# Employment by ESA 2010

| 1 Contact | |
|---|---|
| **1.1 Organization** | Statistical Office of the Slovak Republic |
| **1.2 Address** | Lamačská cesta 3/C, 840 05 Bratislava |
| **1.3 Contact name** | Peter Čirka |
| **1.4 Organization unit** | Department of Analyses and Syntheses of National Accounts |
| **1.5 Phone number** | +421 2 50236 335; +421 2 50236 339 |
| **1.6 Email address** | info@statistics.sk |

| 2 Metadata update | |
|---|---|
| **2.1 Date of last update** | 05.05.2022 |

## 3 Statistical presentation

### 3.1 Data description

National accounts data refer to all data generated and disseminated for the economy according to the definitions and guidelines of the European System of Accounts ( ESA 2010 ).
National accounts provide data for the whole economy, but may also include a breakdown of the total economy (into sectors, industries, products, regions, etc.). National accounts provide data for several domains: annual and quarterly national accounts (main aggregates), sector accounts, financial accounts, supply and use tables and input-output tables, regional accounts, public finance statistics, employment and hours worked.
Data on employment in the domestic and national concept of ESA 2010, broken down into employees and self-employed persons and the total hours worked by employed persons are published in the domain **Employment according to ESA 2010**.
In the European database Eurobase there are country data presented in a standard data structure. The Statistical Office of the Slovak Republic (SO SR) publishes data in the database " DataCube " on its website.

### 3.2 Classification system

The statistical classification of economic activities (SK NACE Rev. 2).

### 3.3 Sector coverage

National accounts describe the country's overall economy. They include all economic activities and size categories of institutional units. The most important breakdowns are the breakdowns by institutional sectors of ESA 2010 and the breakdown by economic activities of NACE Rev. 2.

## 3.4 Statistical concepts and definitions

All statistical terms and definitions used in national accounts are described in Annex A of EU Regulation 549/2013 (ESA 2010 methodology).

**Total employment** includes the employees and self-employed persons who are engaged in productive activities that fall within the production boundary of the national accounts. The total employment is compiled by a balancing method based on comparison and reconciliation of data on the supply side of labour force (represented by Labour force survey data – LFS) with the demand for labour force (represented by statistical business surveys) so that they comply with the ILO and ESA 2010 definitions.

According to ESA 2010 the employment in domestic concept includes residents and non-residents working for resident institutional units. The data obtained from business statistical surveys are reported in this concept. For the sake of comparability, LFS data (collected in the national concept) are adjusted for items such as the number of residents working abroad, non-residents working in the Slovakia, employees from collective households, persons on parental leave etc.

**Total hours worked** represents the aggregate number of hours actually worked by an employee or self-employed person during the accounting period, when their output falls within the production boundary of national accounts. The number of hours actually worked excludes hours paid for but not worked, such as paid annual leave, paid public holidays, paid sick leave, meal breaks, etc.

The following data tables are published for the **Employment by ESA 2010** section in the DataCube database domain *Macroeconomic Statistics – National Accounts*:

**Employment by ESA 2010 –> 2.1.5.1 Quarterly data – tables from SLOVSTAT**

- Total employment (ESA 2010) by branches of NACE Rev.2 (nu2042qs)
- Hours worked of employed persons (ESA 2010) by branches of NACE Rev.2 (nu2047qs)
- Employees (ESA 2010) by branches of NACE Rev.2 (nu2050qs)

**Employment by ESA 2010 –> 2.1.5.2 Annual data**

- Population and employment – national concept (nu1024rs)
- Employment by industry A10 – domestic concept (nu1025rs)
- Employment by industry A88 – domestic concept (nu1057rs)

## 3.5 Statistical unit

The national economy is defined in terms of resident statistical units (institutional units or local KAU). A unit is a resident unit of a country when it has its centre of main economic interest in the economic territory of this country, that is, when it has been engaged in economic activities in this territory for a long time (one year or more).

National accounts are exhaustive. This means that they include all resident statistical units of the Slovak Republic in terms of sectoral breakdown according to the ESA 2010 methodology (enterprises, public administration institutions, non-profit institutions, households, self-employed persons, etc.).

## 3.6 Statistical population

Reference population for emplyoment data is the overall economy of the country.

*Employment in domestic concept* includes residents and non-residents working for resident units.

*Employment in national concept* includes residents working for resident and non-resident units.

## 3.7 Reference area

Reference area for employment data is the overall economy of the Slovak Republic.

### 3.8 Time coverage

The ESA 2010 transmission programme generally requires annual and quarterly data from year1995. In the Datacube database, the annual employment indicators are published for the period from year 1995 onwards. Quarterly employment indicators are published for the period from 1.Q.1995 onwards.

### 3.9 Base period

The term ‘base period’ does not apply by the employment indicators.

## 4 Unit of measure

The employment data are expressed in persons.
The data for hours worked are expressed in thousand hours.
The indexes are given in relation to the same period of the previous year (YoY).

## 5 Reference period

The reference period for annual data is a calendar year.
The reference period for quarterly data is a quarter of the calendar year.

## 6 Institutional mandate

### 6.1 Legal acts and other agreements

**At European level:**
The national accounts are compiled in accordance with the methodology of the European System of National Accounts (ESA 2010), which is Annex A to Regulation (EU) No. 549/2013 and defines common standards, definitions, classifications and accounting rules to be used for the compilation of accounts and tables on a comparable basis.
The ESA 2010 transmission program can be found in Annex B to the Regulation and sets out the dates and scope of the data to be sent to Eurostat according to the ESA 2010 methodology.
**At national level:**
The Act on State Statistics of the National Council of the Slovak Republic no. 540/2001 regulates the conditions for obtaining statistical information needed to assess socio-economic development, the position and competence of bodies performing state statistics, the role of public authorities in the field of state statistics, rights and obligations of reporting units, protection of confidential statistical data from misuse, provision and publication of statistical data, ensuring comparability of statistical information and fulfilment of agreements in the field of state statistics, by which is the Slovak Republic bound.
Statistical surveys are governed by the Decree of the Program of Statistical surveys for a three-year period, which is compiled by the SO SR in cooperation with ministries and state organizations. The

program contains a description and scope of surveys, including surveys carried out by other central authorities and ministries.
Basic information on the compilation of the program of state statistical surveys for the relevant year, the number of conducted surveys in the relevant year and the evaluation of the administrative burden of respondents are contained in the annual reports on the implementation of the program of state statistical surveys.

### 6.2 Data sharing

National accounts data are key sets of indicators used and published by many international organizations to improve data consistency and exploit synergies for data collection and validation. The inter-departmental group on economic and financial statistics was established in 2016 (composed of representatives of the Bank for International Settlements, the European Central Bank, Eurostat, the IMF, the Organization for Economic Cooperation and Development, the United Nations, and the World Bank) and it has started its work under the G20 to improve data sharing for national accounts.

## 7 Confidentiality

### 7.1 Confidentiality - policy

Regulation (EC) No 223/2009 on European Statistics (recital 24 and article 20 (4) of 11 March 2009 OJ EC L 87, page 164) establishes a need to set common principles and guidelines to ensure the confidentiality of used data for the production of European statistics, and it provides access to such confidential data with due account for technical development and the requirements of users in a democratic society. The European Statistics Code of Practice provides additional conditions that statistical offices must comply with in the field of protection of confidential statistical data (Principle 5). The SO SR is responsible for the protection of confidential data obtained and guarantees their use exclusively for statistical purposes. In accordance with the Act on State Statistics no. 540/2001 Coll. §2g and §30, the SO SR may not publish confidential statistical data, but only information that has been created by summarizing confidential data, which does not allow direct or indirect identification of the reporting unit.
The Directive on the Protection of Confidential Statistical Data at the Statistical Office of the Slovak Republic (No. SME-1/2015) is available on the internal website of the SO SR, which regulates specific methods and parameter values used in protecting confidential statistical data of individual statistical surveys.

### 7.2 Confidentiality - data treatment

Confidential statistical data is defined as data relating to an individual statistical unit, which enables direct or indirect identification and was obtained for statistical purposes according to the law. The SO SR provides or publishes statistical data and information without direct identifiers in such a form that the data provided by the applicant cannot be directly or indirectly identified in them, this means it applies active protection for all reporting units.
In ensuring the protection of confidential statistical data in tables with aggregated data, the SO SR applies in all cases the rule of the minimum frequency for n=3, that means each cell of the table must contain an aggregation of data for at least 3 reporting units. The problem of sensitive cells may mainly concern data tables in more detailed breakdowns (e.g. by divisions of NACE). In this case, confidentiality is ensured by higher degree of data aggregation, e.g. in the supply and use tables.

# 8 Release policy

## 8.1 Release calendar

The best available practices require that new national accounts data and related press releases are announced in the release calendar, which is published well in advance of the relevant publications. The SO SR regularly updates and publishes the release calendar, which contains the schedule of the first publication of selected indicators. The release calendar covers the whole calendar year and includes all published press releases and national accounts data, as mentioned above.
The first publication of data takes the form of an Information Report published on the SO SR website or in the form of a press conference. According to the established principle of equal access to all users, the data are available to all at the same time and published at 9.00 am on the SO SR website ( www.statistics.sk ) in the Catalogue of Information Reports section.

## 8.2 Release calendar access

The release calendar is available on the SO SR website.
First release calendar

## 8.3 User access

In accordance with the Community's legal framework and the Code of Practices for European statistics (Principle 6 on impartiality and objectivity, Principle 13 on timeliness and punctuality and Principle 15 on accessibility and clarity), national accounts data that meet quality standards, including relevant metadata, should be available to users. Users should be informed of the availability of the data and how it can be made available.
Accessibility and clarity of statistical data is one of the principles of the Quality Declaration of SO SR . The independence and impartiality of the SO SR, ministries and other state administration bodies and organizations established by them in obtaining, processing, disseminating and evaluating statistical information is provided for in Act no. 540/2001 Coll. On State Statistics as amended (paragraph 3, part 2 of the Act on State Statistics).

# 9 Frequency of dissemination

The annual data are published annually and the quarterly data are published quarterly.

# 10 Accessibility and clarity

## 10.1 News release

The most important results of national accounts are published in press releases. New, strategic national accounts data may also be published at a press conference or briefing. The exact dates are listed in advance in the First release calendar .
The SO SR publishes press releases on its website in the News section of the homepage, or in the *Catalogue of Informative Reports* (see section 8.1).

## 10.2 Publications

Publications related to national accounts data are published on the SO SR website in the section Publications of the Catalogues .
These publications, which relate to national accounts data, include e.g. Statistical Yearbook of the Slovak Republic, Regional Statistical Yearbook of Slovakia or the Statistical Report on Basic Tendencies in the Slovak Economy.

## 10.3 On-line database

All national accounts data are available to users in the public database DataCube of the SO SR (see the description of the tables in section 3.4).

## 10.4 Micro-data access

Micro-data are not published for employment indicators.

## 10.5 Other

All data available in the DataCube database are provided free of charge and are not subject to any registration. In addition, the data are also available via the STATdat database, which contains reports (tables) of data from the DataCube database that can then be exported to various data formats. Data tables are also accessible from the SO SR portal following the section *Statistics - Macroeconomic statistics - National accounts – Indicators.*
Data can also be provided within defined specific outputs to international organizations, especially Eurostat, IMF, OECD, etc.

## 10.6 Documentation on methodology

The general methodological framework for compiling national accounts in the EU is ESA 2010 methodology. All important metadata and methodological explanations for national accounts are available on the SO SR portal:
National Accounts – Metadata
Description of the new ESA 2010 methodology, or the transition from the old ESA95 methodology to the new ESA 2010, as well as other manuals and handbooks are available on the SO SR portal (only in Slovak language).
New methodology for national accounts – ESA 2010

## 10.7 Quality documentation

The importance of national accounts requires that documentation on quality management and quality assessment processes are available. Such documentation includes, for example, the Quality Declaration of SOSR , which is available on the SO SR website.
Reports on the metadata and quality issues of national accounts, quality studies and reports on the analysis of revisions as well as specific quality and metadata reports elaborated according to the Single Integrated Metadata Structure (SIMS V2.0) are also available on the SO SR website:

Quality reports – National accounts
Quality reports – SIMS V2.0

# 11 Quality management

## 11.1 Quality assurance

The quality of national accounts data is ensured by the exact application of the ESA 2010 concepts and the application of the ESS handbook for quality and metadata reports.
Part of the revision policy is to ensure the quality of source data that enter into the calculation of national accounts indicators (e.g. GDP) in the collection, processing and subsequent evaluation of data, in order to ensure comparability of data at quarterly, annual and regional level.
Technical validation of national accounts data is ensured by means of the IT tool 'STRUVAL' and numerical validation of data via 'CONVAL'.
The management supervision of data collection and compilation of statistical data is regularly verified through internal audits according to a predetermined plan.
The SO SR holds a quality management system certificate according to ISO 9001:2008, which was awarded in November 2006. It undergoes external supervisory and recertification audits at regular intervals by Bureau Veritas Certification Agency. Recertification audits in 2009, 2012, 2015, 2018 and 2021 confirmed the validity of the certificate of the SO SR.
The quality manual describes the documented procedures of the quality system, which are used in the construction, implementation and continuous improvement of the quality management system in the SO SR. It contains a description of the quality management system and compliance with the requirements of the ISO 9001 standard.

## 11.2 Quality assessment

During the whole data compilation process, several quality checks of national and regional accounts data are performed, e.g. ex-ante (statistical resources), preliminary (results), ex-post (methods used) and external controls (Eurostat, European or National Court of Auditors, IMF).
Detailed information concerning quality reports after approval by Eurostat is published on the SO SR website, as presented in section 10.7.

# 12 Relevance

## 12.1 User needs

National accounts data provide important information for economic policy monitoring, decision-making, forecasting, administrative purposes, informing the public about economic development (either directly or indirectly through news agencies) and they also serve as inputs in economic research.
At the national level, the main users of national and regional accounts data are the Ministry of Finance of the SR, the Ministry of Transport and Construction of the SR, the National Bank of Slovakia, scientific and academic societies and research institutes. Another group of users are students, analysts, journalists, foreign embassies in Slovakia and entrepreneurs.
At EU level, the main users of national accounts data are Eurostat, OECD, the IMF and other national statistical institutes.

### 12.2 User satisfaction

The SO SR regularly evaluates website traffic according to individual sections and departments. In addition, since 2009 it has been conducting regular customer surveys of its products and services at two-year intervals.
The aim of the surveys is to determine customer satisfaction with the products and services of the SO SR, to obtain information about users, their interest and opinion on the provision and quality of statistical products and services. The data obtained are a valuable source for directing other activities of the SO SR.
The user satisfaction questionnaire, its evaluation as well as the reflection of the relevant requirements of the respondents in the action plans of the SO SR are available on the SO SR website.
Satisfaction survey

### 12.3 Completeness

The ESA 2010 transmission program, which consists of 22 tables from all areas of national accounts, specifies the minimum range of national accounts data that must be available for transmission in each EU member state.
The completeness of data for employment by ESA 2010 is at the level of 100 %.

## 13 Accuracy and reliability

### 13.1 Overall accuracy

The accuracy of national accounts data is closely connected to the data quality issue and revision policy. Revisions of national accounts data are described in detail in the regular GNI data quality reports. At the national level, standard cross-domain checks are usually performed. Overall accuracy is ensured by the gradual refinement of national accounts data, from flash estimates to the compilation of final data, as described in more detail in Section 17.1.

### 13.2 Sampling error

Not relevant for national accounts indicators.

### 13.3 Non-sampling error

Not relevant for national accounts indicators.

## 14 Timeliness and punctuality

### 14.1 Timeliness

The ESA 2010 transmission program sets out the required time frame for all national accounts tables. *The first flash estimate of total employment by ESA 2010* is published at time T + 45 days after the end of the reference quarter T. Adjusted employment estimates and other quarterly national accounts

data according to the required breakdowns are sent to Eurostat at T + 60 days and are published in the DataCube database at T + 75 days at the latest.
*The first (preliminary) annual employment estimate* based on quarterly data for reference year T is available at time T + 2 months. A second (semi-definitive) estimate based on annual data is available at T + 17 months. Subsequently, the figure for reference year T may be revised several times until it becomes definitive at time T + 46 months.
More detailed information on the revision policy can be found in Section 17 – Data Revision.

### 14.2 Punctuality

National accounts data under the ESA 2010 transmission programme should be submitted to Eurostat on the exact dates stated in the transmission programme (or earlier). Usually, all required data are transmitted on time.

## 15 Coherence and comparability

### 15.1 Comparability - geographical

The geographical comparability of the national accounts data of the EU member states is generally ensured by the application of the common rules of the ESA 2010 methodology. A geographical comparison can also be made at international level, as most non-European countries use SNA 2008 standards that are in line with ESA 2010.
We have no information on the lack of comparability.

### 15.2 Comparability - over time

As the data for all reference periods are compiled according to the requirements of ESA 2010, the national accounts data are fully comparable over the whole period. Even in the case of major changes in methods or classifications, revisions of long time series are usually made far into the past.
Until now, national accounts data have been compiled without significant breaks in time series.

### 15.3 Coherence - cross domain

Within the system of national accounts, there is full consistency in these areas: annual and quarterly national accounts, government accounts, sector accounts, financial accounts, regional accounts, supply and use tables. However, in practice it is sometimes not possible to ensure full consistency and therefore temporary deviations may occur. They are usually the result of older differences.
The input to national accounts is mainly primary statistics, such as structural business statistics (SBS), short-term statistics (STS) and labour force statistics (LFS). However, there is no complete consistency between these statistical domains and national accounts. The main reasons are differences in concepts, definitions and scope.

### 15.4 Coherence - internal

Data for employment by ESA 2010 are fully internally coherent.

## 16 Cost and burden

Not relevant for national accounts indicators.

## 17 Data revision

### 17.1 Data revision - policy

The revision policy is an important tool for improving the quality of statistical data. It provides the basic rules and general procedures applied in revisions in the SO SR.
For the purposes of this regulation, any change in the statistical value of data stored in the relevant databases and/or published on the website is considered a revision of statistical data. The reasons for the revisions are changes in current legislation, adjustment of methodological definitions and procedures, revisions of classifications and code lists, implementation of new statistical-mathematical methods, availability of more accurate data as well as the errors in the sources and calculated data. The aim of the revisions is to achieve or maintain consistency in the content of statistical data.
The basic rules and general procedures applied in revisions at the SO SR are regulated by the SME-1/2020 Directive – Revision Policy of the Statistical Office of the Slovak Republic and the revision calendar of the SO SR (updated every year).
Published data can have the following levels of quality:

- **Flash estimate** – estimation of the relevant indicator on the basis of available current information, or extrapolation of development trends,
- **Adjusted estimate** – data that is obtained on the basis of the results of short-term statistical surveys and the use of available administrative data sources,
- **Preliminary data** – data that is compiled from verified and revised sources used to compile the adjusted estimate or data available at the date of the first publication. It can be compiled in a smaller range of indicators.
- **Semi-definitive data** – data revised on the basis of updated statistical surveys or available long-term surveys and administrative sources, as well as additional information.
- **Definitive data** – data that is compiled from verified and revised statistical surveys, administrative sources and data obtained on the basis of specified statistical – mathematical methods and other additional information. The definitive data changes only in the case of special revisions, otherwise these data are unchanged.

In terms of content, the reason for revision is considered to be:

- Incorporation of better quality data on the basis of a more complete source,
- Clarification of data due to the update of seasonal factors and changes in the reference period,
- Specification based on updated methodology (in concepts, definitions and classifications) and changes in statistical methods,
- Corrections in source data and calculations.

In terms of time schedule, revisions can be divided into these types:

- **Routine revisions** are the revisions without major methodological changes. These are usually major data corrections, including data obtained from new sources. They are carried out periodically at precisely defined dates, due to the updating of monthly and quarterly data, until the next publication of the data,
- **Annual revisions** are revisions that are made when all monthly, quarterly data are available and more detailed results from annual surveys are already available.
- **Special and major revisions** are revisions of definitive data due to significant methodological changes resulting from the revision of methodologies, from changes in the procedures of

statistical – mathematical methods of calculation or corrections of data. Special revision may result (e.g. by changing the definition) in disruption of time comparability of the data.

The schedule for revisions of annual and quarterly national accounts data is implemented in accordance with Annex B of European Parliament and the Council (EU) Regulation No 549/2013 of 21 May 2013 on the European system of national and regional accounts in the European Union (ESA 2010). The aim of the national accounts revision policy is to achieve consistency in the data supplied under the ESA 2010 Transmission programme in line with the harmonized European revision policy.

### 17.2 Data revision - practice

**The annual accounts** are revised for the first time on the basis of the refinement of data obtained gradually from administrative sources and from the processing of annual statistical reports. Adjustments resulting from the solution of balance differences in the compilation of supply and use tables as well as from corrections of revised own calculations are incorporated. Within this process, methodological changes based on new regulations, or guidelines and results from the spring EDP notification of the general government sector within T + 5 months of the current year are implemented gradually. The routine revision includes a gradual refinement of the data for year T-1, referred to as 'estimate' (sum of quarterly data), years T-2 and T-3 considered 'semi-definitive' and year T-4 as 'definite' version.

The second revision of the annual national accounts includes a refinement of the results of the autumn EDP notification, which is reflected in selected data tables of transmission programme of ESA 2010.

**The quarterly accounts** are revised regularly in accordance with the revision changes of the annual national accounts. This means that the first revision of the quarterly accounts assumes a refinement of the data as for the annual national accounts based on more accurate data from administrative sources, the processing of annual statistical surveys and the spring EDP notification of the general government sector at T + 5 months of the current year. The quarterly data for the 4$^{th}$ quarter and the summary of the quarters for the year are also presented as an 'estimate' of the annual account (T – 1 year).

The second revision of the quarterly national accounts is carried out at T + 10 months of the current year in accordance with the revision changes of the annual national accounts, which include the refinement of the results of the autumn EDP notification.

Detailed information on revision changes is provided in the quality reports for GNI and EDP on the SO SR website.

## 18 Statistical processing

### 18.1 Source data

Data for employment and hours worked are aggregated data compiled according to the ESA 2010 methodology, based on a combination of several data sources – Labour force survey in households (LFS), annual and quarterly statistical surveys, administrative data sources as well as alternative data sources.

Administrative data sources are represented by data from Social insurance company, Register of organisations of SO SR, Office of labour, social affairs and family, Ministry of finance of the SR, Ministry of foreign affairs of the SR, etc.

A detailed description of the data sources for the compilation of the main national accounts aggregates can be found in Chapter 10 of the GNI Inventory .

## 18.2 Frequency of data collection

National accounts are usually compiled on an annual or quarterly basis from primary statistics. The periodicity of data collection for primary statistics varies depending on the origin of the data source. For example, business statistics are available on a monthly, quarterly or annual basis. Household data are available on a quarterly or annual basis (sometimes less frequently). The availability of administrative data varies from country to country.
The periodicity and deadlines for compiling national accounts may not always coincide with the periodicity and deadlines for collecting (all) primary statistical data.
Information on individual statistical surveys and administrative sources, as well as their periodicity of data collection, is given in Chapter 10 of the ‘ GNI Inventory ’ or in part C of the ‘ ASA Inventory ’.

## 18.3 Data collection

Data collection for statistical surveys organized by the SO SR is carried out in the form of statistical questionnaires, mostly in electronic form.
*Electronic data collection* is a system enabling reporting units to fill in statistical questionnaire online in the integrated statistical information system of the SO SR. As of 1 January 2016 reporting units (legal entities, natural persons – entrepreneurs) are obliged to submit statistical reports electronically in accordance with the amendment to Act no. 540/2001 Coll. On state statistics as amended by Act no. 326/2014 Coll. (hereinafter referred to as the Act), which contains new rules for the submission of statistical reports.
The collection, control and processing of statistical data by industry, type and size category of reporting units for the statistical surveys of SO SR is performed by the branch offices of SO SR – mainly regional administrations, specialized for the entire territory of the Slovak Republic. Statistics on family accounts, labour force survey, crop yield estimates, consumer prices, area censuses, city and municipal statistics are performed by branch offices territorially.
All administrative data sources are obtained on the basis of signed agreements and protocols on technical cooperation with external institutions (e.g. National Bank of Slovakia, Ministry of Finance, State Treasury, Ministry of Interior, Ministry of Labour, Social Affairs and Family, Financial Administration, Data Centre, Geodesy, Cartography and Cadastre Authority of the Slovak Republic, National Centre for Health Information, etc.).
By default, these agreements consist of a general part concerning the version of the contract, the specification and characteristics of the data provided between the two institutions, the forms and methods of data provision and the contact names from both institutions responsible for providing data in bilateral data exchange.
The templates and descriptions of all statistical questionnaires are available on the SO SR website: Patterns of statistical questionnaires

## 18.4 Data validation

Source data from statistical surveys are monitored and validated at several levels, directly in the environment of the Integrated Statistical Information System (ISIS), as well as outside it, e.g. by standard software tools and applications.
Initial validation and logical checks take place directly when the electronic questionnaire is filled in by the reporting unit, when in the case of input logical errors it is not even possible to submit the

questionnaire. The data delivered are subjected to further validation checks, from which error logs are prepared.
The analysis and subsequent validation of data outputs is carried out at the level of the responsible departments and is focused on capturing and possible elimination of disproportions in the relevant statistical domain. In case of more serious errors, extreme data, etc. the relevant reporting units are contacted directly in order to clarify the information provided.
The national accounts output data are compiled by aggregation from several data sources and are also subject to a validation process. The SO SR provides metadata to support the validation process, taking into account revisions and extreme values. As part of internal management processes, the validation checks on the data related to the ESA 2010 transmission tables are performed before the final data are sent to Eurostat.
The results of these validation checks are the subject of quality reports (via ESS Metada Handler).

### 18.5 Data compilation

Statistical procedures for data processing (e.g. imputations, calculation of weights, adjustments with respect to non-response, calibrations, etc.) are applied by individual statistical surveys, according to their type, character, coverage and periodicity.
National accounts are compiled by aggregation from several data sources that have undergone the above statistical processing and calculations. In general, the data are compiled in accordance with the definitions and concepts of ESA 2010.
The methodology of compiling the main national accounts aggregates is described in more detail in the GNI Inventory .

### 18.6 Adjustment

The time series of selected quarterly national accounts (QNA) data are usually published in unadjusted (i.e. original) form, but also adjusted for the seasonal and calendar effects. The aim of seasonal adjustments is to identify and eliminate seasonal fluctuations and calendar effects (e.g. effect of different number of working/trading days or an Easter effect) that make it difficult to recognize and understand a short-term and long-term evolution of trend and significant outliers in time series.
According to the ESA 2010 transmission programme, QNA data are to be provided in non-seasonally adjusted form, as well as in seasonally adjusted form (including calendar adjustments, where relevant), with the exception of data in the previous year's prices.
For the seasonal and calendar adjustment TRAMO-SEATS method implemented in the software tool JDemetra+ version 2.2.3. is used. Generally the seasonal and calendar adjustment practices of SO SR follow the recommendations of ESS on seasonal adjustment. For almost all of the time series logarithm transformation is applied (multiplicative decomposition). All the series are tested on the presence of outliers (mostly three types are chosen – additive outlier, transitory change, level shift) and if the outlier is statistically significant and economically plausible it is fixed and introduced into the model.
The adjustment for calendar effects (only working / trading days and leap year) is performed only for those time series for which these effects are statistically significant and plausible. The seasonally and calendar adjusted QNA data are benchmarked against calendar adjusted annual series and the only seasonally adjusted quarterly data are benchmarked against unadjusted (original) annual series. The benchmarking procedure implemented directly in software tool JDemetra+ is used.
According to the revision policy for seasonally adjusted data the approach is applied, where the models, filters and outliers are identified only once a year (usually after an annual revision of QNA),

while the respective parameters and factors are re-estimated each time the figures for new quarter are added.

## 19 Comment