Revision of Gross Domestic Product in 2023

On 29 September 2023, Central Statistical Bureau (CSB) released revised national accounts time series from 2018 onwards.

The following revisions have been implemented:

1. revisions related to adjustments for general government budget deficit and debt data. They affected separate GDP aggregates, not affecting the overall GDP estimate (changes in data from 2011);
2. revision related to the change of calculation methods of GDP at prices of the previous year (entire transition to the double deflation method in respect of gross value added) as well as to separate improvements in calculations of prices of the previous year (changes starting with the data of 2019 for years based on annual data sources);
3. annual routine revisions[1] related to calculation of 2021, basing on annual data sources, as well as integration of the results of supply-use table into the data (changes in data of 2019 and 2020).

Taking into account all these revisions, annual GDP at current prices changed for four years: -0.3 % for 2019, -0.5 % for 2020, -0.8 % for 2021 and -0.5 % for 2022 (see table 1). For 2018 minor inaccuracies were corrected, the scope of change is below 0.0 %.

Table 1. GDP at current prices before and after revision in 2018 – 2022, million EUR

Year	Before revision	After revision	Difference	Difference, %
2018	29 153.6	29 153.6	+0.0	+0.0
2019	30 678.6	30 572.9	-105.8	-0.3
2020	30 265.1	30 109.5	-155.6	-0.5
2021	33 616.5	33 348.9	-267.6	-0.8
2022	39 062.5	38 870.0	-192.5	-0.5

Preliminary assessment of 2021 from quarterly data sources was revised using assessment of annual data sources. Annual GDP aggregates at current prices are calculated and balanced in SUT framework. And starting with this year's data revision, GDP aggregates at prices of the previous year are also calculated and balanced within the framework of the supply-use tables, which ensures (and will continue to ensure) that the GDP from production approach at prices of the previous year is calculated using the double deflation method.

From 2018 to 2022 the annual GDP growth at constant prices changed from -2.0 to +2.5 percentage points (see Picture 1 and Table 2).

[1] GDP estimates for the last four years may be revised.

Picture 1. GDP changes at constant prices, compared to the previous year, before and after revision in 1996 – 2022, %

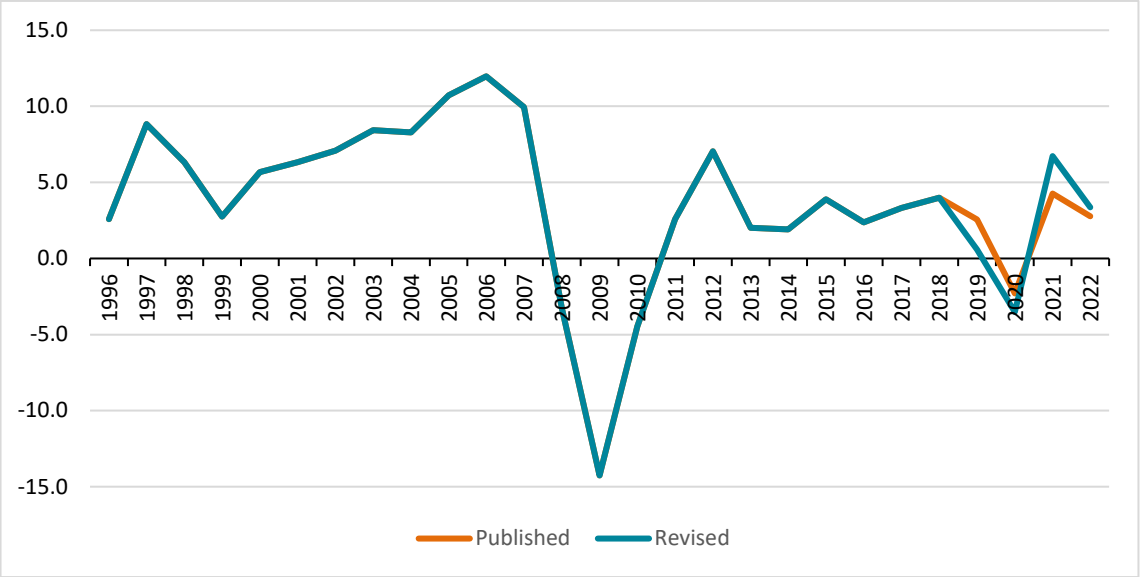

Table 2. GDP changes at constant prices, compared to the previous year, before and after revision in 2018 – 2022

Year	2018	2019	2020	2021	2022
Before revision, %	+4.0	+2.6	-2.3	+4.3	+2.8
After revision, %	+4.0	+0.6	-3.5	+6.7	+3.4
Difference, per cent	+0.0	-2.0	-1.2	+2.5	+0.6

1. Revisions related to adjustments for general government budget deficit and debt data.

Taking into account recommendations of Eurostat, the statistical office of the European Union, regarding the calculations of general government budget deficit and debt, the following adjustments to the data were made:

1) Adjustments related to the revision of classification and accounting of derivatives of Riga Municipality and individual transactions of Latvenergo AS in the national accounts. The changes affected the assessment of output (P.1), intermediate consumption (P.2) and other production subsidies (D.39) of the general government sector (S.13) in the national accounts. Revision of this data did not affect the overall GDP result.
2) Adjustments that resulted in the exclusion of other production subsidies (D.39) previously attributed to the central and local government enterprises reclassified to the general government sector (S.13) from the transport sector of the non-financial corporations sector (S.11) and exclusion of social benefits other than social transfers in kinds (D.632) related to the activities of these enterprises, thus correcting the shortcomings of methodology used in the data revision carried out in 2020. Excluding social benefits other than social transfers in kinds from the government sector, government final consumption expenditure (P.3 S.13) was reduced in GDP from the expenditure approach. In turn, other production subsidies (D.39) were excluded in GDP from income approach. Taking into account the fact that result of the GDP from production approach was not affected by these adjustments, a neutralizing counter-

adjustment was made for each of the above-mentioned aspects of GDP in some other indicator of the relevant aspect of GDP – household final consumption expenditure (P.3 S.14) and changes in inventories (P.52) were increased, as well as gross operating surplus (B.2g) was reduced.

Table 3. Impact of adjustments for general government budget deficit and debt data on the GDP indicators in 2011 –2020, at current prices, million EUR

Indicator	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Output (P.1)	-	-	-	+11.4	+11.5	+11.6	+11.7	+11.8	+11.9	+12.0
Intermediate consumption (P.2)	-	-	-	+11.4	+11.5	+11.6	+11.7	+11.8	+11.9	+12.0
Household final consumption expenditure (P.3 S.14)	+24.8	+28.7	+34.1	+31.1	+47.5	+60.7	+62.8	+67.0	+69.3	+41.8
General government final consumption expenditure (P.3 S.13)	-35.5	-41.0	-48.7	-33.0	-70.6	-75.1	-78.0	-83.9	-87.1	-47.7
Changes in inventories (P.52)	+10.6	+12.3	+14.6	+13.3	+34.6	+26.0	+26.9	+28.7	+29.7	+17.9
Imports of goods and services (P.7)	-	-	-	+11.4	+11.5	+11.6	+11.7	+11.8	+11.9	+12.0
Gross operating surplus and gross mixed income (B.2g+B.3g)	-4.3	-47.5	-43.5	-55.1	-13.1	-8.8	-13.4	-8.7	-10.9	-53.0
Subsidies (D.3)	-4.3	-47.5	-43.5	-55.1	-13.1	-8.8	-13.4	-8.7	-10.9	-53.0
Gross domestic product	-	-	-	-	-	-	-	-	-	-

2. Revision related to the change of calculation methods of GDP at prices of the previous year (entire transition to the double deflation method in respect of gross value added) and separate improvements in calculations of prices of the previous year.

According to ESA 2010[2] Chapter 10 'Price and volume measures' § 10.31-10.33 gross value added can be calculated at prices of the previous year by two methods (it depends on the available data sources):

a) double deflation, where output and intermediate consumption are deflated separately, and gross value added is acquired as the difference between the two indicators (the preferred method);
b) deflation of a single indicator where gross value added is deflated by output price indices (alternative method if double deflation is not possible).

Starting with the revision of this year, a full transition to the double deflation method has been made in the calculation of gross value added at prices of the previous year from annual data sources, which is the most recommended method according to ESA 2010. Changes in the GDP data were made starting with the data of 2019 (starting with the year for which updated supply-use tables were prepared at prices of the previous year).

The double deflation and the single index deflation result of the gross value added at prices of the previous year of industries differs in cases when prices of raw materials increase at a different rate

[2] Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013 on the European system of national and regional accounts, annex A

compared to the growth in output prices, which is very important to be taken into account in calculations for years when high inflation is observed in the economy.

It is possible to implement the double deflation only if GDP calculations at prices of the previous year are calculated in the framework of the supply-use tables.

Double deflation is based on the principle that output and intermediate consumption are deflated separately and value added is calculated as the balance of these two indicators. In addition, according to the principle of double deflation, output and intermediate consumption are deflated at the level of products, which means that output and intermediate consumption of each industry at prices of the previous year are comprised as total of products (in case of output – total of products produced by the industry, in case of intermediate consumption – total of products used in the industry for production, e.g., electricity, fuel consumed for production purposes).

It should also be mentioned that market output (P.11) is deflated separately for the domestic market and separately for exports, i.e., the final price index of market output is comprised as a result of separately deflated markets. If one of price indices is not available, the overall price index is used, i.e., the same for both markets. In turn, in case of intermediate consumption, imported products are deflated with import price indices, while products produced in the domestic market used in intermediate consumption are deflated with output price indices. Moreover, deflation takes place at basic prices. In order to acquire intermediate consumption at purchasers' prices, product taxes minus product subsidies, trade and transport margin are added, which are also calculated at prices of the previous year.

Trade margin at prices of the previous year (main component of output of trade industries) is calculated in the framework of supply-use tables according to the principle that changes in the margin volume follow changes in volume of goods sold, i.e., the trade margin is not deflated directly, which means that trade margin price index is obtained indirectly through the calculation in the framework of supply-use tables.

A similar principle is also applied to the calculation of transport margin at prices of the previous year (part of the output of transport industries), where it is assumed that changes in the volume of transport margin follow changes in the volume of goods transported.

A similar principle is applied to the calculation of such a tax on products as value added tax at prices of the previous year – changes in the volume of tax follow changes in the volume of taxed products. This ensures that changes in tax rate, changes in tax collection rate and changes in composition of tax end-users are attributed to the changes in tax price.

Taking into account the methodology of Eurostat Handbook on prices and volume measures in national accounts[3], in addition to the changes listed above, the calculation methods of other GDP indicators and individual industries at prices of the previous year were also improved, for example:

a) Non-market output (P.13) is deflated using input method – product price index is calculated

[3] https://ec.europa.eu/eurostat/web/products-manuals-and-guidelines/-/ks-gq-14-005

by deflating the output components separately (intermediate consumption by products, wages and salaries, consumption of fixed capital). A similar principle is also applied to certain industries of market output (P.11) for which value or price indicators are not available.

b) Output indicator method was developed and implemented for the calculation of output of education and health industries at prices of the previous year.

c) In the calculation of imports and exports prices of the previous year, additional data sources have been introduced and deflation is performed at a more detailed level of breakdown by products and countries than before. Re-exports are deflated by import price indices.

Annual GDP estimates based on annual data sources will continue to be calculated at prices of the previous year using a framework of supply and use tables that allows implement double deflation.

Within the next two years CSB has planned to develop a publicly available Inventory on volume estimates.

3. Annual routine revision

Additionally annual routine revisions were carried out. Preliminary assessment of 2021 from quarterly data sources was revised using assessment of annual data sources. 2021 marked the economy as the second year of COVID-19 pandemic, which is characterized by the allocation and use of significant state budget funds in reducing the spread of COVID-19 and recovering the economy. Considering the uncertainty brought by the COVID-19 crisis in the economic development, revision value of the GDP and its aggregates is higher than in previous years.

For 2019 and 2020, upon receiving detailed information from data sources, intermediate consumption of the agriculture industry was revised, results of the GDP supply-use tables were integrated, and for 2020 exports and imports data was revised based on the revised balance of payments data (see the impact of annual routine revision on GDP indicators shown in Table 4).

Table 4. Impact of annual routine revision on GDP indicators in 2019-2020, at current prices, million EUR

Indicator	2019	2020
Output	+5.9	-89.5
Intermediate consumption	+111.7	+66.1
Gross value added	-105.8	-155.6
Household final consumption expenditure	+18.1	-58.2
General government final consumption expenditure	-18.1	-13.4
Gross fixed capital formation	-366.7	-250.4
Changes in inventories	+260.9	+54.4
Exports of goods and services	-	+146.0
Imports of goods and services	-	+34.1
Compensation of employees	-	-95.3
Gross operating surplus and gross mixed income	-105.8	-60.3
Gross domestic product	-105.8	-155.6

Taking into account that new GDP assessment of 2021 was obtained from annual data sources, also GDP assessment of 2022, that was obtained using short-term (quarterly) data sources, was revised.