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## Article

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# 1

## Impact of the COVID-19 crisis on the national accounts

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**Abstract:** As the COVID-19 pandemic hit EU countries, the economic impact rapidly became a second area of concern both for politicians and for citizens. The release of quarterly national accounts aggregates, which give an integrated picture of the economic situation, was eagerly anticipated by users of official statistics. At the same time, it was clear that the pandemic and its related containment measures implied severe measurement challenges and methodological issues for quarterly national accounts. This article describes the specific methodological guidance notes that Eurostat published on its website to support the work of national compilers and the comparability of estimates. It also presents Eurostat's experience with the production of quarterly national accounts data under COVID-19 conditions. On the positive side, compilation processes continued to function both at country and Eurostat level, allowing timely releases with limited revisions so far. On the other hand, an analysis of detailed aggregates showed some divergence for specific estimates, notably for government consumption. Besides genuine differences in the impact of the COVID-19 crisis, these variations could also partly reflect differences in the sources and methods used to obtain volume estimates of specific non-market services, notably for health and education services. Eurostat and NSIs will therefore continue to analyse estimates carefully in terms of reliability and comparability, aiming to draw lessons and further improve and harmonise estimates, where needed, in line with the guidance provided.

**JEL codes:** E01, E20

**Keywords:** national accounts, sector accounts, gross domestic product (GDP), employment, COVID-19

<sup>(1)</sup> Eurostat, Unit C2 — National accounts production.

<sup>(2)</sup> Eurostat, Unit C1 — National accounts methodology; standards and indicators.

## 1. Introduction

Since the beginning of 2020, the COVID-19 pandemic has severely affected the health and economic conditions of millions of citizens in the EU and worldwide. It has also affected the compilation of statistics in many ways. While the European Statistical System (ESS) has maintained the dissemination of timely and reliable national accounts statistics, national statistical institutes (NSIs) faced multiple organisational, technical and methodological compilation challenges. For instance, national accounts compilers had to deal with: disruptions in the collection of their usual source data; breaks in economic/econometric relationships; searching for and using additional sources to improve estimates (where possible).

Indeed, as the COVID-19 pandemic evolved rapidly from the detection of first infections in the EU in late January 2020, to rising hospitalisation and death numbers in February 2020 and progressive shutdowns of non-essential activities in many EU Member States during March 2020, the economic impact rapidly became a second area of concern both for politicians and for citizens. Following the release of important short-term economic indicators on specific areas such as industrial production or trade, which are available monthly, but give only a partial picture of the state of the economy, the release of quarterly national accounts aggregates, which give an integrated picture of the economic situation, was eagerly anticipated by users of official statistics.

At the same time, it was clear that the COVID-19 crisis (the pandemic and its related containment measures) implied severe measurement challenges and methodological issues for quarterly national accounts as standard statistical compilation practices were impacted and could not be expected to be fully adequate following the onset of the crisis. There were notably risks to the quality and timeliness of usual data sources, a need to use alternative information to fill in gaps and to examine imputation methods and models to introduce adjustments where appropriate. Moreover, new policy measures introduced to provide employment, fiscal or business support, could potentially be recorded in different ways within the national accounts.

Against this background, this article describes the specific methodological guidance notes that Eurostat published on its website to support the work of national compilers and the comparability of estimates (see Section 2). It then presents Eurostat's experience with respect to the production of quarterly national accounts data during the COVID-19 crisis for the main GDP aggregates (including employment) (see Section 3) and for the quarterly sector accounts (see Section 4). The aim of the article is not only to present methodological guidance and some analysis of the economic impact of the COVID-19 crisis based on quarterly national accounts indicators, but also to determine whether the methodological guidance that was provided seems to have been effective in supporting the data compilation processes of NSIs and ensuring a high comparability of data. Section 5 offers tentative conclusions on these aspects.

## 2. Methodological guidance

As the COVID-19 crisis affected the ability of statistical compilers to collect and process data in the traditional manner, Eurostat and NSIs forming the ESS worked together to elaborate guidelines and notes on how to address methodological issues triggered by the changes in statistical production. The guidance notes published by Eurostat are available on a webpage, see: [COVID-19: support for statisticians](#). Similar guidelines were also published by the [Intersecretariat Working Group on National Accounts](#).

Several of these guidelines related to various aspects of national accounts. The main issues covered by Eurostat's guidance notes are summarised below. A more practical guidance note aimed at facilitating the compilation of quarterly national accounts (QNA) was followed by methodological guidance on how to record specific government support measures, estimate non-market output, and record deferred and waived interest payments of households. These were complemented by guidance on quarterly sector accounts (QSA) under COVID-19, as well as guidance relating to data transmission and metadata.

### 2.1. Guidance on quarterly national accounts (including flash estimates)

In order to support national compilers to address the particular circumstances created by the COVID-19 crisis, Eurostat aimed to improve the availability of guidance for QNA at an early stage. A guidance note on QNA published in April 2020 (Eurostat (2020c)) was based on exchanges with national compilers to anticipate the main problems in the compilation of QNA (including flash estimates). This consultation had identified mainly issues related to incomplete or lower quality source data, the use of alternative sources, and estimates for specific areas such as non-market services and government support measures. Based on the most acute needs, the note focussed mainly on issues affecting the compilation of GDP and employment estimates, including modelling techniques.

### CHALLENGES FOR GDP ESTIMATES

Under normal circumstances, quarterly GDP estimates are based on established sources and estimation techniques, which have been tested, evaluated and documented carefully. In most EU Member States and EFTA countries, GDP is estimated independently from the output approach and expenditure approach, complemented by estimates of income-related data. These estimates are based on a multitude of sources such as short-term business statistics, trade and balance of payment statistics, as well as administrative data.

NSIs expected that the impact of COVID-19 containment measures on these data sources would be felt heavily from the second half of March 2020, but that the exact timing and scope could vary between EU Member States depending on the stage of infections and the measures taken. Specific measures taken by governments to support the economy, such as wage subsidies or a delay to VAT payments, were also identified as issues for administrative data sources.

In terms of mitigating efforts, national accounts departments were advised to work in close cooperation with other statistical departments to determine the impact on sources and obtain information on delays in data availability, response rates and quality issues. They were also advised to seek access to additional data sources (for example, payments statistics, road traffic data) that could be used for possible adjustments.

## CHALLENGES FOR EMPLOYMENT ESTIMATES

Employment estimates are normally based on a number of established sources and techniques, notably data collected via labour force surveys, business surveys, short-term statistics and administrative data. During the COVID-19 crisis, many countries faced difficulties in collecting data from sources normally used for calculating flash estimates of employment. NSIs were especially concerned about the non-availability of source data, both from the labour force survey and from business surveys, since the results of these sources could arrive late or be incomplete, and it was not always possible to contact or follow-up with respondents. Many NSIs planned to adjust to this situation by converting to online data collection and telephone interviews and/or exploring the use of additional administrative data sources, for example data from social security registers.

More specifically, large swathes of employees across Europe were not working during certain (lockdown) periods and their salaries were often partly or fully paid by governments through subsidies. Guidance on the treatment of these schemes for the compilation of government finance statistics was provided in a separate note (see Section 2.2 below). Since according to national accounts concepts employment covers persons temporarily not at work due to various reasons — including temporary absences with or without leave — national compilers were advised to carefully assess the nature of employment-related support schemes to decide on their treatment for employment estimates.

## CHALLENGES FOR MODELLING, INCLUDING SEASONAL ADJUSTMENT AND BENCHMARKING

The compilation of QNA also typically includes modelling techniques. These are notably needed for flash estimates, where information for the last month is typically missing, and also for the regular compilation of QNA, which may, to a different extent depending on the country concerned, rely on the use of econometric models to estimate some aggregates. Since these models rely on established sources and stable economic assumptions and relationships, the COVID-19 crisis posed specific challenges in this area.

Against this background, one recommended solution was to use the usual techniques (for example, ARIMA regressions), but subsequently applying a correction factor based on assumptions at a detailed level for industries using additional information from newsfeeds, business surveys, and contacts with enterprises and trade associations (if available). Whatever the method chosen, compilers were advised to insert the impact of the COVID-19 crisis either at the level of input data (explanatory variables) or at the level of the forecast result (manual ad-hoc correction). While all new methods should, in principle, be tested for several quarters, it was clear that the situation in the early stages of the crisis did not allow for a long testing period. This meant that any model adaptations could result in lower quality results and subsequent higher revisions (as additional source data become available).

Considerations relating to the application of seasonal adjustment were the subject of a guidance note published by Eurostat in March 2020 (Eurostat (2020a)). The recommendation for national accounts was for NSIs to consider that an indirect approach to seasonal adjustment would seem preferable during the COVID-19 crisis. Detailed series should be seasonally adjusted separately and then aggregated to obtain total levels, followed by running a residual seasonality test on the total aggregates to avoid that COVID-19 effects were cancelled out (for example, between industries or institutional sectors) and to minimise discrepancies between the total and the components (which can be an issue when using direct seasonal adjustment on all series).

Moreover, the fact that the components of national accounts figures could change sharply, and by extremely different rates during a crisis such as COVID-19, also had to be considered when applying temporal disaggregation and benchmarking techniques since the indicators used for extrapolation could lose their reliability. However, the question how to estimate missing information for the last month (or quarter) taking into consideration that auxiliary information or assumptions normally used to estimate the missing month/quarter might not be useful during the crisis should, in principle, be separated from techniques to derive QNA from a set of indicators. For countries that do not use modelling or econometric techniques but mathematical techniques (Denton), the issue was whether the indicator was still meaningful to calculate QNA.

## 2.2. Policy measures to mitigate the impact of the COVID-19 crisis

A note on statistical implications of some policy measures in the context of the COVID-19 crisis (Eurostat (2020b)) provided an overview of major policy measures enacted by EU governments in order to mitigate the economic and social impact of lockdowns enforced across the EU Member States as a result of the COVID-19 pandemic. It also provided guidance on the treatment of these measures in the national accounts.

### EMPLOYMENT-RELATED MEASURES

New measures by governments to support businesses retaining their employees either on reduced hours or zero hours in the context of COVID-19 lockdowns should be recorded either as:

- subsidies on production (D.39) to employers; compensation of employees (D.1) should continue to be recorded in the accounts of the employers; or as
- current transfers, either as social assistance (D.623) or other current transfers (D.75).

The recording to be chosen may depend on the actual detail of the scheme in question (for example, the degree of discretion held by corporations) and on the choice followed in employment statistics.

## FISCAL POLICY RELATED MEASURES

Fiscal policy measures related to the COVID-19 crisis included the deferral of tax deadlines, postponing the submission deadlines for tax declarations, suspension of late payment interest on unsettled tax obligations and the suspension of tax debt enforcement. The accrual principle of recording implies that taxes and social contributions should be recorded in the period when the economic activity generating the tax liability took place. For taxes where the accrual principle is implemented using time-adjusted cash, the time-lag used for time-adjusted cash should be reviewed so as to still reflect accurately the time when the economic activity generating the tax liability took place. Whenever taxes are fully waived for certain time periods, no accrual of revenue can be considered for the period the tax is waived.

## OTHER MEASURES

Other government measures to combat the impact of the COVID-19 crisis on the economy included loans, guarantees and equity/capital injections into corporations. For schemes such as these, Eurostat expected the statistical rules that were already available in Eurostat's *Manual on Government Deficit and Debt* (Eurostat (2019)) to be applicable.

### 2.3. Non-market output

The measures taken to reduce the spread of COVID-19 have affected the activities and output of non-market producers, in other words general government and non-profit institutions serving households (NPISH). Some employees in these sectors worked more than usual, while others worked shorter hours or not at all. Many worked remotely, rather than in their normal workplace. For example, many teachers, pupils and students stayed at home (principally during lockdown periods) with remote teaching for school or university. Health authorities operated COVID-19 test and treatment facilities, while some non-COVID-19 related health services were reduced (in particular during the early months of the crisis).

Eurostat issued a guidance note on non-market output in the context of the COVID-19 crisis (Eurostat (2020f)). This was followed by a questionnaire in July 2020 (answered by 20 EU Member States and 2 EFTA countries), designed to assess how countries dealt with the issues surrounding the measurement of non-market output. The main issues are summarised below.

## NOMINAL VALUES

Since, by definition, no market prices exist for non-market output, the value of output in current prices is measured by the sum of costs (intermediate consumption, compensation of employees, other taxes less subsidies on production and consumption of fixed capital). The guidance provided by Eurostat was to continue to measure the nominal value of output of non-market services by the sum of costs approach, with no further adjustment. All 22 respondents to the questionnaire replied that they followed this approach.

As a result of the COVID-19 crisis, there were situations where governments and NPISH continued to pay normal levels of compensation to employees, even though they were actually working shorter hours or not at all. In these cases, measured output in current prices

would be largely unchanged (maybe a little lower due to reduced intermediate consumption or a lower level of other taxes less other subsidies on production) even though activity was clearly reduced. By contrast, where employees were requested to work uncompensated overtime, this change did not increase non-market output in current prices.

## VOLUME MEASURES

Without having prices for their output, there are only two options for measuring the volume of non-market services: deflating inputs and direct volume measurement.

When deflating inputs as the preferred approach, Eurostat advised NSIs to estimate the volume of each input separately, taking quality changes of the inputs into account, in particular for the compensation of employees. No additional productivity or quality adjustments to the sum of the volume of quality-adjusted inputs should be applied.

When hours worked were used as an indicator for labour input, then changes in working time resulting from the COVID-19 crisis should have been reflected in volume changes for the output of non-market services. However, if indicators such as hours paid or the number of full-time equivalent employees were used, then short-term changes in activity might not have been captured. In this case, Eurostat advised NSIs to make suitable adjustments to the indicators in order to better reflect the hours actually worked during the period concerned. These adjustments should be transparent and well documented.

When output measures were used, Eurostat advised NSIs that it was important to ensure that the indicators used covered any new services that were introduced as a result of the COVID-19 crisis, as well as existing services that were significantly expanded or reduced.

## VOLUME MEASURES FOR COLLECTIVE NON-MARKET SERVICES

According to the European System of National and Regional Accounts (ESA 2010), both input and output methods are acceptable for measuring collective non-market services. All 22 respondents to the questionnaire replied that they used input-based volume measures for collective non-market services. Ideally, a volume measure for the compensation of employees should reflect hours actually worked, but only eight respondents replied that they were able to do that.

## VOLUME MEASURES FOR HEALTH SERVICES

For non-market health services, ESA 2010 (paragraph 10.28) states that output in volume terms should be calculated on the basis of direct output measures. However, the input method may be applied 'when the variety of the services is such that it is practically impossible to determine homogeneous products'. The answers to the questionnaire showed that many of the responding countries used input methods. Note that the questionnaire focused on QNA, whereas more countries use output indicators for their annual national accounts.

Few countries replied that they had access to sufficiently detailed and timely data sources to identify new services created by the COVID crisis and their cost. This was also the case regarding sufficiently detailed and timely data sources to monitor the possible reduction in other health services.



## VOLUME MEASURES FOR EDUCATION

For education, around half of the responding countries stated that they made use of input methods, rather than the recommended output indicators (the number of students or the number of student hours). As for health, these replies concerned QNA, and more countries say they use output indicators for annual national accounts.

Particularly during the lockdown, many schools, universities and other educational establishments moved from providing physical to remote teaching. The guidance provided by Eurostat was that services delivered remotely should count as output in the same way as those delivered physically. Only a few of the respondents had access to sufficiently detailed and timely data sources to identify students who were receiving no education services (physical or remote) at all.

## 2.4. Deferred and waived interest payments of households

The measures taken to reduce the spread of COVID-19 reduced the income of many households. One measure that was introduced by financial corporations to mitigate the situation was to defer (postpone) or even waive interest payments on loans to households for a specific period. Such measures were often part of a broader agreement between governments and financial corporations (with or without government financial support) or alternatively they were agreed directly between financial corporations and their customers on an individual basis.

The recording of these measures in the national accounts was discussed in another guidance note released by Eurostat in relation to deferred and waived interest payments of households in the context of the COVID-19 crisis (Eurostat (2020g)); the main principles are summarised below.

### DEFERRED INTEREST PAYMENTS

According to ESA 2010 paragraph 4.50, interest is recorded on an accrual basis, independently of when it is actually paid. Thus, deferred interest payments should be recorded when accrued, and added to the principal outstanding (in the financial account). Eurostat also advised that financial intermediation services indirectly measured (FISIM) between households and financial institutions should continue to be recorded in the normal way.

### WAIVED INTEREST PAYMENTS

The situation where interest payments are waived, in other words, they do not have to be paid (at a later date), is not explicitly mentioned in ESA 2010. In general, the accrual recording of interest should be applied in this case as well. A capital transfer (D.99) of the same amount should be recorded in the same period from the financial institution to the customer, in order to remove the accrued interest from the financial stock positions at the end of the period. FISIM should be recorded in the normal way, as in the case with deferred interest payments (as described above).

## GOVERNMENT FINANCIAL SUPPORT

Government financial support to financial corporations to provide an incentive for them to postpone or waive interest payments of households (in the form of loans, interest rate subsidies, and/or guarantees) should be recorded in accordance with the appropriate rules of ESA 2010 and Eurostat's *Manual on Government Deficit and Debt*.

## 2.5. Quarterly sector accounts

To support data compilers, Eurostat published a methodological note on the compilation of QSA statistics. Firstly, the note aimed to help national accountants navigate through the guidance notes that had already been made available by summarising the various aspects that were of relevance to the compilation of QSA, harmonising statistical and recording approaches. Particular focus was given to the recording of the various support schemes in the context of the COVID-19 crisis and how these were expected to impact the different sectors and different accounts. Secondly, the note identified specific challenges that the COVID-19 crisis presented to compilers of QSA statistics including: disruptions to the availability of standard data sources; disruptions to economic relationships that might pose difficulties for estimations; limited availability of information about a wide range of new national policy measures to be reflected appropriately in the statistics; potentially significant data revisions; and the increased need for statistical information to assess the impact of the pandemic and related policy measures.

## 2.6. Guidance on transmission aspects and metadata

Finally, Eurostat also provided a guidance note on data transmission and metadata within the context of the COVID-19 crisis (Eurostat (2020d)). As a general approach, the note stressed that it was essential that Eurostat and the EU Member States continued to ensure full transparency regarding the impact of the COVID-19 crisis on national accounts. It recommended that data compilers should (continue to) apply the European Statistics Code of Practice (Eurostat (2017)) and the Quality Assurance Framework of the European Statistical System (European Statistical System (2019)) concerning their news and data releases, stressing that these two documents on transparency and communication were even more relevant during the crisis. The ESS also agreed on how to ensure that strategic communications continued during the COVID-19 crisis (Eurostat (2020e)). National accounts data compilers were asked to ensure that the guidance was implemented within their domains in relation to: keeping users informed; providing innovative sources and products; finding common solutions and coordinating within the ESS; and widening the range of (official) communication channels.

Moreover, NSIs were asked to provide additional metadata to Eurostat when transmitting national accounts data on the impact of the COVID-19 crisis (in terms of the severity of containment measures, changes in data sources, estimation techniques and methods used) to allow Eurostat to assess the quality of data and also publish summarised information on these aspects to users. NSIs were also encouraged to complement their national publications (news releases, database updates, electronic publications, and so on) with crisis-relevant information (metadata) and to disseminate their data with appropriate flags and footnotes. Furthermore, Eurostat emphasised that communication actions remained indispensable not only before the release of data impacted by the crisis, but also during and after the crisis, once specific data issues were resolved.

### 3. Experience with quarterly national accounts estimates (including flash estimates)

This section reports on the production of estimates for quarterly national accounts (QNA) during the COVID-19 crisis. The first part of this section presents the development of GDP and employment for European aggregates up to the third quarter of 2020. It is followed by information on the stability of the production process and the reliability of GDP estimates before analysing developments for specific expenditure aggregates and employment estimates.

#### 3.1. GDP and employment rates of change in the EU and the euro area

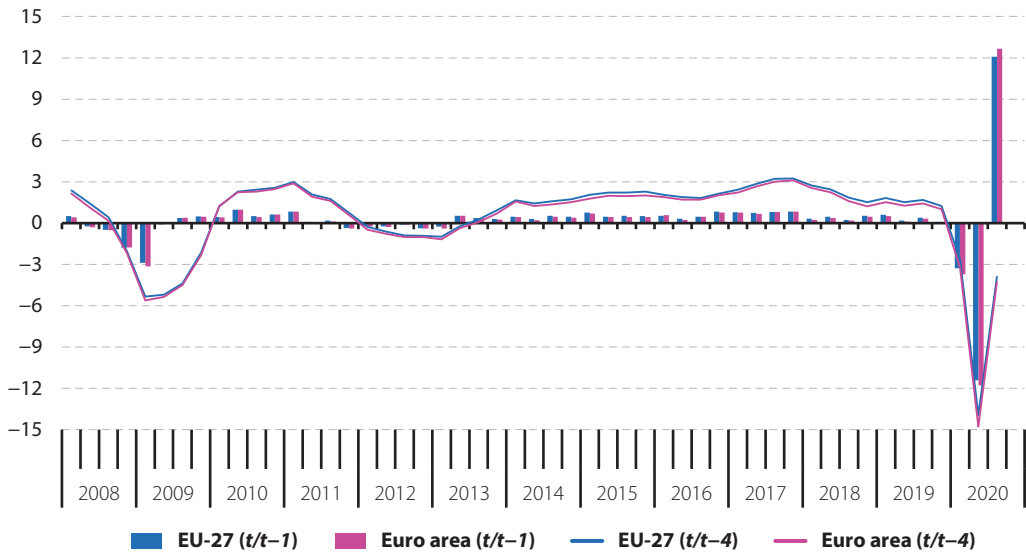
The changes in GDP and employment across the EU and the euro area during the first three quarters of 2020 were exceptional.

Within the EU, there was a decline in quarterly GDP during the first quarter of 2020 as the first effects of the COVID-19 crisis became apparent, as several EU Member States had introduced lockdowns during March 2020. However, the impact of the crisis was most clearly visible during the second and third quarters of 2020. On the basis of a comparison with the previous quarter, the EU's GDP fell sharply (down 11.4 %) during the second quarter of 2020 and then subsequently partially rebounded (up 12.1 %) in the third quarter. These were, by far, the largest quarter on quarter changes recorded since the beginning of the time series in 1995. To put the impact of the COVID-19 crisis into some context, the biggest contraction in output during the global financial and economic crisis was recorded in the first quarter of 2009, when there was a fall of 2.9 % in the EU's GDP. A comparison of the third quarter of 2020 with the third quarter of 2019 shows that GDP was still well below the pre-pandemic level, despite a rebound in activity during the third quarter of 2020.

Figure 2 shows a similar analysis but for employed persons. Compared with the changes observed for GDP, there was less volatility in the development of employment across the EU and the euro area. Nevertheless, once again the impact of the COVID-19 crisis was such that it resulted in the largest contraction and the biggest rebound in employment levels since the start of the time series in 1995. EU employment fell 2.7 % in the second quarter of 2020, followed by an increase of 0.9 % in the third quarter. To put these changes into some context, the biggest contraction in the number of persons in employment during the global financial and economic crisis was recorded in the first quarter of 2009, when there was a fall of 0.7 % in the EU. For hours worked, changes were generally even more important than for GDP (see Section 3.6).

There was a sizeable rebound in GDP and employment during the third quarter of 2020, although neither returned to their pre-crisis levels. This rebound could be associated with governments relaxing (at least in part) containment measures, as the virus was generally less prevalent in the EU during the summer months.

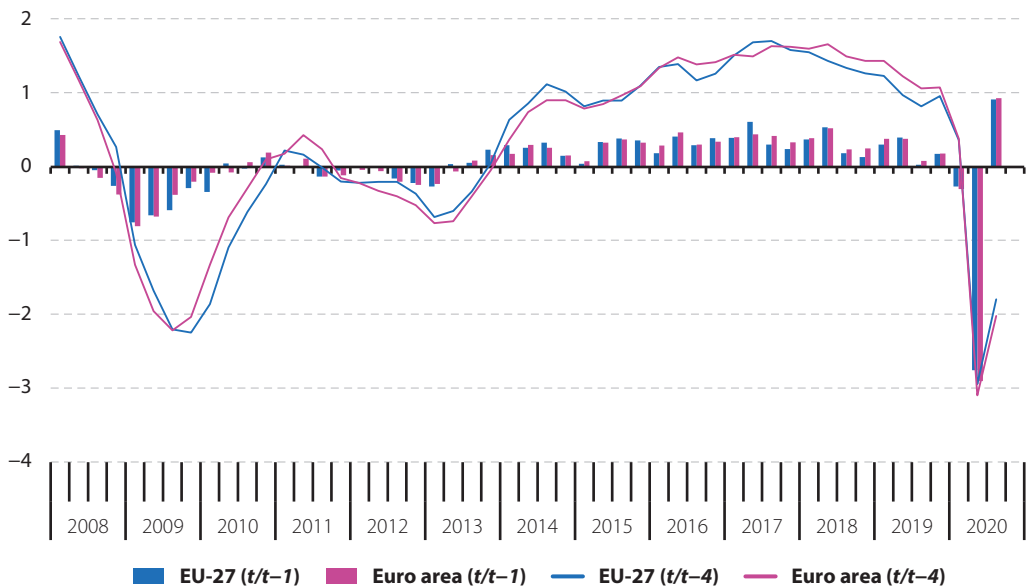
**Figure 1: GDP growth rates, first quarter 2008-third quarter 2020**  
(% change, based on seasonally and calendar adjusted data)



Note: growth rates compared with the previous quarter and compared with the same quarter of the previous year — as presented in this figure — are generally based on seasonally and calendar adjusted figures since unadjusted data are usually not transmitted for the compilation of GDP flash estimates.

Source: Eurostat (online data code: [namq\\_10\\_gdp](#))

**Figure 2: Employment rates of change, first quarter 2008-third quarter 2020**  
(% change, based on seasonally and calendar adjusted data for t/t-1 and on unadjusted data for t/t-4)



Source: Eurostat (online data code: [namq\\_10\\_a10\\_e](#))

### 3.2. Stable processes for regular GDP and employment estimates

Flash estimates for EU and euro area GDP and employment statistics are compiled and published by Eurostat about 30 (for GDP) and 45 (for employment) days after the end of each reference quarter. These are based on voluntary contributions from EU Member States. There was some concern that the usual contributions to these flash estimates could suffer during the COVID-19 crisis. However, this was not the case. During the early months of the crisis, contributions to Eurostat's flash estimates remained the same (as prior to the crisis). In fact, the situation improved in the second quarter of 2020 when Czechia, Germany and Portugal also started to publish GDP estimates at  $t+30$  days. Eurostat therefore published flash GDP estimates for 10 EU Member States, namely Belgium, Czechia, Germany, Spain, France, Italy, Latvia, Lithuania, Austria and Portugal in the news release for the second quarter of 2020, which was very positively received by users, while also providing enhanced information on the impact of the COVID-19 crisis on national economies.

For the regular data transmission schedule foreseen for national accounts statistics ( $t+2$  months), timeliness and completeness were also respected overall. Regarding the compilation of these European aggregates, no changes in methods were implemented. In other words, the European aggregates continued to be calculated with the data provided by the NSIs, using imputation methods when information was missing. All of Eurostat's estimates for GDP, as well as its main aggregates and employment data, were published on time, in accordance with the pre-announced release schedule for quarterly estimates of national accounts.

Across the EU Member States and EFTA countries, there was a varied picture in terms of how individual NSIs adapted to the COVID-19 crisis. Starting with the first quarter of 2020, Eurostat collected metadata in line with the guidance provided. Due to time constraints, the collection of metadata for QNA remains rather limited and covers only the main aspects. However, the metadata that were available were greatly appreciated by users and ensured that transparency concerning the effects of the crisis on national accounts was achieved. The latest available metadata provide an important source of information for interpreting national accounts; they are presented on [Eurostat's website](#) <sup>(3)</sup>. A Statistics Explained article on the impact of COVID-19 was also published <sup>(4)</sup>.

### 3.3. Reliability of GDP estimates during the COVID-19 crisis

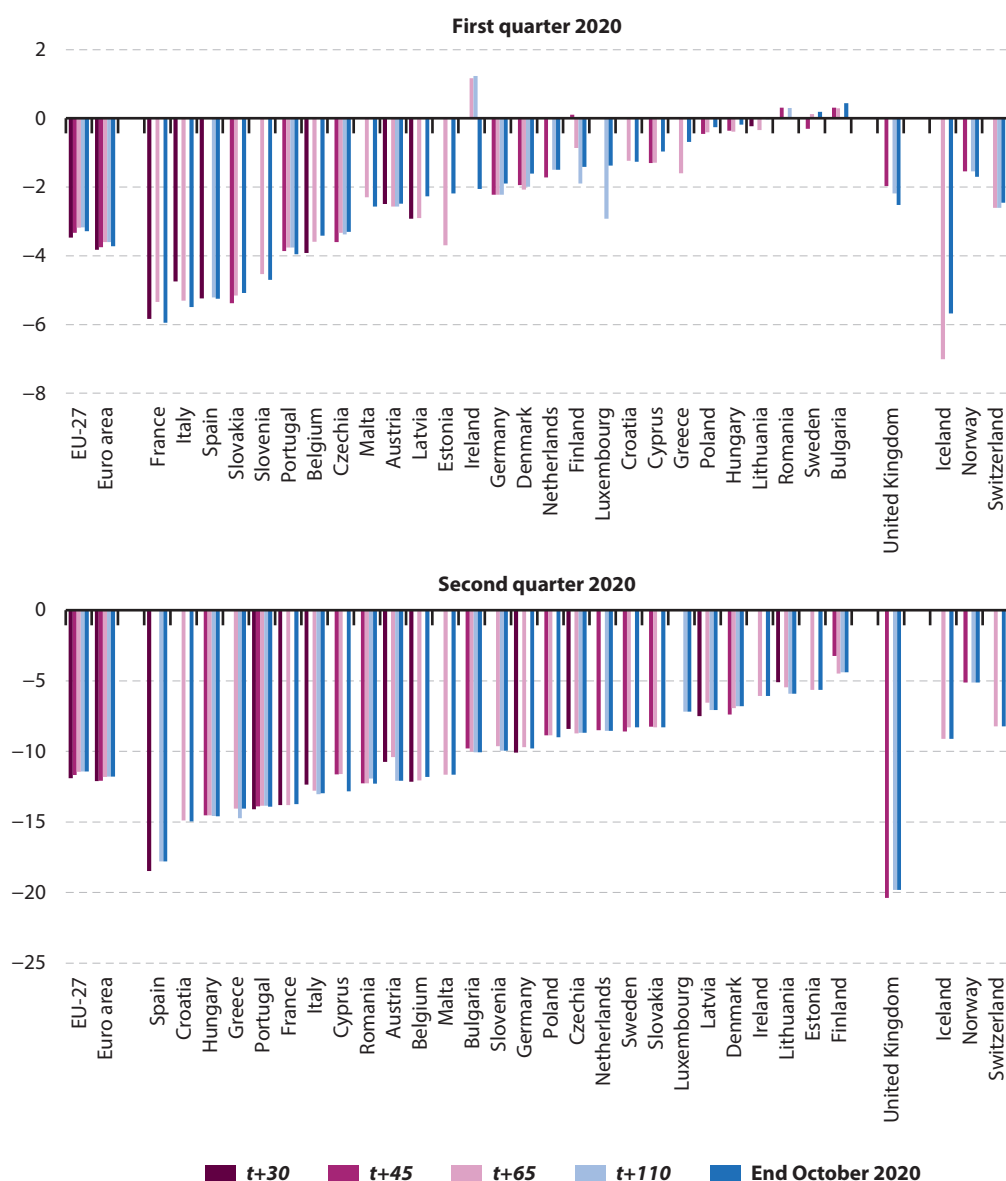
Since GDP is the most prominent indicator of economic activity, quarterly GDP growth estimates receive a lot of attention. As flash estimates, in particular, are based on incomplete information and often (partly) rely on econometric models, their reliability during the COVID-19 crisis was another source of concern. However, GDP estimates remained quite reliable during the first two quarters of 2020, not only for European aggregates but also for most EU Member States and EFTA countries. The graphs below show the developments of GDP estimates for the first and second quarters of 2020 at different points in time, in other words for different 'vintages' of the same data, detailing the data as released at  $t+30$  days,

<sup>(3)</sup> Country specific metadata for the first quarter of 2020; country specific metadata for the second quarter of 2020; country specific metadata for the third quarter of 2020.

<sup>(4)</sup> See: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Impact\\_of\\_COVID-19\\_on\\_main\\_GDP\\_aggregates\\_including\\_employment](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Impact_of_COVID-19_on_main_GDP_aggregates_including_employment).

**Figure 3: GDP growth rates for different 'data vintages'**

(% change compared with previous quarter, based on seasonally and calendar adjusted data)

Source: Eurostat (online data code: [namq\\_10\\_gdp](#))

$t+45$  days,  $t+65$  days,  $t+110$  days and the end of October 2020. While absolute revisions were somewhat higher (than typical in the past), relative revisions were limited. For instance in the first quarter of 2020, the euro area rate of change for GDP (based on a comparison with the previous quarter) was revised from  $-3.8\%$  at  $t+30$  days to  $-3.7\%$  by the end of October 2020; for the EU the corresponding revision was from  $-3.5\%$  to  $-3.3\%$ . For most countries, GDP estimates also remained relatively stable across different vintages of data, with only a few countries showing larger revisions or a change in sign. For the second quarter of 2020, revisions were even more limited, although it should be noted that for both of these reference periods it is possible that further revisions could still be introduced in future.

While the above analysis shows that the COVID-19 crisis resulted in falling levels of GDP in most countries in the first quarter of 2020 and all of the countries in the second quarter of 2020, a more detailed analysis for specific expenditure aggregates reveals that there were some marked differences in terms of how the crisis impacted individual countries.

### 3.4. Analysis of main expenditure aggregates for the first quarter of 2020

The analysis presented in Sections 3.4-3.6 for the first and second quarters of 2020 is based on regular estimates.

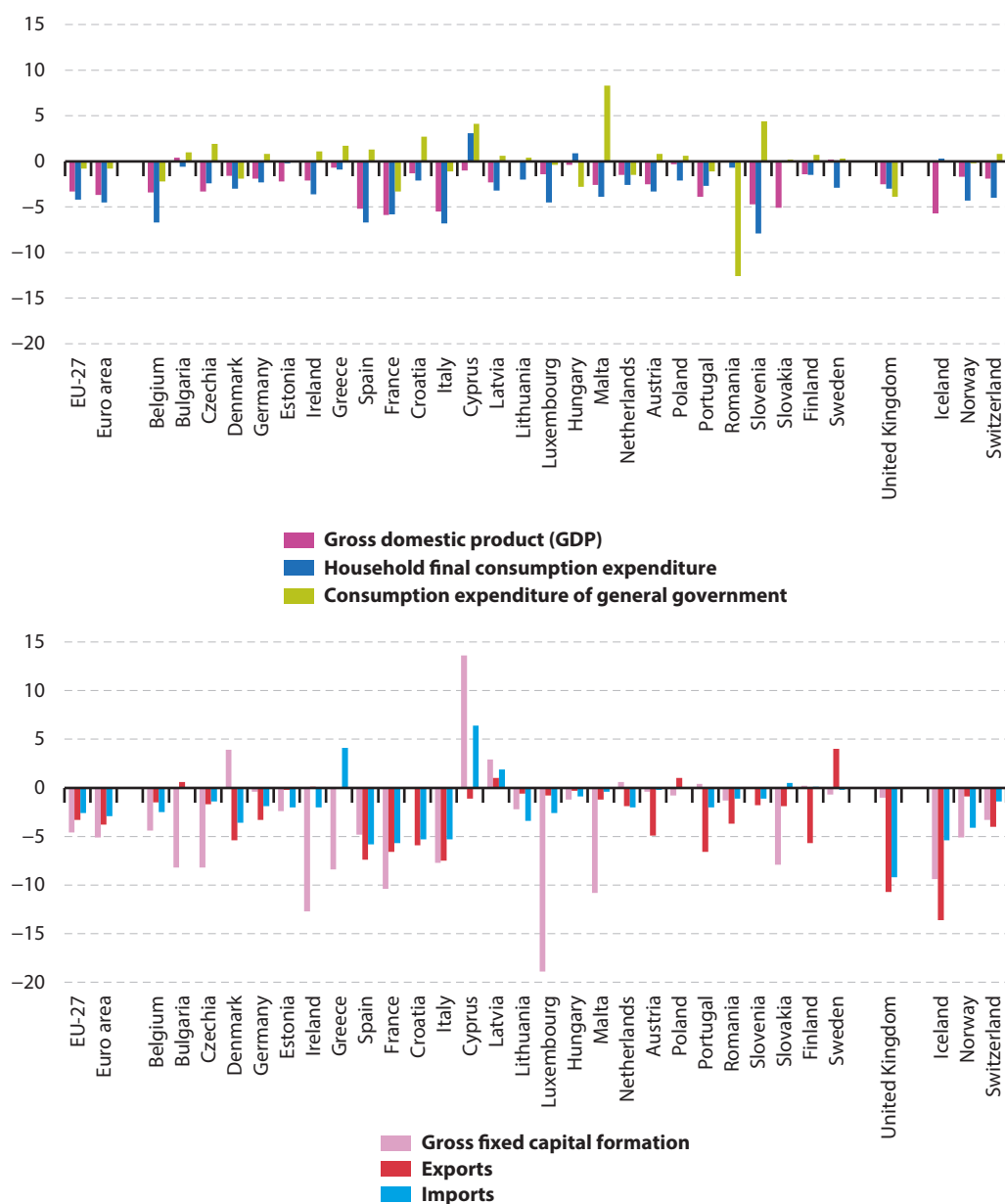
In the first quarter of 2020, the fall in household final consumption expenditure was greater in magnitude than the fall in GDP in most countries. This pattern reflected the implementation of restrictions on mobility and the closure of many (often non-essential) retail outlets and other businesses (such as hotels, restaurants and bars) during March 2020 with the aim of containing the spread of COVID-19. There was a mixed picture for the development of consumption expenditure of general government, with significant differences between countries. For the other main expenditure items — gross-fixed capital formation, exports and imports — there were significant decreases in activity during the first quarter of 2020 in most countries, with all three negatively impacted by the COVID-19 crisis.

### 3.5. Analysis of main expenditure aggregates for the second quarter of 2020

While compilers of national accounts gained important experience in dealing with the impact of the COVID-19 crisis during the first quarter of 2020, the largest impact in the early months of the crisis was generally felt during the second quarter of 2020. This pattern was apparent for most expenditure aggregates and for a majority of the countries, despite the gradual easing of some government containment measures towards the end of the second quarter. While the level of activity fell (often dramatically) in the second quarter of 2020 for GDP, household final consumption expenditure, gross fixed capital formation, imports and exports, there was a different development for consumption expenditure of general government, which increased in some countries and fell in others.

**Figure 4: Impact of the COVID-19 crisis on GDP and the main expenditure aggregates, first quarter of 2020**

(% change compared with previous quarter, based on seasonally and calendar adjusted data)

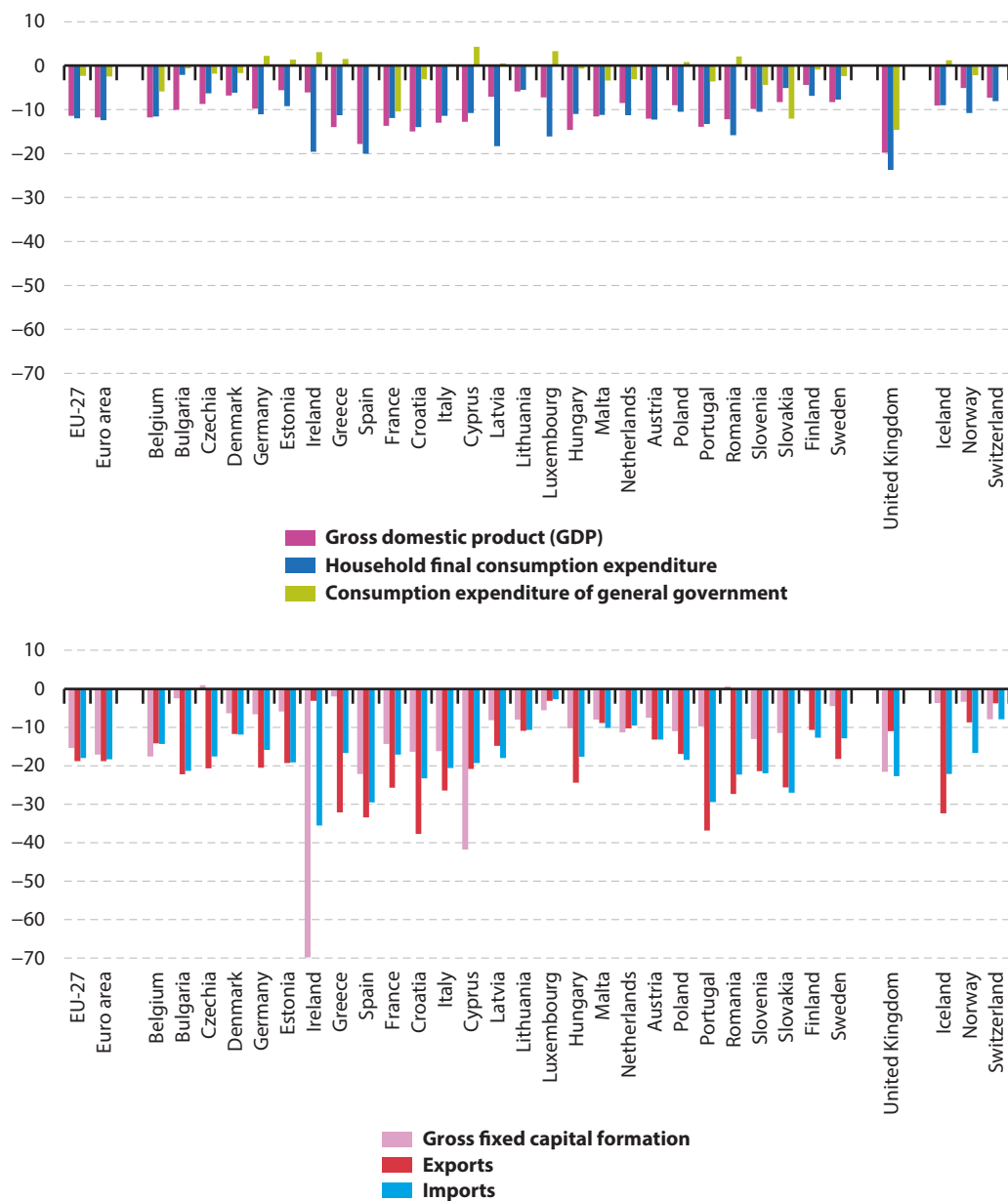


Source: Eurostat (online data code: [namq\\_10\\_a10\\_e](#))



**Figure 5: Impact of the COVID-19 crisis and its associated containment measures on GDP and the main expenditure aggregates, second quarter of 2020**

(% change compared with previous quarter, based on seasonally and calendar adjusted data)



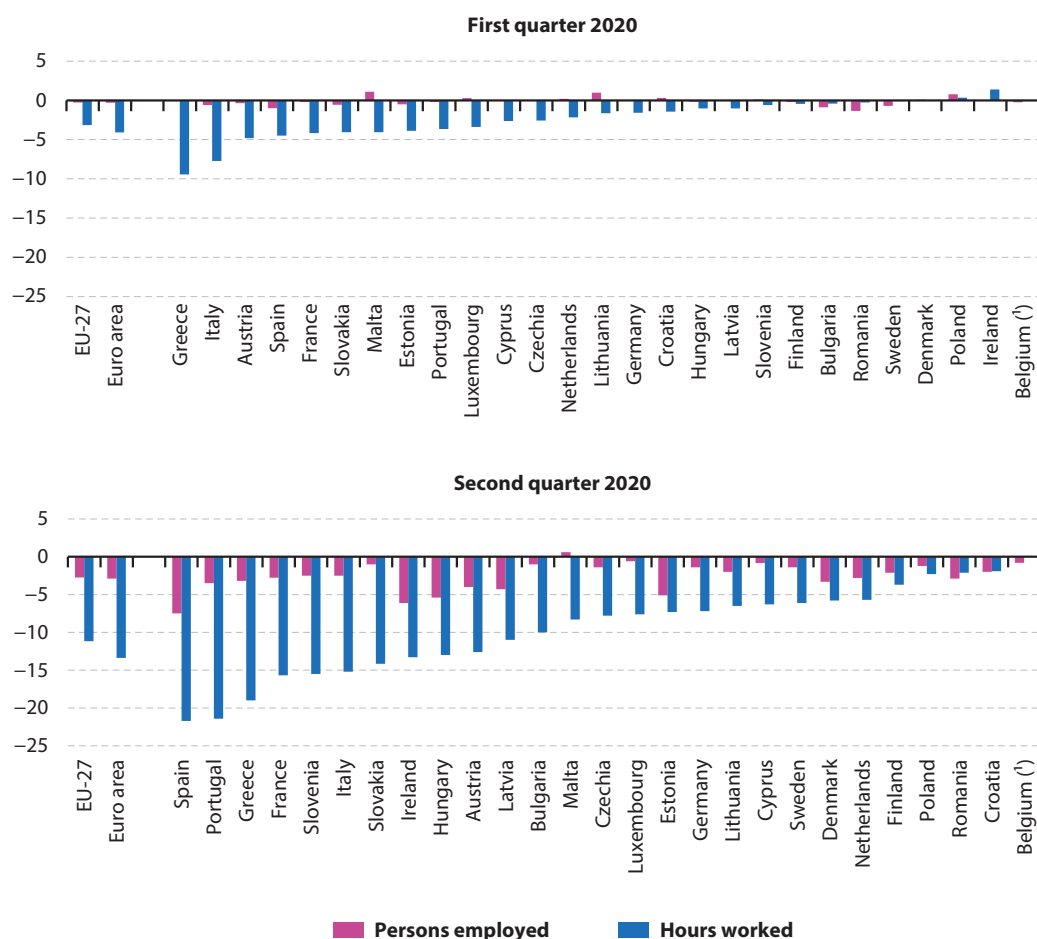
Source: Eurostat (online data code: [namq\\_10\\_gdp](#))

### 3.6. Employment estimates during the COVID-19 crisis

The final part of this section concerns an analysis of employment estimates from national accounts. There was little or no impact on the release of employment estimates for the EU due to the crisis. Subsequent revisions of employment statistics for European aggregates were limited.

However, in both the first and second quarters of 2020 there was a very large impact from the COVID-19 crisis on the number of hours worked in the EU. Indeed, this indicator fell to its lowest level since the start of the time series in 1995 for both the euro area and the EU. This was in contrast to the number of persons in employment, as government support measures sought to preserve employment during the crisis. The figures presented below show the initial impact of the crisis varied considerably across the EU Member States in the first quarter of 2020, whereas both measure of labour input — the number of persons in employment and the number of hours worked — declined in the second quarter of 2020 (except for a slight increase in the number of persons in employment in Malta).

**Figure 6: Impact of the COVID-19 crisis on labour input**  
(% change compared with previous quarter, based on seasonally adjusted data)



(\*) Hours worked: confidential.

Source: Eurostat (online data code: [namq\\_10\\_a10\\_e](#))

## 4. Experience with estimates for quarterly sector accounts

Overall, the transmission of quarterly sector accounts (QSA) data during the COVID-19 crisis was very positive in terms of timeliness and coverage, given the circumstances. From the beginning of the COVID-19 crisis, Eurostat and the NSIs cooperated closely to safeguard the timeliness and quality of QSA.

Based on the discussions of possible issues and solutions with NSIs, Eurostat released a first set of guidance notes on COVID-19 related compilation processes for quarterly sector accounts. These included notes on QSA compilation (Eurostat (2020h)) and QSA transmission (Eurostat (2020d)) – see Section 2.5 for more details.

Together with the transmission of data for reference periods covering the first and second quarters of 2020, EU Member States also provided specific ad-hoc metadata related to the impact of COVID-19 crisis on sector accounts. These metadata described the main government support schemes in the context of the COVID-19 crisis and their classification within sector accounts, the availability of data sources and possible adaptations needed in methods, as well as an assessment of the overall impact of the COVID-19 crisis on the quality of results and expected revisions for the latest reference period.

According to the information received, a majority of EU Member States had put in place government schemes to support various enterprises and households by the end of March 2020. These schemes had a limited impact during the first quarter of 2020 for the majority of Member States but a larger one in the second quarter of 2020.

The vast majority of NSIs had access to their regular data sources for compiling quarterly sector accounts and were therefore able to use their standard estimation methods, even if for seasonal adjustment there was a need to make adjustments — in accordance with Eurostat's guidelines — for outliers in the latest quarter of specific time-series. In certain cases, the data availability for some variables was lower (than historically) and estimation methods had to be adapted accordingly.

For certain variables (for example, taxes and social contributions), it was expected that subsequent routine revisions might be larger than usual, as a result of the support schemes put in place by EU Member States. Based on the above, quarterly sector accounts for the first and second quarters of 2020 were considered to be of the same quality as usual in a majority of Member States. However, there were some Member States where the availability of data sources had an adverse impact on the overall quality of the QSA.

Metadata provided by compilers of QSA were greatly appreciated by users as they helped to understand better the recording of transactions within the sector accounts that were directly or indirectly impacted by the COVID-19 crisis, as well as to understand the impact on quality aspects of the QSA. The latest available metadata related to the impact of the COVID-19 crisis on the compilation of sector accounts are presented on [Eurostat's website](#) <sup>(5)</sup>.

<sup>(5)</sup> Country specific metadata for the second quarter of 2020.

Eurostat also prepared a Statistics Explained article explaining the impact of the COVID-19 crisis on QSA for the first quarter of 2020, which was subsequently updated to include the second quarter of 2020 <sup>(6)</sup>.

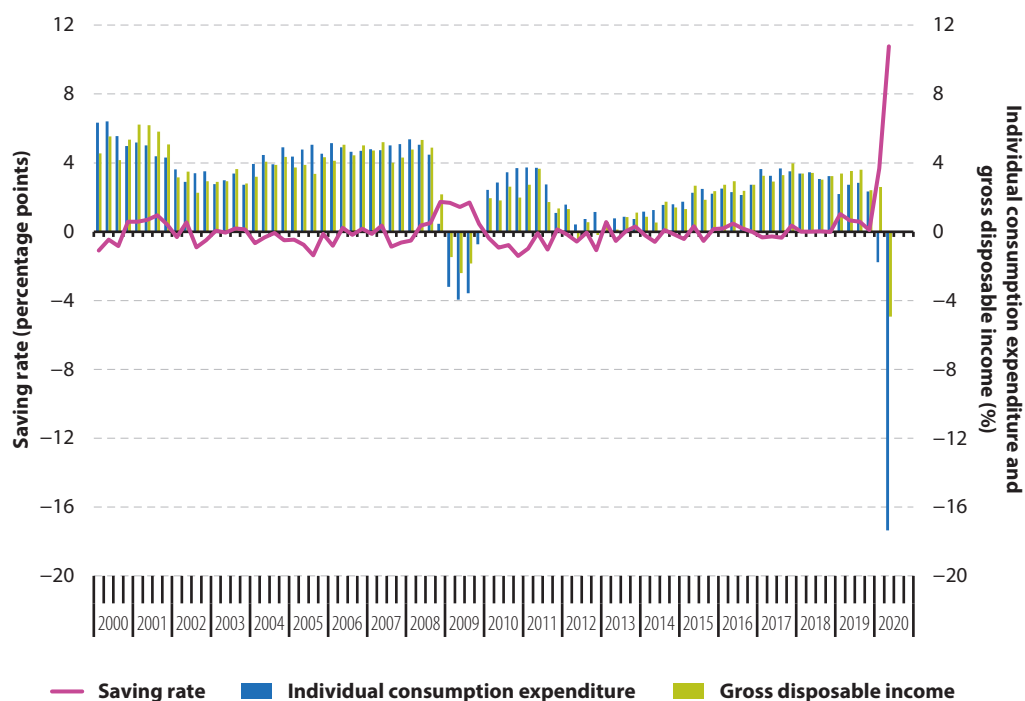
The two sections below provide an analysis of the impact of the COVID-19 crisis on quarterly sector accounts for the first and second quarters of 2020, detailing the latest developments for households and for non-financial corporations.

## 4.1. Households' gross disposable income, saving rate and investment rate

In the second quarter of 2020, the EU household saving rate recorded its highest increase compared with the same quarter of the previous year since the beginning of the time series in 1999. The EU household saving rate was 10.8 percentage points higher in the second quarter of 2020 than it had been in the second quarter of 2019. The main reason behind this change was the pronounced decrease in the level of household final consumption expenditure (–17.3 %), in stark contrast to relatively stable increases recorded every quarter during the period 2016–2019 (all within the range of 2–4 %; see Figure 7).

**Figure 7: Development of the household saving rate, final consumption expenditure and gross disposable income, EU-27, first quarter 2000–second quarter 2020**

(% change compared with the same quarter of the previous year, based on non-seasonally adjusted data)



Source: Eurostat (online data codes: nasq\_10\_ki and nasq\_10\_nf\_tr)

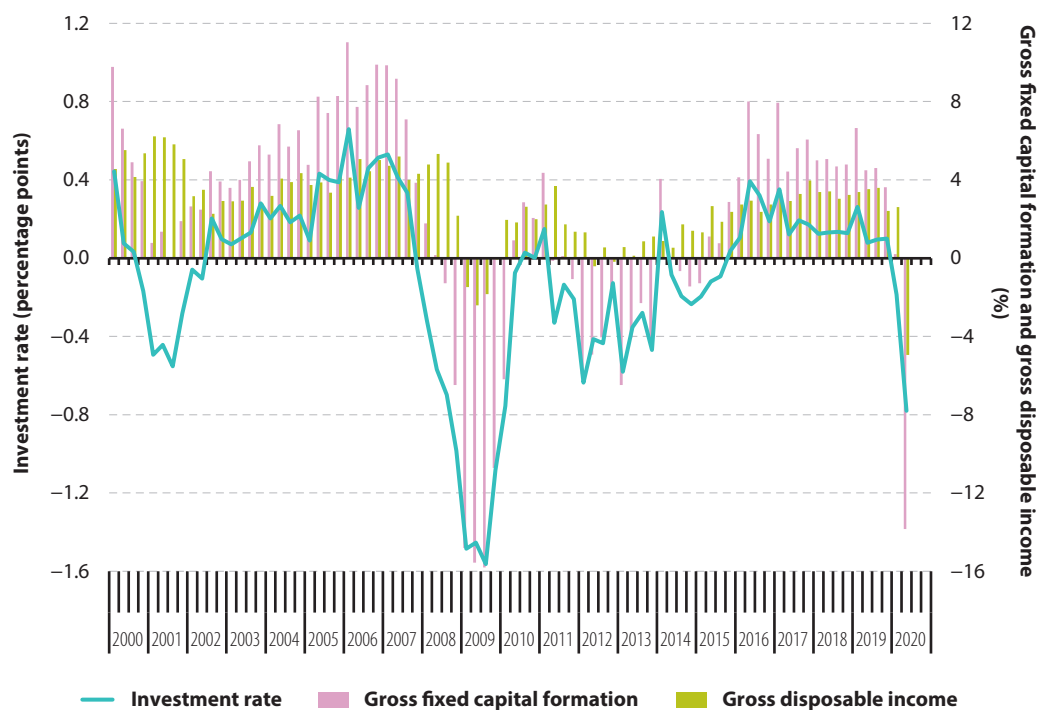
<sup>(6)</sup> See: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Impact\\_of\\_Covid-19\\_crisis\\_on\\_non-financial\\_corporation\\_and\\_household\\_accounts](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Impact_of_Covid-19_crisis_on_non-financial_corporation_and_household_accounts).

EU household gross disposable income continued to increase in the first quarter of 2020 (up 2.6 % when compared with the same quarter of a year before); this continued a pattern of positive rates apparent back to the first quarter of 2013. However, in the second quarter of 2020 there was a rapid contraction in gross disposable income, as it fell by 4.9 %; this was the largest contraction recorded since the start of the time series.

In the EU, the household investment rate decreased 0.2 percentage points in the first quarter of 2020. The rate of change accelerated in the second quarter of 2020, when there was a further fall in this rate (down –an additional 0.8 percentage points to 7.8 %). The declining household investment rate in the second quarter of 2020 is explained by the fall in household gross fixed capital formation (down 13.8 %) being considerably larger than the decrease in gross disposable income of households (see Figure 8).

**Figure 8: Development of the household investment rate, gross fixed capital formation and gross disposable income, EU-27, first quarter 2000-second quarter 2020**

(% change compared with the same quarter of the previous year, based on non-seasonally adjusted data)

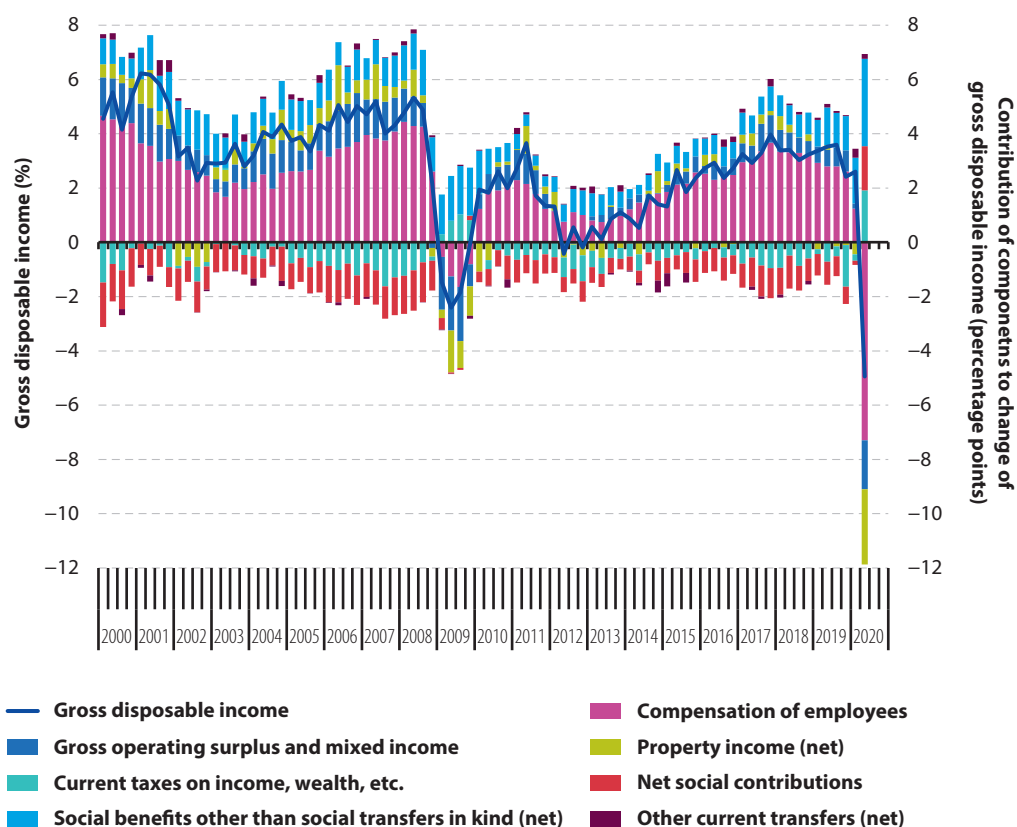


Source: Eurostat (online data codes: [nasq\\_10\\_ki](#) and [nasq\\_10\\_nf\\_tr](#))

EU household gross disposable income was 4.9 % lower in the second quarter of 2020 (than it had been in the second quarter of 2019). The main driver behind this change was the compensation of employees (down 7.3 percentage points), together with smaller contributions from falling property income and falling gross operating surplus and mixed income.

This latest development — falling EU household gross disposable income — was in contrast to the general pattern of rising income that had been witnessed during the vast majority of quarters since the start of the time series in 1999 (other than during the global financial and economic crisis; see Figure 9). There was also an abrupt change to the contributions of different components to the change in household gross disposable income. For example, previously the compensation of employees had generally made the largest positive contribution to changes in household gross disposable income and net social contributions had often made the largest negative contributions, but this pattern was reversed in the second quarter of 2020 (see Figure 9).

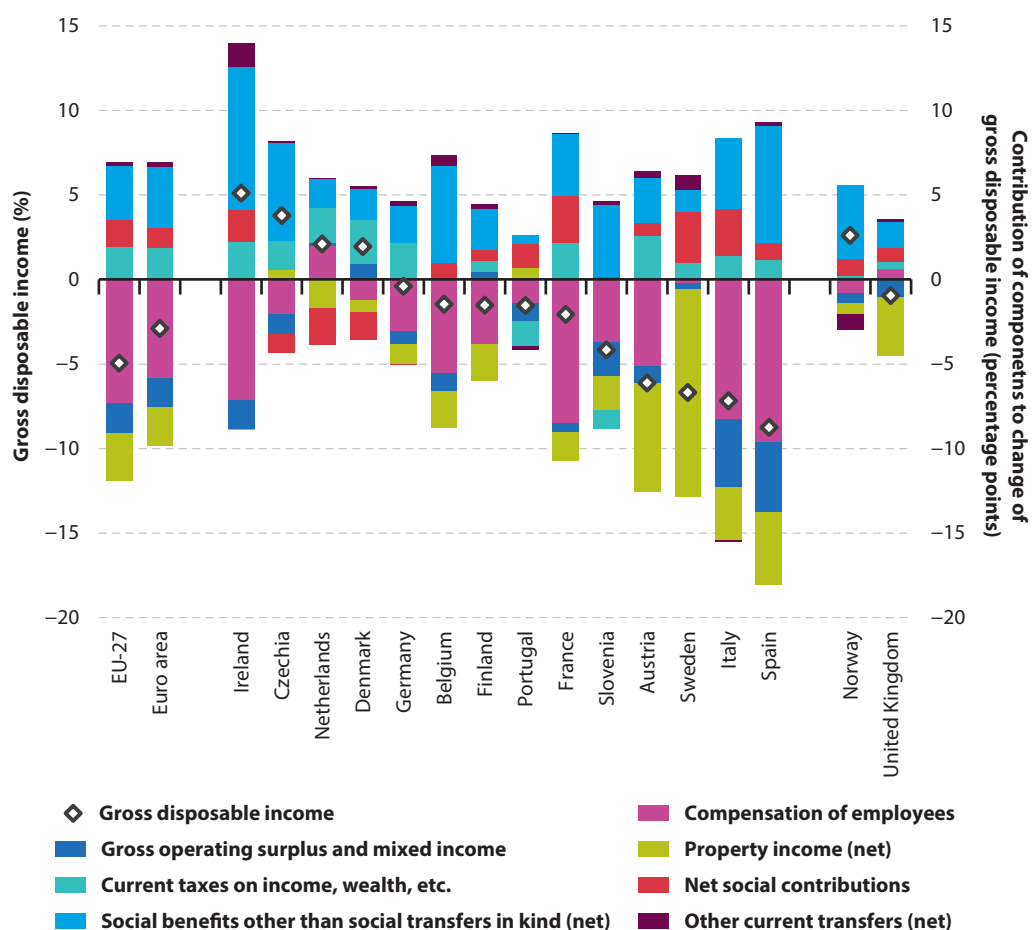
**Figure 9: Contribution of components to the change in household gross disposable income, EU-27, first quarter 2000-second quarter 2020**  
(% change compared with the same quarter of the previous year, based on non-seasonally adjusted data)



Source: Eurostat (online data codes: [nasq\\_10\\_ki](#) and [nasq\\_10\\_nf\\_tr](#))

Between the second quarter of 2019 and the second quarter of 2020, household gross disposable income increased in four of the EU Member States for which data are available (see Figure 10). The largest increases were recorded in Ireland (up 5.1 %) and Czechia (up 3.8 %). Among the other Member States — where household gross disposable income fell between the second quarter of 2019 and the second quarter of 2020 — the largest decreases were recorded in Spain (down 8.8 %), Italy (down 7.2 %), Sweden (down 6.7 %) and Austria (down 6.1 %). In the majority of Member States, the change in the gross disposable income of households was mainly explained by the development of the compensation of employees (contributing negatively) and social benefits other than transfers in kind (contributing positively).

**Figure 10: Contribution of components to the change in household gross disposable income, second quarter 2019-second quarter 2020**  
(% change compared with the same quarter of the previous year, based on non-seasonally adjusted data)



Source: Eurostat (online data codes: nasq\_10\_ki and nasq\_10\_nf\_tr)

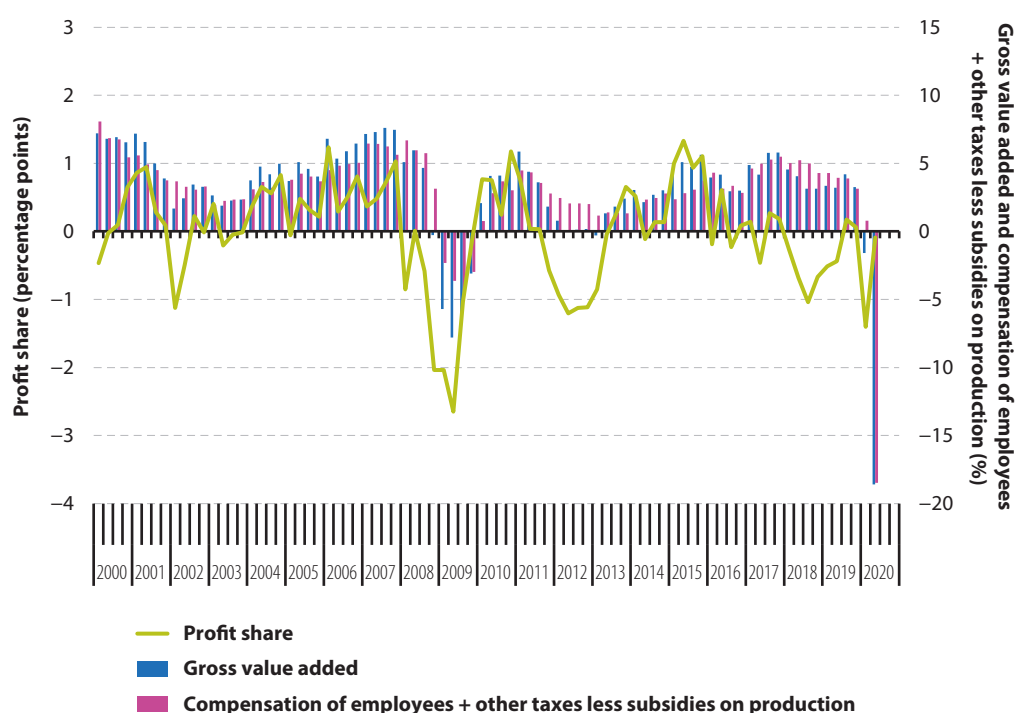
## 4.2. Non-financial corporations' gross operating surplus, profit share and business investment rate

Since the start of the time series, the development of the EU profit share for non-financial corporations fluctuated considerably. The most marked contractions could be linked to the global financial and economic crisis (in particular during 2008 and 2009).

Having fallen by 1.4 percentage points in the first quarter of 2020 (compared with the first quarter of 2019) the EU profit share for non-financial corporations fell by a further 0.1 percentage points in the second quarter of 2020. This modest decline could be explained by the compensation of employees and other taxes less subsidies on production falling by 18.5 %, which almost cancelled out the substantial fall in gross value added (down 18.6 %), see Figure 11.

**Figure 11:** Development of the non-financial corporation profit share, gross value added and the compensation of employees and other taxes less subsidies on production, EU-27, first quarter 2000-second quarter 2020

(% change compared with the same quarter of the previous year, based on non-seasonally adjusted data)

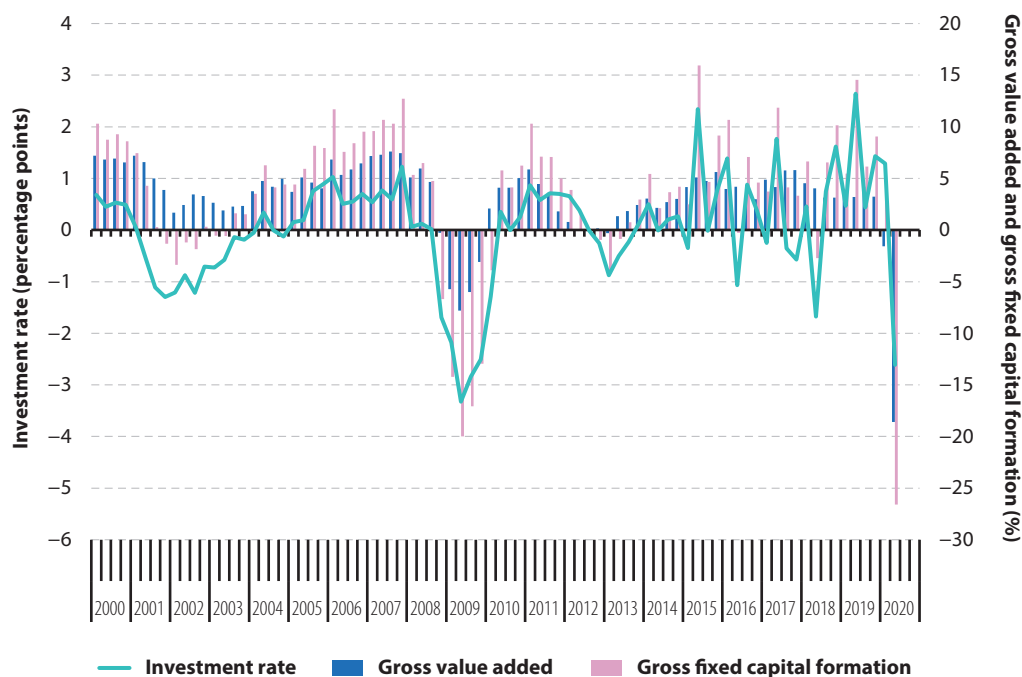


Source: Eurostat (online data codes: [nasq\\_10\\_ki](#) and [nasq\\_10\\_nf\\_tr](#))



The business investment rate of EU non-financial corporations was 24.0 % in the second quarter of 2020 having decreased by 2.6 percentage points compared with the second quarter of 2019. This downward path could be largely attributed to falling levels of gross fixed capital formation in most of the EU Member States, and in particular in Ireland. If the latest data for Ireland are excluded from the analysis, then the (rest of the) EU's business investment rate for non-financial corporations would have remained almost unchanged, as similar falls for gross value added and gross fixed capital formation (both down by around 20 %) would have all but cancelled each other out, see Figure 12.

**Figure 12: Development of the non-financial corporation investment rate, gross value added and gross fixed capital formation, EU-27, first quarter 2000-second quarter 2020**  
(% change compared with the same quarter of the previous year, based on non-seasonally adjusted data)

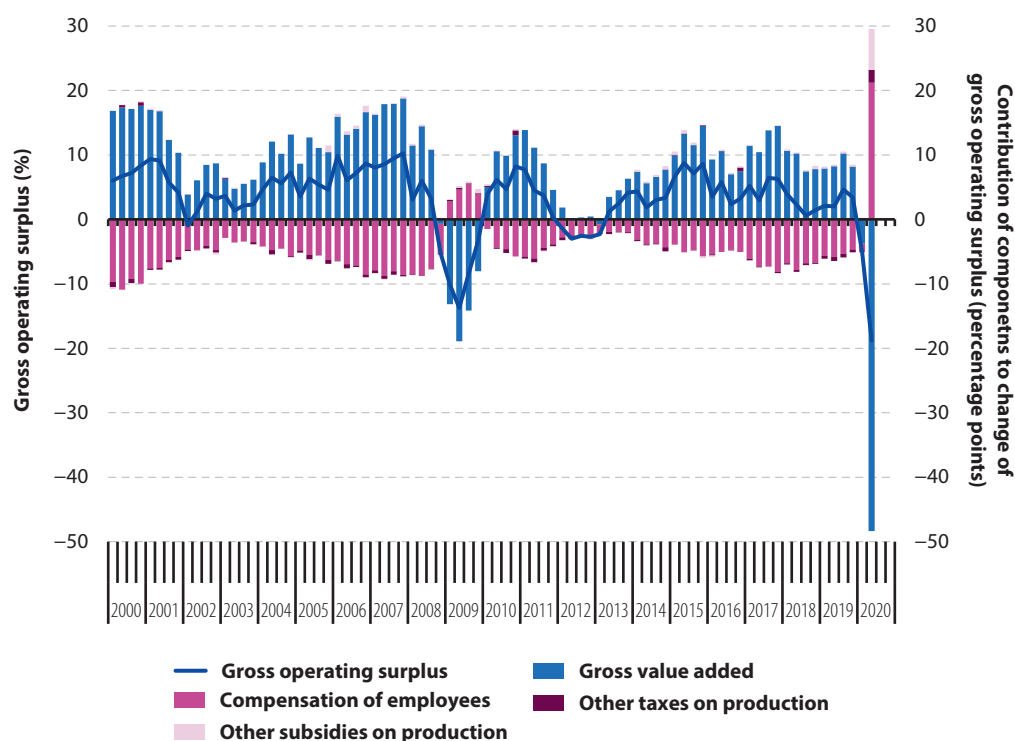


Source: Eurostat (online data codes: [nasq\\_10\\_ki](#) and [nasq\\_10\\_nf\\_tr](#))

In the second quarter of 2020, the EU gross operating surplus for non-financial corporations decreased by 18.8 % (compared with the same quarter of a year before). This was the largest decrease recorded since the beginning of the time series and marked a considerable acceleration in the rate at which the gross operating surplus was declining (as it had fallen by 4.9 % in the first quarter of 2020). The main contributory factor behind this change was the sizeable negative contribution of gross value added (which normally has a positive impact on the operating surplus). Gross value added of non-financial corporations in the EU was down by 48.4 % between the second quarter of 2019 and the second quarter of 2020. Conversely, both the compensation of employees (whose contribution is normally negative) and subsidies on production contributed positively, but they did not compensate fully for the reduction in gross value added (see Figure 13).

**Figure 13: Contribution of components to the change in non-financial corporations gross operating rate, first quarter 2000-second quarter 2020**

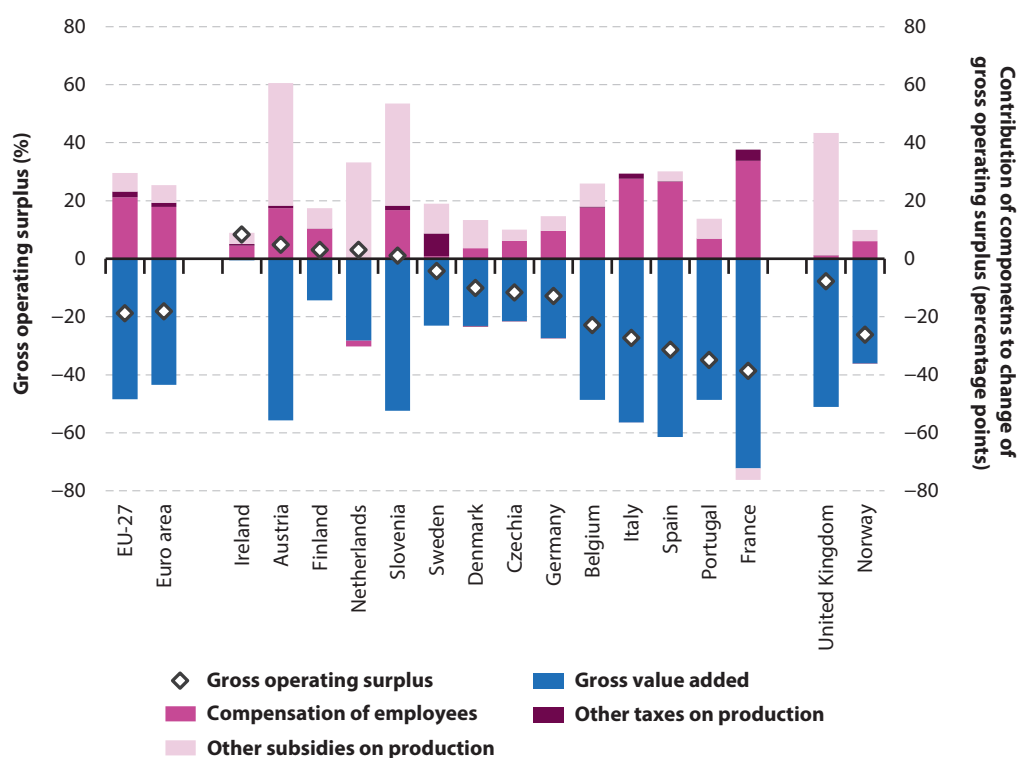
(% change compared with the same quarter of the previous year, based on non-seasonally adjusted data)



Source: Eurostat (online data codes: [nasq\\_10\\_ki](#) and [nasq\\_10\\_nf\\_tr](#))

There were 10 EU Member States (among the 15 for which data are available) which experienced a decrease in the gross operating surplus of their non-financial corporations in the second quarter of 2020 (when compared with the second quarter of 2019). The largest contractions were recorded in France (down 38.6 %), Portugal (down 34.8 %) and Spain (down 31.4 %), with each of these Member States registering a substantial fall in their gross value added (see Figure 14) which was partially offset by a reduction in the compensation of employees. On the other hand, there were five Member States which recorded an increase in the gross operating surplus of their non-financial corporations in the second quarter of 2020. The highest increases were recorded in Ireland (up 8.4 % compared with the second quarter of 2019) and Austria (up 4.9 %).

**Figure 14: Contribution of components to the change in non-financial corporations gross operating surplus, second quarter 2019-second quarter 2020**  
(% change compared with the same quarter of the previous year, based on non-seasonally adjusted data)



Source: Eurostat (online data codes: [nasq\\_10\\_ki](#) and [nasq\\_10\\_nf\\_tr](#))

## 5. Importance of further analysis and use of guidance

The COVID-19 crisis has affected key national accounts aggregates in unprecedented ways. On the positive side, the compilation of quarterly national accounts for the EU Member States and EFTA countries continued to function rather smoothly. Contributions to Eurostat's releases remained reliable in terms of timeliness and coverage. Early GDP and employment estimates have shown — so far — limited revisions over time, even though a lower reliability of estimates was initially expected in most countries (resulting from the impact of the COVID-19 crisis). More significant revisions can notably be expected when annual estimates for 2020 are based on more comprehensive source data than quarterly national accounts.

On the other hand, an analysis of detailed aggregates reveals some divergence in the impact of the COVID-19 crisis on specific estimates, for example the development of government consumption. Besides genuine differences in the impact of the COVID-19 crisis on government activities across EU Member States and EFTA countries, these variations could also partly reflect differences in the sources and methods used to obtain volume estimates of specific non-market services, notably for health and education services, which has some effect on the comparability of estimates. As the crisis develops, Eurostat and NSIs will continue to analyse estimates carefully in terms of reliability and comparability, aiming to draw lessons and further improve and harmonise estimates, where needed, in line with the guidance provided.

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