** For the last decade, the budget bill in France has included an appendix devoted to gender equality policy that lists all expenditures related to gender performance indicators. However, gender budgeting approaches have mainly remained at the local level. In August 2014, the Real Gender Equality Act no. 2014-873 (Article 61) <sup>(4)</sup> established that local authorities must assess their gender equality situation, by reviewing existing gender-related policies, and programmes or approaches to improve gender equality.
- **Spain:** The Equality Law (Organic Law 3/2007) <sup>(5)</sup> establishes that all ministerial departments must send a gender impact analysis of their spending programmes to the Secretary of State for Budget and Expenditure. Additionally, there is a gender budgeting working group consisting of national level representatives from the Ministry of Health, Social Services and Equality, the Office of the Secretary of State for Budgets and Expenditure and the Directorate General of Budgets.
- **Belgium:** The 2007 gender mainstreaming law required a gender perspective into all policies at the federal level <sup>(6)</sup>. An interdepartmental coordination group with officials from various public services offices including the federal Institute for the Equality of Women and Men was created in 2010 (IEWM 2010), to establish a transversal approach and a consistent strategy. Lastly, the federal public Service Budget and Management Control coordinates and integrates gender budgeting information (gender notes or comments) received from the different administrations, in the draft of the federal budget.
- **Sweden:** Gender budgeting is an effort that involves all levels of government in Sweden. In 2018, the Gender Equality Agency was created to assist in the implementation of gender mainstreaming efforts. This agency not only provides support and assesses progress but also participates actively in the budgetary process, particularly in deciding how resources are allocated.
- **Italy:** In 2009, the Public Finance and Accounting Law No. 196/2009 encouraged all public bodies to include a gender budget document in their performance review but did not make this mandatory <sup>(7)</sup>. In 2016, the law was amended, and a gender budgeting pilot was created.

<sup>(3)</sup> Federal Budget Law 2013, available at [https://www.bmf.gv.at/dam/jcr:a90a9f6a-8afe-4b6a-acfc-d0ecd8648b8a/BMF-BHG\\_2013\\_English.pdf](https://www.bmf.gv.at/dam/jcr:a90a9f6a-8afe-4b6a-acfc-d0ecd8648b8a/BMF-BHG_2013_English.pdf)

<sup>(4)</sup> Act 2014-873, available at: <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000029330832>

<sup>(5)</sup> Organic Law 3/2007, available at:

[https://www.coe.int/t/pace/campaign/stopviolence/Source/spain\\_constitutionalact3\\_2007\\_en.pdf](https://www.coe.int/t/pace/campaign/stopviolence/Source/spain_constitutionalact3_2007_en.pdf)

<sup>(6)</sup> Belgian Gender Act, available at: <https://igvm-iefh.belgium.be/sites/default/files/downloads/loigm.pdf>

<sup>(7)</sup> Law 196/2009, available at:

[https://www.rgs.mef.gov.it/Documenti/VERSIONE-I/Selezione\\_normativa/L-/L31-12-2009\\_196.pdf](https://www.rgs.mef.gov.it/Documenti/VERSIONE-I/Selezione_normativa/L-/L31-12-2009_196.pdf)

**Box II.3.2: How does green budgeting help decision making?**

**Budgets are a crucial instrument for climate action and the green transition.** Fiscal policy and the budgets are among the most important instruments that governments have at their disposal to advance national policies on climate and environmental goals. The 2019 Green Deal Communication underlines the role of green budgeting in “redirecting public investment, consumption and taxation to green priorities and away from harmful subsidies” <sup>(1)</sup>.

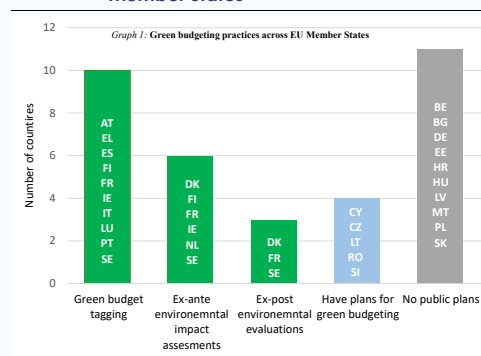
**Since 2019, the Commission has been working closely with the Member States to encourage the adoption of green budgeting at the national level.** It has produced analytical studies <sup>(2)</sup> and has been holding regular discussions with national authorities and shareholders to promote the exchange of experience and best practice. To support Member States in the development of their green budgeting practices, the Commission has developed a Green Budgeting Reference Framework <sup>(3)</sup>. This framework has been the cornerstone of the Commission technical support project provided to 23 Member States to help them build relevant administrative and technical capacity. To provide widely accessible information, the Commission conducts every second year a survey on green budgeting practices that feeds into a public database, available on the Commission green budgeting website <sup>(4)</sup>.

**Green budgeting practices are continuously developing in the EU.** According to the 2023 survey, almost two thirds of the Member States have established, or plan to introduce, some form of green budgeting (e.g., green budget tagging, environmental impact assessments) (Graph 1). An increasing number of countries consider a rather comprehensive set of environmental objectives, thus going beyond climate aspects, and they also look at budget items which are unfavourable to the environment. According to the 2023 survey, almost two thirds of the Member States have established, or plan to introduce, some form of green budgeting (e.g., green budget tagging, environmental impact assessments) (Graph 1). An increasing number of countries consider a rather comprehensive set of environmental objectives, thus going beyond climate aspects, and they also look at budget items which are unfavourable to the environment.

**The integration of green budgeting into the regular budgetary process can support policy development and improve budget allocation.** Having green budgeting tools within a country’s budgetary framework can support coherence and consistency of government actions and help mainstream an environmentally aware approach across all policy areas. However, only the integration of green budgeting in the budget cycle ensures that the information produced from applying green budgeting tools (e.g., green budget tagging, environmental impact assessments) is used when developing new policies and deciding on budget allocation.

**Green budgeting tools can be implemented across all stages of the budget cycle.** As such, they can ensure that green aspects are considered when: (i) setting the government strategy (i.e., budget planning); (ii) developing and negotiating budget measures and broader

**Graph 1: Green budgeting practices across EU Member States**



**Source:** 2023 European Commission survey on green budgeting.

<sup>(1)</sup> The European Commission Green Deal Communication is available here: [https://eurolex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC\\_1&format=PDF](https://eurolex.europa.eu/resource.html?uri=cellar:b828d165-1c22-11ea-8c1f-01aa75ed71a1.0002.02/DOC_1&format=PDF)

<sup>(2)</sup> [https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/green-budgeting-eu\\_en#publications](https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/green-budgeting-eu_en#publications)

<sup>(3)</sup> [European Union Green Budgeting Reference Framework.pdf \(europa.eu\)](https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/green-budgeting-eu_en#publications)

<sup>(4)</sup> [Green budgeting in the EU \(europa.eu\)](https://economy-finance.ec.europa.eu/economic-and-fiscal-governance/green-budgeting-eu_en#publications)

*(Continued on the next page)*

*Box (continued)*

policies (i.e., budget preparation); (iii) approving the budget allocations; (iv) implementing the budget, and (v) ensuring the accountability and transparency around the process (i.e., budget oversight).

**Evidence shows that green budgeting tools are commonly used during the preparation phase, which is essential for the inclusion of green considerations into the budget.** In in-depth interviews with a selection of countries <sup>(5)</sup>, it emerged that the budget law does not contain provisions for green budgeting and do not provide for applying green budgeting tools throughout all stages of the budget cycle. Nevertheless, such tools are commonly used at an early stage during the preparation of the budget, including negotiations on the draft budget, which is essential for the inclusion of green considerations into the budget. A high level of transparency on the green budgeting process is observed as countries publish the green budgeting related information along budget documents. Overall, green budgeting has so far been mostly used to provide transparency over government green action but as the process matures countries aim to use it more strongly as a decision-making tool.

**Countries have been adjusting their institutional arrangement to support the integration of green budgeting in the budget process.** This is done via creating a ‘green’ taskforce or division in the Ministry of Finance, establishing independent climate councils or committees, and/or involving and enhancing the capacity of agencies with professional ‘green’ expertise. Countries are also involving and encouraging various third parties (e.g., think tanks, civil society bodies) in public debates on the green budgeting.

**From the interviews, common areas for development have been identified as well as several challenges.** Areas for development include institutionalising the process to ensure its coherent and systematic implementation across ministries and agencies; more use of ‘green’ spending reviews and green considerations into performance budgeting; strengthening the link between ex ante and ex post assessments; and ensuring quality control. Challenges refer to capacity constraints, the strict calendar of the budget process, limited information and scientific knowledge, and political will and support. Countries are striving to find a right balance between a comprehensive but not too complex exercise, and between the additional administrative burden and the value added.

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<sup>(5)</sup> Though these countries apply various green budgeting tools, the interviews focused on green tagging – for France, Ireland and the EU, and environmental assessments – for Denmark, Finland and Sweden.



# 4. SURVEY ON PRACTICES ON PUBLIC INVESTMENT MANAGEMENT

## 4.1. INTRODUCTION

**Public investment management practices feature highly on the current policy agenda.** The green and digital transitions, the need to ensure energy security, as well as social and economic resilience, and to build up defence capabilities will require sustained high levels of investment in the years to come. These objectives call for investment by corporations and households, but also for higher public investment, backed by a good composition and quality of public finances. Within its limited capacity, the EU budget has supported these efforts. Many Member States are currently ramping up investments in part supported by the Recovery and Resilience Facility, while also reforming their public investment management framework in some cases.

**This chapter summarises new evidence on public investment management practices in the EU, along the key dimensions outlined in European Commission (2022).** This evidence draws on recent Commission work, including (i) in-depth interviews with representatives of selected countries, (ii) exchanges with a group of experts from Member States on national public investment and (iii) a survey covering all EU Member States <sup>(82)</sup>.

**Public investment management practices are concerned with the quality and efficiency of investment.** These practices cover all stages of the public investment management cycle, namely planning, appraisal and selection, budgeting, implementation and ex-post review. While national institutions, procedures and guidelines for managing public investment vary widely from country to country, a number of core functions are typically fulfilled. In addition, it is important to regard public investment management as a system where the different stages are interlinked. Across all these stages, transparency and information flows are crucial.

This chapter is organised as follows: Box II.4.1 provides a definition of public investment while Box II.4.2 briefly discusses the key stages of public investment management. Section 4.2 provides background on the survey content. Section 4.3 presents new evidence on the five stages of the investment cycle. Section 4.4 concludes.

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<sup>(82)</sup> More details, and in particular useful country examples of good practices are presented in Belu Manescu (2022). The underpinning conceptual work is laid out in Belu Manescu (2021), building on extensive work by the OECD (2017), IMF (2018) and World Bank (e.g. Kim et al., 2020).

*Box II.4.1: Definition of public investment*

**Public investment broadly refers to fixed assets, which can be tangible or intangible** <sup>(1)</sup>. In national accounts, public investment is measured as general government gross fixed capital formation and reflects the total value of general government acquisitions, less disposals, of fixed assets (tangible and intangible) during the accounting period, plus changes to the value of non-produced assets (e.g. land improvements). According to ESA 2010, categories of capital expenditure include dwellings, other buildings and structures, machinery and equipment (e.g. cars, ships, computers), intangible fixed assets and weapons systems. Intangible fixed assets include results of R&D, computer software, and large databases to be used in production for more than one year. Public R&D (including the production of freely available R&D) include academic fundamental research, applied research and R&D grants and contracts to private sectors.

**All capital expenditure of public funds should be included in the scope of public investment management.** This includes expenditure by budgetary authorities at all levels of government, including state-owned enterprises and public-private partnerships <sup>(2)</sup>. It is important that independently of how public funds are spent, either via extra-budgetary bodies or government guarantees, they all undergo the same level of scrutiny as that of the central budget. In practice, however, this is an area where much improvement is still needed <sup>(3)</sup>.

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<sup>(1)</sup> Belu Manescu, C., (2021).

<sup>(2)</sup> According to ESA 2010, state owned enterprises are included in the general government accounts if they are non-market producers and controlled by the government. Similarly, PPPs are included in the government accounts and their assets/imputed debt are thereby recorded as governments assets/debt if there is strong evidence that the government bears simultaneously most of the risks and rewards attached to the assets (directly and linked to its use) involved in the specific partnership.

<sup>(3)</sup> On this point see Chapter III.2 of the 2016 Report on Public Finance in EMU.

#### Box II.4.2: Key stages of public investment management

It is helpful to understand the public investment management <sup>(1)</sup> cycle along five inter-related stages, each with different stakeholders and decision makers <sup>(2)</sup>:

1. According to the literature, *efficient investment planning* requires a long-term broad strategic vision anchored to country- or sector-specific goals. To be useful, such a strategy is complemented with operational plans that include deliverables and appropriate costs and is based on reliable estimates of current capital stock and capital needs, also to facilitate appropriate maintenance. Investment plans help to effectively guide the budgetary process, while operational plans could feed into the appraisal and selection process. Integrated planning, appraisal/selection and budgeting are key elements for effective investment management.
2. The appraisal and selection stage focuses on a detailed assessment of a project's implications from all angles, where appraisal refers to methodologies and procedures to assess a project along all relevant dimensions (financial, social, environmental, sustainability), while selection refers to criteria and methods to compare findings across these dimensions. Standardised procedures for appraisal and selection, which are centrally developed at each level of government and whose results are public, are key for an efficient public investment management. Such procedures can include independent reviews of the project appraisals and centralised checks that appraisal criteria were met.
3. A medium-term budgetary framework, including for instance multi-annual ceilings on capital expenditure, can ensure consistency between annual budgetary decisions and the multi-annual lifetime of most projects. It can also ensure that annual budgetary decisions are anchored in the strategic plans. To increase transparency, capital and maintenance costs can be estimated at the project/programme level over the lifecycle of the project and be presented in annual and multi-annual budgetary documents.
4. Timely and transparent monitoring on the basis of pre-defined implementation plans, including at the central or subnational level, as appropriate, supports an efficient implementation process. In countries with advanced systems, a reappraisal of the project is required when projects exceed tolerance levels in the budget, timeline or deliverables, including the possibility to terminate the project.
5. A number of steps taken after completion of a project can support effective asset management. First, basic completion reports immediately after project completion help identifying lessons on project implementation. Such reports are more helpful when centrally reviewed and published, at each level of government. Furthermore, comprehensive ex-post reviews focusing on how the project delivered on its objectives and assessing all stages of the investment cycle can be helpful, especially when published. Finally, comprehensive and up-to-date asset registers are crucial for effective asset management.

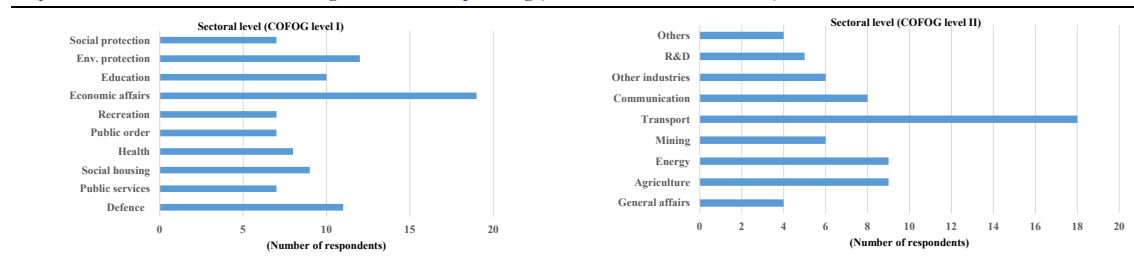
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<sup>(1)</sup> Belu Manescu, C., (2021) Belu Manescu, C., (2022).

<sup>(2)</sup> The vast literature on the management of public investment relies on key contributions such as the OECD (2017), IMF (2018) and Kim et al. (2020).

## 4.2. OVERVIEW OF DATA IN THE EU

Graph II.4.1: COFOG sectoral coverage of investment planning (in number of Member States)



Source: Commission's public investment management survey, 21 responses.

**The evidence presented has largely been collected through a survey among all Member States.** Drawing on the relevant literature, the survey covered all stages of the investment cycle, and also explored interlinkages between the different stages<sup>(83)</sup>. Data on the economic and financial affairs sector, in particular the transportation sub-sector, is more widely available than for other sectors and in a few cases, transportation is the only sub-sector for which information has been provided in the survey (Graph II.4.1). The evidence collected mostly concerns investments at the national level (i.e. federal or central); yet, given the significant amounts of investment conducted at the subnational level, the practices presented here can inform and guide also investment at that level.

**Public investment management procedures reported in the survey vary with the project's size, sector and source of financing.** In general, more significant projects –traditionally in the transportation sector– are subject to stricter scrutiny. Similarly, EU-financed investments tend to follow stricter procedures than nationally financed ones, due to EU requirements (see below). About half of the Member States reported significant differences in the management of EU-funded investments vs. nationally financed investments.

**In many cases, investments funded by the EU Cohesion Policy tend to follow a stricter process than nationally funded investments.** EU-funded investments are governed by EU requirements at each stage of the investment cycle. They are managed via a seven-year programming framework which ensures effective long-term planning, while also protecting funding over the same horizon. Appraisal and selection rely on well-specified criteria and a methodology designed at the sector level, and they also require independent reviews. While selection procedures for nationally financed investments tend to be weaker in some countries, several Member States are taking active steps to align requirements with those of EU-funded investments. In some countries with a large share of EU-funded investments, advanced electronic monitoring systems tend to be in place for EU-funded investments (e.g., Czechia, Greece). While changing the scope of the project is not permitted for EU-funded investments, terminating it in case of unjustified delays is. Finally, ex-post reviews are systematically required with findings feeding back into planning.

**The survey revealed room for improvement and showed that many Member States are either currently implementing or have recently implemented ample reforms of their public investment management.** Countries that implemented wider reforms include Belgium, Bulgaria, Croatia, Cyprus, Estonia, France, Greece, Ireland, Italy, Lithuania, Slovakia and Spain. At times, such reforms were implemented in the context of the Recovery and Resilience Facility and/or supported by the European Commission's Technical Support Instrument. Many Member States use international expertise (IMF, OECD) for diagnosis and reform recommendations.

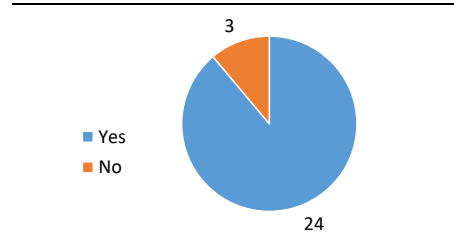
<sup>(83)</sup> The survey included 30 questions on specific elements and five general questions (e.g., extent of reform, differences in the management of EU vs. non-EU funding, etc.). A detailed analysis of the survey results is available in Belu Manescu (2022).

### 4.3. NEW EVIDENCE ON THE FIVE STAGES OF THE INVESTMENT CYCLE

#### Investment Planning

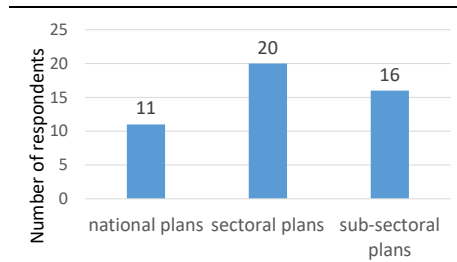
The survey shows that strategic investment planning is widely used in the Member States, but its coverage and link to budgetary allocations vary substantially. Strategic investment planning documents typically include key objectives and priorities for the long-term. While usually set in general terms (e.g. decarbonising the economy<sup>(84)</sup>; access to quality childcare, education and health services<sup>(85)</sup>; gender equality<sup>(86)</sup> etc.), these priorities are accompanied by rough estimates of the necessary financial envelope (e.g. EUR 7 bn to decarbonise the economy and become a leader in green hydrogen)<sup>(87)</sup>. Such estimate provides an order of magnitude of the relative importance of the priority, which should guide budgetary allocation.

Graph II.4.2: Does your country have long-term strategic investment plans? (number of respondents)



Note: 27 respondents.  
Source: Commission survey.

Graph II.4.3: The long-term planning of public investment



Note: Multiple choices allowed for this question.  
Source: Commission survey.

**Half of the Member States have operational plans with well-specified expected outcomes and costings of the projects.** Differently from strategic plans, operational plans present detailed information about costings, outputs and outcomes. When they are linked with strategic documents, investment decisions are less likely to be driven by temporary needs. In practice, strategic and operational plans are usually distinct documents, prepared by different entities. Whereas operational plans/programmes tend to be the prerogative of line ministries, broad strategic plans are usually prepared by either a central (coordinating) body – often reporting directly to the Prime Minister– or by the Ministry of Planning/Development, at times in cooperation

with line ministries and other bodies<sup>(88)</sup>. Accurate estimates of the existing capital stock and its condition –usually compiled in an asset register– are useful not only for planning new developments but also for estimating improvements and, crucially, maintenance needs. Asset registers are in place in few countries and in key sectors only such as energy or transport (Section II.3.5).

#### Appraisal and Project Selection

**A vast majority of Member States use a standard methodology for appraisal, at least in some key sectors (such as infrastructure), which tends to be stricter for larger projects.** At the national level, central support and development for appraisal/selection guidelines, at least in some sectors, is available in about half of the Member States, especially in relation to EU-financed investments.

**Other safeguards to project selection such as independent reviews or short lists of eligible projects are in place in several Member States.** Many Member States have in place independent reviews by external parties (such as consultants, independent agencies or a unit different from the one carrying out

<sup>(84)</sup> “France 2030” available at [https://www.gouvernement.fr/upload/media/default/0001/01/2022\\_02\\_dossier\\_de\\_presse\\_-\\_comite\\_france\\_2030\\_01022022\\_v\\_4.pdf](https://www.gouvernement.fr/upload/media/default/0001/01/2022_02_dossier_de_presse_-_comite_france_2030_01022022_v_4.pdf)

<sup>(85)</sup> “Ireland 2040” available at <https://www.gov.ie/en/campaigns/09022006-project-ireland-2040/>

<sup>(86)</sup> “National Strategy for Sustainable Development in Romania 2030” available at <http://dezvoltareurabila.gov.ro/web/wp-content/uploads/2019/03/Romanias-Sustainable-Development-Strategy-2030.pdf>

<sup>(87)</sup> “France 2030”

<sup>(88)</sup> Other bodies involved in planning may include forecasting bodies or subnational authorities (Ireland).

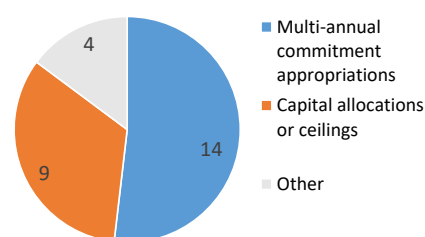
the appraisal) before the budgeting decision is made, often for larger projects and/or in certain sectors. About half of the Member States report conducting reviews to verify that all projects proposed for funding have respected the appraisal and selection procedures (also called “gatekeeping”). Finally, maintaining a list of (new) eligible projects, ideally with few projects and an order of priority, exclusively assessed on technical grounds, can be a helpful input to the budgeting decision. Such lists are common and are maintained at the line ministerial level.

## Budgeting

### Medium-term capital frameworks are not widely used by the Member States.

While multi-annual capital expenditure estimates are common, medium-term capital expenditure allocations or ceilings are in place in less than half of the Member States, of different horizons and degrees of bindingness (Graph II.4.4). Multi-annual capital estimates at the programme/project level (based on implementation plans and updated every year) help keep track of capital needs over the medium-term, while expenditure ceilings can provide an indication of the available fiscal space for new projects. Not only does a medium-term orientation strengthen the link to strategic planning, but it can also contribute to maintaining capital expenditure within what is affordable, especially when based on timely and accurate monitoring. Proper budgeting for maintenance is essential to avoid that investment projects are ended prematurely. While estimating maintenance is difficult, in many Member States appropriate amounts of maintenance appear allocated to the budget. In the Netherlands, the decision of how much to allocate between maintenance and capital investment is taken over the lifetime of projects (by means of multi-annual commitment appropriations).

Graph II.4.4: How is capital investment budgeted for? (number of respondents)



Source: Commission survey.

is essential to avoid that investment projects are ended prematurely. While estimating maintenance is difficult, in many Member States appropriate amounts of maintenance appear allocated to the budget. In the Netherlands, the decision of how much to allocate between maintenance and capital investment is taken over the lifetime of projects (by means of multi-annual commitment appropriations).

### Only a few Member States have additional restrictions in place to lock-in funds to specific projects.

Such restrictions are crucial to limit the diversion of funds from existing projects to new projects. Multi-annual commitment appropriations, which are a formal set of legal restrictions and part of the legislative process for budgeting, can help against such diversion of funds. It consists of a dual system of cash and commitment appropriations, under which each line ministry receives two types of appropriations per year in the annual budget. The first is an appropriation for payments for the next budget year, and the second is an appropriation for commitments for each year for the entire duration of the projects. By controlling the full cost of ongoing projects over their lifetime, ministers can keep the stock of approved projects at an affordable level. Only few Member States have such a system in place (e.g., Denmark, France, the Netherlands, Sweden), usually for larger projects in key sectors. Many Member States instead use a system of indicative multi-annual commitment appropriations.

## Monitoring and implementation

**All Member States report monitoring at the level of the implementing agency and line ministry, while central monitoring (at a given level of government) is also in place in about half of the Member States.** Effective monitoring is usually based on implementation plans including key cost information, timelines, milestones and key deliverables, which are available prior to budgetary decisions. Implementing agencies are responsible for monitoring physical and financial progress at the project level, while line ministries typically monitor progress of aggregate programmes in terms of achieving objectives and outcomes. Line ministries would typically report to the Finance Ministry who only needs essential and timely information on project/programme development to perform designated tasks, such as setting realistic expenditure ceilings. In some countries, however, the Finance Ministry may be involved to a significant degree with centrally monitoring projects of a certain size, while in others specific monitoring

may be in place for significant/sensitive projects usually directly under the responsibility of the Government or the Prime-Minister.

**A few Member States use modern electronic monitoring systems and publish regularly centrally reviewed implementation reports.** In Italy, for example, the Ministry for Economy and Finance carries out real-time monitoring on the basis of a joint project and programme IT management system connected to the contract system, which operates at the level of the line ministry. Implementation reports might show progress for all projects in a given sector annually (e.g., Germany); sometimes they are to be presented to Parliament (e.g., Luxembourg).

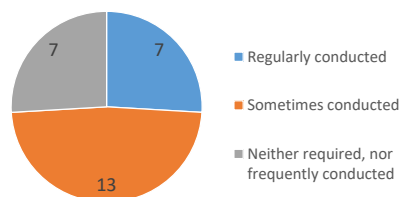
**While options for project adjustments are prevalent, the possibility to terminate a project before completion is rare.** Most often, a reassessment of the costs and benefits of projects or an adjustment in the project scope is required when costs exceed given thresholds relative to the original cost (e.g., by 10% in some cases).

#### Ex-post reviews and asset registers

**In almost all EU Member States, national audit offices carry out ex-post reviews on a sampling basis.**

As they require careful planning and are resource intensive, systematic ex-post reviews on the performance of projects are rarely performed for all completed projects above a threshold (Graph II.4.5). In Ireland, the Public Spending Code requires all large capital projects and a proportion of the other capital projects to undergo ex-post review, while in France a similar requirement is in place for the investments included in the France 2030 plan. By contrast, completion reviews that are carried out immediately (e.g., after six months) to assess whether the project was delivered on time, within budget and to the specified design are common. Information on the success factors behind delivering projects as planned could be used for the planning and project selection phase for new projects.

Graph II.4.5: Ex-post reviews of projects in place? (number of respondents)



Source: Commission survey.

**Only few Member States have in place a review process of the functioning of the public investment management system.** In particular, such reviews assess the extent to which the interaction between institutions, guidelines and methodologies helped deliver the intended results. Importantly, the lessons learnt from such reviews could improve governance throughout the investment cycle. For example, in Italy, ex-post reviews are conducted to reformulate programme contract updates and for better parametric estimation of future projects. In Spain, the review of the public investment system was carried out by the independent fiscal institution, AIReF.

**Less than a third of the Member States actively use asset registers for planning and estimating maintenance costs.** These include Denmark, Estonia, Finland, Germany, Greece, Italy, the Netherlands, and Sweden. In Estonia and Sweden, asset registers are used especially for maintenance planning, while in Denmark, in the road and rail sectors, asset condition monitoring is considered very important as regards both safety and economic optimisation. Some of the main functions of an asset register are to (1) provide information on the condition of the asset with a view to determine maintenance needs for existing assets and (2) inform the decision on new assets development by providing an overview of existing assets. To ensure comparability between sectors and/or levels of government, common guidelines for the development of asset registers would be helpful. A couple of Member States (e.g. Cyprus and Greece) are in the process of extending or newly developing asset registers.

#### 4.4. CONCLUSIONS

**This chapter highlights advantages from public investment being managed in an integrated way, based on transparent, timely and accurate information.** Clearly defined responsibilities on the basis of agreed guidelines, supported by appropriate control mechanisms and applied transparently appear to be desirable features of public investment management systems. The evidence highlights a number of good practices in Member States in all stages of their public investment cycle, but points to substantial differences in management as a function of institutional set-up, project size, sector and source of financing. There appears to be room for improvement across Member States.

In particular, the evidence suggests the following:

- While almost all Member States have in place some form of strategic investment planning, its coverage and link to budgetary allocation can vary substantially. In many cases, these plans include measurable targets and costings.
- Standardised procedures for project appraisal and selection appear common, while centralised reviews (at a given level of government) to ensure that projects selected have undergone appraisal or independent reviews before budget allocation tend to be rare.
- Sound medium-term capital budgeting tools for timely availability of capital are in place in only a few Member States, while expenditure to cover maintenance costs is regularly but not systematically indicated in the budget.
- Monitoring is sometimes conducted at the central government level, while ex-post reviews, albeit common, are only conducted for sub-sets of projects.
- EU-financed investments tend to follow stricter rules throughout the project cycle than nationally-financed ones, particularly with respect to project appraisal/selection and budgeting.



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Table II.A.1: Overview EDP steps – Euro area Member States

Treaty Art.	Steps in EDP procedure	Member State																			
		IE	FR	ES	LV	MT	LT	BE	DE	IT	NL	AT	PT	SI	SK	CY	FI	MT			
126(3) 126(4) 126(5) 126(6) 126(7)	<b>Starting phase</b> Commission adopts EDP-report = start of the procedure Economic and Financial Committee adopts opinion Commission adopts opinion on existence of excessive deficit Council adopts recommendation for Council decision on existence of excessive deficit Council adopts recommendation for Council decision to end this situation Council adopts decision on existence of excessive deficit Council adopts recommendation to end this situation <i>deadline for correction of excessive deficit</i>	18.02.2009	18.02.2009	18.02.2009	18.02.2009	13.05.2009	13.05.2009	07.10.2009	07.10.2009	07.10.2009	07.10.2009	07.10.2009	07.10.2009	07.10.2009	07.10.2009	07.10.2009	07.10.2009	07.10.2009	21.05.2013		
		27.02.2009	27.02.2009	27.02.2009	27.02.2009	29.05.2009	29.05.2009	27.10.2009	27.10.2009	27.10.2009	27.10.2009	27.10.2009	27.10.2009	27.10.2009	27.10.2009	27.10.2009	27.10.2009	27.10.2009	21.05.2010		
		24.03.2009	24.03.2009	24.03.2009	02.07.2009	24.06.2009	24.06.2009	11.11.2009	11.11.2009	11.11.2009	11.11.2009	11.11.2009	11.11.2009	11.11.2009	11.11.2009	11.11.2009	11.11.2009	11.11.2009	15.06.2010		
		27.04.2009	27.04.2009	27.04.2009	07.07.2009	07.07.2009	07.07.2009	02.12.2009	02.12.2009	02.12.2009	02.12.2009	02.12.2009	02.12.2009	02.12.2009	02.12.2009	02.12.2009	02.12.2009	02.12.2009	13.07.2010		
		2013	2012	2012	2012	2010	2011	2012	2013	2012	2013	2013	2013	2013	2013	2013	2012	2011	2014		
		126(7) 126(7) 126(8) 126(8) 126(9) 126(7) 126(7) 126(8) 126(8) 126(9) 126(9) 126(8)	Commission adopts communication on action taken Commission adopts recommendation for NEW Council recommendation to end situation of excessive deficit Council adopts recommendation for NEW Council recommendation to end situation of excessive deficit <i>new deadline for correction of excessive deficit</i> Commission adopts communication on action taken Commission adopts recommendation for Council decision establishing inadequate action Council adopts decision establishing inadequate action Commission adopts recommendation for a Council decision to give notice Council adopts decision to give notice Commission adopts recommendation for NEW Council recommendation to end situation of excessive deficit Council adopts recommendation for NEW Council recommendation to end situation of excessive deficit <i>new deadline for correction of excessive deficit</i> Commission adopts communication on action taken Commission adopts recommendation for NEW Council recommendation to end situation of excessive deficit Commission adopts communication on action taken Commission adopts recommendation for NEW Council recommendation to end situation of excessive deficit Council adopts decision establishing inadequate action Commission adopts recommendation for Council implementing decision imposing a fine for failure to take effective action Commission adopts recommendation for Council decision to give notice Council adopts decision to give notice <i>new deadline for correction of excessive deficit</i> Council adopts implementing decision on imposing a fine for failure to take effective action Commission adopts communication on action taken Commission adopts proposal for Council opinion on Economic Partnership Programme	11.11.2009	11.11.2009	11.11.2009	11.11.2009	27.01.2010	27.01.2010	11.01.2012	11.01.2012	11.01.2012	29.05.2013	29.05.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	15.11.2013
				02.12.2009	02.12.2009	02.12.2009	02.12.2009	16.02.2010	16.02.2010	06.01.2011	06.01.2011	06.01.2011	29.05.2013	29.05.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013
				15.06.2010	15.06.2010	15.06.2010	15.06.2010	06.01.2011	21.09.2010	11.01.2012	11.01.2012	11.01.2012	29.05.2013	29.05.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013
				24.08.2011	15.11.2013	14.11.2012	14.11.2012	14.11.2012	14.11.2012	14.11.2012	14.11.2012	14.11.2012	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013
				27.02.2015	27.02.2015	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013	29.05.2013
10.03.2015	10.03.2015			21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013	21.06.2013		
01.07.2015	01.07.2015			15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013	15.11.2013		
12.07.2016	12.07.2016			12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016	12.07.2016		
27.07.2016	27.07.2016			27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016	27.07.2016		
08.08.2016	08.08.2016			08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016	08.08.2016		
16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016	16.11.2016				
2015	2015	2014	2014	2014	2015	2015	2015	2015	2015	2015	2015	2015	2015	2015	2016	2016	2016				
126(12) 126(12)	<b>Abrogation</b> Commission adopts recommendation for Council decision abrogating existence of excessive deficit Council adopts decision abrogating existence of excessive deficit	18.05.2016	23.05.2018	05.06.2019	29.05.2013	14.11.2012	29.05.2013	02.06.2014	02.06.2014	02.06.2014	02.06.2014	02.06.2014	02.06.2014	02.06.2014	02.06.2014	02.06.2014	02.06.2014	18.05.2016			
		17.06.2016	22.06.2018	14.06.2019	21.06.2013	04.12.2012	21.06.2013	20.06.2014	20.06.2014	20.06.2014	20.06.2014	20.06.2014	20.06.2014	20.06.2014	20.06.2014	20.06.2014	20.06.2014	20.06.2014			

Notes: \* In line with Regulation (EU) No 472/2013 on the strengthening of economic and budgetary surveillance of Member States in the euro area experiencing or threatened with serious difficulties with respect to their financial stability (Two-pack) the assessment of effective action is carried out in the context of the programme surveillance.

Table II.A.2: Overview EDP steps - Non-euro area Member States

Steps in EDP procedure	Treaty Art.	Member State							
		HU	PL	RO	CZ	BG	DK	HR	UK
<b>Starting phase</b>									
Commission adopts EDP-report = start of the procedure	126(3)	12.05.2004	13.05.2009	13.05.2009	07.10.2009	12.05.2010	12.05.2010	15.11.2013	11.06.2008
Economic and Financial Committee adopts opinion	126(4)	24.05.2004	29.05.2009	29.05.2009	27.10.2009	27.05.2010	27.05.2010	29.11.2013	25.06.2008
Commission adopts: opinion on existence of excessive deficit	126(5)								
recommendation for Council decision on existence of excessive deficit	126(6)	24.06.2004	24.06.2009	24.06.2009	11.11.2009	06.07.2010	15.06.2010	10.12.2013	02.07.2008
recommendation for Council recommendation to end this situation	126(7)								
Council adopts: decision on existence of excessive deficit	126(6)	05.07.2004	07.07.2009	07.07.2009	02.12.2009	13.07.2010	13.07.2010	21.01.2014	08.07.2008
recommendation to end this situation	126(7)								
deadline for correction of excessive deficit		2008	2012	2011	2013	2011	2013	2016	fin. year 2009/10
<b>Follow-up</b>									
Commission adopts communication on action taken			03.02.2010		15.06.2010	27.01.2011	27.01.2011	02.06.2014	
Commission adopts recommendations for Council decision establishing inadequate action	126(8)	22.12.2004							24.03.2009
Council adopts decision establishing inadequate action	126(8)	18.01.2005							27.04.2009
Commission adopts recommendation for NEW Council recommendation to end excessive deficit situation	126(7)	16.02.2005		08.02.2010					24.03.2009
Council adopts NEW recommendation to end excessive deficit situation	126(7)	08.03.2005		16.02.2010					27.04.2009
new deadline for correction of excessive deficit		2008		2012					fin. year 2013/14
Commission adopts communication on action taken		13.07.2005	11.01.2012	21.09.2010					
Commission adopts recommendations for Council decision establishing inadequate action	126(8)	20.10.2005							
Council adopts decision establishing inadequate action	126(8)	08.11.2005							11.11.2009
Commission adopts recommendation for NEW Council recommendation to end excessive deficit situation	126(7)	26.09.2006							02.12.2009
Council adopts NEW recommendation to end excessive deficit situation	126(7)	10.10.2006							fin. year 2014/15
new deadline for correction of excessive deficit		2009							06.07.2010
Commission adopts communication on action taken		13.06.2007							12.05.2015
Commission adopts recommendations for Council decision establishing inadequate action	126(8)								19.06.2015
Council adopts decision establishing inadequate action	126(8)								12.05.2015
Commission adopts recommendation for NEW Council recommendation to end excessive deficit situation	126(7)	24.06.2009	29.05.2013						12.05.2015
Council adopts NEW recommendation to end excessive deficit situation	126(7)	07.07.2009	21.06.2013						19.06.2015
new deadline for correction of excessive deficit		2011	2014						fin. year 2016/17
Commission adopts communication on action taken		27.01.2010							16.11.2015
Commission adopts recommendations for Council decision establishing inadequate action	126(8)	11.01.2012	15.11.2013						
Council adopts decision establishing inadequate action	126(8)	24.01.2012	10.12.2013						
Commission adopts recommendation for NEW Council recommendation to end excessive deficit situation	126(7)	06.03.2012	15.11.2013						
Council adopts NEW recommendation to end excessive deficit situation	126(7)	13.03.2012	10.12.2013						
new deadline for correction of excessive deficit		2012	2015						
Commission adopts communication on action taken		30.05.2012	02.06.2014						
<b>Abrogation</b>									
Commission adopts recommendation for Council decision abrogating existence of excessive deficit	126(12)	29.05.2013	12.05.2015	29.05.2013	02.06.2014	30.05.2012	02.06.2014	22.05.2017	22.11.2017
Council adopts decision abrogating existence of excessive deficit	126(12)	21.06.2013	19.06.2015	21.06.2013	20.06.2014	22.06.2012	20.06.2014	16.06.2017	04.12.2017
<b>Starting phase</b>									
Commission adopts EDP-report = start of the procedure	126(3)				14.02.2020				
Economic and Financial Committee adopts opinion	126(4)				24.02.2020				
Commission adopts: opinion on existence of excessive deficit	126(5)								
recommendation for Council decision on existence of excessive deficit	126(6)			04.03.2020					
recommendation for Council recommendation to end this situation	126(7)								
Council adopts: decision on existence of excessive deficit	126(6)			03.04.2020					
recommendation to end this situation	126(7)								
deadline for correction of excessive deficit				2022					
<b>Follow-up</b>									
Commission adopts communication on fiscal situation in Romania					18.11.2020				
Commission adopts recommendation for Council recommendation to end this situation	126(7)				02.06.2021				
Council adopts recommendation to end the excessive deficit situation	126(7)				18.06.2021				

Source: Source: Commission services.

Table II.A.3: Overview EDP steps - Greece

Steps in EDP procedure	Treaty Art.	Greece
<b>Starting phase</b>		
Commission adopts EDP-report = start of the procedure	126(3)	18.02.2009
Economic and Financial Committee adopts opinion	126(4)	27.02.2009
Commission adopts:		
opinion on existence of excessive deficit	126(5)	
recommendation for Council decision on existence of excessive deficit	126(6)	24.03.2009
recommendation for Council recommendation to end this situation	126(7)	
Council adopts:		
decision on existence of excessive deficit	126(6)	27.04.2009
recommendation to end this situation	126(7)	
<i>deadline for correction of excessive deficit</i>		<b>2010</b>
<b>Follow-up</b>		
Commission adopts recommendations for Council decision establishing inadequate action	126(8)	11.11.2009
Council adopts decision establishing inadequate action	126(8)	02.12.2009
<i>Commission adopts Council recommendation for decision to give notice</i>	126(9)	03.02.2010
Council decision to give notice	126(9)	16.02.2010
<i>new deadline for correction of the excessive deficit</i>		<b>2012</b>
Commission adopts communication on action taken		09.03.2010
Council adopts conclusions thereon		16.03.2010
Commission adopts recommendation for NEW Council decision to give notice	126(9)	04.05.2010
Council decision to give notice	126(9)	10.05.2010
<i>new deadline for correction of the excessive deficit</i>		<b>2014</b>
<b>Follow-up - 1st review</b>		
Commission adopts communication on action taken		19.08.2010
Commission adopts recommendation for Council decision amending the Council decision to give notice	126(9)	19.08.2010
Council decision amending the Council decision to give notice	126(9)	07.09.2010
<b>Follow-up - 2nd review</b>		
Commission adopts communication on action taken		09.12.2010
Commission adopts recommendation for Council decision amending the Council decision to give notice	126(9)	09.12.2010
Council decision amending the Council decision to give notice	126(9)	20.12.2010
<b>Follow-up - 3rd review</b>		
Commission adopts communication on action taken		24.02.2011
Commission adopts recommendation for Council decision amending the Council decision to give notice	126(9)	24.02.2011
Council decision amending the Council decision to give notice	126(9)	07.03.2011
<b>Follow-up - 4th review</b>		
Commission adopts communication on action taken		01.07.2011
Commission adopts recommendation for Council decision amending the Council decision to give notice	126(9)	05.07.2011
Council decision amending the Council decision to give notice	126(9)	12.07.2011
<b>Follow-up - 5th review</b>		
Commission adopts communication on action taken		26.10.2011
Commission adopts recommendation for Council decision amending the Council decision to give notice	126(9)	26.10.2011
Council decision amending the Council decision to give notice	126(9)	08.11.2011
<b>Follow-up - Second Adjustment Programme</b>		
Commission adopts communication on action taken		09.03.2012
Commission adopts recommendation for Council decision amending the Council decision to give notice	126(9)	09.03.2012
Council decision amending the Council decision to give notice	126(9)	13.03.2012
<b>Follow-up - Second Adjustment Programme</b>		
Commission adopts communication on action taken		30.11.2012
Commission adopts recommendation for Council decision amending the Council decision to give notice	126(9)	30.11.2012
Council decision amending the Council decision to give notice	126(9)	04.12.2012
<i>new deadline for correction of the excessive deficit</i>		<b>2016</b>
<b>Follow-up - Third Adjustment Programme</b>		
Council adopts decision to give notice	126(9)	20.08.2015
<b>Abrogation</b>		
Commission adopts recommendation for Council decision abrogating existence of excessive deficit	126(12)	12.07.2017
Council adopts decision abrogating existence of excessive deficit	126(12)	25.09.2017

Source: Commission services.

Table II.A.4: Overview SDP steps - Romania and Hungary

Steps in SDP procedure	Treaty Art.	Romania	Romania (cont.)	Romania (cont.)	Hungary	Hungary (cont.)
<b>Starting phase</b>						
Commission adopts: recommendation with a view to giving warning on the existence of a significant observed deviation	121(4)	22.05.2017	23.05.2018	05.06.2019	23.05.2018	05.06.2019
recommendation for Council recommendation with a view to correcting the significant observed deviation	121(4)	22.05.2017	23.05.2018	05.06.2019	23.05.2018	05.06.2019
Council adopts recommendation with a view to correcting the significant observed deviation	121(4)	16.06.2017	22.06.2018	14.06.2019	22.06.2018	14.06.2019
<i>deadline for report on action taken</i>		<b>15.10.2017</b>	<b>15.10.2018</b>	<b>15.10.2019</b>	<b>15.10.2018</b>	<b>15.10.2019</b>
<b>Follow-up</b>						
Commission adopts: recommendation for Council decision on no effective action	121(4)	22.11.2017	21.11.2018	20.11.2019	21.11.2018	20.11.2019
recommendation for Council recommendation with a view to correcting the significant observed deviation	121(4)	22.11.2017	21.11.2018	20.11.2019	21.11.2018	20.11.2019
Council adopts: decision on no effective action	121(4)	05.12.2017	04.12.2018	05.12.2019	04.12.2018	05.12.2019
recommendation with a view to correcting the significant observed deviation	121(4)	05.12.2017	04.12.2018	05.12.2019	04.12.2018	05.12.2019
<i>new deadline for report on action taken</i>		<b>15.04.2018</b>	<b>15.04.2019</b>	<b>15.04.2020</b>	<b>15.04.2019</b>	<b>15.04.2020</b>
Commission adopts: recommendation for Council decision on no effective action	121(4)	23.05.2018	05.06.2019	<i>Superseded by the Excessive Deficit Procedure</i>	05.06.2019	<i>Council decision on effective action taken*</i>
Council adopts: decision on no effective action	121(4)	22.06.2018	14.06.2019	<i>Superseded by the Excessive Deficit Procedure</i>	14.06.2019	<i>Council decision on effective action taken*</i>

Notes: \*this conclusion was reached by the Council on 20 July 2020 as part of the Council Recommendation on the 2020 National Reform Programme of Hungary and delivering a Council opinion on the 2020 Convergence Programme of Hungary. The conclusion was based on the Commission's overall assessment and took into account the activation of the general escape clause for 2020, which allowed for a temporary departure from the adjustment path towards the medium-term budgetary objective.

Source: Commission services.

# Part III

## Impact of inflation on public finances

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## KEY FINDINGS

**Part III discusses the impact of inflation on public finances from a theoretical and an empirical angle.**

### **Inflation affects public finances through different channels, and its effect largely depends on the type of inflationary shock**

- Chapter 1 recalls that, in general, inflation affects public finances through several channels: first, inflation decreases the real value of outstanding public debt. Second, it affects both government revenues and the expenditures, therefore affecting the primary balance. Third, central banks will attempt to counter inflation by raising their policy interest rates, thereby gradually increasing interest expenditure for the government. Finally, inflation affects the size and composition of economic growth, which in turn will have consequences for public finances.
- From the second half of 2021, the Euro Area has lived a period of historically high inflation, driven in the beginning by the combined effects of lockdowns, large government support measures and supply bottlenecks, and later exacerbated by the economic consequences of the Russian invasion of Ukraine. This inflationary episode on the one hand led to a falling debt-to-GDP ratio and increased government revenues, and on the other reduced economic growth and prompted governments to announce support measures to households and firms, thus mitigating the economic shock. The inflationary environment will also lead to gradually increasing nominal expenditures and weigh on interest expenditures in the coming years, thereby leading to upwards pressure on public debt levels.

### **Our analysis points at differentiated short-term positive impacts of inflation on fiscal variables across the EU and suggests that inflation affects the ability to forecast fiscal developments**

- Chapter 2 presents new panel-based evidence showing that surprise inflation tends to increase public revenue and expenditure, although the budget balance appears not to be significantly affected in the very short term. Yet, these estimates based on the past two decades of data reflect the impact of moderate inflation. Under higher inflation circumstances, such as seen in 2022, the impact could be different.
- EUROMOD simulations aimed at focusing on the recent surge in inflation and at illustrating the differentiated short-term impact of inflation on fiscal outcomes under those circumstances, point at a favourable impact on the budget balance ranging from 0.5 to 1.5 percent of GDP across the EU countries.
- Finally, we provide evidence showing that higher inflation leads to larger short-term forecasting errors of fiscal variables, as assessing the inflationary impact on the various budgetary items is a complex task that requires accounting effect of inflation on the rest of the economy and accounting for the fact that relative price dynamics across different price indices matters as well, as different budgetary items are affected by different price pressures.

### **New debt simulations show that inflation that is purely driven by a terms-of-trade shock leads to higher debt levels in the medium to long term**

- Chapter 3 presents new debt simulations carried out thanks to the Commission's medium-term public debt projection model which is routinely used to underpin its Debt Sustainability Analysis (DSA). In order to assess the impact of higher inflation on debt dynamics, an 'inflation shock scenario' is set up, calibrated based on the results of the Commission's macroeconomic model QUEST.
- The simulations show that, all else being equal, a terms-of-trade shock has a direct debt-reducing impact through the denominator effect. However, this effect is outweighed by the debt-increasing

effects of three other channels, namely a slower real GDP growth, a weaker primary balance and a higher interest rate channel. Overall, a terms-of-trade shock raising HICP inflation by 1 pp. (leading to a higher GDP deflator by 0.8 pp.) is found to increase the public debt in the EU by about 2 pps. of GDP on average in the longer run.

- The effect varies across Member States. It appears to be particularly large in Member States with high public debt and/or high interest rates, and short debt maturities.

# 1. IMPACT OF INFLATION ON PUBLIC FINANCES: CONCEPTS AND CHANNELS

## 1.1. INTRODUCTION

**The interaction between inflation and public finances is a central topic in economic policy analysis.** The analysis of its various aspects underpins a rich and wide-ranging economic research field, with specific topics having attracted particular attention at specific points in time. For example, in the run-up to the euro, a large strand of literature discussed how public deficits could inappropriately fuel inflation, a risk described as ‘fiscal dominance’ (ECB, 2020).

**After a prolonged period of low inflation in the euro area, a key question is whether the current episode of high inflation will increase pressure on public finances or not.** The latest economic forecasts confirm that the sharp and uneven rise in inflation across the euro area in the aftermath of the pandemic and Russia’s aggression of Ukraine is projected to ease only gradually. The strong increase in euro area inflation from 2.6% in 2021 to 8.4% in 2022 was primarily driven by the energy component of inflation, but inflationary pressures then broadened, with core inflation (i.e. HICP excluding energy and unprocessed food) at 1.5% in 2021 rising quickly as well and reaching 4.9% in 2022. The spring 2023 forecast of the European Commission expects only a gradual decline in euro area core inflation as it would increase further to 6.1% in 2023 before falling to 3.2% in 2024, still almost double its historical average. As this happens in a context of public debt exceeding 90% of GDP in the euro area, it appears particularly relevant to understand whether the current inflation is good or bad news for debt dynamics: will it help reduce debt or can it end up increasing the debt burden?

**Inflation, its persistence, its unevenness across euro area countries and its drivers are factors that warrant consideration when assessing public finance developments and policies** <sup>(89)</sup>. The overall impact of higher inflation on public finances is determined by many factors and, in turn, fiscal policy itself influences inflation outcomes. Therefore, on the one hand, governments need to carefully assess and properly factor in the implications of inflation on public finances in the current and coming years. On the other hand, they also need to design fiscal policies that contribute to a return to more stable prices.

**This part of the report gathers insights on the potential impact of the current episode of higher inflation on public finances across the EU.** It does so by reviewing the relevant literature, describing the specificities of the current economic context and providing new analytical insights based on simulations. In this first chapter, we discuss the channels through which inflation affects public finances and, in turn, how these channels are affected by the specificities of the current environment. Chapter 2 provides evidence on the short-term impact of inflation on public finances, relying on a panel estimation setup and on Euromod microsimulations. Chapter 3 assesses the medium- to long-term impact on debt, by means of macrosimulations.

## 1.2. HIGHER INFLATION AFFECTS PUBLIC FINANCES THROUGH SEVERAL CHANNELS

**Inflation affects public finances via four main channels:** (1) the GDP-deflator effect, which through the denominator and valuation effects directly affects the public debt-to-GDP ratio (a key indicator of fiscal sustainability), (2) the impact via the primary balance, (3) the impact via interest payments and (4) the (indirect) impact via inflation’s influence on output growth. These channels may reinforce each other or operate in opposite directions, intervene at different time horizons and, as indicated, some channels affect the debt-to-GDP ratio directly, whereas others do so by affecting the budget balance (see

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<sup>(89)</sup> For a brief assessment of the policy implications for the euro area see ["The implications of higher euro area inflation for public finances", European Commission Technical Note for the Eurogroup, 11 July 2023.](#)

Graph III.1.1). Box III.1.2 illustrates these channels by discussing developments in public debt during past episodes of high inflation.

### The GDP-deflator and the denominator and valuation effects

**The denominator effect is the most straightforward implication of inflation on the debt-to-GDP ratio.** An inflationary shock increases the GDP-deflator and thereby nominal GDP (the denominator), which mechanically reduces debt as a share of GDP, as the numerator is fixed in nominal terms. This immediate effect may, however, be offset or reversed later if inflation weighs on real growth, as discussed below.

**The valuation effect is a somewhat related concept but refers more broadly to the fact that inflation erodes the real value of outstanding debt and the cost of servicing it.** As explained by Akitoby et al. (2014), the strength and persistence of this impact depends on various characteristics of the outstanding debt. First, this effect concerns debt issued at fixed rate, while debt issued at variable rates tends to rapidly offset the eroding effect of higher inflation via a surge in yields. Similarly, yields on inflation-indexed debt automatically adjust to higher inflation. Second, a short average maturity on the stock of fixed-rate debt picks up the pace at which interest on rolled-over debt will reflect a change in the inflationary environment, while longer average maturity provides a buffer effect in that respect. Third, domestic inflation only erodes the real value of debt denominated in local currency. Finally, if higher inflation sparks a currency depreciation, the local value of debt denominated in foreign currency will rise, putting further pressure on fiscal sustainability.

### Impact of inflation on the primary balance

**Inflation has an impact on both government revenue and primary expenditure.** The overall impact is determined, on the one hand, by the extent and speed at which revenue and expenditure items react to inflation and, on the other hand, by the possible discretionary fiscal policy response to the inflationary shock (see Section 2 in Chapter 2, Part II).

**On the revenue side, government revenues tend to grow broadly in line with nominal GDP, though some features, such as the ‘fiscal drag’, affect this pattern.** At unchanged tax rates, nominal tax revenues increase with nominal tax bases: for a given volume of consumption, higher consumer prices raise VAT revenue. Certain types of inflation shocks – typically in the event of demand-driven inflation – may be associated with higher wages and/or employment, leading to higher social contributions and personal income tax revenue, as well as with larger profits that translate into higher corporate income tax revenue. Overall, while the literature widely considers that, on aggregate, total tax revenue moves roughly one-to-one with nominal GDP, some nuances apply. First, composition effects such as changes in the distribution of domestic income across wages and profits during an inflationary episode may affect revenue dynamics. In practice, wages may not react to inflation or with a lag (i.e. wage rigidity), particularly if higher inflation is a surprise and/or reflecting the nature of the wage-setting processes. Second, revenue items tend to react to inflation with varying time lags, reflecting, among other, pace of tax collection. Third, progressive personal income taxes feature a more complex dynamic, as they depend on the indexation of tax brackets. If tax brackets do not adjust to inflation as rapidly as wages, higher nominal income translates into shifts into higher tax brackets (‘bracket creep’). The latter, also termed the ‘fiscal drag’ effect, results in higher effective tax burdens with increases in tax revenues outpacing increases in wages. The fiscal drag can generate significant effects in highly progressive tax systems (Heinemann, 2001). Immervoll (2005) also highlights that tax revenue increases linked to the fiscal drag can notably affect the distributional properties of tax systems. Morris and Reiss (2020), based on the methodology of Kremer et al. (2006), show that in most euro area countries over the period 2010-2018, the fiscal drag played an important role in delivering fiscal consolidation.

**On the expenditure side, only a third of items are automatically indexed to inflation or wages, but often with some lag.** A large share of expenditure is pre-committed in nominal terms, and national expenditure rules in EU countries are predominantly expressed in nominal terms (see Box III.1.3 below)<sup>(90)</sup>. With nominal expenditure ceilings fixed well before budget implementation, inflation surprises do not immediately translate into higher spending<sup>(91)</sup>. According to evidence shown by the ECB (2023b), only a third of government expenditure is automatically indexed to prices or wages and mostly with a lag of one year: while transfers to households, such as pensions and social benefits, tend to be automatically indexed to inflation within less than a year<sup>(92)</sup>, public sector wages often take longer to adjust, and the same holds for government purchases, depending on the procurement contracts. Other expenditure items are weakly linked to prices: in particular, unemployment benefits move mostly in line with unemployment and labour income.

**Primary expenditure tends to adjust to inflation less rapidly than revenue, generally – but not necessarily – contributing to an overall favourable impact on public finances in the short term.** The primary balance may not benefit from any favourable short-term effects under some circumstances. First, expenditure tends to be mainly linked to HICP inflation (and unemployment), while revenue rather follows the developments of the GDP deflator (and real output growth)<sup>(93)</sup>. Therefore, even with only a gradual indexation of expenditure to prices, the primary balance may deteriorate if the HICP grows significantly faster than the GDP deflator (or if real GDP declines and/or unemployment increases). Second, beyond automatic indexation, the government may decide to take deficit-increasing discretionary fiscal policy measures to cushion the impact of higher inflation on households and firms, e.g. in the form of lump-sum transfers, tariff shields and subsidies (Bénassy-Quéré, 2022). Lastly, second-round effects on the primary balance may reflect potential adverse effects of inflation on growth, as further discussed below.

### Impact on interest rates and payments

**A third channel is the impact of inflation on interest payments.** This includes two sub-channels: how interest rates react to higher inflation, and how long it takes for higher interest rates to pass through to interest payments.

**The extent to which interest rates react to higher inflation depends on several factors.** One of them is the monetary policy reaction, namely how quickly and how aggressively the central bank increases its nominal policy rates in response to higher inflation. Another factor is the reaction of financial markets. These two reactions, in turn, depend on the nature and persistence of inflation, including whether it came as a surprise or not and on how the initial bout of inflation is perceived to evolve<sup>(94)</sup>. In this regard, the credibility of monetary policy is a crucial aspect that fosters the anchoring of inflation expectations. Deanchored inflation expectations lead markets to price in an inflation risk premium to hedge against future higher-than-expected inflation, making newly issued non-indexed debt more costly (Buiter, 1985). Volatile inflation renders public debt less attractive as a safe haven for investors, making them less willing to hold it at a discounted rate (Reis, 2022b).

**According to the Fisher effect, the nominal interest rate is equal to the real interest rate plus expected inflation.** As a result, when expected inflation increases, this should be fully reflected in the

<sup>(90)</sup> See also and Ayuso-i-Casals, 2012.

<sup>(91)</sup> See European Commission (2015) op.cit.

<sup>(92)</sup> Some transfers are indexed to wages. This is the case, for instance, for some pensions in France and in other EU countries (European Commission, 2021b).

<sup>(93)</sup> The GDP deflator captures the prices of all final products produced by the domestic economy, including exports, while the HICP refers to the prices of goods and services consumed by households, including imports. The GDP deflator therefore reflects not only consumer prices (net of imports) but also the prices for government consumption and capital formation and, most importantly and unlike the HICP, it reflects export prices but not import prices. While over time and on average, the GDP deflator and HICP evolve at a similar pace, there may be periods when the growth of the two indicators somewhat differs.

<sup>(94)</sup> It also depends on whether the mandate of the central bank is restricted to price stability, or it has a dual mandate.

nominal interest rate. When examining whether this hypothesis holds, some estimates suggest that the elasticity could be much lower than 1, implying a more muted response of nominal rates to changes in expected inflation. This could especially be the case in advanced countries with a history of low volatility of inflation and well-anchored inflation expectations. However, Caporale and Williams (2002) find an elasticity above 1 in advanced countries that have a history of volatile inflation, such as Italy and Japan, implying that the real interest rate itself rises as inflation expectations rise. In turn, these authors find a pass-through from inflation expectations to nominal long-term sovereign bond yields of well below 1 in countries like the US and Germany, which have a history of low and stable inflation. In addition, a more recent study by Caporale and Gil-Alaña (2019) suggests that differences in pass-through remain among euro area countries, due to specific domestic factors. Similarly, Arslanalp and Poghosyan (2014) find very low pass-through elasticities for advanced economies, which, they argue, reflects firmly anchored inflation expectations at low levels. By contrast, Attinasi et al. (2016) find a short-term pass-through from 10-year expected inflation to 10-year nominal sovereign yields close to 1, based on monthly data from 2003 to 2014 for the 10 largest euro area countries. Aside from well-anchored expectations, financial repression also appears to keep the “Fisher coefficient” below 1 (Reinhart and Sbrancia, 2011). Financial repression can, for instance, take the form of caps on interest rates, direct lending to government by pension funds or other captive domestic lenders, or regulation of cross-border capital movements. This prevents nominal interest rates from responding to higher inflation, being tantamount to imposing a tax on financial savings held in the form of public debt. Finally, studies have also pointed to the fact that increased inflation may affect nominal interest rates by triggering a decompression of credit risk spreads, in a context of tighter monetary policy and of yields becoming more connected to fundamentals (e.g. Eijffinger and Pieterse-Bloem, 2022).

**As the market interest rate rises, it only gradually affects public finances as higher interest rates only gradually pass through to interest payments.** The speed at which this happens mainly depends on three characteristics of the outstanding debt. First, the longer the average maturity of the outstanding debt, the longer it will take for higher market rates to affect interest payments as debt is gradually rolled over at a higher rate. Second, interest payments increase faster if a large share of outstanding debt is indexed to inflation, as the latter implies automatic and immediate adjustments to higher inflation. The share of such inflation-linked debt as a portion of the outstanding (long-term) debt has been limited so far, standing at 8% in 2021, on average, across the OECD (OECD, 2022). However, investors’ appetite for inflation-linked bonds is rising, and Carnot and Pamies Sumner (2017) also stress the existence of large differences across countries, with significant shares of inflation-linked bonds in the UK, standing at a quarter of the government debt, and in France and Italy at above 10% of debt. Some securities, such as Treasury inflation-protected securities (TIPS), are also linked to inflation. Finally, the currency in which new or inflation-indexed debt is denominated also matters, as pressure for interest to rise depends on the inflationary pressures for that currency.

### Impact on economic activity

**A fourth and last channel is the impact of inflation on the broader economy, including via the response of monetary and fiscal policies.** First, inflation erodes the purchasing power of households, at least to the extent that or while wages do not fully adjust to the rise in inflation. Higher prices may also adversely affect the productive capacity of firms if they are rooted in higher input costs. Similarly, rapid inflation may disrupt production by triggering reallocations across sectors, blurring price signals and hampering planning and investment (Bank of England, 2020). Higher import prices are especially prone to dampening economic activity<sup>(95)</sup>. Moreover, inflation can also have a contractionary impact if monetary policy seeks to tame inflation, causing financing conditions to tighten. Overall, weaker or negative real GDP growth tends to counteract any debt-reducing effect initially obtained from the denominator effect and/or the fiscal drag. The discretionary fiscal policy response to higher inflation can

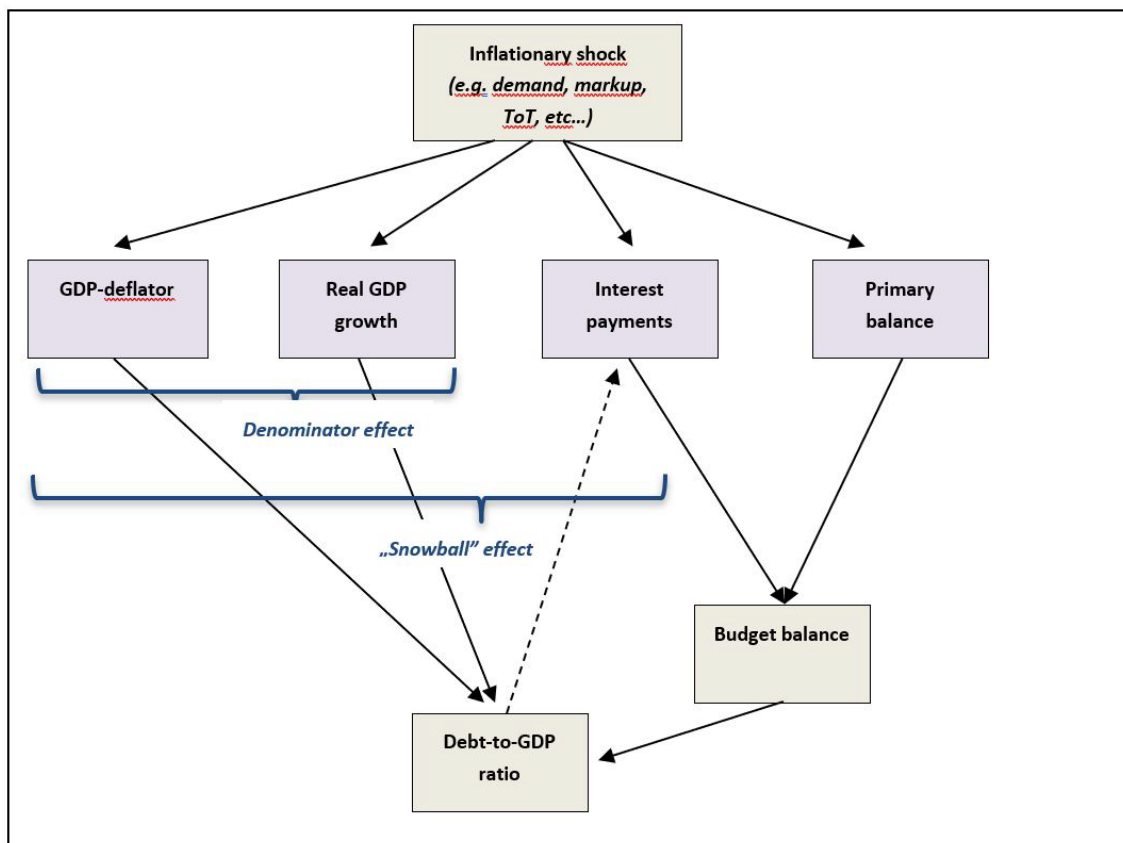
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<sup>(95)</sup> This point is illustrated in the next chapter which presents model-based evidence of the impact of an increase in inflation caused by a deterioration of the terms of trade.

also affect economic activity in either direction. Governments could adopt restrictive measures to prevent overheating in case of a demand-driven shock or, if the debt burden risks become too heavy, governments may decide to take austerity measures beyond what is needed to achieve solvency (Debrun & Kinda, 2013). Conversely, discretionary fiscal support can be used to compensate households and firms for the adverse impact of higher import prices in case of a terms-of-trade shock, as evidenced by the reaction of governments in the recent inflation episode, thus mitigating the economic shock.

**The impact on real output growth, an important driver of the ‘snowball effect’, is essential for the dynamics of the debt-to-GDP ratio.** As explained in Box III.1.2, the snowball effect (the combined impact of interest expenditure, inflation and real GDP growth on debt dynamics) depends on the interest-growth rate differential ( $r-g$ ). Lower growth, especially if accompanied by a higher interest rate, results in a less favourable snowball effect, making it more difficult to reduce debt.

Graph III.1.1: Summary diagram of the channels through which an inflationary shock affects public finances



### 1.3. THE CURRENT CONTEXT

**In the disinflationary context of the 2010s, much of the analysis of the impact of inflation on public finances focused on the implications of persistently low inflation.** On the one hand, low inflation made debt reduction more challenging. According to Hilscher et al. (2022), the conditions observed in 2017 were not conducive to debt reduction in the US, among others because a significant and sustained increase in inflation was unlikely in the near term, according to market participants. Moreover, disinflation made fiscal consolidation more difficult to achieve due to downward rigidities in nominal government spending, while revenues appeared to decline much faster in the presence of lower-than-expected inflation (Attinasi et al., 2016; European Commission, 2015). On the other hand, low inflation

was associated with low interest rates that some perceived as a potential ‘new normal’. Very accommodative monetary policies maintained the implicit interest rate on debt below the growth rate of the economy, keeping the ‘r-g’ differential in negative territory. This lowered the budgetary cost of debt (Blanchard, 2019) by creating a favourable snowball effect that made debt reduction mechanically easier to achieve for a given fiscal effort (European Commission, 2021a), although a negative ‘r-g’ is not sufficient to outweigh large deficits (Cochrane, 2021).

**The EU is now facing a very different situation characterised by high inflation and rapidly tightening monetary policy.** First, inflation increased steeply as from 2021, peaking at 10.6% in October 2022 in the euro area (see Box III.1.1 for an in-depth focus on the current inflation episode). Second, monetary policy has tightened rapidly, with implications for governments’ financing conditions. Third, several Member States cope with an additional debt legacy from the COVID-19 crisis. All these factors together have led to reviving considerations on the need to preserve debt sustainability. For public debt, a specificity of the current period is that a significant part of public debt, especially in the euro area (but also in the US and the UK) is held by central banks, after a decade of large asset purchase programmes, notably following the Global Financial Crisis and the COVID-19 crisis. The recent surge of inflation, which prompted a decisive tightening of monetary policy, has put an end to such programmes. Spreads remain contained to date, favoured by the ECB’s reinvestment policy and TPI announcement. Finally, the average maturity in most EU countries has been lengthened in recent years, from an average of 5.5 years in 2009 to over 8 years in 2022, delaying the pass-through from higher market rates to the implicit interest rate (Orseau et al., 2023). The ‘r-g’ differential would therefore turn less favourable only gradually, in response to the higher real interest rates (European Commission, 2023a).

**To assess the impact of higher inflation on public debt, it is important to identify the relevant specific features of the current situation.** Inflation started to rise in the second half of 2021, in a post-pandemic context of constraints in global supply chains and surging imported commodity prices (see Box III.1.1). The sharp rise in energy prices following the Russian unprovoked aggression of Ukraine in February 2022 pushed further up production costs and inflation. Such developments can be characterised as a significant deterioration of the terms of trade, which in the absence of support measures tends to reduce real disposable income of households and in some sectors the real profit margins of firms<sup>(96)</sup>. However, aggregate demand also contributed considerably to the inflationary pressure, with private consumption quickly recovering in the aftermath of the COVID crisis amid tight labour markets, pent-up demand and extra savings and government spending being at considerably higher levels compared to the pre-pandemic period, mainly driven by massive support measures. Recent analyses indeed suggest that inflation in the euro area was initially mainly supply-driven, but the importance of the above-mentioned demand factors, notably policy support measures, has gradually increased over time<sup>(97)</sup>.

**The recent surge in inflation has provided temporary relief for public finances in the short term.** This reflects, without policy changes, the combination of a quick rise in tax revenues accompanied by a somewhat delayed reaction on the expenditure side, while outstanding government debt declines relative to nominal GDP thanks to the denominator effect, as explained above (see also Graph III.1.2).

**However, the short-term impact on public finances was not as favourable as it could have been, as the initial inflation surprise was largely driven by an adverse (supply) external factor in the form of a terms-of-trade shock caused by energy prices<sup>(98)</sup>.** Due to the (imported) supply shock, the recent

<sup>(96)</sup> See [ECB Blog “How tit-for-tat inflation can make everyone poorer”](#) for a discussion on the development and consequences of firm profits in the current economic environment.

<sup>(97)</sup> For an in-depth discussion of the drivers of inflation in the euro area see [“The role of demand and supply in underlying inflation – decomposing HICPX inflation into components”](#), [ECB Economic Bulletin, Issue 7/2022](#) and [“The Euro Area Great Inflation Surge”](#), [DNB Analysis](#).

<sup>(98)</sup> Bankowski et al. (2023) provide simulation evidence pointing at a sharp contrast between demand-driven and supply-driven inflation on debt-to-GDP developments, with the former leading to a lasting improvement and the latter to a lasting deterioration (i.e. an increase) in the debt ratio.



inflation has reduced households' real income and increased firms' input costs, and therefore likely weighed on consumption and real activity. These developments have prompted governments to compensate households and firms for the higher costs they incurred, for example through subsidies. Calls for the indexation of tax brackets and social benefits have also been voiced over time, adding pressure on public finances.

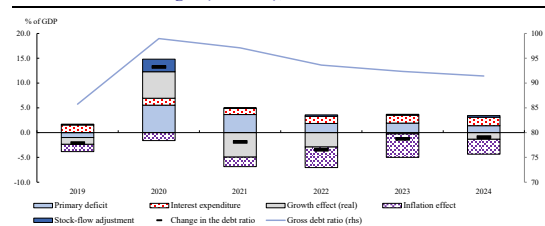
**The debt-increasing channels effects of this inflationary shock, such as rising interest rates and indexation of expenditures, will only materialise over time.** Monetary policy tightening and financial markets' reaction to higher inflation push interest rates up, eventually feeding into a higher debt burden. In practice, given that the average debt maturity in most euro area Member States is relatively high, this will happen only gradually as maturing debt needs to be rolled over. Member States with a higher share of inflation-linked bonds or a lower average debt maturity will however see a more rapid increase in debt-servicing costs. In addition, higher interest rates affect interest payments more strongly when they apply to higher debt levels. Importantly, in a monetary union, such channels may affect countries differently, notably as higher inflation in some countries may temporarily flatten public debt dynamics, while still eroding competitiveness.

**Graph III.1.2 shows the yearly change in the debt-to-GDP ratio in the euro area from 2019 to 2024.** It shows how the debt ratio has been affected by the different channels. Inflation has a clear downward effect on the debt ratio, especially from 2022. At the same time, the primary deficit and the increasing interest expenditure are expected to weigh on the debt ratio.

**The following chapters in this part illustrate the relative importance of the various channels through which inflation affects public finances.**

Chapter 3 relies on new simulations based on the use of QUEST (the European Commission's DSGE macro model) and the European Commission's public debt projection model. It confirms that a terms-of-trade shock in the EU increases the debt ratio while a demand-driven inflation shock may reduce it, at least initially. Importantly, such simulations allow tracking the impact of inflation on public finances beyond the short term, highlighting the potential for a reversal of the temporary short-term favourable effect often observed at the start of an inflationary episode. Chapter 2 highlights the existence of such favourable short-term effects based on panel estimation and Euromod microsimulations.

Graph III.1.2: Gross debt-to-GDP ratio and composition of yearly changes (% GDP), euro area



(1) Year 2023 and 2024 as based on Commission Autumn Forecast 2022.

Source: Commission services.

**Box III.1.1: Post-pandemic inflation and interest rate developments in the euro area**

**The two defining global shocks of the period since 2020 – the Covid-19 pandemic and Russia’s war of aggression against Ukraine – have been fundamental in determining global and euro area inflation patterns** <sup>(1)</sup> The aggregate euro area inflation path in the period since the outbreak of the pandemic, which stands in stark contrast to the low inflation years preceding the pandemic, can be split into four partly overlapping phases (Graph 1) <sup>(2)</sup>:

1. **A disinflationary Great Lockdown period.** This period, which followed the outbreak of the Covid-19 pandemic in early 2020 and roughly lasted for the remainder of that year, initially triggered an economic downturn that was accompanied by falling prices and negative inflation.
2. **Supply bottlenecks and policy support gave rise to a surge of inflationary pressures.** The subsequent rebound phase was characterised by the combined effects of lockdowns and supply bottlenecks on the one hand, and an unwavering and coordinated global fiscal and monetary policy response, implemented swiftly after the outbreak of the pandemic, on the other hand <sup>(3)</sup> While the primary aim of the lockdowns was to mitigate the spread of the virus, the primary aim of the policy support was to prevent hysteresis effects resulting from production standstills. The latter enabled to largely shield households and companies from the negative impact of the lockdowns, which led to a substantial increase of private saving. The outlook further brightened up with the arrival of Covid-vaccines, which charted a credible exit path from the pandemic. The resulting mismatches between robust demand and constrained supply, exacerbated by setbacks caused by new infection waves or lockdowns in some parts of the global economy, led to a progressive deterioration in terms of trade and a surprisingly vigorous acceleration in inflation as of early 2021. Euro area inflation matched its 2008 peak of 4.1% in October 2021 and continued to rise thereafter.
3. **The energy commodity price shock pushed inflation to multidecade highs.** While commodity prices were already boosted by the strong recovery, they surged in the run-up to Russia’s aggression of Ukraine that started in February 2022, reflecting the high global market shares of Ukraine and Russia for many commodities. The price surge was particularly pronounced for natural gas, which Russia started to withhold as from the second half of 2021, leading prices in August 2022 to a multiple of 14 times their pre-pandemic average, but also for agricultural commodities. The surge in energy prices had both a direct impact on retail prices, as well as an indirect cost effect on virtually all other consumption items. Energy inflation peaked at 44.3% in March 2022, headline inflation peaked at 10.6% in October 2022.
4. **The fourth phase – which began after inflation peaked and is still ongoing – has been characterised by the broadening of inflation across consumption categories,** an improvement in terms of trade and the eventual fading of energy as the main driver of headline inflation. While commodity prices have since then receded from their peaks, they all remain significantly above their pre-pandemic levels. As the direct effects of the energy commodity price shock are fading out, the indirect effects, which are typically lagged, have come to the fore. A second related characteristic is the progressive shift from external (global) to domestic (country-specific) inflation drivers. This is partly a consequence of the strong and often untargeted policy support to help households and firms to deal with the fallout of the energy price shock, which supports aggregate demand. It also reflects efforts by households and firms to make up past declines in purchasing power or profit margins by negotiating higher wages or setting higher prices, respectively. Inflation has been progressively declining from its October 2022 peak to 5.2% in August 2023, but the disinflation process has been slower than generally expected, as underlying inflation remains elevated.

<sup>(1)</sup> BIS (2022). [Inflation: a look under the hood](#). Annual Economic Report June 2022.

<sup>(2)</sup> Buelens, C. (2023), ‘The great dispersion: euro area inflation differentials in the aftermath of the pandemic and the war’, *Quarterly Report on the Euro Area (QREA)*, Vol. 22, No. 2, 7-22.

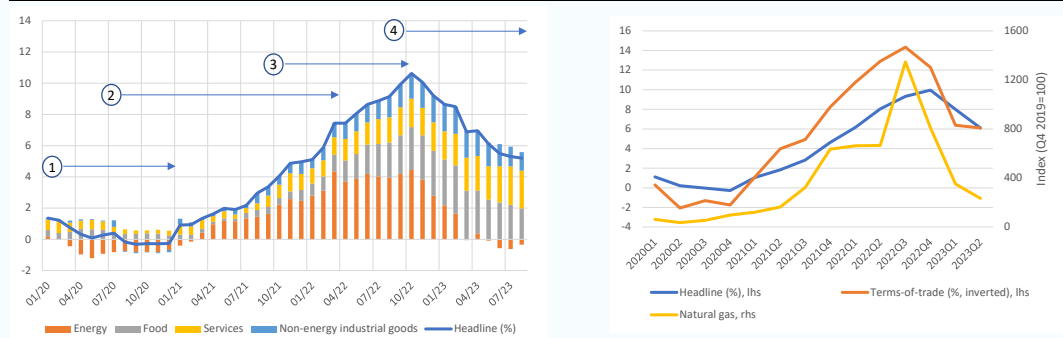
<sup>(3)</sup> In the euro area this notably includes the launch of the pandemic emergency purchase programme (PEPP) by the ECB and, for all EU member states, the Support to mitigate Unemployment Risks in an Emergency (SURE) programme and the Next Generation EU (NGEU) instrument to support the post-pandemic economic recovery.

*(Continued on the next page)*

Box (continued)

**The ongoing inflation deceleration is mainly driven by the decline in energy commodity prices, while price growth is still elevated in the other categories, notably food and services.** The European Commission 2023 summer interim forecast projects euro area headline inflation to average 5.6% in 2023 before falling to 2.9% in 2024. While long-term inflation expectations remain close to the inflation target, they have been volatile over the past three years and have recently moved up. This is in particular the case for market-based inflation compensation (5y5y inflation-linked swaps), which stood at 2.6% in September 2023 (this rate includes different risk premia, implying that inflation expectations are lower). Long-term expectations of professional forecasters, surveyed by the ECB or Consensus Economics, were at around 2.1% in the third quarter of 2023. However, uncertainty around the projected inflation path over the medium term remains high. Risks notably pertain to a rise in inflation expectations that could affect wage and price setting, especially in core categories, and to economic agents' attempts to pass on the terms-of-trade shock. The risk of inflation expectations de-anchoring increases with the duration of elevated inflation.

Graph 1: Euro area inflation, in four phases (left panel) & alongside term-of-trade and natural gas prices (right panel)



(1) Left panel: January 2020 – May 2023. The arrows broadly correspond to the four phases of inflation described in the box.

(2) Right panel: Q1 2020 – Q3 2023. Terms of trade are calculated as the ratio of export- to import-deflator.

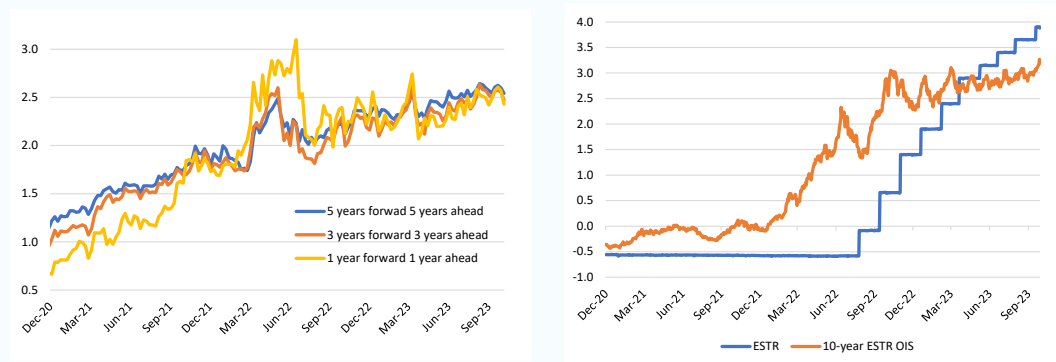
**Source:** Eurostat, own calculations (left panel) & Eurostat/IHS Markit, own calculations (right panel).

**Since mid-2021, inflation developments and the reaction of monetary policy have contributed to an increase in interest rates which will gradually affect the cost of public debt.** The increase in interest rates in the euro area has reflected to a large extent the normalisation of the ECB monetary policy in the context of high and persistent inflationary pressures. As part of this normalisation, the ECB stopped conducting net asset purchases, started to reduce the size of its balance sheet and raised its policy rates significantly, with the overall increase in the ECB policy rates amounting to 450bps between July 2022 and September 2023. Consequently, the interest rate environment has changed fundamentally since mid-2021. While interest rates were expected to remain low for an extended period of time before mid-2021, market participants have gradually revised their expectations upwards since then, with expectations for the ECB main interest rate peaking at around 4% in 2023. The higher expected short-term rates together with an increase in term premia, which turned positive in 2022, led to higher long-term risk-free rates. The yield on the 10-year €STR OIS, which is a measure of the euro area risk-free rate, increased from an average of -0.1% in 2021 to 3.1% in September 2023. The rise in risk-free rates was initially associated with a rise in credit risk premia in some Member States in the first half of 2022. Following the announcement of the ECB Transmission Protection Instrument on 21 July 2022, developments in sovereign spreads appeared to be rather insensitive to changes in risk-free rates until the end of August 2023. Since then, recent increases in risk-free rates have been associated with wider sovereign spreads, also reflecting, in some cases, country-specific developments. Overall, interest rates on government debt have increased and are expected to gradually affect Member States' debt servicing costs. In the Commission's spring forecast, euro area governments' interest expenditure was projected to increase from 1.5% of GDP in 2021 to 1.8% of GDP in 2024.

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Box (continued)

Graph 2: Inflation expectations (left panel) & Interest rates (right panel)



Source: Bloomberg, European Commission (left panel) & Bloomberg (right panel).

### Box III.1.2: Inflating away debt? lessons from theory and practice

#### Theory and channels

**The basic arithmetic of debt accumulation is relatively simple.** If one disregards possible stock-flow adjustments between the deficit and the debt, debt accumulation depends on two drivers: the primary balance and the snowball effect, that is, the combined effect of interest payments, inflation and real output growth on the existing stock of debt. Therefore, there are two – possibly complementary – paths for the debt ratio to decline. One path goes via a series of primary surpluses, be it due to a political will to consolidate or on the back of favourable macroeconomic or demographic conditions. The other path is along debt erosion achieved thanks to the snowball effect. This, in turn, happens if the interest rate on public debt ( $r$ ) is lower than the growth rate of the economy ( $g$ ) – in other terms: if the interest-growth rate differential  $r-g$  is negative. If inflation and therefore nominal growth are higher while the nominal interest rate remains unchanged, the debt ratio will decline by itself more easily.

**The interactions between inflation, economic policy and financial markets complicate the dynamics, so that an initial debt reduction may be undone over time.** Eroding debt through inflation could work if it applied once and for all to outstanding debt until it matured. However, much of outstanding government debt tends to be rolled over rather than paid back, and markets will factor in higher inflation by raising nominal interest rates on rolled-over debt. Beyond protecting investors from expected inflation, the increase in nominal rates may also include an inflation risk premium if investors consider that inflation is volatile and creates uncertainty. The increase in market interest rates may therefore exceed the Fisher effect (the tendency for nominal interest rates to follow the inflation rate, leaving the real interest rate unchanged). These effects are particularly relevant where a significant share of debt is inflation-linked. Moreover, inflation may trigger a re-assessment of credit risk by financial markets. On top of that, monetary policy tightening in response to higher inflation also affects financing conditions and has an adverse impact on growth and therefore on the snowball effect. Finally, discretionary fiscal measures aimed at mitigating the impact of inflation on the economy may affect public finances beyond the automatic impact of higher prices on revenue and primary expenditure.

#### Is there scope for inflating away debt? Empirical findings in the literature

**History has shown clear links between very high inflation and rapid debt reduction.** The most striking case was during the Weimar Republic, when the German government resorted to hyperinflation to liquidate post-World War I (WWI) debt, impoverishing the population (Sargent et al., 2019). Other examples, involving less steep inflation, were widespread in advanced economies after WWII, as discussed below.

**There is ample evidence for the role of inflation in reducing US debt after WWII, especially through negative real returns on government bonds.** Aizenman and Marion (2009) show that federal debt held by the public fell from around 110% of GDP in 1946 to 25% of GDP in 1975, thanks to strong real growth and inflation, with much of the decline occurring in the first ten years. They estimate that inflation alone reduced the debt ratio by almost 40% over that decade. For the entire period from 1945 to 1974, Hall and Sargent (2010) estimate that inflation accounts for around 20% of the debt reduction, as it enabled the US to deliver real negative returns on government bonds; the remaining 80% were equally driven by real growth and primary surpluses. The IMF (2012) also underlines how unexpected bursts of inflation in the US after WWII, coupled with financial repression (which prevented nominal interest rates from responding to higher inflation) and given the status of the dollar and US debt, accounted for much of the sharp reduction in the post-war debt ratio.

**Similar findings hold for the United Kingdom.** Buitert (1985) estimates that inflation nearly entirely explained the total decline in British public debt between 1949 and 1983, while the respective impacts of real growth (half as large as that of inflation) and of deficits offset each other. Likewise, Wickens (2022) finds that, during the debt-reduction episodes observed in the UK between 1900 and 2020, inflation brought down debt by twice as much as any other factor, namely primary budget surpluses, real growth and interest payments. However, he notes that most of the debt-reducing impact of inflation occurred during the period

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*Box (continued)*

1946-1973 and to some extent in the late 1970s and in the 1980s. As in the US, higher inflation implied that real returns on government bonds turned negative: the Bank of England (2020) explains that the yield on 10-year government bonds was 8½% in 1970, but that inflation in the 1970s then turned out to be much higher than anticipated, with prices rising by 13% a year on average. This resulted in a cumulative real return on government bonds of minus 35%, which played a major role in reducing debt.

**More generally, cross-country studies describe the role of post-WWII inflation in combination with other factors, stressing the role of financial repression.** Eichengreen and Esteves (2022) point to changes in the role of inflation over time, based on a worldwide database covering debt consolidation episodes since 1800. They identify two periods in which inflation played the largest role, the first one being from 1945 to 1982 (the second period, from 1982 to 2019, is discussed below). During the first period, inflation was high but financial repression and long maturities prevented implicit interest rates from keeping up with price developments. This echoes the conclusions of Reinhart and Sbrancia (2011), who find a debt-reducing role for inflation when accompanied by financial repression, including restrictions of international financial flows, which was the case from 1945 to the 1970s in advanced economies.

**There is less consensus on the role of inflation in the more recent period (up to 2019): on the one hand, inflation was low during that period and did not effectively help reduce debt.** The IMF (2012) argues that inflation often seems to have little effect in reducing government debt outside periods of hyperinflation: for instance, debt stabilisation and reduction episodes in Belgium in the 1980s and 1990s and in Italy in the 1990s took place in a disinflationary context and were mostly driven by fiscal consolidation measures and favourable interest rate developments fostered by policies aimed at convergence and stability, in the run up to EMU. Consistently with that analysis, Wickens (2022) finds that for the UK from the 1990s to 2020, inflation did not have any impact at all on debt reduction, and the main drivers of debt reduction episodes were economic growth and primary surpluses. Abbas et al. (2013) explore 26 episodes of large debt reversals in 20 advanced economies since the 1980s and also find that they were mostly associated with higher real growth rates and stronger primary balances, while inflation played a more minor role. Hilscher et al. (2022) use a somewhat different approach and break down the drivers of changes in debt into the inflation surprise (i.e., higher-than-expected inflation, not simply high inflation), the growth surprise and the real interest rate surprise. They argue that from 2009 to 2017, the US ‘grew out of debt’ as much as it ‘inflated away debt’.

**On the other hand, a period of low inflation had created an environment of trust that anchored interest rates at low levels.** Eichengreen and Esteves (2022) identify a debt-reducing impact of credibly stable inflation and consider the years from 1982 to 2019 as also a period when inflation accounted for a large part of debt reduction. They argue that inflation was lower than after the war, but more stable. The policy mix was perceived as credible, which anchored inflation expectations and maintained interest rates at steady low levels. In their view, the lack of response of interest rates allowed inflation to play a stronger role in that period than in the 1920s, when inflation was higher but interest rates quickly caught up. In line with this reading, Reis (2022b) claims that investors’ trust in the credibility of monetary policy, by keeping returns on public debt at low levels, works better at preserving debt sustainability than attempts to inflate away debt <sup>(1)</sup>.

### Conclusions

Overall, there is no compelling empirical evidence that higher inflation always wipes away debt, and the economic and institutional context seems an important factor to explain the outcome of past episodes. A crucial condition lies in the gap between observed and expected inflation and the credibility of the medium-term inflation anchor. A surge of unexpected inflation may help in reducing the outstanding value of past debt, but this would not work if inflation was expected and is projected to persist. As noted by Buiters (1985), the fact that ex-post inflation accounted for virtually all of the debt reduction in the UK since WWII did not imply that having another bout of inflation would be the proper way forward to amortise debt further. On the

<sup>(1)</sup> This emphasizes that fiscal sustainability reflects considerations beyond the level of short term movements in the debt ratio, with strategies seeking to reduce debt at the expense of investors likely to yield less favourable debt dynamics beyond the short-term.

*(Continued on the next page)*

*Box (continued)*

contrary, he warned that higher inflation might well go together with higher real interest rates, low real growth and large public sector deficits, which would raise the debt burden. Another issue is that, when markets expect not only higher but also more volatile inflation and therefore demand inflation risk premia, this increases nominal interest rates by more than just expected inflation. Worse still: if inflation actually drops in the meantime, the increase in nominal interest rates will turn out to be much larger than observed inflation, as evidenced in the UK in the 1980s. The Bank of England (2020) reports that, while the yield on British medium-term government bonds was 8½% in 1970, it rose to 14% by 1980. The yield increase reflected a combination of higher inflation expectations and compensation for unpredictability after a decade of extremely high and volatile inflation. Yet, inflation actually dropped in the 1980s, so that, net of observed inflation, the return on a 10-year gilt bought in 1981 rose to nearly 10% per year, weighing on public finances. In general, economic factors (such as the strength of global growth and the nature of the inflation shock) and the institutional context (including the credibility of monetary policy, financial repression, the existence of credible fiscal rules and the overall wage-setting process) are key elements that determine whether a given inflation shock eventually had positive or adverse effects on the debt dynamic <sup>(2)</sup>.

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<sup>(2)</sup> For a broad discussion on the role of institutional factors in containing debt sustainability risks, see European Commission (2018), *Fiscal Sustainability Report 2018*.  
[https://ec.europa.eu/info/sites/info/files/economyfinance/ip094\\_en\\_vol\\_2.pdf](https://ec.europa.eu/info/sites/info/files/economyfinance/ip094_en_vol_2.pdf).

### Box III.1.3: National fiscal rules and inflation: evidence from member states

**National fiscal rules can be designed to address inflation surprises.** A few Member States express spending ceilings in real terms, while most use nominal rules but allow for specific adjustments to account for unexpected price increases. This Box discusses several examples.

**Inflation surprises complicate compliance with fiscal rules, particularly expenditure rules.** Among the different types of fiscal rules, expenditure rules are most subject to inflation surprises as they bind budgetary items that are sensitive to price changes (e.g., wages, goods and services, pensions). Thereby, unexpected changes in inflation could complicate expenditure rule compliance making a breach of the rule more likely. At the same time, having budgeted in nominal terms will contribute to stabilise inflation by dampening swings in demand. The treatment of inflation in expenditure rules is complicated by the fact that (i) budgetary planning is done in nominal terms and (ii) public expenditure items have different elasticities to inflation, i.e. when prices change, these items adjust at different speeds. To address these challenges, some countries have resorted to using *real expenditure ceilings* or *budgeted margins*.

**Setting an expenditure rule or multiannual ceiling in real terms has its pros and cons.** Usually, spending targets specified in nominal terms are better understood, can strengthen counter-cyclicality, provide a stronger link with the budget and as such can be more transparent and easier to monitor. Yet, a purely nominal approach in setting the expenditure over the medium term could prove too rigid if inflation overshoots or too lenient if inflation is significantly lower than expected. A specification of the target in real terms can ensure that compliance is not affected by inflation surprises and can remain a valid target if the government intends to keep the volume of goods and services stable (Ayuso-i-Casals, 2012). Arguably, compliance could also be affected in a real-target environment, through the output channel, as inflation could impact GDP growth affecting sectors differently. Yet, the conversion of real targets into budgetary outlays is complicated by the existence of different price elasticities across public expenditure items, which in principle would require the use of different deflators. Such conversion tends to often reduce transparency and allow for opportunistic adjustments aimed at securing room for additional spending (Ljungman, 2008).

**Of the 18 expenditure rules in place in the Member States in 2021, only four rules were expressed in real terms.** *Belgium* had a real expenditure growth rule for social security and *Latvia* had it for general government expenditure. *Finland* and *the Netherlands* had real expenditure ceilings, covering respectively central and general government. In *Latvia*, the expenditure rule implied a growth of real expenditure not exceeding the growth of potential GDP, with the inflation rate used as the deflator. In *Belgium*, the rule capped the annual *real* growth of healthcare expenditure for the Belgian federal government at 1.5%. The rule deflator was based on a health-related index.

- In *the Netherlands*, multiannual real expenditure ceilings are covering general government spending net of cyclical social assistance and unemployment benefits, but including interest payments (Belu and Bova, 2020). They are defined in the coalition agreement every four years, are expressed in euros and apply to 98% of general government spending. Each year the real ceiling is converted into nominal terms at the time of the budget preparation, using as deflator an updated estimate of private sector wage and price growth. Thus, the ceilings are adjusted every year for inflation. Using a uniform deflator for all expenditure items creates some room under the ceiling for those items that adjust less rapidly (lower elasticity), such as wages and pensions, and pressure on the ceiling for those items that adjust more rapidly than the deflator (higher elasticity), such as goods and services. The task of calculating the deflator is assigned to the Central Planning Bureau, an independent fiscal body, so there are limited opportunities for the government to use annual revisions to create additional nominal room under the ceiling.
- In *Finland*, the government decides on total spending limits at the beginning of the parliamentary term, binding for a period of four years and applying to about 45% of general government spending. The Finnish expenditure ceilings are based on a political commitment. These limits are expressed in real terms and in levels. Every spring, the ceiling for the upcoming year is converted into nominal terms for the budget

(Continued on the next page)



Box (continued)

preparation. The conversion is done using a central government price index which consists of a weighted average of various price and wage indices (including pension indices, consumer price index, state subsidy index and building cost index). Thus, the expenditure ceilings are not affected by possible revisions in the medium-term inflation forecast. Such price index aims to reflect the actual impact that inflation has on the public expenditure aggregate and to avoid possible expansion or reduction of the spending envelope which would result if using a single price index applied to various spending items. While the inflation indices used are presented in the government decision on expenditure ceilings, information on the weights is not disclosed. The Finnish ceiling has worked well in previous crises because the fiscal stimulus and financial costs were not under the ceiling, contrary to spending since the Covid-19 pandemic (on health, defence).

**Nominal expenditure ceilings are more prevalent but the approach to inflation adjustment varies among Member States.** *Denmark* and *Sweden* provide two examples for the most frequent approaches.

- In *Denmark*, nominal expenditure ceilings are set for four years on a rolling basis (one year is deleted and one year is added each year), are expressed in Danish kroner, set for five different levels of government and cover 75% of general government spending. While discretionary adjustments to the ceilings are only possible by law, some administrative/technical adjustments are possible for changes in the allocation of expenditure across levels of governments, marginal adjustments due to price and wage developments, and other technical corrections.
- In *Sweden*, the three-year ceiling is set in nominal terms and on a rolling basis and covers central government spending and pensions. No adjustment is foreseen for inflation surprises within the three years, but adjustments are possible for the year added on a rolling basis. The choice of a nominal ceiling was mostly justified by a need for transparency and to avoid possible ambiguous adjustments in the conversion from real to nominal ceilings. The Covid-19 pandemic is the only crisis that led to a change in Swedish ceilings.
- In *France*, the State budget nominal expenditure limits cover three years: the ceilings for T+1 and T+2 are binding and for T+3 indicative. The medium-term budgetary framework of the general government applies over 4 or 5 years.

**Spikes in inflation can also be managed via explicit or implicit budgeting margins.** In the case of explicit margins, the expenditure ceilings are set in such a way that they include a margin which would cover unforeseen expenditure from higher inflation. Reflecting increased uncertainty over the medium-term, such margins can be lower in the years closer to the current budget year and higher for the outer years (Radu, 2023). For example, in *Sweden* the margin in the current year is 1% of the forecast expenditure, 1.5% for the year ahead, 2% for two years ahead and 3% for three years ahead. The *Netherlands* have a central contingency reserve of 0.1% of total spending. In *Finland*, the unallocated reserve and the supplementary budget reserve provide margins for unexpected needs. Other examples can be found in non-EU countries: *Canada* has a contingency reserve of 1.5% to 2% of total spending, the *UK* a 0.75% to 1% margin of total spending. Another option could be the introduction of implicit margins, meaning that countries use some prudence to determine expenditure ceilings, for example by assuming GDP growth below trend or assuming more binding interest rates developments when setting expenditure ceilings.

**However, margins should be used parsimoniously.** Too generous margins could compromise the stringency of the framework by creating the expectation that more resources will become available in time (Sherwood, 2015). This situation can be prevented by clear rules on how to access such reserves. For example, in the *UK*, the small departmental reserve can be used if the additional needs are genuinely unforeseen, unavoidable and unabsorbable by departmental budgets. *Australia* has a similar rule in place, whereby reserves can cover unexpected forecast developments and cannot be used to fund new policies (World Bank, 2013).

## 2. THE SHORT-TERM IMPACT OF INFLATION ON FISCAL VARIABLES

### Introduction

**This chapter gathers evidence on the short-term impact of inflation on fiscal variables in the EU in two ways.** First, we use a panel estimation to show that surprise inflation increases both revenues and expenditures. Revenues seem to increase somewhat more but not sufficiently to cause a significant improvement of the budget balance, thus pointing at a limited positive impact of inflation on this variable over the short-term. We also provide evidence of cross-country differences in terms of these impacts by making use of EUROMOD microsimulations. Second, we find that inflation adversely affects the ability to forecast fiscal variables, notably public revenues, indicating that inflation is also a source of uncertainty for the budgetary process. As such, section 2.1 discusses the impact of inflation on fiscal variable *outcomes*, while section 2.2 discusses the impact of inflation on the *predictability* of fiscal variables.

### 2.1. THE SHORT-RUN IMPACT OF SURPRISE INFLATION ON FISCAL VARIABLE OUTCOMES IN THE EU

**The short-run impact of inflation on fiscal variables is affected by the source of inflation and the structure of the public sector** <sup>(99)</sup>. The fiscal drag and benefit erosion are two important channels via which a short-term impact on fiscal variables arises, following a sudden surge in inflation. These channels cause a temporary positive impact on the budget balance. The size of this impact however varies depending on the source of the inflationary shock and features of the economy such as details of its tax-benefit system, including the existence and extent of indexation. The latter also implies that there will be difference in sensitivity to inflation across countries.

**Empirical findings in the literature tend to confirm the existence of a positive temporary impact of inflation on fiscal variables.** In a recent study, IMF (2022) reports panel estimates suggesting that on average, a surprise of 1 pp. in the GDP-deflator, in the same year would increase nominal revenues by 0.74% in emerging markets and by 0.35% in advanced economies, while nominal spending appears to react less in that same year. That study thus confirms that inflation surprises tend to lower fiscal deficits in the short term. In a further recent study IMF (2023a) relies on panel local projections that also point at a favourable impact on the budget balance of about 0.2%, approximately two years after the inflationary shock. As other studies, IMF (2023a) stresses that such short-term impacts are mostly triggered by unanticipated inflation spikes. Similarly, Attinasi et al. (2016) find that a 1 percentage point increase in the GDP deflator growth is associated with a 0.1 to 0.2 pp. increase in the primary balance ratio, on average across the EU countries. Similar evidence is found for a subset of EU countries investigated in Berti et al. (2016).

**Consequences for public finances are highly dependent on the type of inflationary shock.** Inflation can originate from different types of shocks, for example a terms-of-trade shock or a domestic demand shock. The way this initial shock affects input and consumer prices for households and firms, will be key in determining the macroeconomic consequences of the shock. In this chapter, we use two indicators of inflation, namely the HICP and the GDP deflator. For any type of inflationary shock, these two indicators will entail different patterns in the short term, as they measure the price increase of different components. The HICP only refers to consumer prices, for a fixed basket of products and services, whereas the GDP deflator is more encompassing, for example also measuring the price increases of government consumption (ECB, 2016).

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<sup>(99)</sup> See Chapter 1 in this part of the report for a discussion of the various channels. In particular, as inflation persists, its longer-term impact on public finances becomes more adverse. Chapter 3 is devoted to providing evidence on the longer-term impact of inflation on public finances.

**When focusing on the recent surge in inflation, evidence of a favourable impact on fiscal variables is however more mixed.** ECB (2022) provides results on the short-term impact of the 2022 unexpected inflationary shock using its cross-country fiscal forecasting model, finding negligible impact on the budget balance in 2022, while stressing that in subsequent years spending pressures would mount as a result of higher inflation, leading to around 0.5% of GDP deterioration in the budget balance by 2024.<sup>(100)</sup> In contrast, in its April 2023 IMF Fiscal Monitor,<sup>(101)</sup> the IMF showcases a positive impact on budget balance following the 2022 inflationary episode. It relies on the evidence of positive impact reported in IMF (2023a) to compute a positive automatic impact of unexpected inflation in 2022, pointing at a favourable impact on the primary balance ranging from 1.5 to 3 pps. of GDP across a set of advanced economies. The difference between these results could be driven by the different sample composition, as the nature of the inflationary shock was different among countries.

**We contribute to this literature by providing panel-based estimates of the direct fiscal impact of surprise inflation focusing on EU countries and by using microsimulation techniques to highlight cross-country differences in terms of this impact across those countries.** Empirical analysis allows gathering evidence on the average impact across a set of countries and over a set of inflationary shocks. The latter can be done relying on panel regression analysis. In contrast, model-based analysis can help highlight cross-country differences. Our analysis relies on both approaches. Our panel estimation provides the average impact of inflation for the EU countries over the past two decades. EUROMOD-based microsimulations are then used to highlight cross-country differences.

**In interpreting our results, it is important to bear in mind that they focus on the direct mechanic effect of surprise inflation on public finances over a period during which inflation was moderate.** The setup of our research does only allow us to estimate the effect of surprise inflation in the very short term (that we refer to as the ‘direct’ effect). However, as explained in chapter III.1, an inflationary shock affects public finances through several channels, that do not all work simultaneously. Furthermore, the recent inflationary episode featured an important discretionary fiscal component aimed at mitigating the economic impact while weighing on public finances<sup>(102)</sup>. Finally, evidence in the literature suggests that the fiscal impact of inflation is non-linear. As our analysis is based on a dataset covering a period of moderate inflation, the mechanical impacts during the recent episode of sharp increase in inflation are likely to have been stronger than those evidenced here.

### 2.1.1. Methodology

**In our analysis, we rely on the IMF (2022) panel set up to estimate the direct effect of surprise inflation on fiscal variables for EU countries.** In our panel, we use AMECO vintage data covering EU countries and spanning 2000 to 2020<sup>(103)</sup>. The key metric for our analysis is the ‘surprise’ for a given variable, which we indicate with a hat. We define surprises for a given variable as the realised value for year  $t$  as shown in the AMECO vintage of Autumn of the year  $t+1$ , minus the forecast for year  $t$  as shown

<sup>(100)</sup> The ECB (2022) stresses that the nature of the inflation surprise in 2022, namely the fact that it was mainly due to an external shock, is the underlying cause for a lack of favourable impact on the deficit. Such inflation, it recalls, leads to more limited gains on the revenue side, which are, in turn, easily outweighed by extra spending pressures. The authors also underscores that their estimates, as ours, only capture the automatic impact of the inflation surprise on the primary balance, with the impact of inflation on interest payments being limited to reflecting only the inflation-indexed bonds channel. As such, their estimates represent a lower-bound on the potential adverse impact on fiscal outcomes with other omitted channels such as a dampening effect on the economy of monetary policy tightening and the discretionary response of fiscal policy contribute to a weakening of fiscal positions.

<sup>(101)</sup> See IMF Fiscal Monitor April 2023 online Annex 1.4 entitled “The Budget Effects of 2022 Inflation Surprises”.

<sup>(102)</sup> See Box I.2.4 entitled “Fiscal policy measures to mitigate the impact of high energy prices”, European Commission Autumn 2022 Forecast Report. See also ECB (2023) article in the Economic Bulletin Issue 2 entitled “Fiscal policy and high inflation”, for energy and other war-related support estimates of around 2.1% of GDP over 2022-23, 0.7% of GDP in 2024 and 0.5% of GDP in 2025.

<sup>(103)</sup> IMF (2022) spans the period 1992 to 2020. Our sample starts in 2000 and to increase comparability with IMF (2022), our key reference study, we incorporate observation up to year 2020.

the AMECO vintage of Autumn of the year  $t$  (see Eq. (2))<sup>(104)</sup>. The panel regression features these ‘surprise’ variables for the dependent and explanatory variables (see Eq. (1)). In line with IMF (2022), we compute the surprise variable to filter out discretionary fiscal policy changes that were expected as of Autumn of the concurrent year, with a view to attenuate endogeneity concerns.

The regression specification is as follows:

$$\hat{g}_{i,t} = \hat{\pi}_{i,t} + \hat{y}_{i,t} + \delta_i + \delta_t + \varepsilon_{i,t} \quad (1)$$

where hats indicate surprises computed as follows:

$$\hat{x}_{i,t} = E_{Autumn(t+1)}x_{i,t} - E_{Autumn(t)}x_{i,t} \quad (2)$$

where  $g$  is the nominal annual growth rate of a given fiscal outcome,  $\pi$  the inflation rate,  $y$  is the real growth rate of private demand,  $\delta$  refers to country and year fixed effects, and  $\varepsilon$  is a potentially autocorrelated independent error term. The fiscal outcomes  $g$  that will be investigated are (1) the nominal growth rates of general government revenues and (2) expenses, as well as (3) the change in the overall budget balances (in percent of GDP). Following IMF (2022) we consider inflation based on the HICP index and on the GDP deflator<sup>(105)</sup>. Altogether this implies that 6 regressions will be tested. Real private demand growth is included as a control variable (alongside time and country fixed effects) and is defined as real GDP growth net of real growth in public consumption and in public investment<sup>(106)</sup>. We do this to control for the fact that private demand both correlates with (surprises in) inflation and fiscal variables.

### 2.1.2. Results

**Table III.2.1 below reports the estimation of the panel regression described above.** Columns (1) to (3) show regressions for the three fiscal variables with inflation based on the HICP index. These regressions do not point at a statistically significant impact for any of the fiscal variables, while the coefficient estimates are significant when the GDP-deflator is used (columns 4 to 6). These regressions yield significant coefficients on the inflation variable in the expenditure and revenue regressions. The magnitude of the inflation coefficient is larger in the revenue regression, but only slightly. This may explain the lack of a significant impact on the budget balance (column (4)). The IMF points at an impact on revenue of around 0.3 for advanced economies and 0.8 for emerging economies. Yet, relying on a similar panel set up and covering EU countries, Mourre et al. (2016) report an impact of inflation on public revenue ranging between 0.5 and 0.7 across alternative regression specification, a result in line with ours.

<sup>(104)</sup> For example, the inflation surprise in 2019 is equal to the 2019 realisation value as shown in the AMECO vintage of Autumn 2020 minus the 2019 inflation forecast as shown in the AMECO vintage of Autumn 2019.

<sup>(105)</sup> Testing for both inflation index is also relevant as, under some circumstances, they post different dynamics. For a discussion of the relevance of such difference and its origin see Bénassy-Quéré (2022).

<sup>(106)</sup> Netting out the contribution of the public sector in the control variable avoids a mechanical correlation with growth in spending.

Table III.2.1: The direct impact of inflation on fiscal variables, panel estimation across the EU countries over the period 2000-2020, regression with country & time fixed-effects

	Budg.Bal. (1)	Pub.Exp. (2)	Pub.Rev. (3)	Budg.Bal. (4)	Pub.Exp. (5)	Pub.Rev. (6)
<b>Inflation (HICP)</b>	0.1468 (0.5498)	0.9608 (1.4469)	1.1068 (1.5310)			
<b>Inflation (GDP)</b>				-0.0222 (-0.4838)	0.7993*** (7.6545)	0.8511*** (6.8601)
<b>Priv. demand</b>	0.1918*** (13.993)	-0.6918*** (-20.203)	-0.2913*** (-7.8144)	0.1506*** (12.105)	-0.8039*** (-28.207)	-0.5095*** (-15.046)
<b>No. Observations</b>	496	498	498	500	502	502
<b>Effects</b>	Country Time	Country Time	Country Time	Country Time	Country Time	Country Time

(1) Significance levels are as follows: \* 10%, \*\* 5%, \*\*\* 1%. T-stats in parentheses.  
*Source:* Commission services.

**Table III.2.2 reports the estimation of the panel regression described above but omitting time-fixed effects.** In view of the limited size of our sample, we aim at testing this more parsimonious specification. Compared to Table III.2.1, results become significant for expenditure and revenue in the regressions based on HICP inflation (columns (2) and (3)). The coefficient in the revenue regression is substantially larger than in the expenditure regression. This appears to underpin a stronger and almost significant impact on the budget balance of around 0.37% of GDP. In turn, the results for the regressions based on GDP inflation (columns (4) to (6)) appear overall similar to those reported in Table III.2.1.

Table III.2.2: The direct impact of surprise inflation on fiscal variables, panel estimation across the EU countries over the period 2000-2020, regression with only country fixed-effects

	Budg.Bal. (1)	Pub.Exp. (2)	Pub.Rev. (3)	Budg.Bal. (4)	Pub.Exp. (5)	Pub.Rev. (6)
<b>Inflation (HICP)</b>	0.3684 (1.5706)	0.9993* (1.6808)	1.7608*** (2.6334)			
<b>Inflation (GDP)</b>				0.0024 (0.0529)	0.8117*** (7.9388)	0.9062*** (7.1110)
<b>Priv. demand</b>	0.2071*** (15.786)	-0.6643*** (-19.915)	-0.2176*** (-5.8002)	0.1622*** (13.163)	-0.7827*** (-27.555)	-0.4538*** (-12.820)
<b>No. Observations</b>	496	498	498	500	502	502
<b>Effects</b>	Country	Country	Country	Country	Country	Country

(1) Significance levels are as follows: \* 10%, \*\* 5%, \*\*\* 1%. T-stats in parentheses.  
*Source:* Commission services.

**Overall, these results point at a direct impact of surprise inflation on revenue and expenditure in the EU, with a slightly stronger impact on the former.** This is in line with our expectations, as revenues increase almost immediately following higher prices, while expenditures normally react with a lag. Yet, the difference in the impact between revenue and expenditure appears not sufficient to elicit a significant impact on the budget balance. The limited impact on the budget balance and stronger impact on revenue than expenditure, are broadly in line with evidence reported in the literature for the short-term fiscal impact of inflation. Absence of any significant impact on the budget balance may reflect the fact that our sample focuses on the years 2000 to 2020, a period of unprecedented inflation moderation in the

EU. Evidence of non-linearity of the fiscal impact of inflation (i.e. larger impact as inflation rises) may underpin the weakness of the impact we report <sup>(107)</sup>.

## 2.2. THE IMPACT OF INFLATION ON THE PREDICTABILITY OF FISCAL VARIABLES

**Inflation may adversely affect the ability to forecast fiscal variables, thus constituting a potential source of uncertainty for the budgetary process.** If so, this may also have concrete implications for fiscal outcomes, given evidence (see e.g. Mourre and Mohl (2021)) that uncertainty can foster larger ex post deviations from initially intended/announced fiscal efforts. This subsection gathers evidence showing that inflation has affected the performance of Commission's fiscal forecasting for EU countries.

**Aizenman and Hausmann (2000) provide a conceptual framework describing how inflation can be a source of uncertainty for the budgetary process.** This framework notes that indexing (via rules or in an ad hoc manner) is confronted with the operational difficulty of having to account for the type of inflation because the latter determines relative price dynamics which, in turn, determine how each expenditure sub-items would need to be indexed. Failure to account for this properly, causes inadequate indexing as some items are then overly indexed and others insufficiently indexed. Over time, tendency to correct for this leads to revisions in overall expenditure, revealed by heightened expenditure forecast errors (i.e. a deterioration of forecast performance linked to the inflationary environment). Though not the focus of Aizenman and Hausmann (2000) analysis, similar challenges in an inflationary context can be expected to also affect the ability to anticipate revenue flows, causing a deterioration of revenue forecast performance.

**Aizenman and Hausmann (2000) confirm the predictions of their framework for a panel covering Argentina, Brazil, Chile, Columbia, Costa Rica, Caribbean, Salvador, Guatemala, Honduras, Mexico, Peru, and Venezuela, for 1970-1994.** The correlation between the expenditure error and the magnitude of inflation turned out to be high and highly significant. Similar results are found for the case where inflation is decomposed into the expected and the unexpected components, indicating that both expected and unexpected inflation increase expenditure forecast errors.

**Aizenman and Hausmann (2000) further stress that a deterioration of fiscal forecasting performance tends to cause a loosening of the fiscal effort, a highly policy relevant issue also highlighted by Mohl and Mourre (2021).** In practice, Aizenman and Hausmann (2000) indicate that under-indexing of expenditure items tends to be corrected over time but not over-indexing, causing a loosening of initially intended fiscal efforts due to forecast errors (linked to the higher inflationary context). Panel evidence provided by Mohl and Mourre (2021) confirm that uncertainty affects ex post fiscal effort, showing that EU Member States tend to react only very late and asymmetrically to the uncertainty surrounding the fiscal effort. Their results show that uncertainty tends to increase deviation from intended fiscal effort, specifically causing a tendency to deliver looser stance than initially intended/announced due to asymmetric reaction to past deviations.

### 2.2.1. Methodology

**To gather evidence of the impact of inflation on fiscal forecasting performance in the EU, we rely on a panel estimation.** The panel set up is similar to the one used in the previous section. The key difference is that the dependent variable is a measure of forecast performance, namely the absolute value of the forecast error. Moreover, in line with the evidence provided by the literature discussed above,

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<sup>(107)</sup>Note that the dataset used by IMF (2022) also covered the 1990s, a period marked by more volatile inflation dynamics, which possibly explains the slightly stronger results reported in that study with a significant impact on the budget balance at 0.3 percent of GDP.

inflation (rather than only inflation surprise) is expected to affect the dependent variable. As such, the regression features the *level* of inflation (rather than inflation surprise) as the explanatory variable.

The regression specification is as follows:

$$|\hat{g}_{i,t}| = \pi_{i,t} + \delta_i + \delta_t + \varepsilon_{i,t} \quad (3)$$

where the left-hand side stands for absolute value of surprises, with surprises computed as in Eq. (2).

Note that, in this case, the private demand control variable is omitted as the regressors are not expressed in ‘surprise’ terms any longer, and the *level* variable of private demand is not set to be related to the dependent variable now expressed as a forecast performance measure (i.e. the *absolute value* of the forecast errors of the fiscal variables).

### 2.2.2. Results

**Our results suggest that the performance of public revenue and expenditure forecasts is affected by inflation, while the budget balance forecast performance is not.** Table III.2.3 shows the panel estimations with country and time fixed effects. Columns (3) and (6) show a statistically significant deterioration of the performance of revenue forecasts as inflation rises, both for the case of HICP-based and GDP-based inflation. In contrast, the effect on the expenditure forecast performance and the budget balance forecast performance are not significant. Table III.2.4 below reports estimation of the panel regression described above but omitting time-effects. Results become significant for expenditure (columns (2) and (5)) while significance of results for revenue also further increases (columns (3) and (6)). Impact of inflation however remains insignificant on forecast performance for the budget balance. Note that our static regression set up focuses on the short-term forecast error, namely for 2-3 months ahead. As such, the fact that revenue forecasts appear more strongly affected by a surge in inflation confirms our own estimates as well as the results from the literature that this variable tends to react faster to inflation thus posing a challenge for short-term forecasting. Such challenges may appear only further out in the forecast horizon for the other variables. Further investigation of this aspect and, more generally, of the dynamic impact of inflation on fiscal variables and fiscal forecasting is left for future further research.

Table III.2.3: **The impact of inflation on the fiscal forecasting error, panel estimation across the EU countries over the period 2000-2020, regression with country and time fixed-effects**

	<b>Budg.Bal.</b>	<b>Pub.Exp.</b>	<b>Pub.Rev.</b>	<b>Budg.Bal.</b>	<b>Pub.Exp.</b>	<b>Pub.Rev.</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
<b>Inflation (HICP)</b>	-0.0129 (-0.4417)	0.0595 (0.6152)	0.2384*** (2.7909)			
<b>Inflation (GDP)</b>				-0.0122 (-0.5930)	0.0935 (1.3785)	0.1583*** (2.6323)
<b>No. Observations</b>	503	502	503	503	502	503
<b>Effects</b>	Country Time	Country Time	Country Time	Country Time	Country Time	Country Time

(1) Significance levels are as follows: \* 10%, \*\* 5%, \*\*\* 1%. T-stats in parentheses.

Source: Commission services.

Table III.2.4: **The impact of inflation on fiscal forecasting error, panel estimation across the EU countries over the period 2000-2020, regression with only country fixed-effects**

	<b>Budg.Bal.</b>	<b>Pub.Exp.</b>	<b>Pub.Rev.</b>	<b>Budg.Bal.</b>	<b>Pub.Exp.</b>	<b>Pub.Rev.</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>
<b>Inflation (HICP)</b>	0.0102 (0.5049)	0.1139* (1.6834)	0.2473*** (4.0937)			
<b>Inflation (GDP)</b>				-0.0056 (-0.3299)	0.1485*** (2.5988)	0.2248*** (4.3989)
<b>No. Observations</b>	503	502	503	503	502	503
<b>Effects</b>	Country	Country	Country	Country	Country	Country

(1) Significance levels are as follows: \* 10%, \*\* 5%, \*\*\* 1%. T-stats in parentheses.

Source: Commission services.

**Overall, these results suggest that high inflation poses a challenge for anticipating expenditure and revenue developments.** Findings of the impact of these two variables is in line with evidence and theoretical predictions provided by the literature. The lack of evidence of an impact on the performance of budget balance forecasting appears to suggest that increased forecasting errors due to inflation on the expenditure and revenue side may have a tendency to offset each other.

## Conclusions

**This chapter provides evidence on the direct effect of surprise inflation on fiscal variable outcomes.** It shows that surprise inflation positively impacts revenue and expenditure in the EU, with a slightly stronger impact on the former in the short run. This however appears not have been sufficient to significantly impact the budget balance over the past two decades. The latter may also reflect inflation moderation over most of that period, as the fiscal impact of inflation is reported to be non-linear <sup>(108)</sup>.

**Our analysis also shows that higher inflation poses a challenge for anticipating expenditure and revenue developments.** The latter is relevant from a policy perspective in view of evidence provided by Aizenman and Hausmann (2000) that a deterioration of fiscal forecasting performance tends to cause a loosening of the fiscal effort, a point also stressed by Mohl and Mourre (2021) <sup>(109)</sup>.

**Further analysis could address some of the caveats of our work.** This would include investigating alternative ways of address potential remaining endogeneity issues, for example beyond the use of ‘surprise’ variables. Accounting for non-linearity in the fiscal impact of inflation may also enhance significance of the results. Investigating the impact on a wide range of fiscal variables and considering a wider range of price pressure definitions, including distinguishing more clearly between domestic and external source price pressure could also enrich the analysis. Finally, while our analysis strongly focusses on the very short-term effects, efforts to track the dynamic effect of inflation on fiscal variables would help assess more thoroughly the link between surprise inflation and public finances.

<sup>(108)</sup> See IMF (2022) for evidence of non-linearity of the fiscal impact of inflation, reporting a.o. stronger impacts for emerging economies, which are economies undergoing more volatile inflation dynamics.

<sup>(109)</sup> Aizenman and Hausmann (2000) indicate forecasting errors that imply an under-indexing of expenditure items tends to be corrected over time while similar forecast errors causing over-indexing tend not to be corrected over time, causing a loosening of initially intended fiscal efforts due to forecast errors (linked to the higher inflationary context). Panel evidence provided by Mohl and Mourre (2021) confirm that uncertainty affects ex post fiscal effort, showing that EU Member States tend to react only very late and asymmetrically to the uncertainty surrounding the fiscal effort. Their results show that uncertainty tends to increase deviation from intended fiscal effort, specifically causing a tendency to deliver looser stance than initially intended/announced due to asymmetric reaction to past deviations.



### Box III.2.1: Short-term fiscal impact of inflation – EUROMOD simulations

**This box relies on EUROMOD simulations to illustrate the short-term budgetary impact of the inflation shock seen in 2022 across EU countries, in a situation in which this shock translates into wage increases.** EUROMOD can be used to account for the fiscal drag and benefit erosion, the two key channels via which inflation affects budget outcomes over the short-term <sup>(1)</sup>. The model also accounts for details of each country's tax-benefit system, an important aspect allowing to identify the different impact across countries driven by differences in their tax-benefit systems.

**Results point at a favourable and differentiated short-term budgetary impact of inflation across the EU.** The average impact is in line with evidence reported in the literature, namely that on average, over different countries with institutional differences and different inflationary shocks, a 1% inflation shock followed by an equivalent wage indexation, causes 0.2% of GDP improvement in the budget balance. In fact, this analysis estimates that an inflation shock of around 5% in 2022 implies a favourable short-term budgetary impact on the budget balance in the order of 1% of GDP. Results however point at differences in size (but not in sign) across countries, with the impact ranging from 0.5 to 1.5% of GDP across the EU countries.

**In interpreting these results some caveats need to be borne in mind.** The analysis focuses on assessing the short-term and partial impact of inflation and wage indexation on public finances. As fiscal drag and benefit erosion wane over time (due to tax-benefit indexation), the budgetary impact deteriorates. Moreover, second-round effects such as impact on activity and employment are not accounted for in these EUROMOD simulations. Finally, the discretionary policy reactions put in place as a response to the inflationary shock seen in 2022 are also omitted from the analysis, in line with other results reported in this chapter.

#### EUROMOD setup to assess the fiscal impact of inflation

**Microsimulations are commonly used to illustrate the fiscal drag and benefit erosion <sup>(2)</sup>.** We use this approach by relying on EUROMOD, the open-source static non-behavioural tax-benefit microsimulation model for the EU <sup>(3)</sup>. Fiscal drag refers to a situation in which inflation and/or earnings growth pushes taxpayers into higher tax brackets, leading to higher tax burden given the progressivity of the tax system. While this channel can be offset by tax bracket indexation, such indexation tends not to be automatic nor swift. Similarly, sluggish indexation of social benefits leads to a reduction in the real value of income transfers, at least temporarily, a situation known as benefit erosion <sup>(4)</sup>. Over time, however, indexation of tax brackets and benefits tends to eventually occur via delayed automatic indexation or due to mounting pressure for ad hoc indexation to take place.

**To highlight the fiscal impact of the 2022 surge in inflation via EUROMOD, the following baseline and alternative scenarios are simulated:**

- **Baseline:** no inflationary shock <sup>(5)</sup>.

<sup>(1)</sup> See chapter 1 for a broader discussion of all relevant channels.

<sup>(2)</sup> See chapter 1 for a discussion of channels via which inflation affects fiscal variables. For examples of microsimulations illustrating fiscal drag and benefit erosion dynamics see Immervoll (2005), Immervoll et al. (2006) and Sutherland et al. (2008).

<sup>(3)</sup> Detailed information about EUROMOD can be found in <https://euromod-web.jrc.ec.europa.eu/>. Version I4.0+ is used here. See also Sutherland and Figari (2013) for further details. The underlying input data is from EU-SILC 2019 (with 2018 income as the reference period).

<sup>(4)</sup> Benefit erosion implies a decrease in real value of benefits, or, equivalently, a decrease in public expenditure as a ratio to GDP. In nominal terms, benefits might also decrease following loss of eligibility from means-tested benefits as wages increase in an inflationary context. Such aspects are reflected in EUROMOD simulations.

<sup>(5)</sup> The EUROMOD version used (to simulate the baseline and the scenarios) reflect information on tax-benefit systems up to June 2021. For more information about the different tax-benefit policies simulated in EUROMOD for each country, see the latest EUROMOD Country Reports: <https://euromod-web.jrc.ec.europa.eu/resources/country-reports>

(Continued on the next page)

Box (continued)

- **Scenario 1 (identical inflationary shock across EU countries):** identical 5% (GDP deflator based) inflationary shock for all countries <sup>(6)</sup>. The aim of this scenario is to highlight that equal inflation has different implications across countries, due to differences in tax-benefit systems. The calibration of the shock aims to broadly represent the average inflation experienced in 2022 across the EU. The simulation then assumes full indexation of employment incomes, namely an increase by 5%. Hence, this scenario illustrates the implication of full operation of fiscal drag and benefit erosion across the EU <sup>(7)</sup>.
- **Scenario 2 (differentiated inflationary shock):** for each country the inflationary shock (and hence, the employment income indexation) consists of the (GDP deflator based) inflation seen in 2022, as forecasted in the Autumn 2022 EC forecast. The aim of this scenario is to also account for the fact that inflation differed across countries in 2022. Other aspects are kept in line with scenario 1.
- **Scenario 3 (offsetting benefit erosion):** we assume that benefits are indexed to 2022 (HICP-based) inflation, as forecasted in the Autumn 2022 EC forecast. The aim of this scenario is to illustrate the fiscal impact of inflation beyond the (very) short-term as benefit erosion eventually disappears <sup>(8)</sup>. Other aspects are kept in line with scenario 2.

## Results

**Figure 1 shows the budgetary impact under full operation of fiscal drag and benefit erosion <sup>(9)</sup>. This refers to scenario 1 and 2 described above.**

**Under scenario 1, the short-term impact on the budget via the fiscal drag and benefit erosion would range from 0.5% to 1.6% of GDP.** This reflects differences in features of the tax-benefit systems that affects the magnitude of the impact. In the absence of indexation policies, Belgium's budget development appears especially sensitive to inflation, while, at the other extreme, Malta's budgetary sensitivity to inflation appears relatively low <sup>(10)</sup>. Noteworthy, the average impact at around 1% for an inflationary shock of 5% suggest a short-term elasticity of 0.2, broadly in line with our panel-based evidence and with evidence reported in the literature.

**Under scenario 2, which accounts for the fact that inflation differed across countries in 2022, the range of budgetary impact remains broadly similar.** The fact that different inflation levels did not significantly increase the dispersion of the short-term budgetary impacts (and that the ranking order of countries changed), suggests that some countries that are more sensitive to inflation in terms of budgetary impact witnessed relatively mild inflation in 2022 (e.g. France and Portugal) causing the impact under scenario 2 to be milder than under scenario 1. At the same time, some countries with lower sensitivity to inflation experienced relatively stronger inflation (e.g. Bulgaria, Romania and Poland) causing the impact reported under scenario 2 to be relatively stronger.

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<sup>(6)</sup> The GDP deflator inflation is retained as a plausible driver of employment income indexation. In scenario 3, however, HICP-based inflation is used to index benefits.

<sup>(7)</sup> Full operation of these channels is thus defined here as the situation in which full indexation of employment income arose. This represents a stylised assumption in the sense that indexation of wages rather arises gradually with some delay, in practice.

<sup>(8)</sup> Note tax brackets indexation is in place, hence the fiscal drag remains in operation in this scenario.

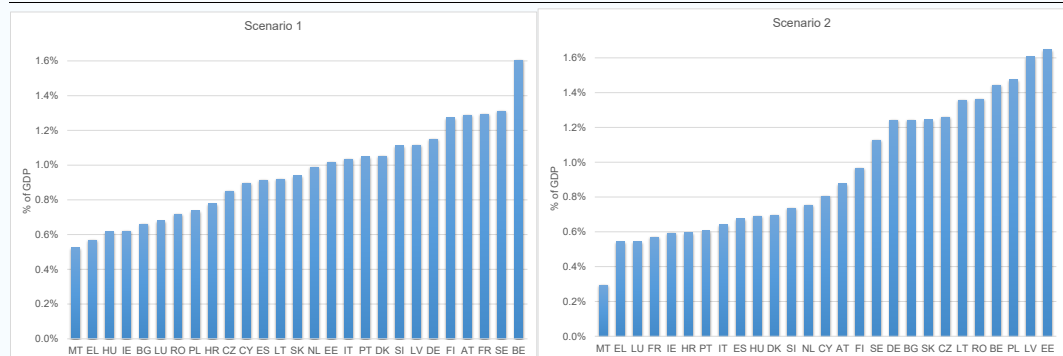
<sup>(9)</sup> The budgetary impact is defined as the sum of impacts across a set of relevant variables available in EUROMOD, namely direct taxes, social insurance contribution, pensions and benefits. The impact itself is defined as the difference between the value for an item under a scenario compared to its value under the baseline. The impact is reported in percentage of GDP.

<sup>(10)</sup> It should be noted however, that the speed at which tax-benefit indexation takes place is very important, as shown in scenario 3.

(Continued on the next page)

Box (continued)

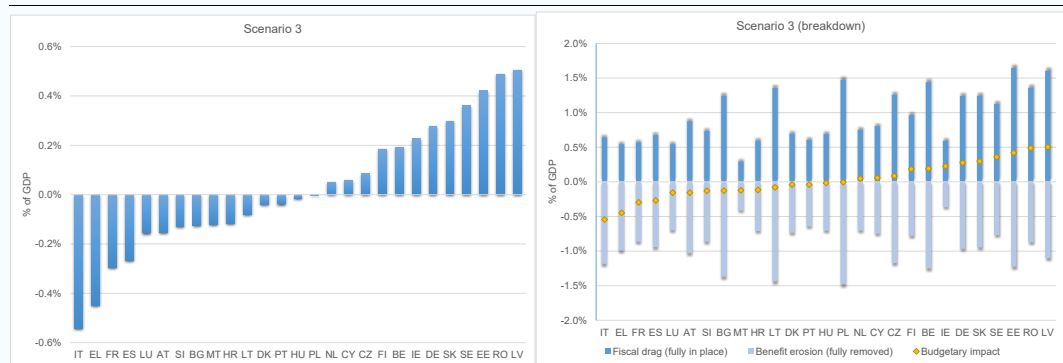
Graph 1: **Budgetary impact of inflation – scenario 1 & 2**



Source: Commission services.

**Figure 2 shows that as benefit erosion disappears the impact on the budget becomes less favourable, according to EUROMOD simulations.** Under those circumstances, the budgetary impact ranges from -0.5 to 0.5% of GDP across the EU. While in most countries the impact becomes broadly negligible, half of the countries would post a negative impact of inflation once benefit erosion is offset, with adverse impact on the budget most significant in Italy and Greece. A waning of the fiscal drag effects would imply a further worsening of the budgetary impact, as related positive effects on the revenue side would disappear. The latter is illustrated in the bottom graph in Figure 2, which provides a breakdown of the net budgetary effect, highlighting the favourable contribution from the fiscal drag and the offsetting effect from the waning of the benefit erosion channel. Noteworthy, the offsetting of the benefit erosion is simulated via HICP-based indexation of benefit expenditures, in line with the fact that consumer price pressure is the typical driver of such indexation. In the event of inflation featuring a strong external component, as is the case in the recent inflationary episode, HICP inflation tend to outpace GDP deflator-based inflation. Such a gap tends to be detrimental for public finances as strong HICP inflation puts strong pressure on public expenditures, while public revenues follow the more contained inflation dynamics related to the GDP deflator. This aspect is reflected in scenario 3 by offsetting the benefit erosion in regard of HICP inflation <sup>(1)</sup>.

Graph 2: **Budgetary impact of inflation – scenario 3**



Source: Commission services.

<sup>(1)</sup> For a discussion of this aspect see Bénassy-Quéré (2022).

### 3. THE LONG-TERM FISCAL IMPACT OF INFLATION - NEW DEBT SIMULATIONS

#### Introduction

**The aim of this chapter is to illustrate the medium- to long-term impact on public debt of inflation mainly due to a terms-of-trade shock.** To do so, we rely on macro and debt simulations models that account for the dynamic effect and interplay of the different channels through which inflation affects public debt. The focus on debt rather than just on the budget balance helps keep track of the cumulative effects of inflation over time on public finances. The simulations detailed in the main text of this chapter assume that inflation is entirely driven by a negative terms-of-trade shock. There are two reasons to focus on such a shock. First because it reflects the type of shock experienced in 2021 and especially in 2022 in Europe, where inflation was mainly driven by higher (imported) energy prices<sup>(110)</sup>. Second because, until recently, such shocks were much less prominent in the literature than demand-driven shocks and deserve closer scrutiny. However, higher inflation – especially in the more recent period – could also partially result from a positive demand shock, such as a shock to household consumption, which would entail significant differences in the evolution of most other macroeconomic and fiscal variables. The implications of a demand-driven shock, along with some sensitivity analysis around a terms-of-trade shock, are described in Box III.3.1.

**Existing model-based simulations suggest that higher inflation may reduce debt, at least initially and under certain conditions.** This is in line with the evidence reported in the previous chapter, which focused on analysing common short-term impacts of inflation on public finances. In turn, the general takeaway from the model simulations in the literature (as described in Chapter 1) is that higher inflation can cut debt in the short term, potentially by a sizeable amount, depending on the size and nature of the assumed shock, the maturity structure and the level of debt, among other factors. The model developed by Aizenman and Marion (2009), inspired by Barro (1979), showed that in view of the level of US debt and its structure in terms of maturity, currency and indexation to inflation, the inflation rate leading to the strongest debt reduction at the time would have been 6 percent. This would have reduced the US debt ratio by about one-fifth (10 pps.) within four years. This is comparable to what Krause and Moyon (2016) obtain with a permanent increase of the targeted inflation rate from 2 to 6 percent. Broadening the analysis to other advanced economies, Akitoby et al. (2014) simulate the debt erosion that could be achieved assuming the same inflation rate of 6% over 5 years – 4 ½ pps. above the IMF World Economic Outlook baseline at the time. They find that this would reduce G7 debt ratios by 11 pps. on average under a full Fisher effect, and by 14 pps. under a partial Fisher effect (that is, if the nominal interest rate on government debt only partially adjusts to the higher inflation). Extending this approach to more modest inflation shocks, Fukunaga et al. (2020) find that in advanced economies, a temporary 1 percentage point shock to inflation would marginally reduce debt ratios, by 0.7 pp. on average and mostly in the first year. The impact would, however, be larger in countries with a longer debt maturity and higher debt levels.

**However, after a temporary decline achieved in the short term, debt is found to pick up again, fuelled by higher interest rates.** Beyond the initial 5-year horizon, Akitoby et al. (2014) point out that the increasing share of securities issued at higher rates leads to a new increase in debt ratios. Moreover, they stress that higher inflation may have detrimental effects if it leads to a de-anchoring of inflation expectations. This could increase long-term interest rates, distort the allocation of resources, harm economic growth and affect low-income earners, ultimately increasing debt ratios. Financial repression could be used to prevent increases in interest rates but may also entail negative side effects. Similarly, simulations by the Bank of England (2020) isolating the pure impact of inflation (i.e. leaving all real determinants of debt unchanged) lead to the conclusion that a permanent, unexpected increase in inflation could only temporarily reduce the debt ratio. The real value of the non-indexed part of existing debt

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<sup>(110)</sup> European Commission (2023), European Economic Forecast, Spring 2023, Box I.2.4: Which factors shape growth and inflation going forward? Model-based insights into the spring forecast, Institutional Paper 200, May, 34-35.

would initially fall, but over time maturing debt would be refinanced at a higher rate, pushing the debt ratio gradually back to its original level.

**This chapter presents new simulations on the impact of an adverse terms-of-trade inflation shock on public debt dynamics.** First, Section 1 describes the modelling approach. Section 2 then presents the main findings. In addition, Box III.3.1 presents underlying simulations prepared in the QUEST model, including sensitivity analysis and an alternative scenario assuming a demand-driven inflation shock.

### 3.1. MODELLING APPROACH

**The simulations are carried out thanks to the Commission’s medium-term public debt projection model which is routinely used to underpin its Debt Sustainability Analysis (DSA).** This tool is well documented in regular Commission publications <sup>(11)</sup> and is consistent with similar approaches used by other international organisations. In order to assess the impact of higher inflation on debt dynamics, an ‘inflation shock scenario’ is set up, calibrated based on the results of the Commission’s macroeconomic model QUEST (see Box III.3.1).

#### The DSA model - a primer

**The main equations of the DSA model can be summarised in a simplified way as follows.** In terms of notation, variables expressed as percentages of GDP are shown in upper case, while variables expressed as changes or growth rates are shown in lower case.

$$\text{Growth equation: } gr_t = gr_t^p - f(OG_{t-1}) - \mu \cdot \Delta SPB_t \quad (1)$$

where  $gr$  is real actual GDP growth,  $gr^p$  is real potential GDP growth;  $OG$  is the output gap (defined as the relative difference between real actual and potential GDP levels),  $SPB$  is the structural primary balance (as a share of nominal GDP) and  $\mu$  is the fiscal multiplier effect set at 0.75. This means that a fiscal consolidation (expansion) of 1 pp. of GDP reduces (increases) actual real GDP growth by 0.75 pp. through fiscal multiplier effects.

$$\text{Primary balance equation: } PB_t = T_t - (G_t + I_t^p) = SPB_t + \eta \cdot OG_t \quad (2)$$

where  $PB$  is the primary balance (as a percentage of nominal GDP),  $T$  is public revenue (as a percentage of nominal GDP);  $G$  is public consumption (as a percentage of nominal GDP),  $I^p$  is public investment (as a percentage of nominal GDP) and  $\eta$  is the budgetary semi-elasticity (country-specific) <sup>(12)</sup>.

$$\text{(Effective) interest equation: } i_t = \alpha_{t-1} \cdot i_t^m + (1 - \alpha_{t-1}) \cdot i_{t-1} \quad (3)$$

where  $i$  is the *nominal* effective (or implicit) interest rate on public debt;  $i^m$  is the nominal market interest rate on public debt (here we proxy it with a single rate, in practice the DSA model takes into account short- and long-term interest rates);  $\alpha_{t-1}$  is the share of newly-issued debt (including debt rolled over and new net financing needs);  $1 - \alpha_{t-1}$  is the share of outstanding long-term debt and  $i_{t-1}$  is the nominal implicit interest rate on outstanding long-term debt.

$$\text{Debt accumulation equation: } \Delta D_t = D_{t-1} \cdot \underbrace{\left[ \frac{i_t}{(1+g_t)} - \frac{gr_t}{(1+g_t)} - \frac{\pi_t(1+gr_t)}{(1+g_t)} \right]}_{\text{snowball effect}} - PB_t + SFA_t \quad (4)$$

<sup>(11)</sup> European Commission (2023): Debt Sustainability Monitor 2022, Institutional Paper 199, April.

<sup>(12)</sup> For completeness, the primary balance also includes one-offs and other temporary measures but these are set to zero over the simulations.

where  $D$  is the government debt-to-GDP ratio,  $g$  is the nominal growth rate,  $\pi$  is the inflation rate as measured by the GDP deflator, and  $SFA$  refers to the stock-flow adjustment. For the sake of simplicity, the above equation assumes no split between domestic and foreign currency debt, i.e. no exchange rate effects. However, in the Commission's standard DSA model, such a breakdown is made and exchange rate effects are taken into account.

**The DSA model takes into account feedback effects of fiscal adjustment on macroeconomic variables.** Fiscal consolidation (expansion) reduces (increases) actual real GDP growth through fiscal multiplier effects (equation (1)), thereby affecting the output gap <sup>(113)</sup>. A positive (negative) change in the output gap improves (deteriorates) the primary balance, reflecting the operation of automatic stabilisers (equation (2)). This, in turn, affects the effective interest rate. For example, a lower primary deficit reduces new financing needs, eventually feeding into lower interest payments (equation (3)). As a result, the debt dynamics change depending on the evolution of these three key variables (primary balance, interest rate, growth rate).

#### **The debt dynamics can be broken down into three main channels:**

- The **snowball effect** captures three factors, namely the interest rate effect, the real GDP growth effect and the inflation effect <sup>(114)</sup>. The term "snowball effect" is used because, much like a snowball rolling downhill, the factors can accumulate over time, potentially making debt sustainability more challenging to preserve. The larger the snowball effect, the higher the debt increase over time.
- The **primary balance**, i.e. the general government headline balance excluding interest payments, captures the main contribution of fiscal policy to debt dynamics. It can be decomposed into two determinants: the effect of discretionary fiscal policy (measured by the cyclically-adjusted primary balance) and the effect of automatic stabilisers, which, in the absence of any change in fiscal policy, follow the cyclical conditions of the economy (as measured by the cyclical component of the budget). The Commission's DSA model also explicitly takes into account the impact of ageing costs on the primary balance <sup>(115)</sup>.
- The **stock-flow adjustment** refers to those financial transactions or statistical factors that affect the debt dynamic but are not recorded as part of the primary balance. Prominent examples are privatisation receipts (which reduce debt) and measures to recapitalise banks or state-owned enterprises (which increase debt).

#### **Assessing the inflation shock with the DSA model**

**The QUEST model is used to calibrate an adverse terms-of-trade shock that raises consumer prices by 1 percentage point <sup>(116)</sup>.** A key feature of such a shock is that import prices rise relative to export prices. As a result, consumer price inflation rises by 1 pp. in 2023, while the GDP deflator rises by only 0.8 pp. in 2025. The inflation shock is assumed to be persistent with GDP inflation reverting to the baseline only by 2032. Such a shock corresponds well to the nature of the shock experienced in Europe, where inflation in 2021 and especially in 2022 was mainly driven by higher (imported) energy prices <sup>(117)</sup>. Apart from the impact on prices, the unfavourable terms of trade weigh on real GDP through a combination of supply- and demand-side factors. In addition, monetary policy is being tightened in

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<sup>(113)</sup> It is assumed that the output gap is closed three years after the end of the fiscal expansion or consolidation.

<sup>(114)</sup> Exchange rate effects are also part of the snowball effect, but are omitted for the sake of simplicity as described above.

<sup>(115)</sup> European Commission (2021): The 2021 Ageing Report: Economic and Budgetary Projections for the EU Member States (2019-2070), Institutional Paper 148, 7 May.

<sup>(116)</sup> Motyovszki, G. (2023), The fiscal effects of terms-of-trade-driven inflation, European Commission, Discussion Paper 190.

<sup>(117)</sup> European Commission (2023), European Economic Forecast, Spring 2023, Box I.2.4: Which factors shape growth and inflation going forward? Model-based insights into the spring forecast, Institutional Paper 200, May, 34-35.

response to the inflationary pressures, leading to higher short- and long-term interest rates (for a more detailed description of the scenario see Box III.3.1 and Motyovszki, 2023) <sup>(118)</sup>.

**The adverse terms-of-trade shock is used to design an inflation shock scenario within the DSA model.** For this purpose, five variables are shocked, namely the GDP deflator, the real GDP growth rate, the short- and long-term interest rates and the primary balance. The shocks are considered separately for each Member State and then aggregated at EU level. The starting point of the shock is assumed to be 2023 and the impact is assessed relative to the Commission’s DSA standard baseline <sup>(119)</sup>.

**This modelling approach has several advantages.** First, the Commission’s DSA model is well-established, transparent and well-suited for assessing debt dynamics. Second, the use of QUEST to calibrate the inflation shock scenario enables to design a well-founded scenario, reflecting the nature of the shock and capturing interdependencies between the key variables driving debt dynamics. Third, the DSA model allows to assess the impact of higher inflation on different Member States, taking into account country-specific features: the EU aggregate in the DSA model results from the aggregation of country-specific impacts while the QUEST simulations are run directly on the EU aggregate. Fourth, compared with QUEST, the DSA model endogenises the implicit interest rate dynamics in a more detailed manner, by distinguishing between short-term and long-term debt and by taking into account the country-specific maturity structure of debt. Thus, depending on the debt level, debt maturity structure and trajectory of each country, the impact of shocks on debt can differ.

### 3.2. MAIN FINDINGS

**This section presents the main results of the adverse terms-of-trade shock on public debt dynamics.** To facilitate the understanding of the complex interactions, the results are presented by channel and summarised in Graph III.3.1. The results presented correspond to the average impact for the EU as a whole, unless otherwise stated. The impact should be understood relative to the baseline where no shock occurs.

#### Higher GDP deflator: debt declines

**Higher inflation has a direct debt-reducing impact via the denominator effect.** This corresponds to the “inflation effect” in Graph III.3.1. In the first year of the shock, the GDP deflator for the EU even falls relative to the baseline (-0.3 pp.) due to initially adverse aggregate demand effects. All else being equal, this increases government debt. From the second year onwards, the GDP deflator is higher than in the baseline due to domestic price pressures. Price pressures peak in 2025 (+ 0.8 pp.), before gradually levelling off relative to the baseline. Overall, the higher GDP deflator leads to a reduction in the debt ratio as from 2024, of around 2 pps. of GDP from 2029 onwards through the denominator effect, other things being equal.

#### Higher interest rates: debt increases

**As a result of higher consumer price inflation, monetary policy is tightened and public debt rises through the interest rate channel.** The tighter monetary policy stance leads to a gradual increase in short- and long-term market interest rates relative to the baseline from 2024 onwards. Consistently with QUEST, the increase in short- and long-term market interest rates is 0.2 pp. in 2024 and 0.4 pp. in 2026 in nominal terms, and then slowly levels off relative to the baseline. The higher interest rates increase

<sup>(118)</sup> For a more detailed description of the key channels see Motyovszki, G. (2023): The fiscal effects of terms-of-trade-driven inflation, European Commission Discussion Paper, Institutional Paper 190, July.

<sup>(119)</sup> The DSA baseline is based on a no-fiscal-policy change assumption, whereby the structural primary balance is only modified by projected changes in costs of ageing after the Commission’s forecast horizon (2024). See European Commission (2023) for more details.

interest payments. This effect is gradual due to the relatively long average maturity structure of government debt. The implicit interest rate gradually rises to around 0.2 pp. in 2032. Overall, the interest rate channel increases debt by only 0.1 pp. in 2025, but then gradually rises to 2.6 pps. of GDP in 2042.

#### Lower real GDP growth: debt rises

**The adverse terms-of-trade shock durably reduces real GDP and thus also contributes to increase public debt.** The price shock weighs on real GDP growth mainly through two factors. First, the fall in real household income reduces household consumption (demand-side effect). Second, more expensive imported goods induce domestic firms to reduce production (supply-side effect). As a result, real GDP growth falls by 0.3 pp. in 2023 and by 0.5 pp. in 2024, before levelling off from 2025 onwards relative to the baseline. The lower growth increases debt by up to 0.8 pp. of GDP between 2025 and 2027. The debt-increasing impact then tapers off from 2028 onwards compared with the baseline.

#### Deteriorated primary balance: debt increases

**The lower real GDP growth has a negative impact on the primary balance and weighs on debt.** As a result of the shock, the primary balance deteriorates by 0.2 pp. in 2023 and by up to 0.4 pp. in 2026, before returning to its baseline value from around 2030. The cumulative negative deviations of the primary balance from the baseline increases debt by around 1.5 pps. of GDP by 2030. The simulations assume that no discretionary fiscal measures are taken and that the structural primary balance remains unchanged compared to the baseline.

#### Overall effect: debt rises

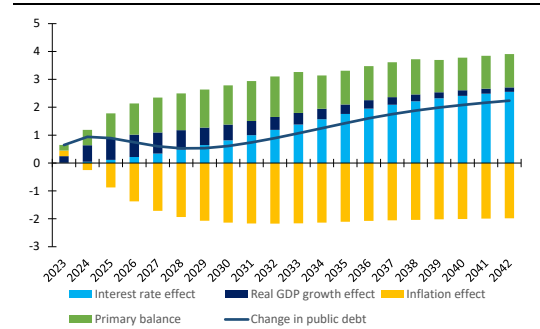
**Taken together, the adverse terms-of-trade shock increases the public debt ratio by around 2 pps. of GDP in 2042 with respect to the baseline (Graph III.3.1).** The overall debt-increasing effect can be decomposed into four channels. First, higher inflation decreases debt through the denominator effect (-2 pps. of GDP). However, this positive effect is outweighed by three debt-increasing channels. Second, interest rates rise due to a tighter monetary policy stance, leading to higher interest payments and public debt. This effect increases over time due to the relatively long average maturity structure of government debt, reaching around 2.5 pps. of GDP in 2042. Third, the deterioration in the primary balance increases debt by around 1.2 pps. of GDP in 2024. Fourth, lower economic growth weighs on public debt. This effect is stronger in the early years, but levels off to around 0.2 pp. of GDP by 2042. While the overall impact on debt in the simulations can be considered moderate, it needs to be interpreted in relation to the size of the shock, which increases the GDP deflator by only 0.8 pp. of GDP. Assuming a shock five times larger, as observed in 2021/2022, would increase the negative impact on debt by about five times. On the other hand, as discussed in Box III.3.1, the current shock is likely to be a mix between a terms-of-trade shock and a demand shock, mitigating the overall impact on debt.



**The impact of the price shock varies across Member States (Graph III.3.2).**

For the EU as a whole, the adverse terms-of-trade shock increases the public debt ratio by around 2 pps. in 2042 compared with the baseline. This average effect masks differences across Member States, ranging from a debt increase of only around 1 pp. of GDP in some countries (Sweden, Denmark and Ireland) to around 3 pps. of GDP in others (Italy, Romania and Hungary). There are several reasons for these differences. First, the debt-increasing effect seems stronger in Member States with high debt levels, such as Italy, Belgium and France. In those countries, the debt-reducing effect from the inflation channel is high, but clearly overcompensated by the debt-increasing interest rate channel under the assumptions used in this scenario. Second, the debt-increasing effect is also strong in countries with already high interest rates (but not high debt levels) and in some cases relatively short average maturity of debt, such as Romania, Hungary and Poland. In those countries the debt-reducing inflation channel is relatively small and clearly overcompensated by the interest rate channel.

Graph III.3.1: Impact of a higher terms-of-trade shock on debt (by channel, EU aggregate in pps. of GDP compared to baseline)



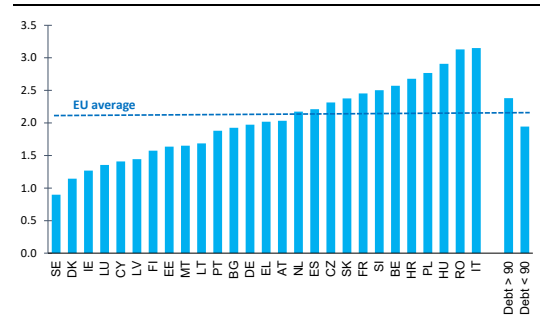
(1) The assessment excludes the potential impact of exchange rates and stock-flow-adjustments <sup>(120)</sup>.

Source: Commission services.

**Conclusions**

**This chapter analyses the impact of an adverse terms-of-trade shock on inflation and debt dynamics using the Commission’s medium-term public debt projection model.** This model is a well-established and transparent tool for assessing debt dynamics and used to underpin its Debt Sustainability Analysis. A persistent terms-of-trade shock that generates an ‘inflation shock scenario’ is set up, calibrated based on the results of the Commission’s macroeconomic model QUEST. Such a shock seems to reflect the type of shock experienced in Europe, where inflation in 2021 and especially in 2022 was mainly driven by higher (imported) energy prices. A key feature of such a shock is that import prices rise relative to export prices. The adverse terms-of-trade shock is then used to construct an inflation shock scenario within the DSA model.

Graph III.3.2: Impact of a higher terms-of-trade shock on debt (by Member State, in pps. of GDP compared to baseline)



Source: Commission services.

**The main finding is that the adverse terms-of-trade shock may increase public debt in the longer run depending on the reaction of monetary policy and other macro-fiscal variables.** The simulations show that, all else being equal, higher inflation has a direct debt-reducing impact through the denominator effect. However, this effect may be outweighed by the debt-increasing effects of three other channels, namely a slower real GDP growth, a weaker primary balance and a higher interest rate channel. Overall, the terms-of-trade shock that leads to a higher GDP deflator by 0.8 pp. is found to increase the public debt in the EU by about 2 pps. of GDP on average in the longer run. The effect varies across Member States. It appears to be particularly large in Member States with high public debt and/or high interest rates, and

<sup>(120)</sup> Overall, the impact of the exchange rate channel on debt is likely to be limited and its direction unclear: In the short run, the central bank of the affected EU country reacts to higher inflation by raising interest rates. All else being equal, this will lead to an appreciation of the exchange rate, i.e. debt (in foreign currency) will fall. In the longer run, however, the country hit by the shock loses competitiveness. Other things being equal, this leads to a depreciation of the exchange rate, i.e. debt (in foreign currency) rises.

short debt maturities. Overall, the findings are broadly in line with similar studies (e.g. Bankowski et al. 2023; Motyovszki, 2023). However, the results show that the pass-through of higher inflation on interest payments may take longer than expected. The reason behind is the longer maturity structure of government bonds, which was explicitly taken into account in this analysis.

**There are some limitations to the conclusions, in particular with regard to the nature of the shock and its differentiation across countries.** The simulations run in the DSA model assume that inflation is entirely driven by a negative terms-of-trade shock. However, as discussed in Box III.3.1, higher inflation could also partly result from a positive demand shock, such as a shock to household consumption. They also assume that no additional discretionary fiscal policy measures are taken beyond the baseline scenario to mitigate the shock. The simulations in the QUEST model show that a fully demand-driven shock with a similar pattern for inflation could entail significant differences in the evolution of most other macroeconomic and fiscal variables. In the end, government debt falls, mainly due to higher nominal growth and an improvement in the primary balance. Moreover, while the simulations in this chapter apply the same shock to all Member States, further work could better differentiate the impact with country-specific elasticities implying a stronger reaction of the interest rate in particular in high-debt countries.

**Box III.3.1: The effects of an adverse terms-of-trade shock on debt dynamics in quest simulations**

**This box assesses the impact of higher inflation on debt dynamics, based on simulations using the Commission’s QUEST model<sup>(1)</sup>.** Higher inflation is usually expected to be directly beneficial for public finances, as tax revenue tends to grow in line with inflation while public expenditure might adjust only with a delay. In addition, faster price growth can lower the debt-to-GDP ratio via the denominator effect, essentially eroding the real value of nominally fixed debt. But beyond these direct impacts of inflation, debt dynamics are also influenced by a host of other factors, which are likely to change depending on the source of inflation and on how economic policy responds. QUEST, a general equilibrium macroeconomic model, is useful to show in a consistent way how these economic variables interact with each other in response to different shocks, providing a more complete view of the determinants of fiscal dynamics. As there is no such thing as a “pure” inflation shock that leaves the rest of the economy unchanged, it is important to identify the underlying structural economic shock that causes rising inflation. For instance, inflation can increase due to a positive domestic demand shock, which stimulates growth and puts upward pressure on prices (demand-pull inflation). Alternatively, inflation can also result from a negative supply shock, which depresses real growth (cost-push inflation). These shocks have very different implications for debt dynamics.

**The simulations isolate the effects of an adverse terms-of-trade shock for the EU as a whole.** While arguably not the only source, a sharply deteriorating terms-of-trade (ToT) shock was undoubtedly an important driver of the surge in inflation in 2022. Such a shock raises import prices relative to export prices, and thereby drives a wedge between the consumer price index (the price of what households consume, including imports) and the GDP deflator (the price of what the domestic economy produces, including exports). This wedge represents a terms-of-trade loss, that erodes the purchasing power of the domestic economy as a whole, pushing *real domestic income* (CPI-deflated nominal GDP) below real GDP<sup>(2)</sup>. At the same time, the shock depresses real GDP itself, as imported intermediate inputs for domestic production become more costly (supply effect), and the weakening purchasing power of households lowers demand not just for imports but also for domestically produced goods (demand effect). Monetary policy responds to rising consumer inflation by raising short term nominal interest rates more than one-for-one, such that increasing real interest rates depress economic growth further beyond the direct impact of the shock, while also mitigating the rise in inflation. The illustrative ToT shock is designed such that CPI inflation rises (temporarily) by 1 percentage point under the baseline scenario, in a version of QUEST that is calibrated to the European Union as a whole versus the rest of the world<sup>(3)</sup>.

**The primary budget balance declines in response to an adverse ToT shock** (Graph 1, left panel). This is mainly driven by expenditures such as transfers (e.g. pensions) that are assumed to be indexed to rising consumer prices under our baseline calibration, and which therefore increase as a share of GDP when real GDP declines and the GDP deflator grows less than CPI. Automatic stabilisers such as unemployment benefits also increase as the real economy weakens. Government consumption and public investment are assumed to be fixed as a share of GDP, so they have no effect by construction. On the other hand, tax revenues increase somewhat (as a share of GDP), mainly due to the “fiscal drag” effect coming from initially not adjusting the nominal brackets of a progressive labour tax system in the face of nominal wage inflation. VAT revenues also rise because of the opening wedge between the CPI and GDP deflator, while consumption volumes are slower to moderate. However, these positive revenue effects are not large enough to offset the effect of higher expenditures, so overall the primary deficit widens. Importantly, this scenario assumes no discretionary

(1) The details of these simulations are published in Motyovszki, Gergő (2023). The fiscal effects of terms-of-trade driven inflation. *European Economy Discussion Papers*, (forthcoming).

(2) A corollary to this is that despite sharply increasing CPI inflation, nominal GDP is not necessarily growing as fast. Therefore, for fiscal indicators expressed as a share of nominal GDP, it is the more benign GDP deflator that is the relevant inflation indicator.

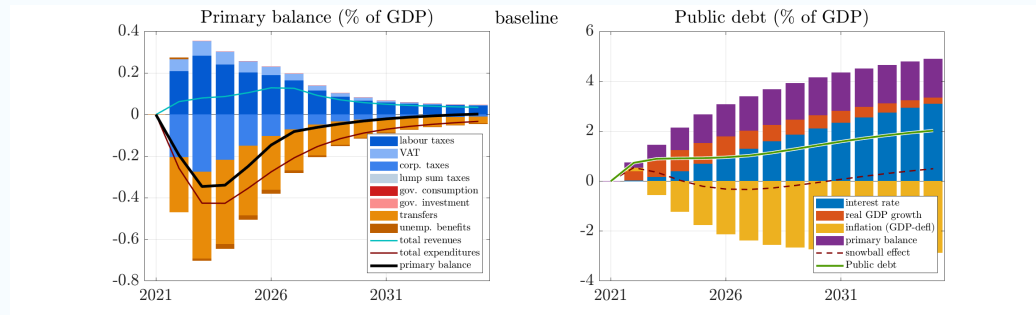
(3) The scenario is illustrative and does not intend to capture the actual size of the ToT shock that hit Europe. That said, this calibration implies a cumulative 10% decline of the model economy’s ToT during the first two years, which is the same order of magnitude as the EU’s observed ToT-deterioration of cumulative 9% over 2021-22.

*(Continued on the next page)*

Box (continued)

reaction from fiscal policy either in response to the rising cost of living, or in response to the increasing debt-to-GDP ratio, in order to isolate the effect of the shock.

Graph 1: Impulse responses to a series of unexpected adverse terms-of-trade shocks in the EU.



Source: European Commission staff calculations - simulations by QUEST, calibrated for the EU-27.

Overall, the ToT deterioration leads to an increase in the debt-to-GDP ratio (Graph 1, right panel). The reason is that the debt-reducing effect of higher inflation is outweighed by the adverse effects of slower real growth, higher interest rates and a declining primary balance<sup>(4)</sup>. Monetary tightening via short term interest rates passes through to higher effective interest payments on public debt, albeit only gradually, as government bonds in the EU have a rather long average maturity of 7 years. However, despite sharply increasing CPI inflation, GDP-deflator growth also builds up only gradually, as second round effects on domestic prices gain strength later on. Combined with weaker real growth, this is sufficient to keep the “snowball effect” (nominal interest-growth differential) from becoming too negative. The widening primary deficit contributes to the rise in public debt beyond this snowball effect.

The results crucially depend on monetary policy and debt management settings (Graph 2). A more aggressive monetary tightening in response to inflationary pressures (stricter inflation targeting) constrains aggregate demand via higher real interest rates, leading to lower GDP growth and inflation. This entails a larger decline in the primary balance, while a more “hawkish” monetary stance also raises the effective interest rate on public debt, directly pushing up interest payments. All of these factors contribute to increasing the debt-to-GDP ratio. In contrast, with an initially unresponsive monetary policy (ZLB scenario), the opposite happens. Results even change in qualitative terms, leading to an outright fall in debt-to-GDP as the erosive effect of higher inflation now dominates (borne by bondholders), and the primary balance increases on the back of relatively higher growth. Finally, shorter debt maturity (2 years) would speed up the rise in debt-to-GDP ratios, as higher short-term rates would feed much quicker into effective debt financing costs. This

(4) The chart decomposes the dynamics of the cumulative change in the public debt-to-GDP ratio  $\hat{d}_T$  according to the following equation, where  $pb_t$  is the primary budget balance as a percent of GDP,  $i_{t-1}^g$  is the effective nominal interest rate on the outstanding government debt stock,  $\pi_t$  is inflation (GDP-deflator) and  $g_t$  is the growth rate of real GDP. The last three terms sum up to the “snowball effect”, i.e. the interest-growth differential, which operates on top of the effects of inflation and real growth on the primary balance itself. This relationship holds as a matter of accounting identity, and its components may interact with each other, so the individual terms do not perfectly isolate the “effect” of each variable. However, it can still help us to map the transmission channels of the shock propagation:

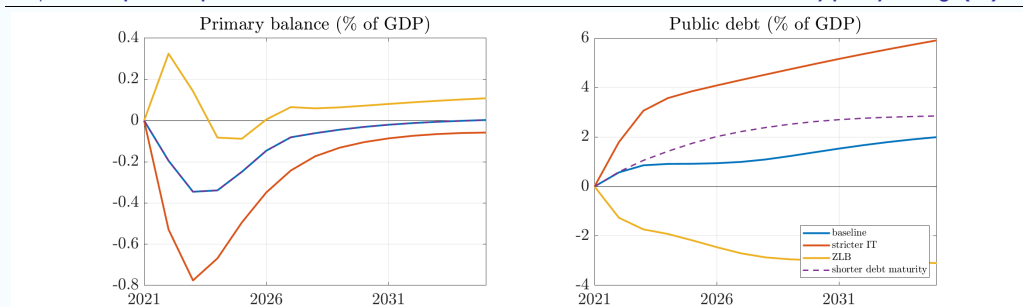
$$\hat{d}_T = \sum_{t=2022}^T \Delta d_t = \sum_{t=2022}^T \left\{ -pb_t + \frac{i_{t-1}^g}{(1 + \pi_t)(1 + g_t)} d_{t-1} - \frac{g_t}{(1 + \pi_t)(1 + g_t)} d_{t-1} - \frac{\pi_t}{1 + \pi_t} d_{t-1} \right\}$$

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Box (continued)

scenario might be especially relevant in light of past bond purchases by central banks which have drastically shortened the duration of the *consolidated* government's liabilities <sup>(5)</sup>.

Graph 2: Impulse responses to an adverse terms-of-trade shock under alternative monetary policy settings (EU)



Source: European Commission staff calculations - simulations by QUEST, calibrated for the EU-27.

The findings are also sensitive to indexation assumptions concerning public expenditure (Graph 3). Fixing government consumption and investment (in addition to transfers) in real terms, amid falling real domestic income, raises the primary deficit and public debt further relative to the baseline scenario – despite also contributing to somewhat higher real growth and inflation. In contrast, freezing all these expenditure items in nominal terms eventually eases the pressure on public finances, as they become eroded as a share of a higher nominal GDP. The burden of this fiscal adjustment would be borne by the recipients of these expenditures (e.g. pensioners and civil servants), who would see their real disposable income decline further. This scenario provides an illustration of a significant “benefit erosion”, whereby government expenditures fail to keep up with inflation <sup>(6)</sup>. Indexing transfers to nominal wages is in between these two extreme scenarios. Relative to the baseline, where transfers are indexed to CPI, this assumption leads to higher primary balances and more stable debt dynamics, since nominal wages grow less than CPI inflation (i.e. CPI-deflated real wages are falling).

Finally, we consider alternative fiscal settings on the revenue side. In our baseline scenario with a progressive labour tax system, the fact that nominal tax brackets are not immediately adjusted in line with wage inflation, raises the average labour tax rate as the wage distribution shifts into higher brackets. This “fiscal drag” raises tax revenue and supports the primary balance. In contrast to this baseline scenario, under a linear labour tax system (or in a progressive tax system where tax brackets are adjusted in real time with wage inflation), this fiscal drag effect is missing, whereas under an even more progressive tax system it is

<sup>(5)</sup> The fiscal costs of rising short term interest rates might materialize sooner than suggested by general government debt maturities, due to the losses that rising short rates create for taxpayer-owned central banks who had previously purchased large amounts of long government bonds. As the central bank balance sheet is not modelled explicitly in QUEST, we can capture this effect by treating public debt in the model as that of the *consolidated* government (i.e. central bank and treasury combined) – instead of restricting it to *general* government debt. In other words, it is a kind of synthetic liability for the consolidated government, a portfolio of long treasury bonds and short central bank reserves in the hands of the private sector.

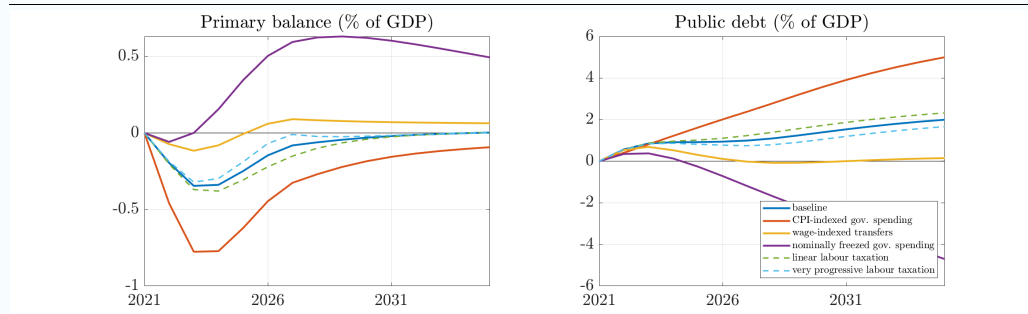
<sup>(6)</sup> Note however that the primary balance initially declines slightly even under this benefit erosion scenario, due to a temporarily declining nominal GDP. This is because right after the ToT shock, in addition to declining real GDP, the GDP deflator temporarily falls. This is explained by the only gradual pass-through of more expensive imported inputs to gross output prices, as well as by the downward pressure on domestic prices stemming from weaker demand. As the pass-through progresses, and domestic workers and firms attempt to recover their (CPI-deflated) real income losses, the GDP deflator starts to increase, but under our baseline monetary policy settings, such second-round effects to domestic prices are not strong enough to dominate immediately after the shock.

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Box (continued)

stronger. While this has some impact on households' disposable income, as Graph 3 shows, in terms of debt dynamics it makes a much smaller quantitative difference than varying expenditure-indexation rules <sup>(7)</sup>.

Graph 3: Impulse responses to an adverse terms-of-trade shock under alternative fiscal policy settings (EU)



Source: European Commission staff calculations - simulations by QUEST, calibrated for the EU-27.

**A positive demand shock, with the same inflationary impact as the adverse ToT shock, would have qualitatively opposite fiscal effects (Graph 4) <sup>(8)</sup>.** In order to highlight the importance of the underlying source of inflation, we consider an illustrative exercise with a positive demand shock. Despite having similar inflationary consequences, such a shock entails starkly different macroeconomic and fiscal implications. In this case, rising CPI inflation goes together with higher real GDP as well as an even faster-increasing GDP-deflator (due to the domestic source of inflation). As a result, the primary balance rises which, combined with beneficial snowball effects stemming mainly from higher nominal growth, pulls down the debt-to-GDP ratio <sup>(9)</sup>. Graph 4 also displays the effects of rising firm markups, i.e. a negative supply shock that originates from the *domestic* economy. This has qualitatively similar fiscal implications as the adverse terms-of-trade shock (that originates from *abroad*), however, the domestic (as opposed to external) origins of the supply shock make a difference for the time profile and transmission channels of the effects.

<sup>(7)</sup> This is also due to the only gradual development of second-round effects. The fiscal drag phenomenon relies on fast-increasing nominal wages. However, as second-round effects develop only gradually, the increase in nominal wages is not as strong in the beginning, and would only contribute noticeably to the fiscal drag later on, by which time the tax brackets are likely to be adjusted. In our simulations, they are fixed for 5 years.

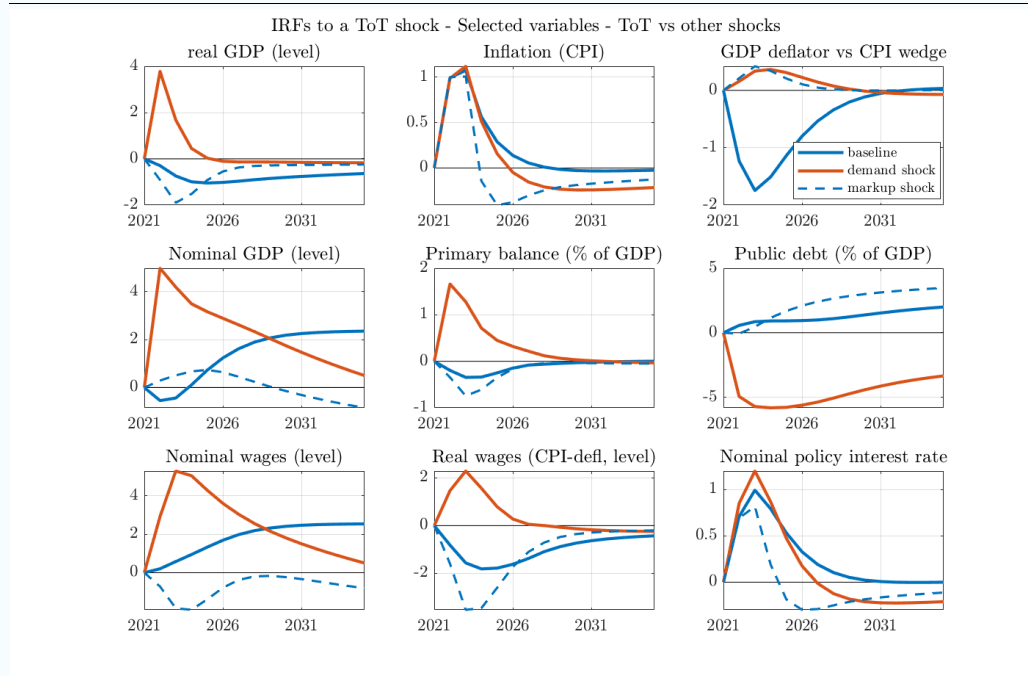
<sup>(8)</sup> Similar conclusions are reached by Bankowski, Krzysztof, Othman Bouabdallah, Cristina Checherita-Westphal, Maximilian Freier, Pascal Jacquinot, and Philip Muggenthaler. 2023. "Fiscal policy and high inflation." *ECB Economic Bulletin*, 2023(2), [https://www.ecb.europa.eu/pub/economic-bulletin/articles/2023/html/ecb.ebart202302\\_01~2bd46eff8f.en.html](https://www.ecb.europa.eu/pub/economic-bulletin/articles/2023/html/ecb.ebart202302_01~2bd46eff8f.en.html).

<sup>(9)</sup> Note that the central bank raises nominal interest rates similarly, given the similar inflationary impact. For a demand shock there's some additional monetary tightening initially, responding to stronger real output, but it is not sufficient to offset the larger increase in higher nominal growth within the snowball effects.

(Continued on the next page)

Box (continued)

Graph 4: Impulse responses to different types of shocks (EU)



Source: European Commission staff calculations - simulations by QUEST, calibrated for the EU-27.

**Inflation in Europe is likely driven by a combination of different types of shocks, so the relevant fiscal effects are most probably a mix of the clean scenarios discussed here.** However, to the extent that the terms-of-trade shock was an important factor, this analysis attempted to isolate its effects, and capture its less familiar transmission channels. At the same time, the simulations also emphasize the importance of identifying the underlying source of inflation for estimating the fiscal consequences. The takeaway is that not all types of inflationary shocks are necessarily beneficial for debt-sustainability. In particular, despite raising inflation, a deteriorating terms-of-trade offers little scope for “inflating away” public debt.

**Under certain policy settings public debt can indeed follow a lower trajectory, but this comes with some trade-offs.** The burden of the implicit fiscal consolidation behind stabilising the debt-to-GDP ratio is always borne by some domestic agents, be it transfer-recipients (with nominally frozen public expenditures) or long-term bondholders (when monetary policy tolerates higher inflation). In other words, the terms-of-trade shock makes the economy as a whole worse off, by lowering real gross domestic income, so it has an inherently detrimental effect – public finances can benefit from this situation only to the extent that some other sector of the economy pays for it. On top of this, the higher inflation path or lower degree of fiscal income insurance associated with these policies might entail further welfare costs, but these are beyond the scope of this descriptive analysis.

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