The impact of inflation on Belgian public finances: a simulation exercise

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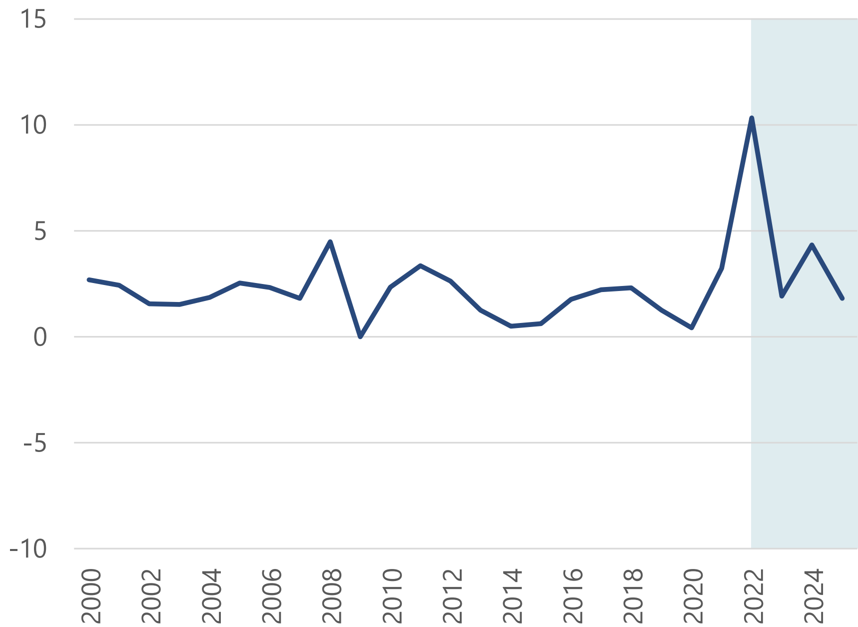
BanqueNationaleBank DE BELGIQUE VAN BELGIË
Eurosystem

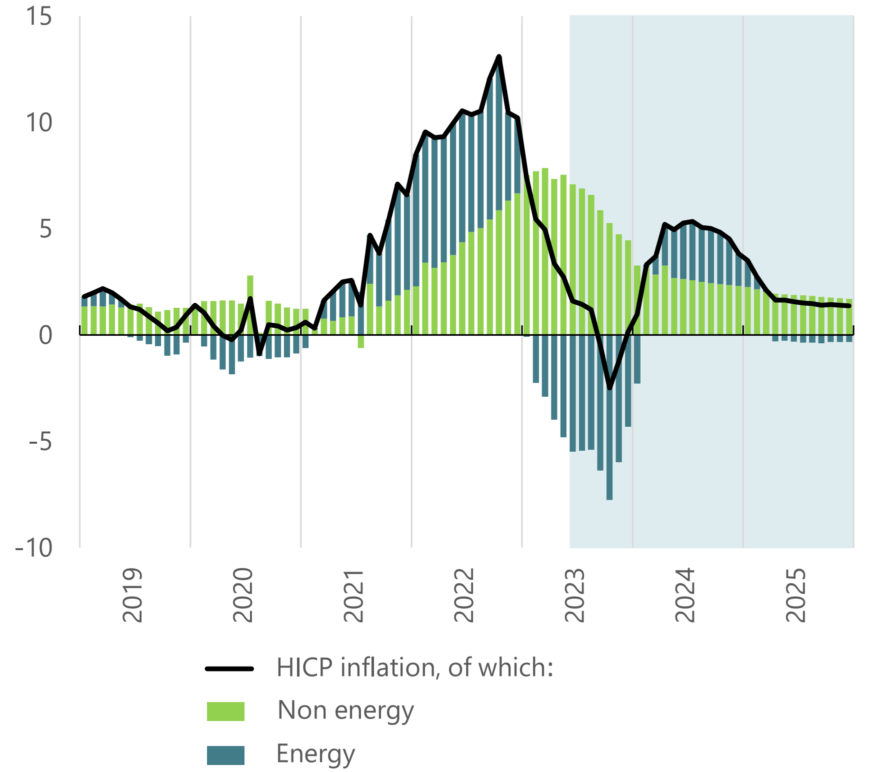
This presentation is based on Cornille D., M. Deroose, H. Godefroid, R. Schoonackers, P. Stinglhamber and S. Van Parys (2023) 'The impact of high inflation on Belgian public finances: a simulation exercise', NBB Economic Review 2023 (The impact of high inflation on Belgian public finances: a simulation exercise | nbb.be)

Inflation was historically high in 2022, driven by rising energy prices

Harmonised Index of Consumer Prices (HICP)
(year-on year change, in %)



Decomposition of HICP
(Contributions in percentage points, HICP = year-on-year change, in %)



Sources: NAI, NBB projections (June 2023).

1. **Conceptual framework and simulation set-up**
2. Impact of inflation on the budget balance
3. Impact of inflation on the debt ratio
4. Conclusion

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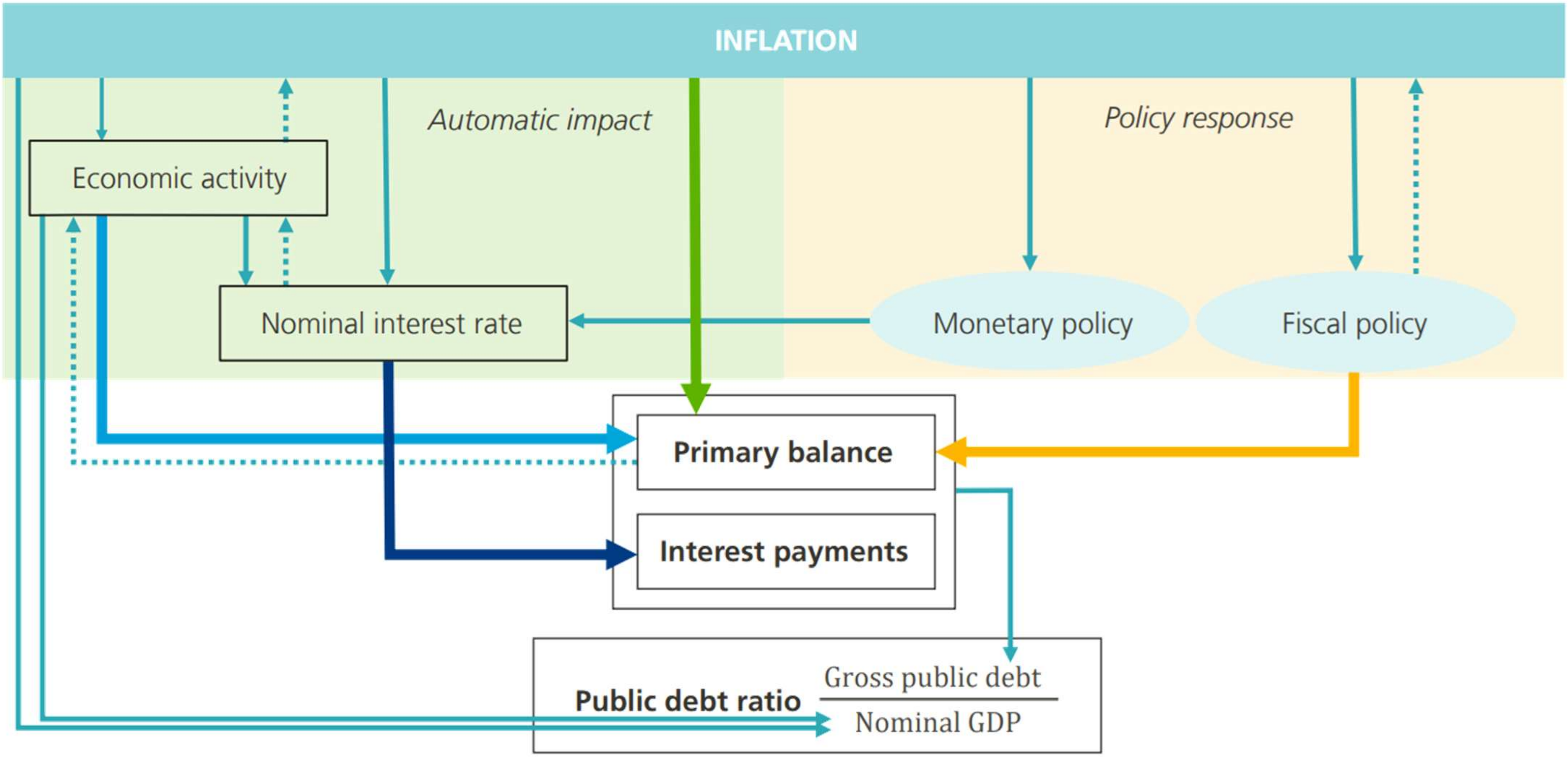
Conceptual framework for analysis of the impact of inflation on public finance



Our **simulation** set-up for analysing the impact of inflation on the budget balance

Shock identification:

- Simulation reference year = realisations of 2021
- To simulate an inflation shock, we compare the macro-economic framework of 2 different NBB projection vintages for the period 2022-2025
  - December 2021 NBB projections = December 2021 scenario
  - June 2023 NBB projections = June 2023 scenario

  ➔ Unexpected inflation shock = difference between price variables in December 2021 and June 2023

1) Analysing the automatic impact of inflation on the primary balance for 2022-2025:

- NBB budgetary projection framework is used
- Ceteris paribus approach: nominal evolution only driven by the growth rate of corresponding deflators

  ➔ Difference w.r.t. 2021 = Impact on primary balance of inflation for each scenario

  ➔ Difference between December 2021 and June 2023= impact on primary balance of unexpected supply driven inflation shock

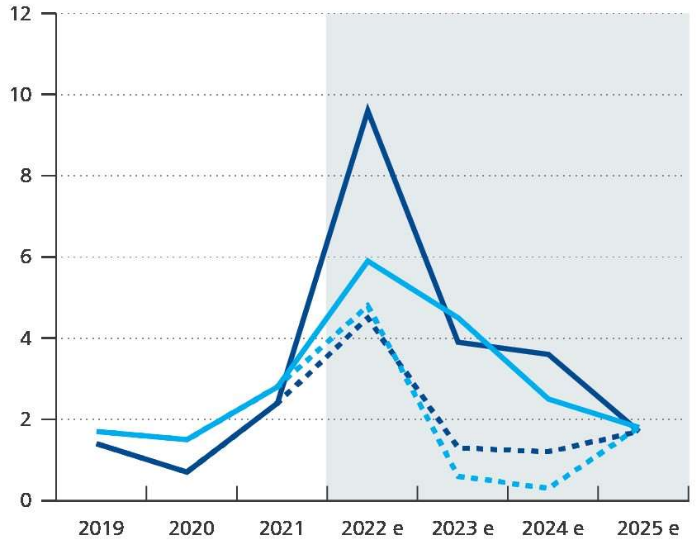
2) Analysing the impact on interest payments

3) Analysing the impact on economic activity

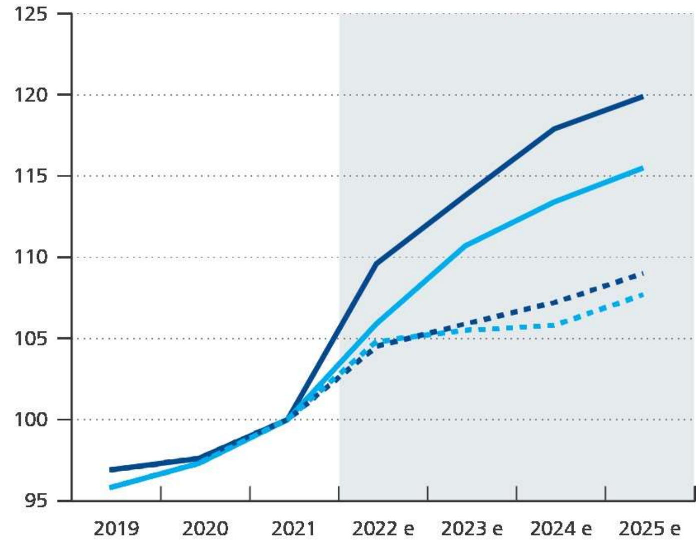
See later

Imported inflation leads to a decoupling of the NCPI and the GDP deflator

Price change
(year-on-year change, in %)



Price index level
(2021 = 100)



National consumer price index (NCPI) - June 2023 scenario
National consumer price index (NCPI) - December 2021 scenario
GDP deflator - June 2023 scenario
GDP deflator - December 2021 scenario

Difference June 2023 scenario / December 2021 scenario (%)

	2019	2020	2021	2022e	2023e	2024e	2025e
NCPI	0.0	0.0	0.0	5.1	2.6	2.3	0.0
GDP deflator	0.0	0.0	0.0	1.1	3.9	2.2	0.0

Difference June 2023 scenario / December 2021 scenario (2021 = 100)

	2019	2020	2021	2022e	2023e	2024e	2025e
NCPI	0.0	0.0	0.0	5.1	7.8	10.3	10.3
GDP deflator	0.0	0.0	0.0	1.1	5.0	7.3	7.3

Source: NBB estimations, December 2022.

1 Conceptual framework and simulation set-up

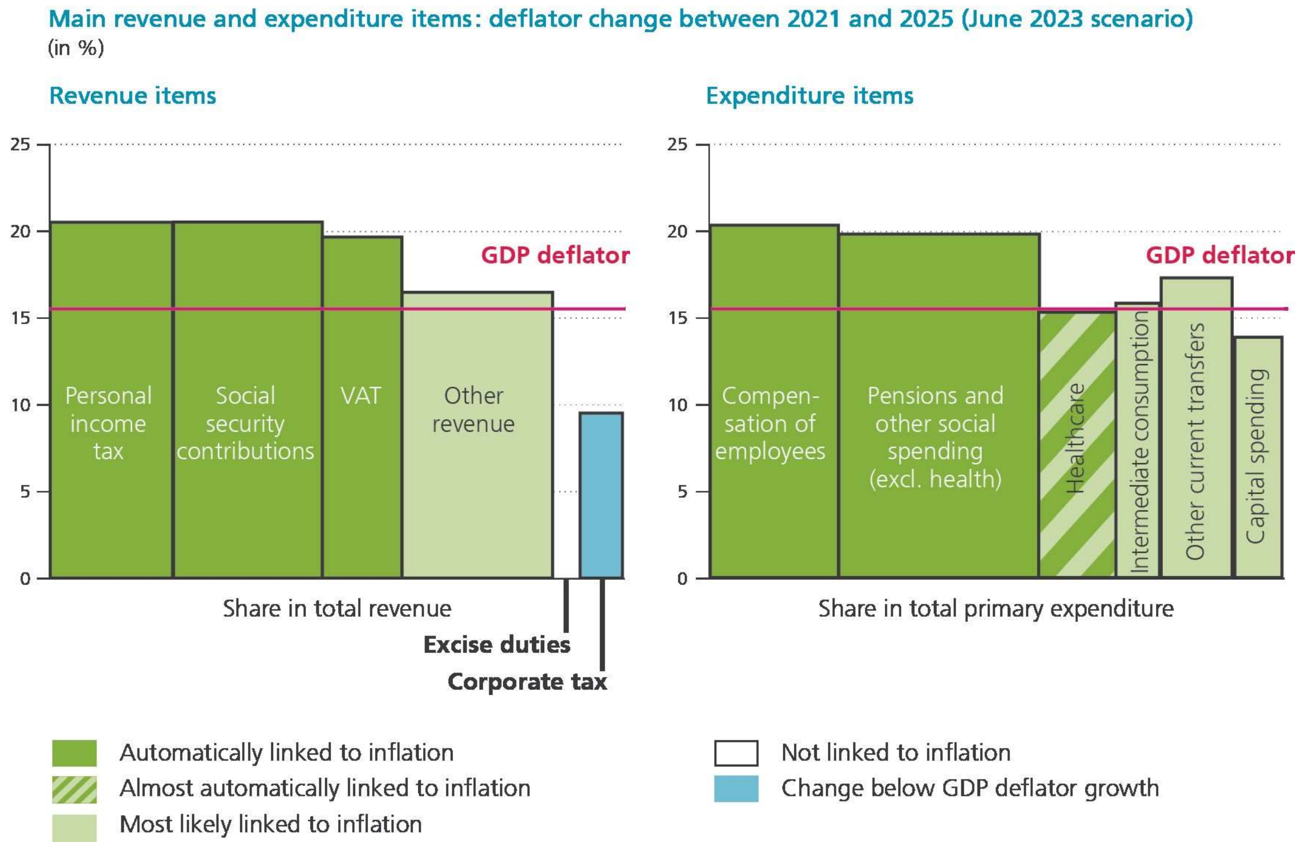
2 Impact of inflation on the budget balance

- **Automatic impact on primary balance**
- Discretionary fiscal policy reaction
- Interest payments
- Economic activity

3 Impact of inflation on the debt ratio

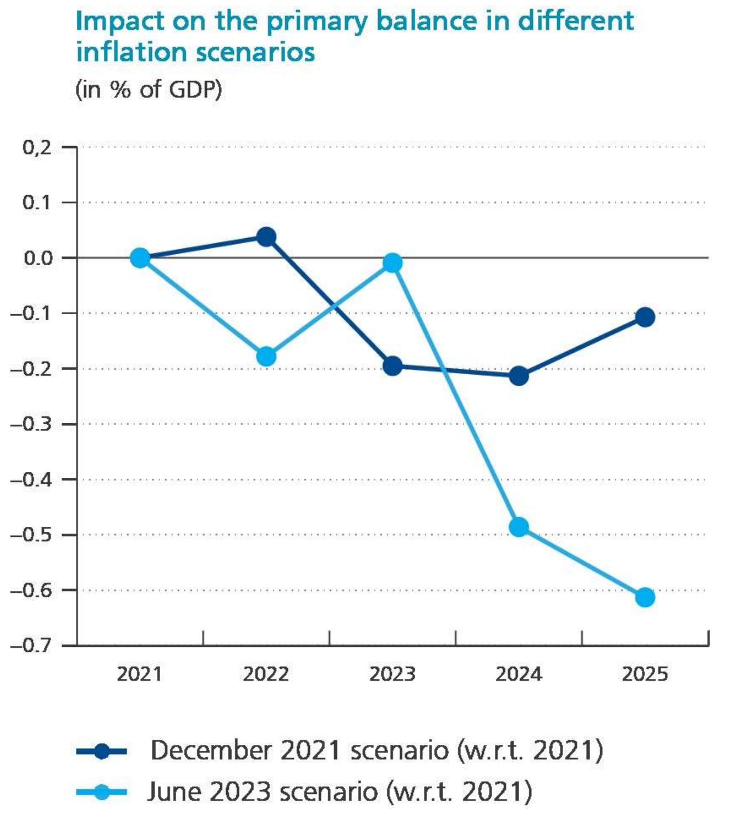
4 Conclusion

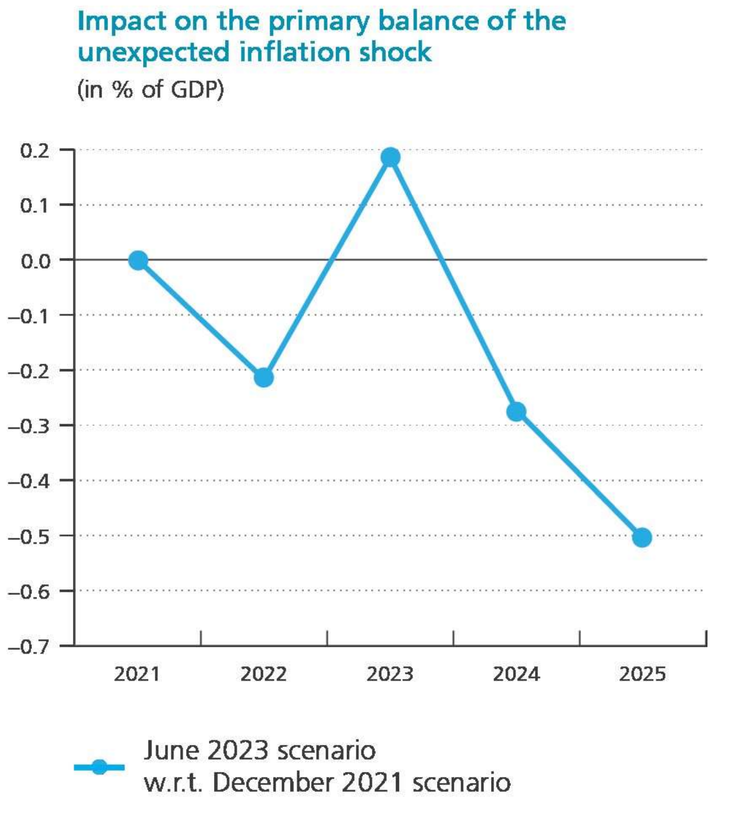
A majority of revenue and primary expenditure items are indexed at a higher rate than the GDP deflator



Source: NBB.

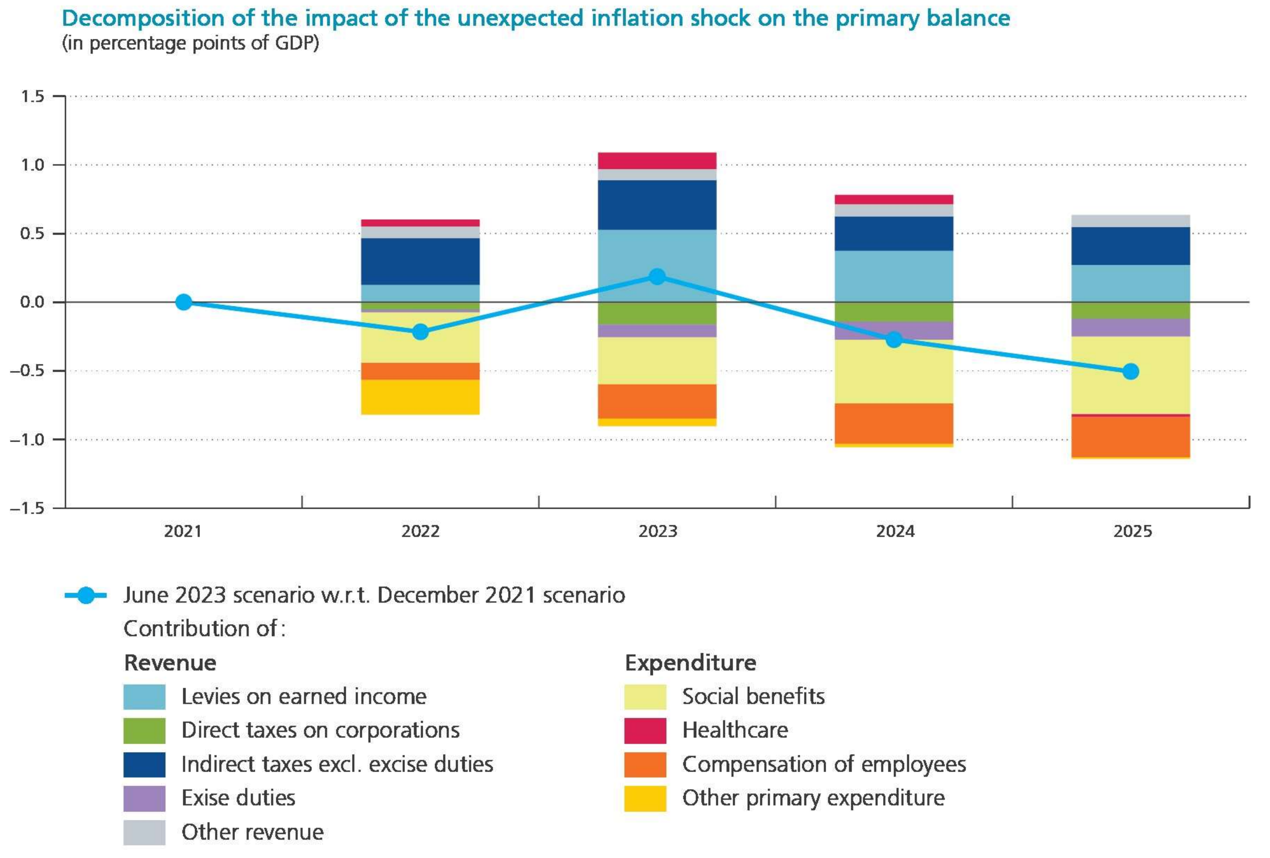
In the medium run, inflation is expected to have a negative direct impact on the primary balance





Source: NBB.

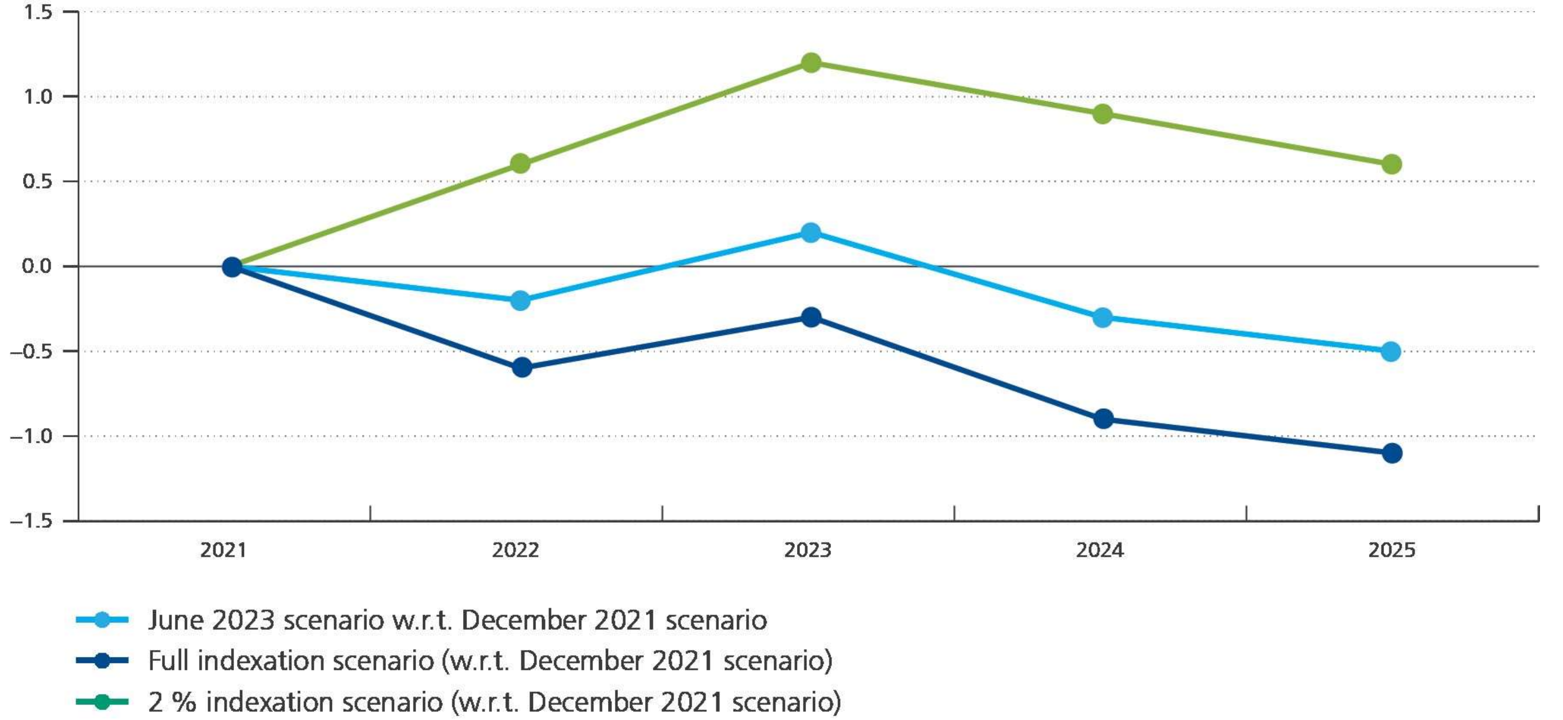
The positive impact of inflation on primary expenditure exceeds its positive impact on revenue



Source: NBB.

The indexation of discretionarily indexed spending items matters a lot for the impact on the primary balance

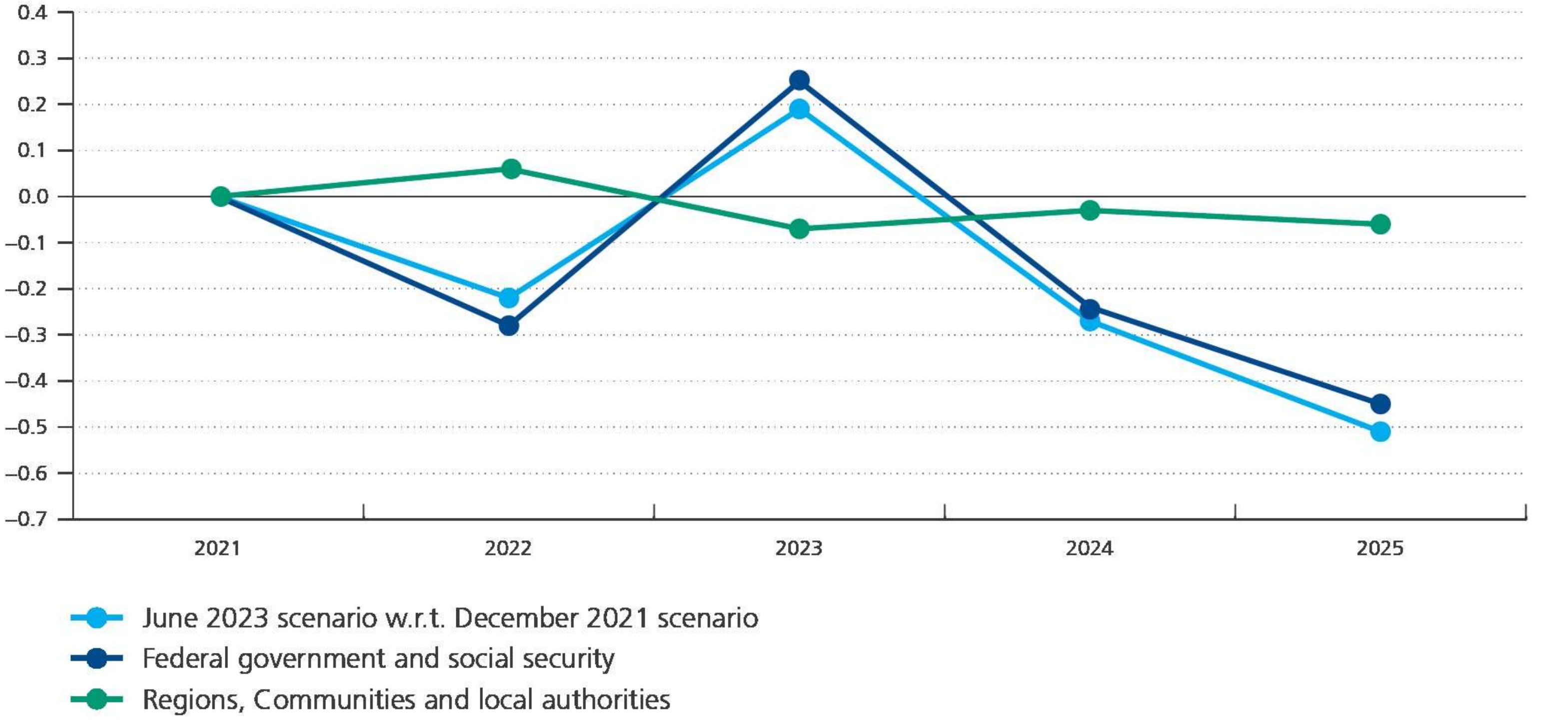
Impact of unexpected inflation shock, alternative scenarios of discretionarily indexed spending items
(in % of GDP)



Source: NBB.

The impact of inflation is close to neutral for Regions, Communities and local authorities, due to the automatic link of federal transfers to consumer prices

Impact of unexpected inflation shock on government's sub-entities
(in % of GDP)



Source: NBB.

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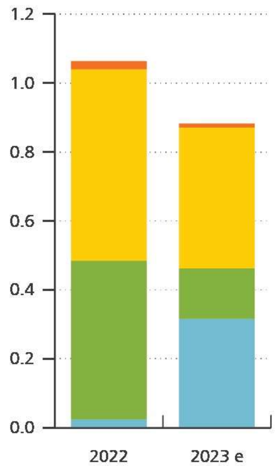
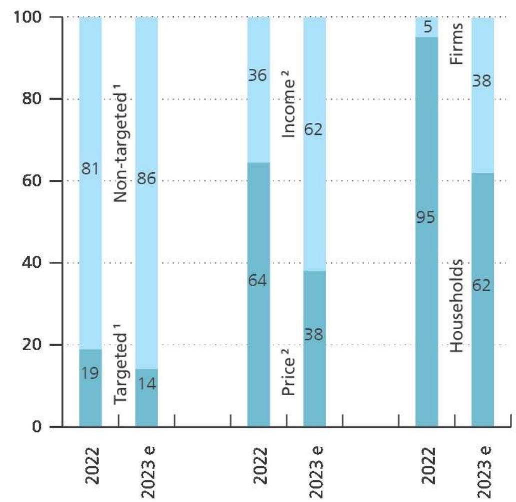
The government adopted substantial measures to deal with the energy crisis, most of which were not targeted and many of which distorted the price signal

Temporary support measures related to the energy crisis
(% of GDP)

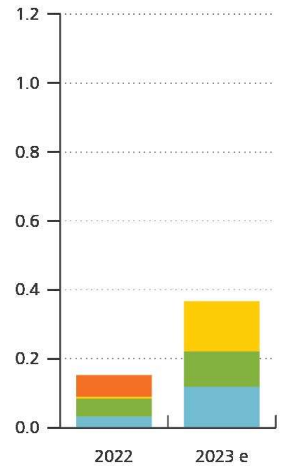


- Energy cost mitigation: support for businesses
- Energy cost mitigation: indirect taxation
- Energy cost mitigation: support for households
- Encouraging the energy transition

Decomposition of temporary measures taken in response to the energy crisis
(% of total)



Financing measures
(% of GDP)



- Excess profits tax on electricity producers
- Contribution of Fluxys and the oil sector
- Increased contribution of the nuclear sector
- Other

Source: NBB.

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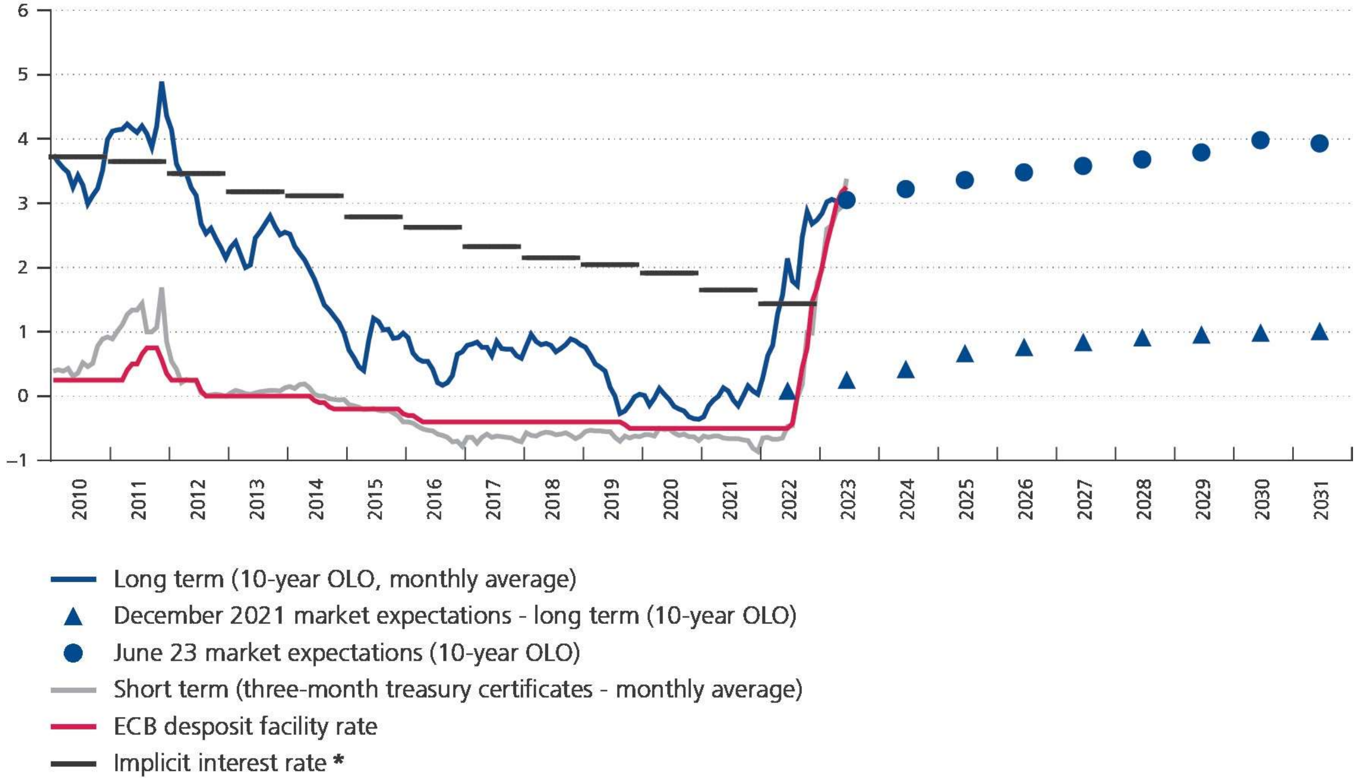
Interest rates and expectations increased significantly since the beginning of 2022

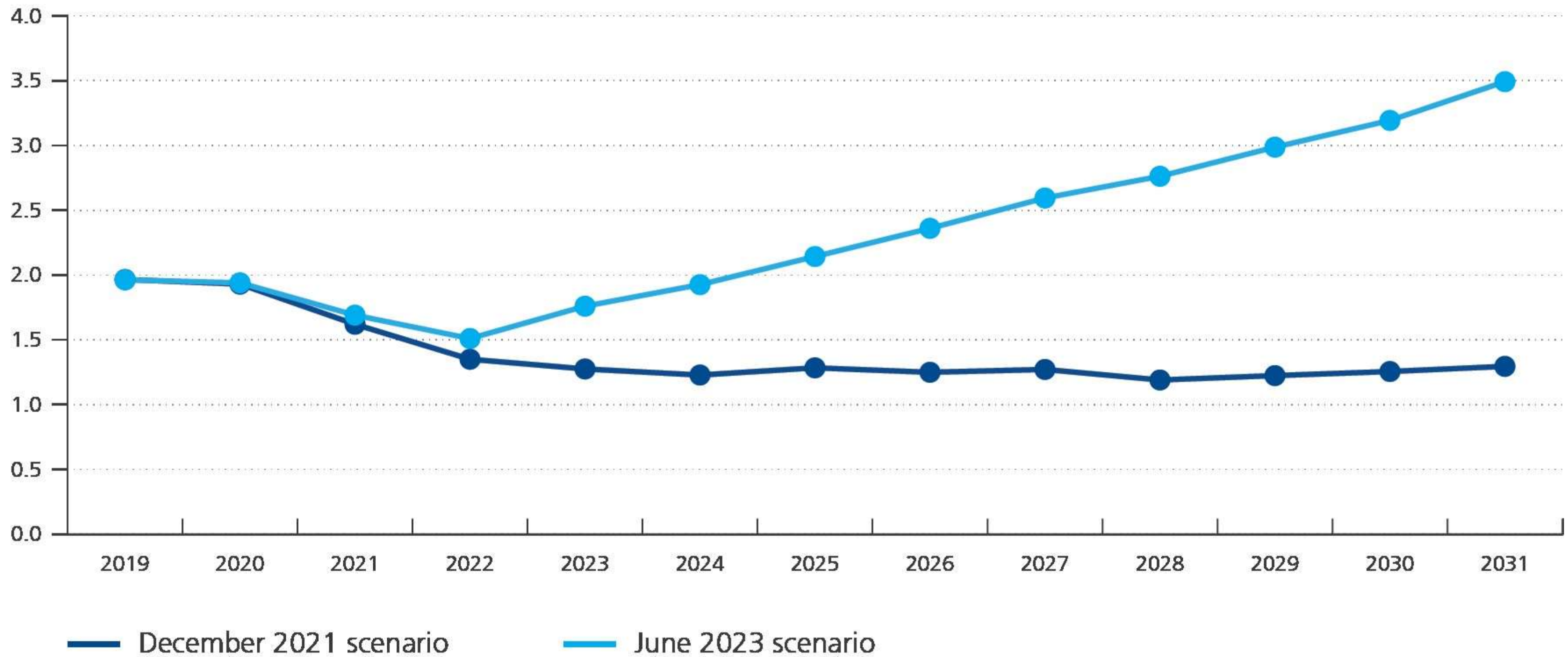
Interest rates developments
(in %)



Source: NBB.
* Ratio between interest charges in the current year and debt at the end of the preceding year.

Interest payments are expected to rise by on average 0.2 % of GDP per year

Interest payment developments
(in % of GDP)



The scope for further reductions in interest payments was already narrowing significantly before the rise of interest rates

Sources: NAI, NBB.

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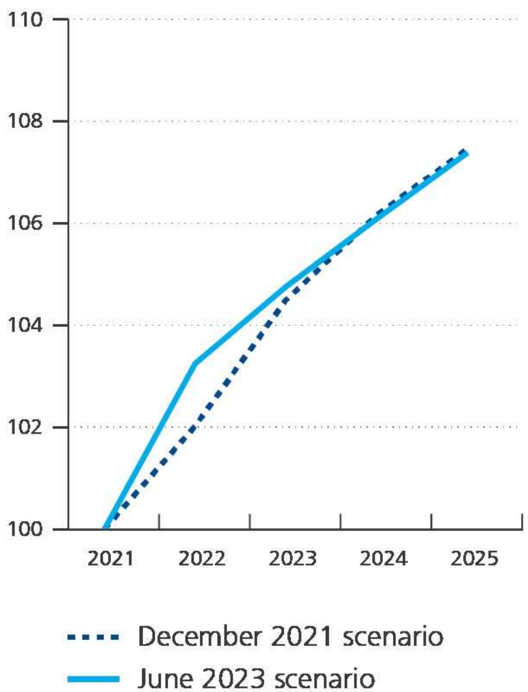
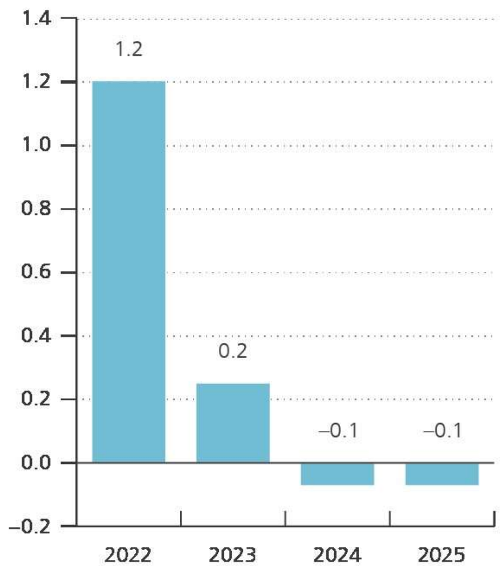
Real GDP projections between two BMPE rounds can be compared to roughly quantify the link between the inflation surprise and economic activity and, in turn, the impact on the budget balance

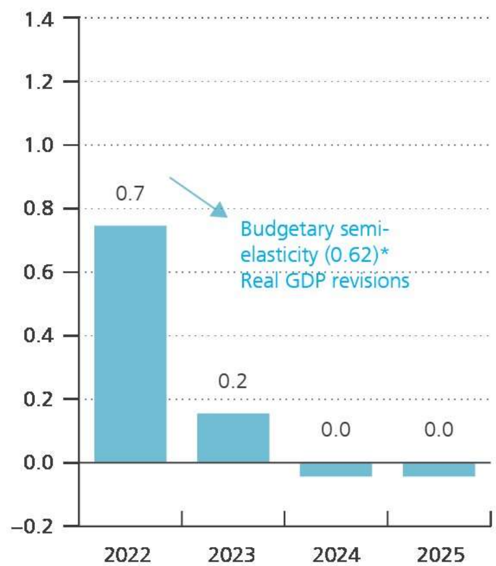
Real GDP
(index 2021 = 100)



Real GDP revisions
(% change between GDP level in the June 2023 and December 2021 scenarios)



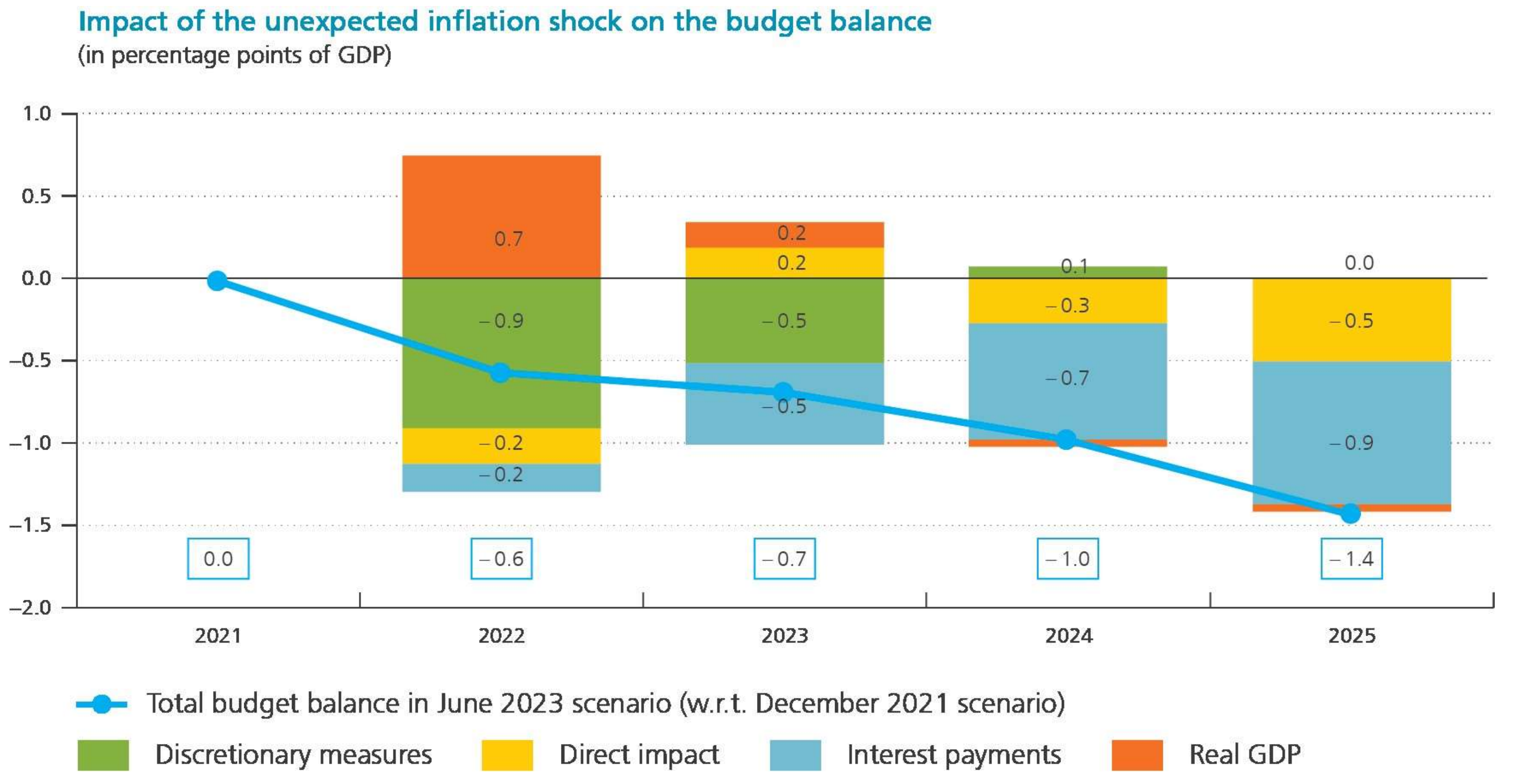
Estimated impact of GDP revisions on the budget balance
(in percentage points of GDP, June 2023 scenario w.r.t. December 2021 scenario)



To what extent are GDP revisions related to the inflation shock?

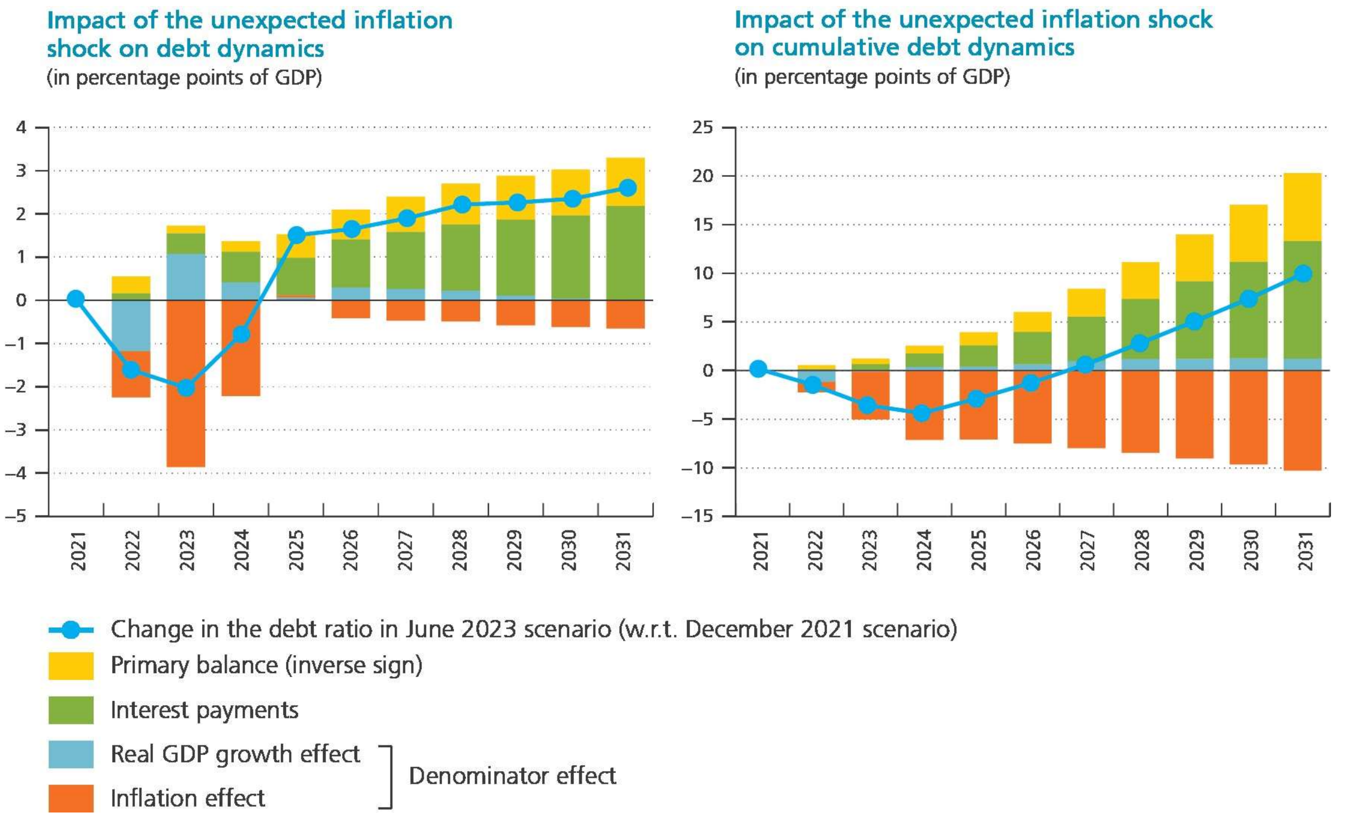
Source: NBB.

Overall, the unexpected inflation surprise worsens the budget balance



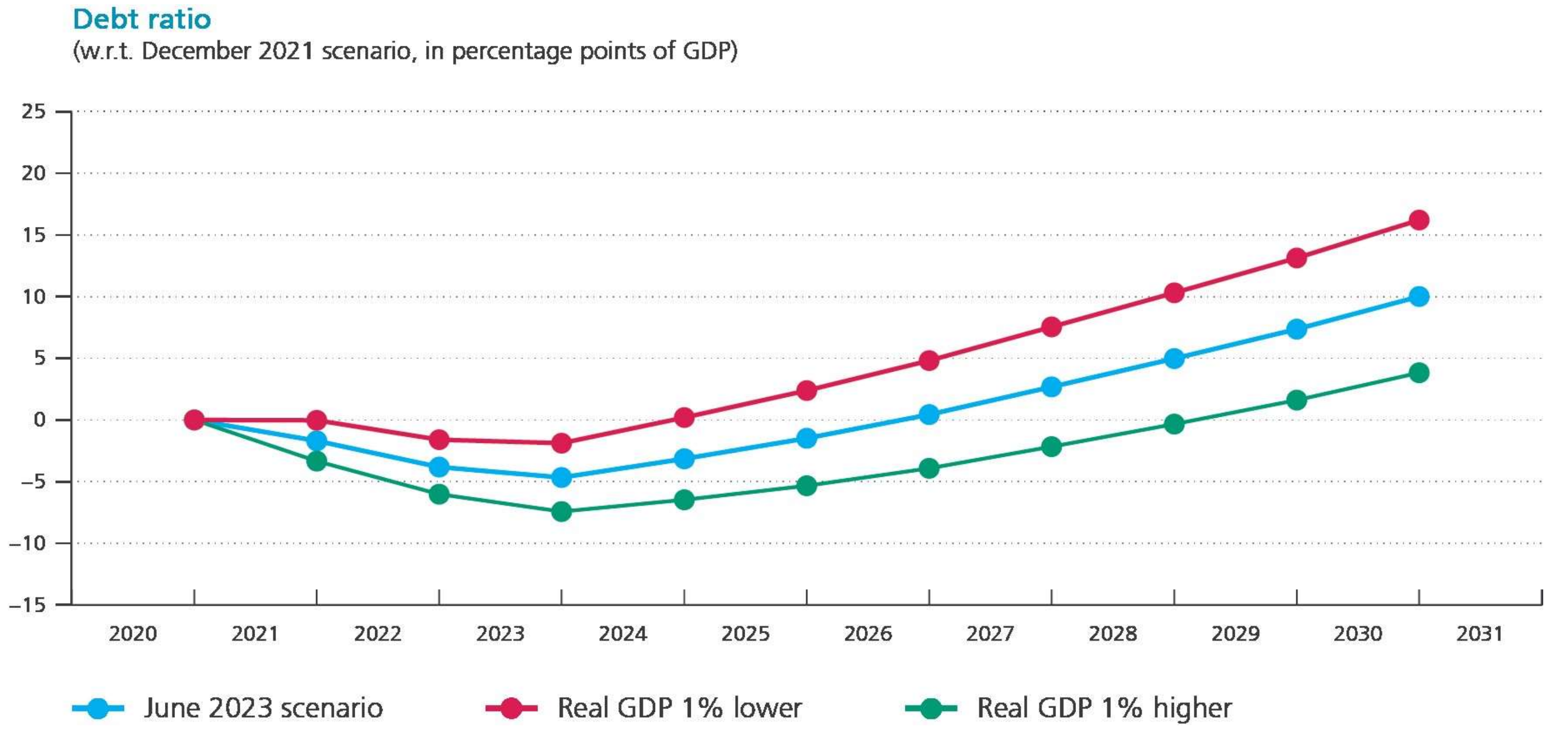
Source: NBB.

The debt ratio will drop in the short run but rise in the medium term, due to second-round effects stemming from the inflation surprise



Source: NBB.

Sensitivity of the debt ratio to real GDP assumptions



Source: NBB.

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Conclusions

- According to simulations comparing the NBB's autumn forecast of December 2021 and June 2022, increased inflation is likely to have a substantial negative impact on Belgian public finances
- The inflation shock would structurally increase the budget deficit with some 1.4 % of GDP by 2025:
  - 0.5 % of GDP due to the automatic impact of inflation on primary spending and revenue items
    - The import-driven inflation shock is expected to lower corporate margins and hence corporate income taxes
    - The non-indexation of excise duties lowers revenues as a share of GDP
    - Partial indexation of discretionarily indexed spending items substantially lowers the impact
    - The unfavourable impact occurs almost entirely at the federal government level
  - 0.9 % of GDP due to rising interest rates. This rise will swell towards 2.2 % of GDP by 2031
- Inflation temporarily reduces the public debt ratio, though by 2031 the debt ratio could increase by some 10 % of GDP
  - If economic activity recovers fully compared to the level before the shock, this impact would be halved
  - The interest rate growth dynamics are likely to become less favourable in the medium run
- The simulation results are subject to considerable uncertainty, given that the macroeconomic projections on which they are based are highly uncertain

ANNEX

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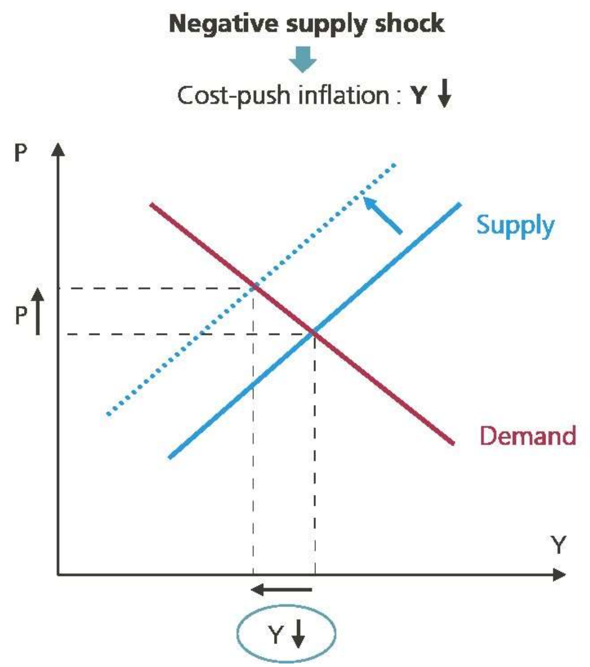
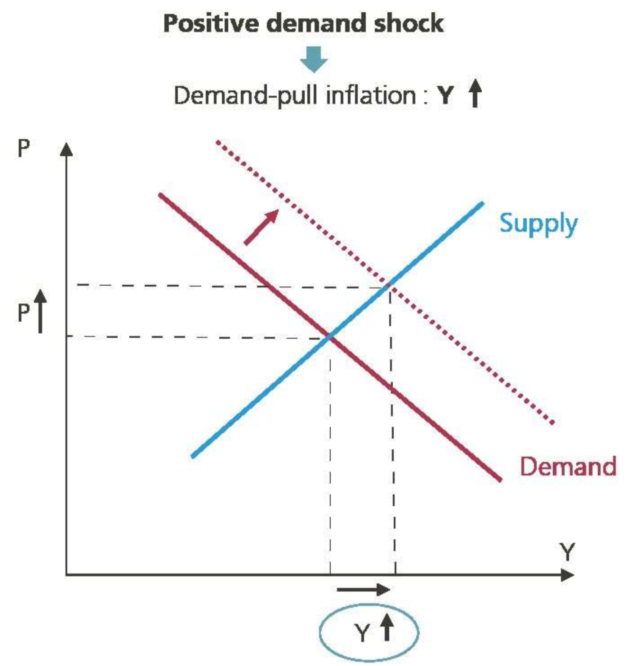
The origin of an inflation shock determines its relationship with real economic activity

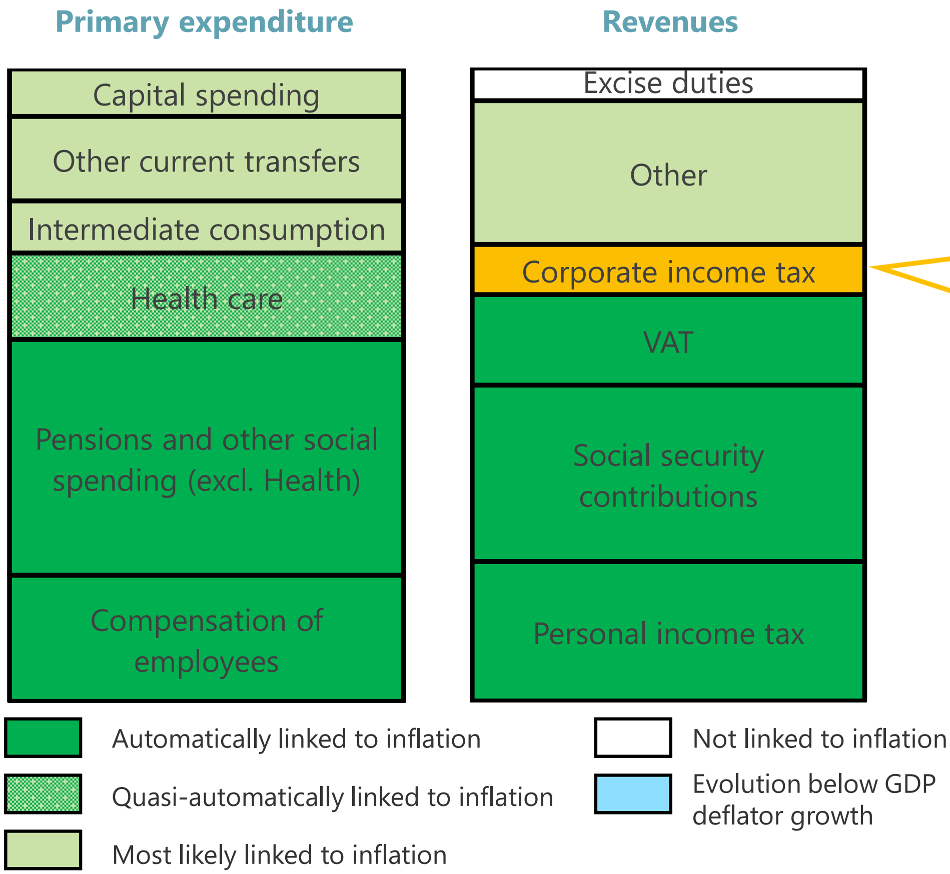




Combination of supply and demand shock

Their relative importance determines impact on **Y**

Automatic impact of inflation on the **primary balance**



Type of inflation shock matters:

Deflator of 'gross operating surplus' (≈ profits) depends on relative evolution between GDP deflator and production costs

- **Negative supply shock:** reduced margins because of incomplete pass-through of costs to prices

Corporate Income tax

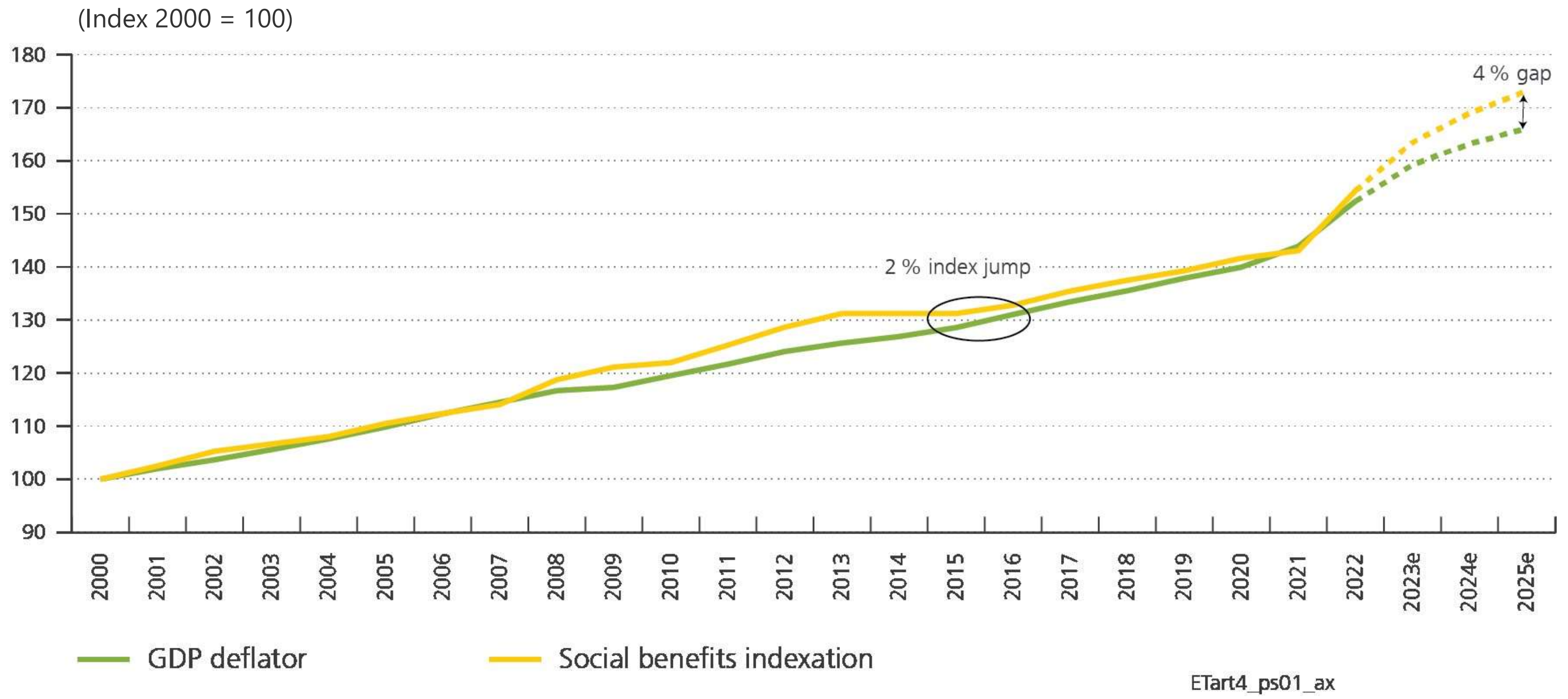
→ Expected negative impact of inflation on primary balance

- **Positive demand shock:** stable margins because growth in GDP deflator in line with production costs

Corporate Income tax

→ Expected less negative impact of inflation on primary balance

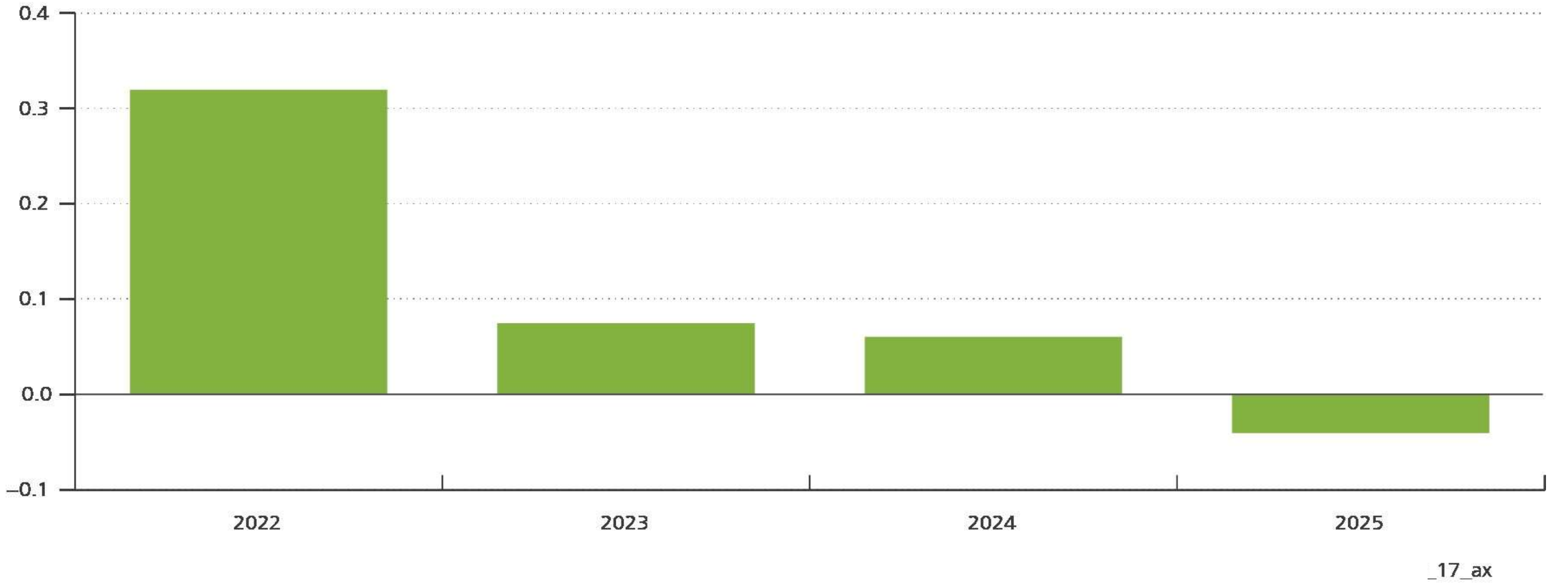
The indexation of social benefits is expected to outpace growth of the GDP deflator



Sources: NAI, NBB.

The delayed indexation of personal income tax brackets has a temporarily beneficial effect on the budget balance

Impact of indexation of tax brackets based on national consumer price index (NCPI) of previous year (t-1) compared to hypothetical indexation based on NCPI of current year (t)
(in % of GDP)



Source: NBB.