Revision of Gross Domestic Product in 2024

On 30 September 2023, Central Statistical Bureau (CSB) released revised national accounts data time-series from 1995 onwards.

The following revisions have been implemented:

1. revisions affecting all time-series:
    1.1. changes related to country-specific Gross National Income (GNI) action points set within Eurostat's 2020-2024 GNI verification cycle;
    1.2. other changes related to other alterations in gross domestic product (GDP) calculation methods and data sources;
2. annual routine revisions[1] related to calculation of 2022, annual estimate based on annual data sources.

Additional changes:

1. estimates of employment in the national accounts dataset have been revised starting with the data for 2019;
2. reference year for GDP time-series at constant prices has been changed from 2015 to 2020;
3. household final consumption expenditure has been recalculated according to the new Classification of Individual Consumption by Purpose (COICOP 2018)[2].

Taking into account all revisions, annual GDP at current prices changed for all years: the change is from -5.3 % to -2.1 % for 1995-2009, from -3.7 % to -2.0 % for 2010-2021, -5.9 % for 2022 and - 3.2 % for 2023 (see Table 1).

Table 1. GDP at current prices before and after revision in 1995 -2023, million EUR

Year	Before revision	After revision	Difference	Difference, %
1995	4 059.3	3 932.5	-126.9	-3.1
1996	4 682.2	4 544.5	-137.7	-2.9
1997	5 396.0	5 248.5	-147.5	-2.7
1998	6 014.7	5 853.4	-161.3	-2.7
1999	6 272.6	6 098.1	-174.5	-2.8
2000	6 868.5	6 698.0	-170.5	-2.5
2001	7 471.0	7 317.7	-153.2	-2.1
2002	8 406.4	8 135.4	-270.9	-3.2
2003	9 571.8	9 142.8	-429.0	-4.5
2004	11 096.7	10 628.9	-467.9	-4.2
2005	13 662.3	13 102.6	-559.7	-4.1
2006	17 200.0	16 294.8	-905.2	-5.3
2007	22 703.8	21 509.3	-1 194.5	-5.3
2008	24 527.9	23 351.9	-1 176.0	-4.8
2009	19 000.0	18 482.5	-517.5	-2.7

[1] GDP estimates for the last four years may be revised.
[2] https://www.csp.gov.lv/en/classifier/coicop-2018

Year	Before revision	After revision	Difference	Difference, %
2010	18 088.0	17 719.6	-368.3	-2.0
2011	19 763.8	19 117.3	-646.6	-3.3
2012	21 924.5	21 104.3	-820.1	-3.7
2013	22 749.0	21 956.2	-792.8	-3.5
2014	23 625.8	22 790.5	-835.3	-3.5
2015	24 572.1	23 744.3	-827.9	-3.4
2016	25 371.3	24 498.2	-873.2	-3.4
2017	26 984.4	26 017.1	-967.3	-3.6
2018	29 153.6	28 153.4	-1 000.1	-3.4
2019	30 572.9	29 567.0	-1 005.9	-3.3
2020	30 109.5	29 224.3	-885.1	-2.9
2021	33 348.9	32 285.3	-1 063.6	-3.2
2022	38 386.2	36 103.7	-2 282.5	-5.9
2023	40 348.0	39 072.5	-1 275.6	-3.2

Preliminary assessment of 2022 from quarterly data sources was revised using assessment of annual data sources. Annual GDP aggregates at current and previous year prices are calculated and balanced in SUT framework. All the changes described in this document related to GNI action points and other changes in data sources and methods have been taken into account in the assessment of GDP for 2022, but in the absence of estimates derived from previous methods, it is not possible to directly assess changes attributable to changes in methodology or data sources and those attributable to routine revisions separately for 2022.

The impact of revisions at current prices for time-series of 1995-2022 by main GDP aggregates is presented in the tables below: GDP from production approach in Table 2, GDP from expenditure approach in Table 3 and GDP from income approach in Table 4.

Table 2. The impact of revisions on GDP aggregates from production approach at current prices in 1995-2022, change as %

Year	Output	Intermediate consumption	Value added	Taxes on products	Subsidies on products	GDP
1995	-1.7	0.0	-3.5	0.0	0.0	-3.1
1996	-1.6	0.0	-3.3	0.0	0.0	-2.9
1997	-1.4	0.0	-3.1	0.0	0.0	-2.7
1998	-1.4	0.0	-3.0	0.0	0.0	-2.7
1999	-1.5	0.0	-3.1	0.0	0.0	-2.8
2000	-1.3	0.0	-2.8	0.0	0.0	-2.5
2001	-1.0	0.0	-2.3	0.0	0.0	-2.1
2002	-1.7	0.0	-3.6	0.0	0.0	-3.2
2003	-2.3	0.0	-5.0	0.0	0.0	-4.5
2004	-2.1	0.0	-4.7	0.0	0.0	-4.2
2005	-2.1	0.0	-4.6	0.0	0.0	-4.1
2006	-2.6	0.0	-5.9	0.0	0.0	-5.3
2007	-2.6	0.0	-5.9	-0.1	0.0	-5.3
2008	-2.4	0.0	-5.4	+0.4	0.0	-4.8

Year	Output	Intermediate consumption	Value added	Taxes on products	Subsidies on products	GDP
2009	-1.4	0.0	-3.1	+0.6	0.0	-2.7
2010	-1.0	0.0	-2.4	+0.5	0.0	-2.0
2011	-1.6	0.0	-3.8	+0.6	0.0	-3.3
2012	-1.9	-0.1	-4.3	+0.5	0.0	-3.7
2013	-1.8	-0.2	-4.0	+0.5	0.0	-3.5
2014	-1.9	-0.1	-4.1	+0.6	0.0	-3.5
2015	-1.9	-0.2	-3.9	+0.6	0.0	-3.4
2016	-2.0	-0.1	-4.0	+0.4	0.0	-3.4
2017	-2.1	-0.2	-4.2	+0.5	0.0	-3.6
2018	-1.9	-0.1	-4.0	+0.5	0.0	-3.4
2019	-1.9	-0.2	-3.9	+0.5	0.0	-3.3
2020	-1.6	+0.3	-3.5	+0.7	0.0	-2.9
2021	-1.6	+0.3	-3.7	+0.5	0.0	-3.2
2022	-1.0	+3.9	-6.8	+0.4	0.0	-5.9

Table 3. The impact of revisions on GDP aggregates from expenditure approach at current prices in 1995-2022, change as %

Year	Household final consumption expenditure	NPISHs final consumption expenditure	General government final consumption expenditure	Gross fixed capital formation	Changes in inventories	Acquisition of valuables	Exports of goods and services	Imports of goods and services	GDP
1995	-1.8	-8.5	-7.8	-3.1	+23.7	0.0	0.0	0.0	-3.1
1996	-2.0	-4.7	-6.7	-0.9	+8.4	0.0	0.0	0.0	-2.9
1997	-1.5	-5.2	-6.7	-2.9	+6.2	0.0	0.0	0.0	-2.7
1998	-1.7	-5.9	-6.0	-1.7	+7.8	0.0	0.0	0.0	-2.7
1999	-1.9	-7.7	-6.2	-2.5	-57.5	0.0	0.0	0.0	-2.8
2000	-1.8	-6.8	-5.8	-1.6	-54.3	0.0	0.0	0.0	-2.5
2001	-1.5	-5.0	-4.6	-1.9	+50.2	0.0	0.0	0.0	-2.1
2002	-3.7	-5.7	-3.9	-3.2	+18.0	0.0	0.0	0.0	-3.2
2003	-5.1	-4.5	-5.7	-1.8	+5.3	0.0	0.0	0.0	-4.5
2004	-4.4	-2.0	-6.7	-1.4	+5.4	0.0	0.0	0.0	-4.2
2005	-4.6	-2.0	-6.4	-1.0	+3.3	0.0	0.0	0.0	-4.1
2006	-6.1	-1.9	-7.0	-1.2	+3.2	0.0	0.0	0.0	-5.3
2007	-6.8	-2.1	-6.0	-0.2	-1.9	0.0	0.0	0.0	-5.3
2008	-6.9	-1.8	-4.1	-0.1	-0.7	0.0	0.0	0.0	-4.8
2009	-4.8	-1.2	-0.2	+0.3	+36.2	0.0	0.0	0.0	-2.7
2010	-3.1	-1.1	-1.3	+0.4	+7.0	0.0	0.0	0.0	-2.0
2011	-4.4	-0.6	-4.0	-0.2	+6.7	0.0	0.0	0.0	-3.3
2012	-5.1	-0.5	-4.5	-0.1	+4.9	0.0	0.0	0.0	-3.7
2013	-5.1	-0.4	-2.5	-0.7	+486.8	0.0	0.0	0.0	-3.5
2014	-5.4	-0.3	-2.2	+0.1	-7.6	0.0	+0.3	0.0	-3.5
2015	-5.1	-0.3	-2.8	-1.4	-8.4	0.0	+0.4	-0.6	-3.4
2016	-5.1	-0.4	-2.4	+0.9	-17.6	0.0	+0.3	0.0	-3.4
2017	-5.6	-0.3	-2.0	+0.8	-19.4	0.0	+0.4	0.0	-3.6
2018	-5.5	-0.5	-1.8	0.0	-14.0	0.0	+0.4	0.0	-3.4
2019	-5.6	-0.8	-1.7	-0.2	-25.6	0.0	+0.8	-0.1	-3.3
2020	-5.7	-1.1	+0.4	-0.3	-16.7	0.0	+0.1	0.0	-2.9
2021	-5.8	-1.0	+0.3	-0.8	+2.8	0.0	+0.1	0.0	-3.2
2022	-7.4	+8.6	+3.3	-1.7	-65.6	+586.4	0.0	0.0	-5.9

Table 4. The impact of revisions on GDP aggregates from income approach at current prices in 1995-2022, change as %

Year	Compensation of employees	Gross operating surplus and mixed income	Taxes on production and imports	Subsidies	GDP
1995	0.0	-6.6	0.0	0.0	-3.1
1996	0.0	-6.7	0.0	0.0	-2.9
1997	0.0	-6.1	0.0	0.0	-2.7
1998	0.0	-6.0	0.0	0.0	-2.7
1999	0.0	-6.2	0.0	0.0	-2.8
2000	0.0	-5.2	0.0	0.0	-2.5
2001	0.0	-4.2	0.0	0.0	-2.1
2002	0.0	-6.3	0.0	0.0	-3.2
2003	0.0	-8.9	0.0	0.0	-4.5
2004	0.0	-8.3	0.0	0.0	-4.2
2005	0.0	-8.4	0.0	0.0	-4.1
2006	0.0	-11.1	0.0	0.0	-5.3
2007	0.0	-11.6	-0.1	0.0	-5.3
2008	0.0	-11.1	+0.4	0.0	-4.8
2009	0.0	-6.2	+0.5	0.0	-2.7
2010	0.0	-4.4	+0.5	0.0	-2.0
2011	0.0	-6.8	+0.5	0.0	-3.3
2012	0.0	-7.6	+0.4	0.0	-3.7
2013	0.0	-7.4	+0.5	0.0	-3.5
2014	0.0	-7.7	+0.5	0.0	-3.5
2015	0.0	-7.8	+0.5	0.0	-3.4
2016	-0.4	-7.8	+0.4	0.0	-3.4
2017	-0.5	-8.2	+0.5	0.0	-3.6
2018	-0.3	-8.4	+0.4	0.0	-3.4
2019	-0.2	-8.4	+0.7	0.0	-3.3
2020	-0.2	-7.7	+1.2	0.0	-2.9
2021	-0.1	-7.6	+0.7	0.0	-3.2
2022	-2.0	-12.1	+0.2	-0.2	-5.9

Annual GDP growth at constant prices has changed for all years: for 1996-2009 the change is from - 1.8 to +0.9 percentage points, for 2010-2021 from -0.1 to +0.8 percentage points, for 2022 growth at constant prices has changed by -1.1 percentage point (see Picture 1 and Table 5).

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

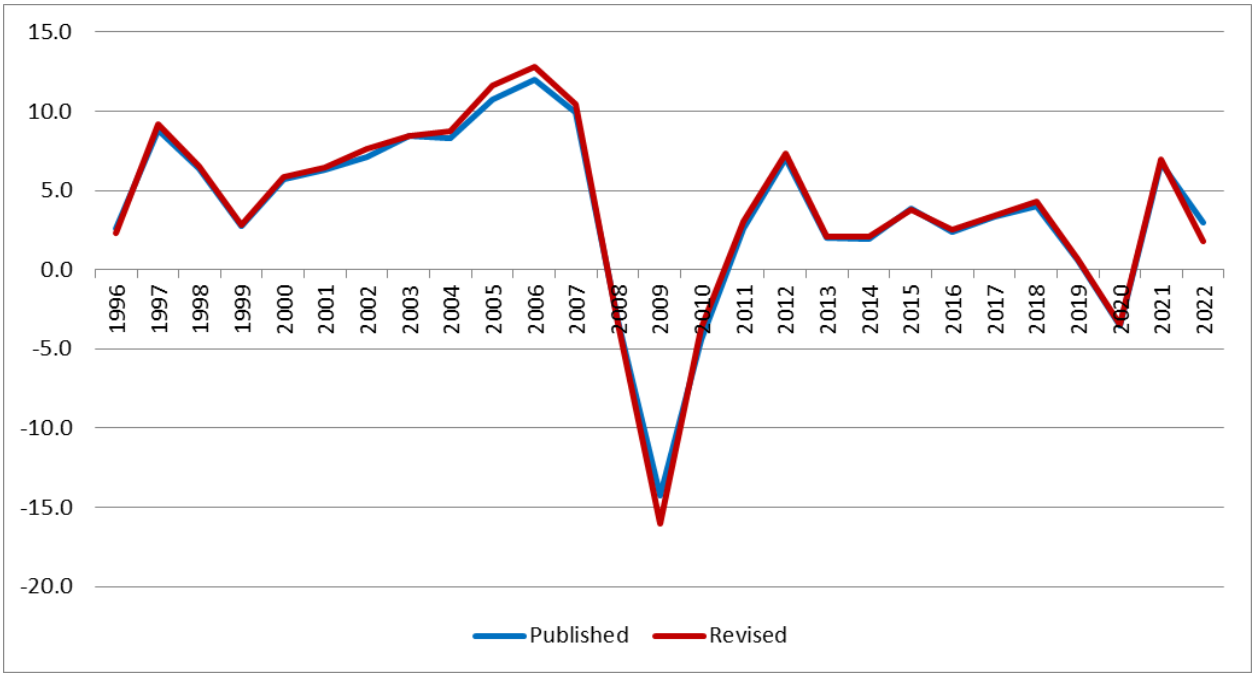

Table 5. GDP changes at constant prices, compared to the previous year, before and after revision in 1996 – 2022

Year	1996	1997	1998	1999	2000	2001	2002
Before revision, %	+2.6	+8.8	+6.3	+2.8	+5.7	+6.3	+7.1
After revision, %	+2.3	+9.2	+6.6	+2.8	+5.8	+6.5	+7.7
Difference, percentage points	-0.3	+0.3	+0.2	+0.1	+0.2	+0.1	+0.6
Year	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Before revision, %	+8.4	+8.3	+10.7	+12.0	+9.9	-3.2	-14.3
After revision, %	+8.4	+8.7	+11.6	+12.8	+10.4	-3.4	-16.0
Difference, percentage points	+0.0	+0.4	+0.9	+0.9	+0.5	-0.1	-1.8
Year	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Before revision, %	-4.5	+2.6	+7.0	+2.0	+1.9	+3.9	+2.4
After revision, %	-3.7	+3.0	+7.3	+2.1	+2.1	+3.8	+2.6
Difference, percentage points	+0.8	+0.5	+0.3	+0.1	+0.2	-0.1	+0.2
Year	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	
Before revision, %	+3.3	+4.0	+0.6	-3.5	+6.7	+3.0	
After revision, %	+3.4	+4.3	+0.7	-3.5	+6.9	+1.8	
Difference, percentage points	+0.1	+0.3	+0.1	+0.0	+0.2	-1.1	

1. Changes related to country-specific GNI action points

1.1. Revision of time-series of the data on consumption of fixed capital and net capital formation

In the result of the revision both fixed capital and accrued fixed capital values were revised substantially. Work on the revision of fixed capital assessment started in 2019, when it was found that fixed capital assessment of Latvia relative to GDP is significantly higher than that of other EU Member States.

Simultaneously, at European level it was established that Member States also have significant differences in their assessments of the above-mentioned indicators. In order to promote the comparability of Member States' data, Eurostat set up a Task Force on the assessment of consumption of fixed assets and fixed capital according to the European System of Accounts 2010 (ESA 2010) with the task of developing practical recommendations for the compilation of accrued fixed capital values and consumption of fixed capital using the perpetual inventory method (PIM). For the calculation of fixed assets accrued, in all cases where direct information on fixed assets accrued is not available, PIM is used, which calculates the capital accumulation by summing gross fixed capital formation flows adjusting them for depreciation and consumption of fixed capital. To implement PIM, choices have to be made about key assumptions of the method, such as the depreciation and amortisation functions, parameters of these functions, initial capital assessment, changes in the volume of assets and price indices. Between 2020 and 2022 the Task Force held seven meetings.

During the revision of Latvia's estimates of consumption of fixed capital and accrued fixed capital values the recommendations made by the Eurostat Task Force also were taken into account.

The revision of time-series for consumption of fixed capital and net accrued fixed capital values has an impact on GDP results for those institutional sectors that are calculated using input cost approach: General government (S.13) and Non-profit institutions serving households (S.15).

In the input method, the following expenditure components are added together to calculate the output (P.1):

a) intermediate consumption (P.2);
b) employee remuneration (D.1);
c) consumption of fixed capital (P.51c);
d) other taxes on production (D.29) minus other subsidies on production (D.39).

In addition, in case of Latvia, revision of time-series for consumption of fixed capital and net accrued fixed capital values also has an impact on estimates of own-account production of housing services by owner-occupiers, which has a corresponding impact on the GDP estimate. The estimates of this own-account production is included in NACE Rev.2[3] Division 68 *Real estate activities* in order to ensure the data comparability between the Member States, but it does not reflect actual transactions in national economies (more detailed information can be found in Section 1.2 of this GDP revision description).

Latvia uses the user-cost method to assess the own-account production of housing services by owner-occupiers. According to ESA 2010, the user-cost method is applied when in the country housing rental market is insufficient and dwellings are owner-occupied. In the user-cost method, output is calculated by summing the following components: intermediate consumption, consumption of fixed capital, other taxes on production and net operating surplus, which in turn is calculated at 2.5 % of the value of net accrued fixed capital in owner-occupied dwellings and land under dwellings.

The impact on GDP indicators, as % of indicator, taking 2021 as an example, is shown in Picture 2.

[3] Statistical Classification of Economic Activities in the European Community (NACE Rev. 2)

Picture 2. Impact of the revision of consumption of fixed capital and net accrued fixed capital values on GDP indicators in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	-2.0%	Final consumption expenditure (FCE)	-4.6%	Compensation of employees	0.0%
Intermediate consumption	0.0%	Households FCE	-6.0%	Operating surplus, and mixed income, gross	-8.4%
Value added	-4.1%	NPISH FCE	-1.1%	Taxes on production and imports	0.0%
Taxes on products	0.0%	General government FCE	-1.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	0.0%	**GDP**	**-3.6%**
GDP	**-3.6%**	Gross fixed capital formation	0.0%		
		Changes in inventories	0.0%		
		Exports	0.0%		
		Imports	0.0%		
		GDP	**-3.6%**		

1.2. Inclusion of the results of Population and Housing Census 2021 in GDP indicators

In 2021 Population Census in Latvia was conducted using administrative data rather than a traditional household survey. Preparations for this method began in 2012 and significantly improved the quality of the data. Population estimates using this method were also made for previous years, starting from 2017, and were already included in the GDP calculations. This eliminated the need to revise the data, as it was the case when results of the census were based on household survey data.

The situation was different with the results of the Housing Census 2021. The housing data used in the GDP calculations were based on the results of the previous Housing Census (data of 2011), which were extrapolated accordingly.

Housing Census data are used to assess the own-account production of housing services by owner-occupiers. The calculation of own-account production of housing services by owner-occupiers (imputed rent equivalent to actual rent) is necessary to ensure cross-country comparisons of GDP among Member States. This is important because the share of people living in rented dwelling and those who are living in their own dwelling can vary significantly from country to country.

There is a very small housing rental market in Latvia, mostly people live in their own dwelling. According to calculations of the national accounts, the stock of privately rented housing, excluding housing rented by the state, accounts for less than 10 % of the housing available on the rental market. As a result, pursuant to Commission Implementing Regulation (EU) 2021/1949 of 10 November 2021 on the principles for estimating dwelling services for the purposes of Regulation (EU) 2019/516 of the European Parliament and of the Council on the harmonisation of gross national income at market prices (GNI Regulation) and repealing Commission Decision 95/309/EC, Euratom and Commission Regulation (EC) No 1722/2005 (Text with EEA relevance) Latvia applies the user-cost method for the assessment of own-account production of housing services by owner-occupiers, as it is not possible to apply the stratification method qualitatively due to the low activity of the rental market.

According to the Housing Census 2021, 22.8 % of dwellings in Latvia have the status *Not applicable*. This category includes dwellings that are both seasonal or secondary dwellings and empty (unoccupied) dwellings.

In the national accounts, for GDP purposes, it is important to correctly allocate these dwellings

between empty and seasonal dwellings. In the previous Housing Census (of 2011), this category accounted for 20.2 % of the total housing stock and, due to the lack of more precise information, it was assumed that two thirds were seasonal dwellings and one third were empty. The latest data from Household budget survey 2019 show that only 7.3 % of households have a second dwelling for seasonal use. This percentage was applied to the total housing stock, with the remainder considered empty.

Integrating the Housing Census 2021 results into the GDP data and applying revised assumptions on the share of traditional dwellings attributable to second dwellings for seasonal use and the share of empty dwellings, the following revisions were made to the GDP indicators, taking 2021 as an example (see Picture 3). In addition, the assumption of the economy not captured in the reports, which is attributed to the actual rent, was reclassified from the indicator "Wages and salaries in kind" to the indicator "Misreporting by producer", as a result of which the indicator "Compensation of employees" decreased.

Picture 3. Impact of integrating the results of the Housing Census on GDP indicators in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	-0.1%	Final consumption expenditure (FCE)	-0.3%	Compensation of employees	-0.5%
Intermediate consumption	0.1%	Households FCE	-0.4%	Operating surplus, and mixed income, gross	0.0%
Value added	-0.3%	NPISH FCE	0.0%	Taxes on production and imports	0.0%
Taxes on products	0.0%	General government FCE	0.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	0.1%	**GDP**	**-0.2%**
GDP	**-0.2%**	Gross fixed capital formation	0.0%		
		Changes in inventories	0.7%		
		Exports	0.0%		
		Imports	0.0%		
		GDP	**-0.2%**		

1.3. Revision of the calculation of insurance services

Within the scope of the GNI action point, the methodology for calculating the output of insurance services was improved, resulting in a more accurate alignment with the ESA 2010 methodology.

The output of the insurer is the service provided to the beneficiaries.

The output of non-life insurers according to ESA 2010 is to be calculated according to the expectations approach using the following formula:

premiums earned
plus premium supplements
minus adjusted claims incurred,

where the adjusted claims incurred are corrected for the volatility in claims and the correction is based on historical data or accounting data on changes in equalisation reserves and own funds.

In turn, the claims incurred can be calculated as follows:

claims paid
plus the change (plus increase or less decrease) in the reserves for claims outstanding.

Until now, non-life insurers' output calculations have been based on claims paid rather than claims incurred. The revised GDP data address this shortcoming.

In addition, the item *Changes in technical reserves* was removed from the calculation of output of non-life insurers as it is not attributable to the output of non-life insurers.

Also, a method was developed and calculation of the output of foreign branches of non-life insurers in Latvia was specified for those items for which information is not available from direct data sources, thus making the output estimates consistent with the above formula for calculating the output of non-life insurers.

The calculation of output of foreign branches of life insurers in Latvia was also specified for items for which information is not available from direct data sources. A method was developed, and output assessment was improved to make the calculation of output of life insurers consistent with the formula for calculating output of life insurers:

premiums earned
plus premium supplements
minus benefits due
minus increase (plus decrease) in technical reserves and with-profits insurance.

The method used to allocate non-life insurance output among users was also clarified.

The GDP indicators affected by the revision are: output, intermediate consumption, final consumption. The statistical discrepancy between GDP from production approach and GDP from expenditure approach resulting from the data revision is recorded in the GDP indicator from expenditure approach - changes in inventories. The impact on GDP indicators, as % of respective indicator, taking 2021 as an example, is shown in Picture 4.

Picture 4. Impact of the revision of calculation of insurance services on GDP indicators in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	0.0%	Final consumption expenditure (FCE)	0.0%	Compensation of employees	0.0%
Intermediate consumption	0.0%	Households FCE	0.0%	Operating surplus, and mixed income, gross	0.0%
Value added	0.0%	NPISH FCE	0.0%	Taxes on production and imports	0.0%
Taxes on products	0.0%	General government FCE	0.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	-0.1%	**GDP**	**0.0%**
GDP	**0.0%**	Gross fixed capital formation	0.0%		
		Changes in inventories	-0.5%		
		Exports	0.0%		
		Imports	0.0%		
		GDP	**0.0%**		

1.4. Elimination of double counting of agricultural products

The main source of the data for the assessment of agricultural sector of GDP of Latvia (NACE Rev.2 01.1 – 01.7) is the Economic Accounts for Agriculture prepared by the Latvian State Institute of Agricultural Resources and Economics. These data include agricultural output not only from enterprises for which agriculture is the main activity, but also from enterprises for which agriculture is a secondary activity.

This resulted in double counting in GDP, as agricultural production included as a secondary activity in other sectors was included in GDP twice: both in agricultural sector and in other sectors according to the core business area if agriculture is only included as a secondary activity.

As a result of the revision, values already recorded as secondary activity in other sectors were excluded from the agricultural sector figures.

The impact on GDP indicators, as % of respective indicator, taking 2021 as an example, is shown in Picture 5.

Picture 5. Impact of elimination of double counting of agricultural products on GDP indicators in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	-0.1%	Final consumption expenditure (FCE)	-0.1%	Compensation of employees	0.0%
Intermediate consumption	-0.1%	Households FCE	-0.1%	Operating surplus, and mixed income, gross	-0.2%
Value added	-0.1%	NPISH FCE	0.0%	Taxes on production and imports	0.0%
Taxes on products	0.0%	General government FCE	0.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	0.0%	**GDP**	**-0.1%**
GDP	**-0.1%**	Gross fixed capital formation	0.0%		
		Changes in inventories	0.0%		
		Exports	0.0%		
		Imports	0.0%		
		GDP	**-0.1%**		

1.5. Accounting for emission allowances

In the national accounts, government income from the sale of emission allowances is considered as other taxes on production. Both residents and non-residents of Latvia can buy emission allowances.

The revision resulted in a reordering of the flows, including only the value of transactions with Latvian residents in other taxes on production in GDP from income approach, as well as method used to calculate the sale price per emission allowance and timing of the recording of sale transaction was revised.

The revision only affected the GNI assessment and GDP from income approach, with no impact on the overall GDP. The following indicators were affected by GDP from income approach: other taxes on production and, as a counter-adjustment, gross operating surplus and mixed income. The impact on GDP indicators, as % of respective indicator, taking 2021 as an example, is shown in Picture 6.

Picture 6. Impact of revision of emission allowances accounting on GDP indicators in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	0.0%	Final consumption expenditure (FCE)	0.0%	Compensation of employees	0.0%
Intermediate consumption	0.0%	Households FCE	0.0%	Operating surplus, and mixed income, gross	-0.1%
Value added	0.0%	NPISH FCE	0.0%	Taxes on production and imports	0.2%
Taxes on products	0.0%	General government FCE	0.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	0.0%	**GDP**	**0.0%**
GDP	**0.0%**	Gross fixed capital formation	0.0%		
		Changes in inventories	0.0%		
		Exports	0.0%		
		Imports	0.0%		
		GDP	**0.0%**		

1.6. Revision of accounting for self-produced software

As a result of revision, the estimates of self-produced software were revised by updating the coefficients.

The self-produced software calculation is based on the assumption that computer professionals in certain occupational groups spend part of their working time developing software for the needs of their enterprise. Software designed is accounted for as gross fixed capital formation and output for own needs.

To carry out the recalculations, the CSB took the following steps:

1) Additional questions were included in the annual *Survey on the usage of information and communication technologies in enterprises* for 2021. From the survey results, coefficients applied to the evaluation of own-developed software were calculated.
2) Data were obtained from the survey *Report on Structure of Earnings 2022*, which contains data on the number of employees and hours worked in the respective occupations. This survey is carried out every 4 years.
3) In order to comply with the GNI recommendations, two occupational groups, i.e. ISCO 251 ‘Software and applications developers and analysts’ and ISCO 252 ‘Database and network professionals’, were included in the calculation instead of ISCO 251 only, as was the case previously.

The impact of the revision on GDP indicators, as % of respective indicator, taking 2021 as an example, is shown in Picture 7.

Picture 7. Impact of the revision of accounting for self-produced software on GDP indicators in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	0.2%	Final consumption expenditure (FCE)	0.0%	Compensation of employees	0.0%
Intermediate consumption	0.0%	Households FCE	0.0%	Operating surplus, and mixed income, gross	0.7%
Value added	0.3%	NPISH FCE	0.0%	Taxes on production and imports	0.0%
Taxes on products	0.0%	General government FCE	0.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	1.2%	**GDP**	**0.3%**
GDP	**0.3%**	Gross fixed capital formation	1.3%		
		Changes in inventories	0.0%		
		Exports	0.0%		
		Imports	0.0%		
		GDP	**0.3%**		

1.7. Accounting of business-to-household transactions in second-hand passenger cars (no impact on GDP)

Within the framework of GNI action point the value of second-hand passenger cars purchased by households as consumers from an enterprise, i.e. the value of passenger cars that in the previous year was included as fixed asset in the balance sheet of enterprises and subsequently sold to households was calculated.

Data revision only affected GDP indicators from income approach, with no impact on the overall GDP. As a result of this revision, the assessment of final household consumption was increased; as counter-adjustment items either changes in inventories or gross fixed capital formation was used, taking into account the GDP balancing decisions made in the previous years. The assessment algorithm for gross fixed capital formation for the basic data already included a negative adjustment for fixed assets sold prior to this revision.

The impact of the revision on GDP indicators, as % of respective indicator, taking 2021 as an example, is shown in Picture 8.

Picture 8. Impact of the revision of transactions in second-hand passenger cars on GDP indicators in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	0.0%	Final consumption expenditure (FCE)	0.3%	Compensation of employees	0.0%
Intermediate consumption	0.0%	Households FCE	0.4%	Operating surplus, and mixed income, gross	0.0%
Value added	0.0%	NPISH FCE	0.0%	Taxes on production and imports	0.0%
Taxes on products	0.0%	General government FCE	0.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	-1.0%	**GDP**	**0.0%**
GDP	**0.0%**	Gross fixed capital formation	-0.4%		
		Changes in inventories	-5.7%		
		Exports	0.0%		
		Imports	0.0%		
		GDP	**0.0%**		

1.8. Exclusion of the fixed asset group *Other intellectual property* from gross fixed capital formation

According to ESA 2010, the following groups are distinguished as intangible non-financial assets produced attributable to intellectual property products:

1) Research and development (AN.1171);
2) Mineral exploration and evaluation (AN.1172);
3) Computer software (AN.11731);
4) Databases (AN.11732);
5) Entertainment, literary or artistic originals (AN.1174);
6) Other intellectual property products (AN.1179).

According to the accounting rules, enterprises may include the following groups of intangible assets in total intangible assets:

1) development costs;
2) concessions, patents, licences, trademarks and similar rights;
3) other intangible assets;
4) goodwill purchases less sales;
5) advance payments for intangible investments.

Latvian accounting rules state that enterprises report in other intellectual property: development costs, other intangible assets and goodwill purchases less sales. According to ESA 2010, goodwill purchases less sales should be recorded in the non-financial non-produced assets group *Purchases less sales of goodwill and marketing assets* (AN.23) Previously, these costs were erroneously included in the indicator *Gross fixed capital formation* in group AN.1179, as these costs are not separately identified in the CSB investment form.

It was decided to exclude the entire group AN.1179 from gross fixed capital formation and to transfer it to group AN.23 and not to calculate the consumption of fixed capital for these assets. In practice, also for other Member States, the fixed assets are practically not included in the group AN.1179. The impact of this revision on the assessment of consumption of fixed capital was included in the revision item *Revision of time-series of data on consumption of fixed capital and net capital formation*.

The impact of the revision on GDP indicators, as % of respective indicator, taking 2021 as an example, is shown in Picture 9.

Picture 9. Exclusion of the fixed asset group *Other intellectual property* from gross fixed capital formation in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	0.0%	Final consumption expenditure (FCE)	0.0%	Compensation of employees	0.0%
Intermediate consumption	0.0%	Households FCE	0.0%	Operating surplus, and mixed income, gross	0.0%
Value added	0.0%	NPISH FCE	0.0%	Taxes on production and imports	0.0%
Taxes on products	0.0%	General government FCE	0.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	0.0%	**GDP**	**0.0%**
GDP	**0.0%**	Gross fixed capital formation	-1.7%		
		Changes in inventories	14.2%		
		Exports	0.0%		
		Imports	0.0%		
		GDP	**0.0%**		

2. Revisions of GDP aggregates' time-series related to other changes in calculation methods and data sources of GDP indicators

2.1. Revisions related to other changes made in methodology and data sources by the national accounts

The following data revisions were carried out:

1) Employee remuneration indicator in terms of GDP from income approach has been revised from 2018 onwards. It was found that the calculation did not include employee remuneration whose employer is the household institutional sector (individual merchants and other natural persons engaged in economic activity). Gross operating surplus and mixed income indicators were chosen as the counter-adjustment items. These changes have no impact on the overall GDP.
2) Calculations of financial intermediation services indirectly measured has been adjusted. A data source usage error was identified, where column *Accrued interest at the end of the reporting quarter* was wrongly used instead of column *Interest calculated for the reporting quarter*. The changes affected datasets from 2018.
3) The data for non-profit institutions serving households (S.15) sector were slightly adjusted to the data of 1995 to correct a data usage error.
4) Data revisions were previously cross-checked with Balance of Payments statistics:
    - exclusion of VAT from import transactions for a dataset sourced from payment card data. Other minor changes related to payment card data. The revision covers data for 2020-2021.
    - exclusion of certain purchases and sales of fixed capital goods from imports and exports, finding that these transactions relate to operational leasing and should not be included in GDP statistics.

The cumulative impact of revisions on GDP indicators, as % of respective indicator, taking 2021 as an example, is shown in Picture 10.

Picture 10. Revisions related to other changes made in methodology and data sources by the national accounts, impact on GDP indicators, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	0.1%	Final consumption expenditure (FCE)	0.3%	Compensation of employees	0.3%
Intermediate consumption	-0.1%	Households FCE	0.4%	Operating surplus, and mixed income, gross	0.1%
Value added	0.2%	NPISH FCE	0.0%	Taxes on production and imports	0.0%
Taxes on products	0.0%	General government FCE	0.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	-0.1%	**GDP**	**0.2%**
GDP	**0.2%**	Gross fixed capital formation	0.0%		
		Changes in inventories	-1.2%		
		Exports	0.0%		
		Imports	-0.1%		
		GDP	**0.2%**		

2.2. 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) reclassification of six institutional units from the Non-financial corporations institutional sector (S.11) to the General government sector (S.13). As S.13 output calculation algorithm differs from calculation algorithm of other institutional sectors, reclassification of units from one institutional sector to another leaves impact on GDP. The most significant impact resulted from the partial reclassification of the State Joint-Stock Company Latvijas Dzelzceļš Group to sector S.13. Before the revision, State Joint-Stock Company Latvijas dzelzceļš was listed in sector S.11 as a consolidated enterprise in NACE 49 *Land transport and transport via pipelines*, after the revision State Joint-Stock Company Latvijas dzelzceļš was split into separate legal entities, some of which were transferred to sector S.13. Legal units are classified in sectors corresponding to their primary activity.
2) principles for assessing certain taxes on production and products have been revised (negligible impact on GDP);
3) additional adjustments related to the derivative of the Riga City Municipality have been made.

The cumulative impact of revisions on GDP indicators, as % of respective indicator, taking 2021 as an example, is shown in Picture 11.

Picture 11. Impact of revisions related to adjustments for general government budget deficit and debt data on the GDP indicators in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	0.3%	Final consumption expenditure (FCE)	0.4%	Compensation of employees	0.0%
Intermediate consumption	0.3%	Households FCE	0.0%	Operating surplus, and mixed income, gross	0.4%
Value added	0.2%	NPISH FCE	0.0%	Taxes on production and imports	0.5%
Taxes on products	0.5%	General government FCE	1.3%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	-0.3%	**GDP**	**0.2%**
GDP	**0.2%**	Gross fixed capital formation	0.0%		
		Changes in inventories	-3.0%		
		Exports	0.0%		
		Imports	-0.1%		
		GDP	**0.2%**		

2.3. Revisions related to changes in balance of payments

This section includes those adjustments in balance of payments that have not been assessed separately. Balance of payments export and import figures is a direct data source for assessing the export and import of GDP from expenditure approach.

To balance GDP, the balance sheet item *Changes in inventories* was mainly chosen to adjust exports and imports. The revisions affected GDP figures from 2014 onwards.

Reasons for export and import revisions:

1) in exports, the calculation of *Business services n.e.c.* has been updated to include various mutual services within the direct investment group;
2) CIF-FOB calculation for transport via pipelines has been revised;
3) adjustments to exports and imports (mutually exclusive, with no impact on other GDP indicators) related to the quality of the CSB Foreign Trade Statistics data. Analysis of the

data eliminated negative values, mainly related to the heading *Goods for processing*. Negative values have been eliminated by transferring values between services and goods.

4) data updates have been made by statistical providers.

The cumulative impact of revisions on GDP indicators, as % of respective indicator, taking 2021 as an example, is shown in Picture 12.

Picture 12. Impact of revisions related to changes in balance of payments on GDP indicators in 2021, as % of indicator

GDP Production approach		**GDP Expenditure approach**		**GDP Income approach**	
Output	0.0%	Final consumption expenditure (FCE)	0.0%	Compensation of employees	0.0%
Intermediate consumption	0.0%	Households FCE	0.0%	Operating surplus, and mixed income, gross	0.0%
Value added	0.0%	NPISH FCE	0.0%	Taxes on production and imports	0.0%
Taxes on products	0.0%	General government FCE	0.0%	Subsidies	0.0%
Subsidies on products	0.0%	Gross capital formation	0.0%	**GDP**	**0.0%**
GDP	**0.0%**	Gross fixed capital formation	0.0%		
		Changes in inventories	-0.3%		
		Exports	0.2%		
		Imports	0.1%		
		GDP	**0.0%**		

3. Annual routine revision

Additionally annual routine revisions were carried out. Preliminary assessment of 2022 from quarterly data sources was revised using assessment of annual data sources. 2022 was marked by high economic uncertainty: the beginning of the year was still marked by COVID-19 pandemic, and on February 24 Russia invaded Ukraine, causing turmoil in global markets and leaving a significant impact on the Latvian economy. 2022 was also characterised by high prices of energy resources, which also affected the prices of other products.

All the changes to the GNI action points described in this document, as well as other changes to data sources and methods, have also been taken into account during the assessment for 2022, but in the absence of estimates from previous methods it is not possible to distinguish between changes attributable to changes in methodology or data sources and those attributable to routine revisions.

Taking all revisions into account, GDP at current prices for 2022 changed by -5.9 % (see Table 1, but for more detail: Tables 2, 3 and 4). In turn, growth of GDP 2022 at constant prices changed by -1.1 percentage point (see Table 5).

Taking into account that new GDP assessment of 2022 was obtained from annual data sources, also GDP assessment of 2023, that was obtained using short-term (quarterly) data sources, was revised.

4. Additional changes

4.1. Revision of employment estimates

The employment figures in the national accounts dataset have been revised from 2019 onwards. The revision did not affect GDP estimates but estimates of related indicators – productivity – were affected.

In 2023, work at European level was taken up to assess the comparability of national accounts employment indicators and the data sources and methods used to estimate them between Member States, and to identify necessary improvements. One of the drivers for this initiative was to improve the comparability of productivity performance across Member States, as it was recognised that the choice of data sources and methods used in national accounts employment calculations, as well as their consistency or inconsistency with GDP figures, differed across Member States and thus affected the comparability of productivity results.

One of the main recommendations for obtaining the national accounts' employment estimate that emerged from the study of best national practices was that the best approach for the national accounts' employment estimate would be to rely on a combination of several data sources to maximise the benefits of each individual data source, as no single data source on its own can fully guarantee the aspects of comparability, reliability and exhaustiveness that are so important for the national accounts.

The work also concluded that it should be best practice for national accounts to align exhaustiveness adjustments made to employment with those made to the main economic indicators (output, gross value added and compensation of employees) of national accounts, as exhaustiveness adjustments made by countries can have a significant impact on national accounts aggregates. If the corresponding exhaustiveness adjustments are not made consistently for employment, this can be one of the main sources of distortion in productivity indicators, negatively affecting national comparability.

In case of Latvia, as part of the previous 2016-2021 (2022) GNI verification cycle, one of the reservations determined for Latvia included work on improving the completeness of GNI/GDP indicators. One of the topics addressed was the exhaustiveness estimation of GDP based on the labour input method, where it was concluded that the data sources and methods used so far to estimate unregistered employment should be improved to better and more accurately meet the needs of the national accounts. The work led to the identification of new data sources and methods that could better meet the needs of national accounts: during the preparation for Census 2021, which is based on a large variety of administrative data sources, the CSB developed a method to obtain total employment based on administrative data (registered employment), supplemented with non-registered employment using the various surveys available to the CSB and using mathematical methods to obtain total non-registered employment.

On the basis of this method, employment figures were calculated for the needs of the national accounts from 2019 onwards and taken into account in the estimates of GDP exhaustiveness adjustments, i.e. GDP aggregates such as output, value added, compensation of employees were aligned with the employment figures derived from the newly developed method, but at the same time

this change in method was not taken into account in the assessment of employment figures for the national accounts.

To fill this gap and to follow the recommendations made by Eurostat, the employment data in the national accounts have been revised to ensure consistency between the employment and GDP figures, thus filling the gap in the GDP-derived productivity figures.

4.2. Reference year substitution for constant prices

GDP from production and expenditure approach is also calculated at prices of the previous year and at prices of the reference year. Prices of the previous year are calculated using the 'annual average method', where the current quarter is calculated at average prices of the previous year.

To calculate the change in GDP over a longer period, it is 'chained' into a single dynamic series with a single reference year. In years ending in '4' and '9', the reference year is moved to the latest year ending in '0' or '5'. Before the revision, 2015 was used as the reference year, but this has now been moved to 2020. In general, changing the reference year does not change the GDP growth rate itself, only the period to which time-series of constant prices are allocated and the level of time-series (numerical values) are conditionally changed. So, after the revision, all chained GDP time-series are reflected in prices of 2020.

4.3. Recalculation of household final consumption in COICOP 2018 classification

COICOP classification categorises household expenditure according to its purpose and is used for national accounts purposes, household budget surveys, consumer price index calculations and international comparisons. It helps to standardise and analyse consumption expenditure across different expenditure groups.

In the national accounts dataset, reclassification of the household expenditure time-series from the classification ECOICOP to COICOP 2018 classification was carried out. The introduction of COICOP 2018 improves the accuracy and relevance of the classification to modern consumption patterns.

Main changes include:

- reflection of new products and consumption patterns: the classification was adapted to better reflect new products and changing consumption patterns, which are essential for accurate economic analysis;
- separation of goods and services: COICOP 2018 provides a more consistent separation of goods and services, which improves the accuracy of data collection and analysis;
- Structural changes: Some chapters have been restructured, such as Chapter 8 and 9. Chapter 8, formerly 'Communication', is now 'Information and Communication', including a wider range of information and communication technology (ICT) services. Chapter 9, previously 'Recreation and culture', is now 'Recreation, sport and culture', with the inclusion of sporting activities and related expenditure to better reflect modern consumption patterns.

- Addition of new chapters: COICOP 2018 added new divisions, such as ‘Insurance and financial services’, which had not previously been separated out. The previous Chapter 12 ‘Miscellaneous goods and services’ was split into two chapters: Chapter 12 ‘Insurance and financial services’ and Chapter 13 ‘Personal care, social protection and miscellaneous goods’. The decision to split the chapter was taken because Chapter 12 ECOICOP was too heterogeneous.
- Chapter 06 ‘Health’ was substantially revised to improve the consistency of COICOP 2018 with the International Classification of Health Accounts (ICHA). This will allow health accounting to be aligned with the System of National Accounts and its accompanying classifications.