

Revision of gross domestic product in 2024

On 16 August 2024, Statistics Estonia published revised national accounts figures. As part of the revision, the time series for the period 1995–2023 was updated. This time, there was a major revision of the time series, meaning that methodological revisions across the entire time series were made, in addition to the regular annual revision of the last four years.

During the major revision, the methodology was also updated based on the recommendations of the audit conducted as part of the GNI verification cycle. The GNI verification cycle is a process whereby Eurostat audits, among other things, the GDP calculation methodologies of individual Member States and suggests improvements for greater comparability between countries. According to the audit, the methodology and quality of Estonian statistics were rated very good.

In the regular revision, the following were taken into account:

- supply and use tables compiled for 2020;
- enterprises' complex calendar year report (EKOMAR) of 2022;
- changes and specifications made in other sources (balance of payments, balance sheets, etc.).

The major revision included the following methodological changes:

- reclassification of units between institutional sectors;
- changes in the dwelling stock methodology;
- adjustment of renewable energy charges;
- adoption of the new COICOP (ITK) classification;
- improvement of the quarterly distribution of consumption of fixed capital.

Overall, the revision had a positive impact on the gross domestic product (GDP). The biggest impact resulted from the revised dwelling stock methodology. Other methodological changes and the regular revision mainly had a marginal impact. The major revision had the biggest impact on the time series starting from 2011, with nominal GDP levels adjusted upward by up to 2%, depending on the year. There were no years with a downward adjustment of the GDP. In the years before 2011, there were only very minor changes to GDP levels. The most significant revisions concerned the years 2014–2020, where GDP levels increased by 1.6% to 2% (see Table 1).

There were no changes to GDP in the period 1995–2000.

Table 1. GDP at current prices before and after revision, 1995–2023

	Before revision, million euros	After revision, million euros	Difference, %
1995	2 861.6	2 861.6	0.0
1996	3 680.0	3 680.0	0.0
1997	4 573.0	4 573.0	0.0
1998	5 100.4	5 100.4	0.0
1999	5 406.9	5 406.9	0.0
2000	6 171.6	6 171.6	0.0
2001	6 987.1	6 993.2	0.1
2002	7 822.6	7 824.8	0.0
2003	8 744.4	8 746.6	0.0
2004	9 777.5	9 779.5	0.0
2005	11 343.3	11 345.4	0.0
2006	13 568.9	13 571.2	0.0
2007	16 401.3	16 402.2	0.0
2008	16 618.1	16 618.9	0.0
2009	14 131.9	14 132.5	0.0
2010	14 741.1	14 741.8	0.0
2011	16 677.3	16 741.9	0.4
2012	17 916.7	18 086.6	0.9
2013	18 910.8	19 163.2	1.3
2014	20 048.2	20 365.6	1.6
2015	20 631.4	21 010.9	1.8
2016	21 747.9	22 189.0	2.0
2017	23 833.6	24 316.1	2.0
2018	25 932.2	26 438.5	2.0
2019	27 951.0	28 472.1	1.9
2020	27 430.0	27 855.2	1.6
2021	31 169.0	31 450.0	0.9
2022	36 011.1	36 437.5	1.2
2023	37 698.9	38 182.2	1.3

The greatest share of revisions were made in the period starting with 2020, when there were new data sources available for GDP calculations, in addition to the changes arising from the major revision. As a result, the figures for these years differ more from the time series up to 2020, and this had some impact on GDP trends. Revision of the earlier period did not really affect GDP growth trends. In the years 2020 to 2023, GDP real growth changed by -2.5 to 1.4 percentage points after revision (see Figure 1).

Figure 1. GDP real growth compared with same period of previous year, before and after revision, 2010–2023



The GDP for 2020 changed the most: the previous 1% decline was revised to 2.9% annual decline after the inclusion of supply and use tables. The decline deepened in all quarters: GDP decline was adjusted downward by a further 1.6 percentage points in the first quarter and by as much as 2.5 percentage points in the fourth quarter of 2020.

For the following years, there were no significant changes in annual GDP values. But there were changes in the quarterly GDP trends. In both 2021 and 2023, the first half of the year was revised downward, and the second half of the year was revised upward. The difference was between -1.2 and 0.8 percentage points. In year 2022, the first and fourth quarters were adjusted upward – by 0.9 and 1.4 percentage points, respectively (see Table 2).

Table 2. Revised GDP real growth (compared with same quarter of previous year) and difference from previously published growth rate, 1st quarter 2020 – 4th quarter 2023

	2020		2021		2022		2023	
	Growth, %	Difference, pp	Growth, %	Difference, pp	Growth, %	Difference, pp	Growth, %	Difference, pp
1st quarter	-1.0	-1.6	4.0	-1.1	4.0	0.9	-5.1	-1.2
2nd quarter	-7.5	-1.8	13	-0.4	-0.2	-0.4	-2.4	0.3
3rd quarter	-1.8	-1.7	6.3	0.1	-0.2	0.3	-2.8	0
4th quarter	-1.3	-2.5	5.6	0.8	-2.8	1.4	-1.9	0.7
Annual	-2.9	-1.9	7.1	-0.1	0.1	0.5	-3	0

Regular revision of the last four years

2020 figures

Supply and use tables are a framework of tables in which supply and use are balanced. As a result of the compilation of these tables, the value added of the total economy increased by 1.4% in 2020 compared with what was previously published. The economic indicators were significantly affected by both the major revision and by the supply and use tables (see Table 3).

GDP was most affected by the 20.8% increase in the value added of real estate activities. The most marked decrease in value added occurred in electricity, gas, steam and air conditioning supply (-21.2%). In the remaining activities, the revision of value added was in the range of -2% to 1.6%.

On the consumption side, domestic demand increased by 2.3%. The main contributors were household final consumption expenditure, which increased by 3.8%, and gross fixed capital formation, which increased by 6.3%. The latter was offset by the downward adjustment of changes of inventories (-395.8 million euros). Imports of goods and services increased by 152.9 million euros.

Table 3. Impact of balancing of supply and use tables on GDP components, 2020

Sector	Impact on component, million euros	Impact on component, %
Non-financial corporations	-174.3	-1.0
Financial corporations	-23.7	-2.0
General government	51.7	1.3
Households	480.2	27.9
NPISH	1.2	0.5
Value added, total	335.1	1.4
Net indirect taxes	90.1	2.7
GDP	425.2	1.6
Household final consumption expenditure	511.7	3.8
General government final consumption expenditure	9.9	0.2
NPISH final consumption expenditure	0.0	0.0
Gross fixed capital formation and valuables	0.0	0.0
Changes of inventories	85.8	-50.7
Domestic demand	607.3	2.3
Exports of goods and services	0.6	0.0
Imports of goods and services	152.9	0.8
Statistical discrepancy	0.0	..

2021 figures

The calculations for year 2021 were also revised, as the calculations for 2020 serve as the basis for 2021 indicators. As a result of the revision, the value added of the total economy increased by 194.2 million euros (0.7%) and domestic demand by 207.1 million euros (0.7%) (see Table 4).

Value added grew the most in real estate activities (6.1%), arts, entertainment and recreation (5.2%), and accommodation and food service activities (4.6%). The biggest downward adjustments were made to the value added of electricity, gas, steam and air conditioning supply (-12.5%) and mining and quarrying (-10.2%). For the rest of economic activities, the revision of value added was in the range of -1.5% to 2.4%.

Household final consumption increased by 267.4 million euros. Imports were adjusted upward by 100.2 million euros.

Table 4. Impact of regular revision on GDP components, 2021

Sector	Impact on component, million euros	Impact on component, %
Non-financial corporations	-42.2	-0.3
Financial corporations	-3.4	-0.3
General government	11.2	0.3
Households	-0.8	0.0
NPISH	0.2	0.1
Value added, total	-35.0	-0.1
Net indirect taxes	0.0	0.0
GDP	-35.0	-0.1
Household final consumption expenditure	-2.5	0.0
General government final consumption expenditure	14.1	0.2
NPISH final consumption expenditure	-0.1	0.0
Gross fixed capital formation and valuables	-388.6	-4.5
Changes of inventories	-68.8	-171.8
Domestic demand	-445.8	-1.6
Exports of goods and services	-41.5	-0.2
Imports of goods and services	132.7	0.7
Statistical discrepancy	584.9	..

2022 figures

For 2022, the previously used dataset based on quarterly data sources was replaced by information from annual questionnaires. The main added sources were the following questionnaires:

- EKOMAR;
- Financial statistics of agricultural, forestry and fishing enterprises;
- Research and development (in enterprises);
- Research and development;
- various statistical questionnaires concerning specific activities and sectors.

These sources were supplemented with information from the annual reports of enterprises available in the business register, and datasets of the Estonian Tax and Customs Board.

Based on the revised data, GDP increased by 1.2%. The biggest increase occurred in the value added of electricity, gas, steam and air conditioning supply (21.2%), real estate activities (12%), administrative and support service activities (6.4%), and information and communication (5.2%). The most significant decrease occurred in the value added of mining and quarrying (-7.5%), manufacturing (-6.8%), water supply, sewerage, waste management and remediation activities (-6.7%), and professional, scientific and technical activities (-4%). For the other economic activities, the revision of value added was between -2.9% and 3%.

Domestic demand remained almost the same. There were significant adjustments to foreign trade as exports increased by 2.2% and imports by 3.1% (see Table 5).

Table 5. Impact of regular revision on GDP components, 2022

Sector	Impact on component, million euros	Impact on component, %
Non-financial corporations	-538.6	-2.7
Financial corporations	0.1	0.0
General government	4.7	0.1
Households	288.8	15.3
NPISH	0.1	0.0
Value added, total	-245.0	-0.9
Net indirect taxes	-31.0	-0.8
GDP	-275.9	-0.9
Household final consumption expenditure	373.0	2.6
General government final consumption expenditure	5.5	0.1
NPISH final consumption expenditure	11.2	2.2
Gross fixed capital formation and valuables	14.2	0.2
Changes of inventories	119.4	25.6
Domestic demand	523.3	1.7
Exports of goods and services	398.7	1.6
Imports of goods and services	596.7	2.4
Statistical discrepancy	-601.3	..

2023 figures

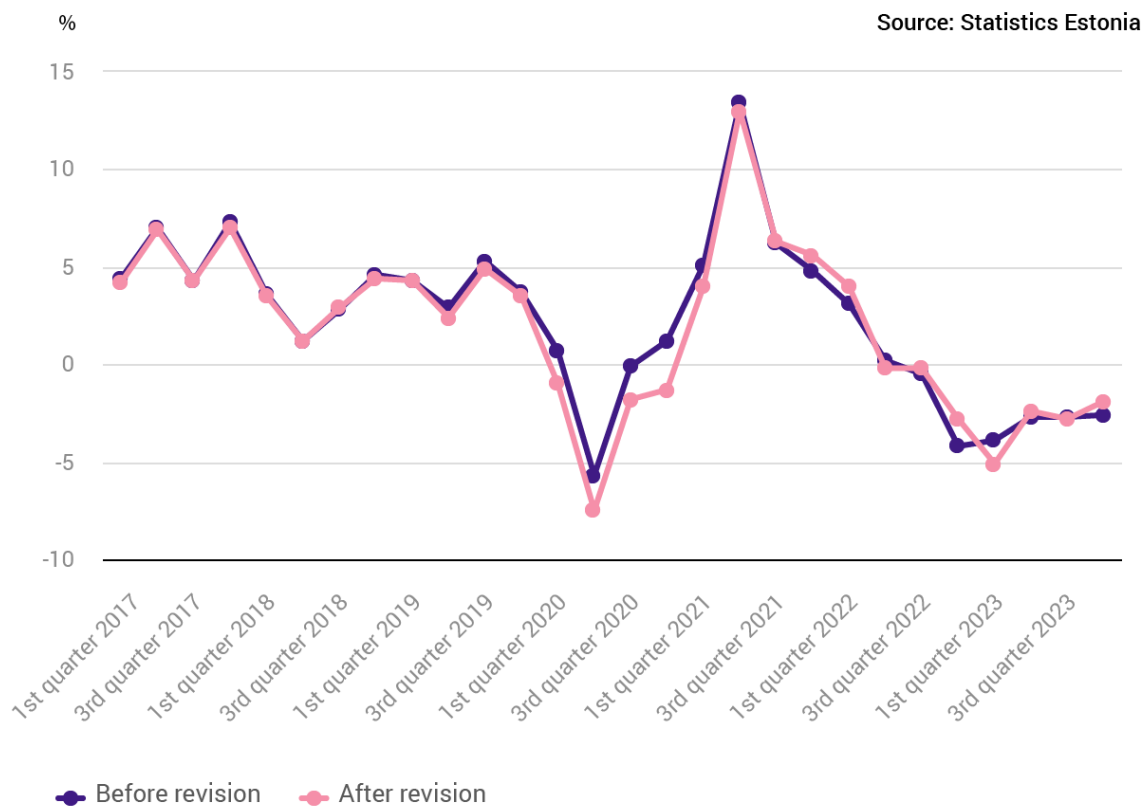
The introduction of annual data sources in 2022 calculations also affected the basis for 2023 calculations. As a result, the GDP in 2023 increased by 1.3%. The changes in value added were therefore also similar to the revisions made to the previous period. But there were exceptions. The value added of human health and social work activities increased by 4.3%, and the value added of agriculture, forestry and fishing decreased by 10.1%. There was also a significant difference in mining and quarrying where value was adjusted upward by 1.5%.

Domestic demand increased by 2.8%. The main changes were the adjustment of investments upward by 603.7 million euros, and the increase in household final consumption by 505.2 million euros. Changes of inventories were adjusted downward by 124.4 million euros.

Table 6. Impact of regular revision on GDP components, 2023

Sector	Impact on component, million euros	Impact on component, %
Non-financial corporations	-334.1	-1.5
Financial corporations	1.2	0.1
General government	2.3	0.0
Households	289.5	12.9
NPISH	1.8	0.5
Value added, total	-39.4	-0.1
Net indirect taxes	-130.9	-3.0
GDP	-170.3	-0.5
Household final consumption expenditure	409.4	2.3
General government final consumption expenditure	19.4	0.3
NPISH final consumption expenditure	12.2	2.1
Gross fixed capital formation and valuables	748.7	8.2
Changes of inventories	-634.5	-35.6
Domestic demand	555.1	1.5
Exports of goods and services	-16.7	-0.1
Imports of goods and services	-53.5	-0.2
Statistical discrepancy	-762.2	..

Figure 2. GDP real growth compared with same period of previous year, before and after revision, 1st quarter 2017 – 4th quarter 2023



While the indicators of decline in 2020 were significantly revised, the overall economic trends were not impacted by the revision. The downward trend shifted slightly at the end of 2022 and at the beginning of 2023. As expected, the supply and use tables influenced the indicators for both 2020 and 2021, and the use of annual datasets had an impact on 2022 and 2023 indicators (see Figure 2).

The most significant revisions concerned real estate activities and household final consumption expenditure. These components are affected by the revised dwelling stock methodology, which represented the most significant change during the revision process. Gross fixed capital formation was also adjusted in several annual estimates.

Dwelling stock

The financing of the European Union (EU) budget relies on own resources which are based on the gross national income (GNI) of Member States. GDP is the biggest component of GNI. Eurostat has the responsibility to monitor that Member States' contributions to the EU budget would be calculated based on GNI as required. For this purpose, Member States submit detailed methodological reports to Eurostat, and Eurostat may, where necessary, make recommendations for methodological improvements. Estonia was required to make one change in its time series by autumn 2024.

The stratification method was adopted for the dwelling stock. The 2021 Population and Housing Census indicated that there has been a considerable rise in the share of privately rented dwellings. As a result, the user cost method used so far was no longer feasible. To provide more accurate estimates, a new, more detailed method was introduced for apartments to take into account the location, size and age of the dwelling. This change affected the output of non-financial corporations and households, and household final consumption expenditure.

Table 7. Impact of stratification method on GDP, 2011–2023

	Impact on output of non-financial corporations, million euros	Impact on output of households, million euros	Impact on household final consumption, million euros	Impact on GDP, %
2011	30.9	32.89	63.78	0.57
2012	29.6	139.60	169.20	0.58
2013	28.3	221.43	249.73	0.53
2014	28.2	287.37	315.59	0.48
2015	28.7	349.03	377.69	0.48
2016	29.3	409.81	439.09	0.45
2017	28.9	401.70	430.57	0.37
2018	27.1	473.93	501.04	0.37
2019	20.2	484.18	504.34	0.33
2020	-	473.56	473.56	0.39
2021	-	180.00	180.00	0.20
2022	-	315.83	315.83	0.20
2023	-	213.95	213.95	0.11

Renewable energy charges

Since renewable energy subsidies are essentially support for specific production methods, these were excluded from output and included under subsidies on production. As a result, both gross output and value added decreased.

Table 8. Impact of renewable energy charges on GDP, 2007–2022

	Impact on GDP, million euros	Impact on GDP, %
2007	-6.4	-0.04
2008	-14.3	-0.09
2009	-27.9	-0.20
2010	-53.9	-0.37
2011	-46.3	-0.28
2012	-71.9	-0.40
2013	-64.8	-0.34
2014	-57.1	-0.29
2015	-66.6	-0.32
2016	-74.4	-0.34
2017	-83.1	-0.35
2018	-72.8	-0.28
2019	-85.0	-0.30
2020	-90.1	-0.33
2021	-94.9	-0.30
2022	-89.4	-0.25

Reclassification

In government finance statistics, there is a regular review of which enterprises belong in the general government sector and which belong in the private sector. The decision is based on the nature of enterprises' activities over several years. According to ESA2010, units belong to the general government sector if less than 50% of their costs of production are covered by market output, which comprises sales and subsidies on products from the general government. Subsidies on production are not considered a component of output.

The same classification is used in GDP calculations to ensure comparability. Usually, only the years under regular revision are reviewed from this perspective. However, during the major revision, the entire time series was considered. The analysis showed that reclassification concerns economic units from 2005 onward, and mainly applies to enterprises reclassified from the non-financial corporations sector into the general government sector. This has an impact on the distribution of GDP between sectors, while the impact on GDP overall is insignificant. Nevertheless, there are some discrepancies due to methodological differences between the institutional sectors.

In total, 36 units were reclassified. This included two units in the financial corporations sector and nine units in the non-profit institutions serving households sector. The remaining economic units were previously in the non-financial corporations sector.

Information about the classification of economic units into institutional sectors is available on Statistics Estonia's [website](#).

New version of Classification of Individual Consumption

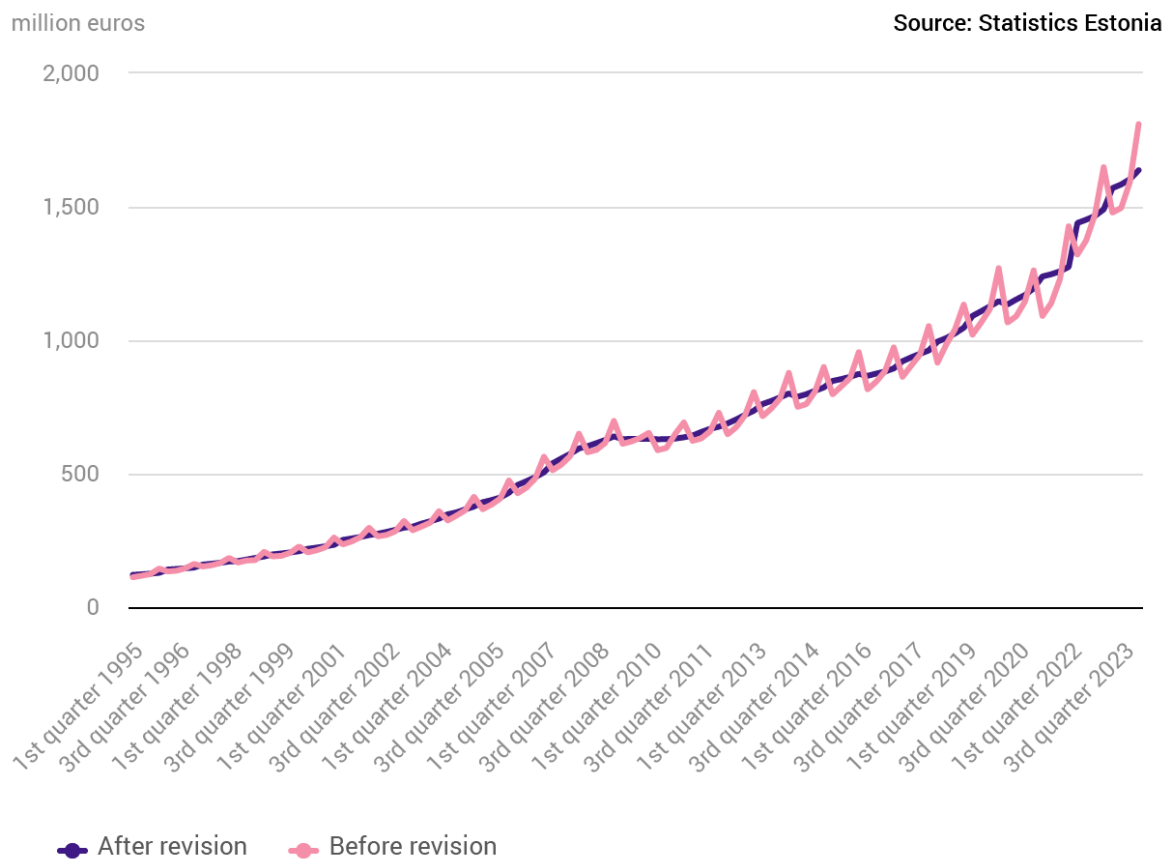
In the course of the major revision, the new version of the Classification of Individual Consumption (ITK 2018 / COICOP 2018) was adopted. This change does not affect the level of household final consumption, but it does change the detailed breakdown of consumption. Instead of the former 12 divisions, the new version has 13 divisions for household consumption. The classification was updated internationally to better reflect the economy. The updated version introduces new divisions and groups, which previously were not distinguished. Different versions of the classification are available in the [classifications portal](#) on Statistics Estonia's website.

Quarterly distribution of consumption of fixed capital

With the previous methodology, the consumption of fixed capital was strongly seasonal. To reduce seasonality, a new methodology was introduced to better balance the differences between annual and quarterly accounts. While only annual stocks of assets were previously used for the estimates, the same methodology is now also used to calculate quarterly stocks of assets.

This ensures a more even distribution of consumption of fixed capital throughout the years, leading to a less volatile time series. This change does not impact annual values of consumption of fixed capital. The change in quarterly distribution influences operating surplus, as it is a residual item in the income approach.

Figure 3. Comparison of methodologies for consumption of fixed capital, 1995–2023



Reference year

During the major revision, the reference year for the chain-linked GDP time series is changed across Europe. The previous reference year 2015 is replaced by 2020 as the new reference year. This change does not affect GDP trends or growth rates; only the nominal level of the chain-linked time series changes.