Labour productivity indicators (ESA 2010)

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2 Metadata update	
2.1 Date of last update	28.01.2022

3 Statistical presentation

3.1 Data description

Labour productivity indicators represent the ratio of the total volume of output (measured in terms of gross value added or GDP) produced per unit of labour input for a reference time period. The indicator allows data users to assess GVA-to-labour input levels and growth rates over time and thus provide general information about the efficiency of human capital in the production process.

The labour inputs are measured in terms of total hours worked, full-time equivalents or total employment in persons and are expressed in the domestic concept of ESA 2010. The published data include annual and quarterly labour productivity indicators for the total economy or broken down by industry (NACE Rev.2) and/or by region (NUTS2 / NUTS3) and are provided either in the form of levels or indexes.

The indicator of **nominal unit labour cost (ULC)** based on hours worked is calculated as a ratio of compensation of employees per hour worked to the real labour productivity per hour worked.

ULC is available also for the other labour input types. Indexes of annual ULC are provided by industry breakdown and quarterly indexes of ULC only for total economy.

All the labour productivity indicators are based on national accounts data. 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).

3.2 Classification system

The statistical classification of economic activities (SK NACE Rev. 2).
Nomenclature of territorial units for statistics (NUTS, version 2004).

3.3 Sector coverage

All productivity data are provided for total of institutional sectors S.1. The industry breakdown covers the sections of NACE A*21 or A*10 and regional breakdown covers territories of Slovak Republic according to NUTS2 and NUTS3 levels.

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).

Gross domestic product in market prices is a final result of the production activity of resident producer units created during the current period. Regional GDP is calculated as the sum of values added by industries for each single region, and taxes on products less subsidies on products as a share GVA by region.

Gross value added at basic prices is calculated as the difference between output at basic prices and intermediate consumption at purchasers' prices. Output consists from products manufactured during the current financial year and intermediate consumption consists of the value of goods and services consumed in the production process as inputs, excluding fixed assets whose consumption is expressed as consumption of fixed capital. The compilation process of **regional gross value added** consists of several steps. Basic approach is based on individual calculation of Gross value added by industry (section NACE Rev.2.) in the single region (NUTS 3). In process of calculation the approach for regionalization is used "bottom - up" and so- called "combined approach ".

Total hours worked as the best choice for labour input measure represent the total value of hours actually worked in all jobs, main or secondary, by employees and self-employed persons engaged in activities within the production boundary of national accounts. The definition excludes hours paid for but not worked, such as paid annual leave, public holidays, paid sick leave, parental leave, etc..

Full-time equivalent employment is defined as total hours worked divided by the average annual hours actually worked in full-time jobs within the economic territory. It is better choice of labour input for productivity analysis than simple employment in persons because it reflects the impact of changes in composition of part-time and secondary jobs.

Total employment in persons includes employees and self-employed engaged in one or main job within the production boundary of national accounts. Employment is expressed in the domestic concept of ESA 2010, i.e. it includes persons employed for resident units irrespective of their place of residence.

Nominal labour productivity for a reference time period is defined as gross value added (or GDP) at current prices divided by volume measure of labour input that may be the total hours worked, full-time equivalents or employment in persons. Usually nominal indicators are provided as levels (in euros per unit of labour input) because year-on-year comparison is affected by price changes over time.

Real labour productivity for a reference time period is defined as gross value added (or GDP) at chain-linked volumes (with reference year 2015) divided by volume measure of labour input that may be the total hours worked, full-time equivalents or employment in persons. Real indicators are mostly provided as YoY indices or growth rates (in %) because the impact of price changes over time is corrected.

Nominal unit labour cost (ULC) is calculated as a ratio of average compensation of employees per unit of labour input to the real labour productivity per unit of the same labour input type. All three types of labour input may be applied for compilation of ULC. Unit labour cost indicator is viewed as a broad measure of price competitiveness and as a rule it is presented in the form of year-on-year indices or growth rates.

The following data tables are published for labour productivity indicators in the DATAcube database (*2 Macroeconomic Statistics – 2.1 National Accounts*):

2.1.6 Labour productivity indicators (ESA 2010)

- Labour productivity according to NACE Rev.2 (the same period of the previous year=100) - annually [nu1801rs],
- Regional labour productivity at current prices according to NACE Rev.2 - annually [nu3801rr],
- Regional labour productivity at chain-linked volumes (the same period of the previous year=100) - annually [nu3802rr],
- Labour productivity and unit labour cost - quarterly [nu1802qs].

For the annual real productivity data by industry breakdown (table nu1801rs) and annual nominal productivity data by industry and regional breakdown (table nu3801rr) **the imputed rent of owner-occupied dwellings was excluded** from the gross value added in industry NACE L (Real estate activities) and total economy aggregate. The reason behind is that the imputed rent distort the levels of productivity in NACE L because it is not connected with labour inputs.

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

The statistical population for national accounts is the overall economy of the country.

3.7 Reference area

Reference area for national accounts is the overall economy of the Slovak Republic. Regional data refer to regions of the Slovak Republic according to the Nomenclature of territorial units for statistics (NUTS, version 2004).

3.8 Time coverage

Annual productivity indexes by industries of NACE Rev.2 are published for the period from 1996 onwards.
Annual nominal productivity indicators (levels) by industries of NACE Rev.2 and by regions NUTS3 are available for the period from 1995 onwards.
Annual real productivity indexes by regions NUTS3 are available for the period from 2000 onwards.
Quarterly productivity indicators are published for the quarters starting from 1995Q1.

3.9 Base period

The term ‘base period’ does not apply in national accounts. Instead, for some national accounts variables, the concepts of the previous year’s price and constant prices calculated by chain-linking are used in accordance with Commission Decision 98/715/EC. Expression of variables in previous year’s prices allows the calculation of volume indexes between the current period and the

previous year. After selecting the reference period, the volume indexes are chained and then used to calculate indicators at the current prices of the reference year. This allows to calculate volume indicators for any monitored period.
The real labour productivity indicators are based on gross value added (or GDP) data at chain-linked volumes with reference year 2015.

4 Unit of measure

Labour productivity levels are presented in Euro.
Annual productivity indexes are given in relation to the previous year.
Quarterly productivity growth rates are given in relation to the same period of the previous year or to the previous period (based on seasonally adjusted data).

5 Reference period

The reference period for annual indicators is a calendar year and for quarterly indicators a calendar quarter.

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 Statistical Office of the Slovak Republic (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. 54/2001 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.
For productivity indicators no data published are treated as confidential.

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.

8.2 Release calendar access

The release calendar is available on the website of the SO SR.
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 comprehensibility), 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 comprehensibility of statistical data is one of the principles of the Quality Declaration of the SO SR .
The data on productivity indicators are disseminated to all users in the official database DATAcube of the SO SR and are also accessible from the SO SR portal following the section Statistics - Macroeconomic statistics - National accounts – Indicators. The published data cubes for productivity indicators are regularly updated and revised according to the same schedule as for annual, regional and quarterly national accounts according to the revision calendar of SO SR .

9 Frequency of dissemination

The productivity data are published annually or quarterly as indicated by the relevant data tables.

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 SOSR publishes press releases on its website in the News section of the homepage, or in the Information reports catalogue .

10.2 Publications

Publications related to national accounts data are published on the SO SR website in the Catalogue of Publications section.
These publications, which relate to national accounts data, include e.g. Statistical Yearbook of the Slovak Republic, Regional Statistical Yearbook of Slovakia or 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 labour productivity 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 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 SO SR , which is available on the website of the SO SR.
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

All the source data used for compilation of labour productivity indicators (GDP, GVA, labour inputs) are regularly assessed in terms of standard quality criteria. The quality issues relevant for the most important NA aggregates are regularly assessed, the results are updated and published within the quality reports, GNI inventories, ASA inventories and GNI quality reports, all available on the SO SR website (see also section 10.7):
Quality reports – National accounts
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).

12 Relevance

12.1 User needs

Labour productivity and unit labour costs are important economic indicators for assessing and forecasting economic growth, competitiveness and living standards within the economy. Productivity indicators enable analysts and researchers to assess more effectively the evolution of output per unit of labour input over time, thus providing more comprehensive information on the efficiency and quality of human capital in the production process in a given economic context.
At the national level, the main users of the productivity data are the Ministry of Finance of the SR, the National Bank of Slovakia, the National Productivity Board of the SR, 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, IMF and other national statistical institutes.
The available set of labour productivity indicators meets the user needs for data broken down into different breakdowns (by industries A*21 of NACE and by regions of NUTS3) though the granularity of breakdowns may not satisfy all analysts and data users. The annual productivity indicators at various breakdowns are complemented with the quarterly most relevant indicators of real labour productivity and unit labour costs for the total economy in the form of levels, year-on-year growth rates and percentage changes on previous period based on seasonally and calendar adjusted data. The indicators are based on different types of labour input (the most recommended are hours worked and full-time equivalents) which enables data users to analyse and assess more deeper the various trends of productivity evolution.

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 obtained data 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. In this context the completeness of submitted data for annual and quarterly national accounts is at the level of 100 %.

13 Accuracy and reliability

13.1 Overall accuracy

The computation of labour productivity data is based on the main aggregates of annual and quarterly national accounts. 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. The overall accuracy is assured by gradual refinement of national accounts data starting from the flash estimates until the compilation of definitive data as it is described in more detail in Section 17.1.

13.2 Sampling error

Not relevant for labour productivity indicators.

13.3 Non-sampling error

Not relevant for labour productivity indicators.

14 Timeliness and punctuality

14.1 Timeliness

The timeliness relevant for LPIs is conditional on the timeliness for the national account aggregates. The ESA 2010 transmission program sets out the required time frame for all national accounts tables.
According to the revision schedule for national and regional accounts, the set of productivity indicators for reference period T are first publishable at T+75 days for quarterly data table (nu1802qs), at T+ 10 months for annual data table by industry (nu1801rs) and T+25 months for annual data tables by industry and regions (nu3801rr, nu3802rr). The revisions schedule is described in Section 17.2.

14.2 Punctuality

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

15 Coherence and comparability

15.1 Comparability - geographical

European level:
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. However, there are some cross-country comparability issues to keep in mind when analyzing and using productivity indicators:
- Comparison of nominal productivity growth across geographical regions may be misleading since inflation levels are likely to be different. Therefore nominal indicators should be compared with caution.
- Direct static comparisons should be performed in PPS to avoid different price levels across countries. Eurostat publishes countries´ productivity levels converted into PPS or expressed as a percentage of EU27 based on PPS. Figures unadjusted for PPS should be compared across countries with caution.
- Different methods and combination of sources (business surveys, labour force survey, administrative records, etc.) applied across countries for estimating labour inputs may lower cross-country comparability, although the common ESA concepts are followed.
National level:
The comparability across regions on the national level is ensured by the harmonisation of sources used for compilation of output and labour input measures. The main sources are annual and quarterly business statistical surveys where the indicators needed for calculation of output and intermediate consumption are directly connected with variables of employment, compensation and hours worked. The ratios of average compensation and average hours worked per person and their evolution in time are always checked across regions and industries as the reference indicators for quality assessment.

15.2 Comparability - over time

As the LPIs are built on the national account data which are compiled according to the requirements of ESA 2010, they are fully comparable over the whole period. In the case of major changes in methods or classifications, revisions of long time series are usually made far into the past.
The nominal productivity data are provided by regional / industry breakdown in the form of levels since their comparison in time may be distorted by changes in price levels. Real productivity indicators are provided in their preffered form as year-on-year indexes and growth rates or percentage changes on previous period from quarterly seasonally adjusted data.

15.3 Coherence - cross domain

Cross domain coherence refers to the assessment of consistency between new productivity indicators in national accounts domain and those already published in other domains. Labour productivity indicators have already been published in DATAcube database within the sector statistics domain for NACE sections (and divisions) of industry (B-E) and construction (F).
The statistics is available with a monthly, quarterly and annual frequency and some tables are published by regional or firm size structure. The labour productivity is calculated as a turnover for own services and goods (or construction production) divided by number of employed persons.
In general the labour productivity indicators based on national accounts are not fully coherent with those based on sector statistics. The main reasons are differences in concepts, data sources and scope. The sector statistics covers only selected branches of NACE and is based mostly

on the directly reported indicators from statistical surveys (turnover and number of employees), whereas LPIs from national accounts domain are compiled from the main aggregates for the whole economy (GDP, GVA) which are based on more complex data sources and concepts. There may exist partial coherence by the indicator of labour productivity per person employed for NACE sections B,C,D,E and F but still the differences in the underlying data sources and concepts play a dominant role.

15.4 Coherence - internal

Data of labour productivity indicators are internally coherent.

16 Cost and burden

No additional cost or burden is associated with the compilation and production of labour productivity indicators since the underlying input data are already developed on the basis of national accounts data.

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 indicators stored in the relevant databases and publicly published statistics is considered a revision of statistical data. The reasons for the changes 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 source 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** – estimate 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 statistical 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, for updating 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 program in line with the harmonized European revision policy.

17.2 Data revision - practice

The revisions of labour productivity indicators are directly conditional on the update and revisions of the national and regional accounts main aggregates. Once the first release of LPIs for the reference period T is published (as specified in Section 14.1) the subsequent revisions are made according to the schedule for the national and regional accounts:

Annual data: The first (preliminary) annual national accounts estimates based on quarterly data for reference year T are available at T + 75 days. Refined estimates are published at T + 5 months (still based on quarterly data) and T + 10 months (based on available annual data sources). Subsequently, the data for reference year T may be revised several times until they become definitive at time T + 45 months.

Quarterly data: The first flash estimate of quarterly GDP and total employment is published at T + 45 days after the end of reference quarter T. Refined GDP 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. Afterwards the quarterly data are revised and published together with the revision of annual data.

Regional data: The first results for the regional national accounts are to be transmitted to Eurostat at time T + 12 months after the end of the reference year T (published in DATAcube at T+15). This deadline refers only to the indicators on gross value added, total employment and population in the NUTS 2 regional breakdown (excluding NACE divisions). The regional data broken down by regions NUTS 3 and industries NACE are to be transmitted to Eurostat at T + 24 months and published in DATAcube at T+25 and T+28 months.

18 Statistical processing

18.1 Source data

The labour productivity indicators are derived from the main aggregates of annual and quarterly national and regional accounts. National accounts data are aggregated data compiled according to the ESA 2010 methodology, based on a combination of several data sources – statistical surveys,

administrative data as well as alternative data sources. In addition to the basic statistical sources already mentioned, data from the surveys of sectoral statistics, the Population and Housing Census, the Farm Census, balance of payments statistics, foreign direct investment statistics and the international investment position are also used for national accounts. These surveys are generally carried out in accordance with specific laws adopted for this purpose.
Data from annual statistical surveys are available for local KAU up to the regional level of the districts of the SR. Specific modules of statistical surveys are also used, in which selected indicators are surveyed in a detailed regional breakdown and the level of local KAU.
Detailed description of data sources for the compilation of 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.

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 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 the statistical questionnaire online in the integrated statistical information system of 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.
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, etc.).
The templates and descriptions of all statistical questionnaires are available on the SO SR portal: Templates 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 quarterly table (nu1802qs) includes the real labour productivity expressed in percentage changes to previous period based on seasonally (and calendar) adjusted data of GDP, total employment and total hours worked. Main aggregates of QNA are provided in unadjusted (i.e. original) form as well as in seasonally and calendar adjusted form in line with the ESA 2010 transmission programme.
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. The adjustment for calendar effects (working or trading days, leap year and Easter effect) is performed only for those time series for which these effects are statistically significant and plausible. The seasonally and calendar adjusted labour productivity is derived indirectly, i.e. as a ratio of adjusted GDP to the adjusted labour inputs.

19 Comment

No additional comments.