

## Revision of gross domestic product in 2021

On 31 August 2021, Statistics Estonia published revised national accounts figures. As part of the revision, the whole time series from the first quarter of 1995 to the first quarter of 2021 was updated. Whereas regular revision involved adjusting figures of the last four years, gross national income (GNI) reservations led to changes to all years.

GNI reservations are methodological additions for data to be internationally comparable.

The following steps were taken:

- the trading margins on financial assets were specified for years 2018–2020;
- the accounting of dwelling-related services was updated starting from 1995;
- a part of the general government social contributions was reclassified.

As part of the regular revision, the following were taken into account:

- supply and use tables compiled for 2017;
- enterprises' complex calendar year report (EKOMAR) of 2019;
- changes and specifications made in other sources (balance of payments, balance sheets, etc.).

Whereas regular revision had rather a positive impact on GDP, taking all changes into account, the nominal GDP was adjusted slightly down. The changes had a bigger impact on years 2009–2020. GDP of the prior years did not change significantly. As a result of the changes, the real GDP for 2017 decreased by 0.6% and for 2019 by 1.8%. Consequently, the real GDP for 2018 and 2020 decreased by 0.8% and 1.8%, respectively.

In the revised time series, the change of GDP at current prices was in the range 0.1% to 1.4% (Table 1).

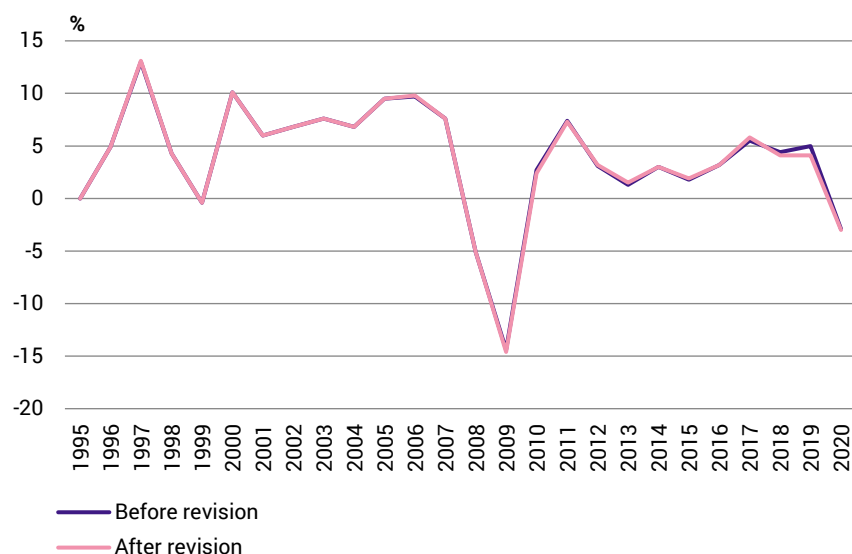
**Table 1. GDP at current prices before and after revision, 1995–2020**

	Before revision, million euros	After revision, million euros	Difference, %
1995	2 858.4	2 861.6	0.1
1996	3 675.5	3 680.0	0.1
1997	4 567.0	4 573.0	0.1
1998	5 093.1	5 100.4	0.1
1999	5 411.7	5 406.9	-0.1
2000	6 179.8	6 171.6	-0.1
2001	6 992.2	6 987.1	-0.1
2002	7 827.3	7 822.6	-0.1
2003	8 747.6	8 744.4	0.0
2004	9 776.2	9 777.5	0.0
2005	11 336.5	11 343.3	0.1
2006	13 560.5	13 568.9	0.1
2007	16 398.7	16 401.3	0.0
2008	16 638.3	16 618.1	-0.1
2009	14 211.8	14 131.9	-0.6
2010	14 863.1	14 741.1	-0.8
2011	16 829.2	16 677.3	-0.9
2012	18 050.7	17 916.7	-0.7
2013	19 033.4	18 910.8	-0.6
2014	20 180.0	20 048.2	-0.7
2015	20 782.2	20 631.4	-0.7
2016	21 931.5	21 747.9	-0.8

	Before revision, million euros	After revision, million euros	Difference, %
2017	23 857.7	23 833.6	-0.1
2018	25 937.6	25 817.7	-0.5
2019	28 112.4	27 732.3	-1.4
2020	27 166.9	26 834.5	-1.2

The annual real GDP growth changed the most for 2019, decreasing by 0.9 percentage points. In the rest of the time series, the change ranged from –0.3 to 0.3 percentage points (Figure 1).

Figure 1. GDP real growth compared to same period of previous year, before and after revision, 1995–2020



The most changes concerned 2017 to the first quarter of 2021. The change in the quarterly GDP growth ranged from –1.3 to 0.9 percentage points (Table 2). The biggest changes in growth were made to the first and last quarter of 2019.

Table 2. Revised GDP real growth (compared to same quarter of previous year) and difference from previously published growth rate, 1st quarter 2017 – 1st quarter 2021

	2017		2018		2019		2020		2021	
	Growth, %	Difference, pp	Growth, %	Difference, pp	Growth, %	Difference, pp	Growth, %	Difference, pp	Growth, %	Difference, pp
1st quarter	4.4	-0.2	4.1	-0.1	3.9	-1.2	-0.2	0.9	4.1	-1.3
2nd quarter	7	0.4	3.0	-0.5	2.6	-0.6	-7.3	-0.2	..	..
3rd quarter	4.3	0.5	4.6	-0.4	5.8	-0.4	-2.8	-0.4	..	..
4th quarter	7.3	0.4	4.9	0.1	4	-1.3	-1.5	-0.3	..	..
<b>Annual</b>	<b>5.8</b>	<b>0.3</b>	<b>4.1</b>	<b>-0.2</b>	<b>4.1</b>	<b>-0.9</b>	<b>-3</b>	<b>0</b>	..	..

\* .. – data were not collected

## GNI reservations

To finance the European Union budget, own resources are used, which are based on the gross national income (GNI) of the Member States. Eurostat has the duty to monitor that the methodology and calculation of the gross national income are correct and, where necessary, issue precepts to the Member States.

This year we have made three GNI reservations in the GDP calculations. These were not new methodological components but clarifications and supplementations to prior data and calculations. Due to the distinctive nature of the revised components, the reservations had a bigger impact on the years 2009–2020, with GDP change in the range –1.02% to –0.55%. During the period 1995–2008, GDP changed in the range –0.13% to 0.14%. Therefore, real GDP changed primarily in the second half of the time series, but the changes were relatively small. The biggest change concerned 2009, the time of the economic crisis, as real GDP decline steepened by 0.2 percentage points.

**Table 3. Impact of GNI reservations on GDP at current prices, 1995–2020**

	Impact on value added, million euros	Impact on GDP, %
1995	3.3	0.11
1996	4.5	0.12
1997	6.0	0.13
1998	7.3	0.14
1999	-4.8	-0.09
2000	-8.1	-0.13
2001	-5.1	-0.07
2002	-4.8	-0.06
2003	-3.2	-0.04
2004	1.2	0.01
2005	6.8	0.06
2006	8.4	0.06
2007	2.6	0.02
2008	-20.2	-0.12
2009	-78.2	-0.55
2010	-119.6	-0.80
2011	-149.6	-0.89
2012	-133.5	-0.74
2013	-122.6	-0.64
2014	-131.8	-0.65
2015	-150.9	-0.73
2016	-183.6	-0.84
2017	-196.8	-0.83
2018	-238.3	-0.92
2019	-256.9	-0.91
2020	-277.7	-1.02

### Trade margins of financial assets

For the reservation, it was necessary to check whether the commission fees of financial services providers were reflected correctly in the calculations. The analysis showed that up to 2017 the source data were sufficiently detailed to make the relevant calculations. In 2018, however, the data source changed and no longer provided the necessary level of detail. Therefore, the calculations for the financial sector had to be adjusted in retrospect for the years 2018–2020. The relevant corrections were in the range –4 to 4 million euros (Table 4).

**Table 4. Impact of reservation on value added of financial sector and GDP, 2018–2020**

	Impact on value added, million euros	Impact on GDP, %
2018	0.92	0.004
2019	-3.87	-0.014
2020	3.95	0.015

## Dwelling-related services to households

Dwellings play an important role in the household sector accounts. Several services that they provide to the owner have to be taken into account. The biggest is imputed rent, which shows how much rent the owner should pay if the property was rented on the market. In addition, owners receive similar services from garages, parking spaces and summer cottages.

During the verification of the GNI methodology, Estonia was tasked with reviewing some aspects of accounting of dwellings:

- check how many dwellings are empty;
- include garages in the dwellings accounting;
- in accounting summer cottages, take into account seasonality of use;
- review rent prices;
- review the distribution of housing insurance costs between owners and tenants.

There are several components in the calculation, and therefore, we took the opportunity to review the methodology in more detail. This includes the introduction of monitoring electricity consumption in cottages, which would improve the accuracy of assessing seasonality. Electricity consumption also allows to check the assessment of empty dwellings. We also started collecting data from real estate websites to get additional information for calculating rents.

Overall, the impact of the reservation on GDP ranged from  $-0.35\%$  to  $0.2\%$ . Up to 2009, the corrections increased GDP. The corrections for the period 2010–2020 reduced GDP.

**Table 5. Impact of reservation on value added of households and GDP, 1995–2020**

	Impact on value added, million euros	Impact on GDP, %
1995	3.3	0.11
1996	4.5	0.12
1997	6.0	0.13
1998	7.3	0.14
1999	6.7	0.12
2000	5.4	0.09
2001	7.9	0.11
2002	6.0	0.08
2003	9.2	0.11
2004	13.7	0.14
2005	18.1	0.16
2006	27.5	0.20
2007	33.0	0.20
2008	25.8	0.16
2009	20.4	0.14
2010	-21.4	-0.14
2011	-59.7	-0.35
2012	-49.6	-0.27
2013	-34.3	-0.18
2014	-35.4	-0.18
2015	-36.9	-0.18
2016	-50.7	-0.23
2017	-48.4	-0.20
2018	-69.6	-0.27
2019	-66.6	-0.24
2020	-61.6	-0.23

## Special cases of general government social contributions

Of the reservations, GDP was most affected by the reclassification of general government social contributions. In its analysis of government finance statistics, Eurostat found that Estonia should reclassify social taxes in special cases from employers' actual social contributions to other social benefits.

This change concerns the specific cases where social tax is paid by the state on behalf of a person:

- the Social Insurance Board pays social tax for a parent living in Estonia who is raising a child under 3 years of age; a non-working parent living in Estonia, raising three children under the age of 19, etc. (Section 6 of the Social Tax Act);
- the Social Insurance Board makes allocations to pension funds (to the financial corporations sector (S.12)) for one parent raising a child under 3 years of age and who has joined the second pension pillar (Section 10 of the Funded Pensions Act);
- the Unemployment Insurance Fund pays social tax for the recipients of unemployment allowance (Section 6 of the Social Tax Act).

As a result of the change, general government social tax in GDP were reduced and the corresponding amounts are transferred to transaction D62 – social transfers in kind. The adjustment started in 1999 when the state started paying social tax. As this component has increased over the years, the change resulted in slightly slower economic growth.

**Table 6. Impact of reservation on value added of general government and GDP, 1999–2020**

	Impact on value added, million euros	Impact on GDP, %
1999	-11.6	-0.21
2000	-13.5	-0.22
2001	-13.1	-0.19
2002	-10.8	-0.14
2003	-12.4	-0.14
2004	-12.5	-0.13
2005	-11.2	-0.10
2006	-19.0	-0.14
2007	-30.4	-0.19
2008	-46.1	-0.28
2009	-98.6	-0.69
2010	-98.2	-0.66
2011	-89.9	-0.53
2012	-83.8	-0.46
2013	-88.3	-0.46
2014	-96.4	-0.48
2015	-113.9	-0.55
2016	-132.8	-0.61
2017	-148.4	-0.62
2018	-169.7	-0.65
2019	-186.4	-0.66
2020	-220.1	-0.81

## Regular revision

### 2017 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 0.8 % in 2017 compared to what was previously published.

GDP was most affected by a 1.6% increase in the value added of manufacturing and by a 3.1% increase in the value added of transport and storage activities. The value added in construction also increased significantly (by 2.2%). The most significant decrease in value added was in professional, scientific and technical activities (-2.6%).

Domestic demand in consumption decreased by 0.3%. The reason for this was the change in inventories, which decreased by 330.8 million euros. Investments had a balancing effect, increasing by 227.2 million euros.

**Table 7. Impact of balancing of supply and use tables on GDP components, 2017**

Sector	Impact on component, million euros	Impact on component, %
Non-financial corporations	151.6	1.0
Financial corporations	11.3	1.3
General government	9.4	0.3
Households	0.2	0.0
NPISH	0.2	0.1
<b>Value added, total</b>	<b>172.7</b>	<b>0.8</b>
Net indirect taxes	0.0	0.0
<b>GDP</b>	<b>172.7</b>	<b>0.7</b>
Household final consumption expenditure	14.9	0.1
General government final consumption expenditure	11.3	0.2
NPISH final consumption expenditure	0.6	0.2
Gross fixed capital formation and valuables	227.2	3.8
Changes of inventories	-330.8	-75.9
<b>Domestic demand</b>	<b>-76.8</b>	<b>-0.3</b>
Exports of goods and services	22.4	0.1
Imports of goods and services	0.0	0.0
Statistical discrepancy	227.0	..

### 2018 figures

The calculations of 2018 were also revised, as the calculations for 2017 serve as a basis for 2018 indicators. As a result of the revision, the value added of the total economy increased by 118.4 million euros (0.5%) and domestic demand by 36.5 million euros (0.1%). Value added grew the most in agriculture, forestry and fishing (by 16.2%) and manufacturing (by 1.3%). Value added decreased the most in information and communication (-4.9%), wholesale and retail trade (-2%) and real estate activities (-2%).

**Table 8. Impact of regular revision on GDP components, 2018**

Sector	Impact on component, million euros	Impact on component, %
Non-financial corporations	69.8	0.4
Financial corporations	29.2	3.1
General government	18.5	0.5
Households	-0.2	0.0
NPISH	1.1	0.5
<b>Value added, total</b>	<b>118.4</b>	<b>0.5</b>
Net indirect taxes	0.0	0.0
<b>GDP</b>	<b>118.4</b>	<b>0.5</b>

Sector	Impact on component, million euros	Impact on component, %
Household final consumption expenditure	-1.0	0.0
General government final consumption expenditure	24.9	0.5
NPISH final consumption expenditure	2.3	0.5
Gross fixed capital formation and valuables	-0.9	0.0
Changes of inventories	11.2	2.0
<b>Domestic demand</b>	<b>36.5</b>	<b>0.1</b>
Exports of goods and services	1.6	0.0
Imports of goods and services	0.4	0.0
Statistical discrepancy	81.6	..

## 2019 figures

For 2019, the dataset of quarterly data sources used so far was replaced by information from annual questionnaires.

The main added sources were:

- EKOMAR;
- economic indicators of agricultural, forestry and fisheries enterprises;
- research and development (in enterprises);
- research and development;
- financial intermediation and auxiliary financial intermediation activities;
- insurance;
- energy;
- industrial products;
- non-profit organisations.

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

As a result of the revised data, GDP decreased by 0.4%. The biggest impact came from decreases in value added in wholesale and retail trade (-8.8%), information and communication (-12.3%) and professional, scientific and technical activities (-7.5%). In contrast, the value added of construction (6.9%), real estate activities (3.2%), and transport and storage increased significantly (3.2%).

Domestic demand decreased by 421.1 million euros from the revision. This was mainly due to a 4.3% drop in investments. In addition, changes in inventories decreased by 236 million euros. Private consumption increased by 0.7%.

**Table 9. Impact of regular revision on GDP components, 2019**

Sector	Impact on component, million euros	Impact on component, %
Non-financial corporations	-132.3	-0.8
Financial corporations	20.2	1.8
General government	14.8	0.4
Households	-18.9	-1.0
NPISH	0.3	0.1
<b>Value added, total</b>	<b>-115.9</b>	<b>-0.5</b>
Net indirect taxes	-7.3	-0.2
<b>GDP</b>	<b>-123.2</b>	<b>-0.4</b>
Household final consumption expenditure	91.1	0.7

Sector	Impact on component, million euros	Impact on component, %
General government final consumption expenditure	23.7	0.4
NPISH final consumption expenditure	17.6	3.8
Gross fixed capital formation and valuables	-317.4	-4.3
Changes of inventories	-236.0	-56.8
<b>Domestic demand</b>	<b>-421.1</b>	<b>-1.6</b>
Exports of goods and services	38.4	0.2
Imports of goods and services	13.6	0.1
Statistical discrepancy	269.2	..

## 2020 figures

The introduction of annual data sources in 2019 calculations also affected the basis for 2020 calculations. As a result, GDP decreased by 0.2 % in 2020. Changes in value added were due to revisions to previous year's data and more or less in the same ranges. The exception was an increase of 10.5% in value added in agriculture, forestry and fishing.

Domestic demand decreased by 0.5%. The main change was due to adjusting investments lower by 270.9 million euros. This was offset by an upward revision by 96.1 million euros of the change of inventories. In external demand, exports increased by 44.8 million euros.

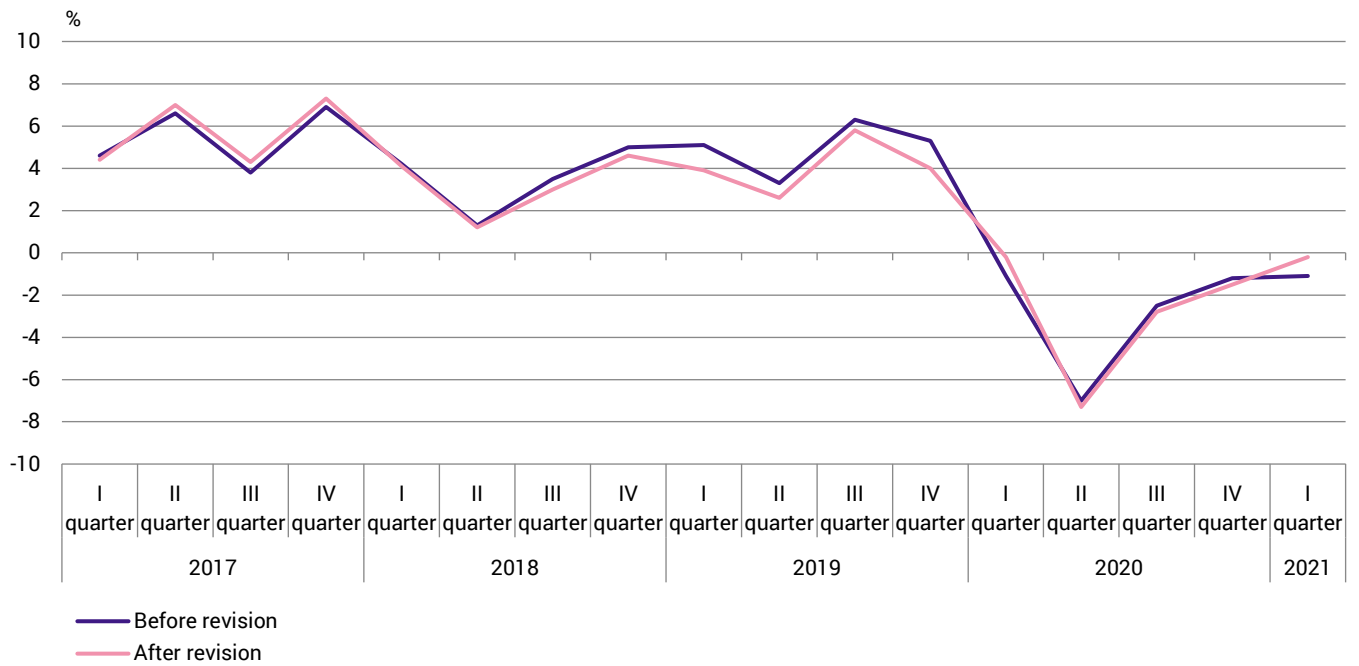
**Table 10. Impact of regular revision on GDP components, 2020**

Sector	Impact on component, million euros	Impact on component, %
Non-financial corporations	-86.6	-0.5
Financial corporations	24.8	2.1
General government	14.3	0.3
Households	-10.0	-0.6
NPISH	2.1	0.8
<b>Value added, total</b>	<b>-55.3</b>	<b>-0.2</b>
Net indirect taxes	0.6	0.0
<b>GDP</b>	<b>-54.8</b>	<b>-0.2</b>
Household final consumption expenditure	37.3	0.3
General government final consumption expenditure	-5.2	-0.1
NPISH final consumption expenditure	14.7	3.2
Gross fixed capital formation and valuables	-270.9	-3.2
Changes of inventories	96.1	-44.9
<b>Domestic demand</b>	<b>-128.0</b>	<b>-0.5</b>
Exports of goods and services	44.8	0.2
Imports of goods and services	0.0	0.0
Statistical discrepancy	32.4	..

Overall, the introduction of 2017 supply and use tables increased both the GDP of 2017 and of the subsequent years. However, the new data sources introduced for 2019 lowered GDP levels in the last two years of the time series. The revision somewhat reduced the economic growth of 2019, but did not have a significant impact on the overall trend.



Figure 2. GDP real growth compared to same period of previous year, before and after revision, 1st quarter 2017 – 1st quarter 2021



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