Quarterly National Accounts Inventory

Republic of Serbia

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0   INTRODUCTION

This document is produced within the framework of IPA 2011 Multi-beneficiary Statistical Cooperation Programme, Data Collection Project No 2: Quarterly National Accounts, Project No: 60702.2011.003-2012.935.

The aim of this document is to provide a comprehensive description of data sources and methods, used for quarterly national accounts (QNA) compilation in Serbia. The main purpose is to enable assessment of observance with the European national accounting standard - European System of National and Regional Accounts 2010 (ESA 2010) and related legislation.

1   OVERVIEW OF THE SYSTEM OF QUARTERLY NATIONAL ACCOUNTS

The methodological framework for QNA in Serbia is based on the principles and definitions of the European System of National and Regional Accounts 2010 (ESA 2010), the System of National Accounts 2008 (SNA 2008), the International Monetary Fund manual (Quarterly National Accounts Manual) and relevant Eurostat manuals (Handbook on Price and Volume Measures in National Accounts and Handbook on Quarterly National Accounts).

1.1   ORGANISATION AND INSTITUTIONAL ARRANGEMENTS

The Statistical Office of the Republic of Serbia (SORS) is the main producer of national statistics. It is a specialized, professional organization within the public administration of the Republic of Serbia, performing expert tasks related to:

- Adopting programs, organization and conducting of the statistical surveys;
- Collecting, processing, statistical analysis and publishing of statistical data;
- Preparation and adoption of authoritative statistical standards;
- Development and maintenance of administrative and statistical registers of the Republic;
- Establishment and maintenance of the System of National Accounts;
- Cooperation with and expert coordination of bodies and organizations that are in charge of carrying out the statistical surveys;
- Cooperation with international organizations related to issues of standardization and data comparability;
- Other tasks stipulated by the law.

The legal framework for the production and dissemination of official statistics and also for the organization of the system of official statistics of the Republic of Serbia is defined by official statistical law. This law stipulates the activities required for data collection, compiling, processing, storing, searching, editing, analysis and dissemination of statistical data and information, which are implemented by the bodies determined in the law as the authorized producers of official statistics and by the appointed official statistics producers determined by other legal acts ("Official Gazette of the RS", No 104/09). Pursuant to Article 18, paragraph 2 of the Law on Official Statistics ("Official Journal of the Republic of Serbia", No 104/09) and Article 8, paragraph 1 of the Law on National Assembly ("Official Journal of the Republic of Serbia", number 9/10), The National Assembly of the Republic of Serbia adopts in the five-year periodicity the program of official statistics. In addition, pursuant to Article 18, paragraph 2 of the Law on Official Statistics ("Official Gazette of the RS", No 104/09) and Article 42, paragraph 1 of the Law on Government

Administration ("Official Gazette of the RS" No 55/05, 71/05-corrigendum, 101/07, 65/08 and 16/11), the Government adopts every year a regulation that defines the plan for official statistics.

In the Statistical Office of the Republic of Serbia, National Accounts Statistics are produced by the Department of National Accounts, Prices and Agriculture. The Department consists of three units: National accounts, Prices statistics and Agriculture and Forestry statistics.

The National Accounts are organized in six divisions: Annual National Accounts, Quarterly National Accounts, Satellite Accounts, Input-Output statistics, Regional Accounts and the Production of bases for National Accounts.

All work related to the compilation of QNA is carried out within the Quarterly National Accounts Division.

Quarterly national accounts are compiled in close cooperation with other divisions of the SORS – Agriculture and Forestry Statistics; Industry, Energy and Construction Statistics; Trade, Catering and Tourism Statistics; External trade and Transport Statistics; Structural Business and Environment Statistics; Household Surveys statistics; Price Statistics; Employment and Earnings Statistics and with other institutions – the Ministry of Finance and the National Bank of Serbia.

1.2   PUBLICATION TIMETABLE, REVISIONS POLICY AND DISSEMINATION OF QNA

An official releases calendar is available on the SORS website approximately one month before the beginning of the year.

The flash estimate of GDP is published 30 days after the reference quarter.

Regular estimates of QNA aggregates are published 60 days after the end of the reference quarter. It covers GDP by production and expenditure approach with detailed breakdown by categories.

The QNA revisions policy allows revisions in the current year when improved or new data become available, and in practice this means that Q1-Q3 data (of year t) are revised until Q4 data are published (in February of year t+1) to give the first annual estimates for year t. These are current revisions. After the publication of the Q4 data, quarterly accounts are revised only due to reconciliation with annual accounts data. Revisions due to compilation of annual national accounts (ANA) are made twice a year. The first revision is carried out when the preliminary annual data (sum of four quarters) become available and the second one when the final annual data have been determined. In both cases quarters of the current year and two previous years are corrected. The exception to the general rule is seasonally adjusted data - they are revised in the context of the whole time series.

1.3   QNA COMPILATION APPROACH

The quarterly national accounts compilations are based on the same principles, concepts, classifications and definitions as the annual national accounts.

At the moment, QNA consists mainly of quarterly GDP compilation. The limited availability of quarterly data does not allow a direct approach in quarterly GDP calculation. Therefore, quarterly aggregates are derived through an indirect method using related time series, which are indicators observed at higher frequencies (quarterly or monthly). The choice of such related indicators is crucial to guarantee the accuracy of the quarterly estimates. Different criteria are used to select indicators, the most important ones are:

a) coherency with the economic concept of the aggregate;

b) statistical correlation between the annualized indicator and the annual aggregate;

c) timeliness and accuracy;

d) length of the series.

According to Eurostat recommendations, statistical software ECOTRIM is used for the reconciliation of quarterly and annual calculations. The statistical model developed by Chow and Lin (1971) is used for disaggregation of the available annual values to quarterly data and the extrapolation of the current year quarterly values using the available indicators. It is based on the estimation of econometric relationships which ensures perfect coherence with the annual series and provides optimal extrapolation for the current year. Therefore, in principle, quarterly accounts have the same coverage and valuation quality as annual accounts to which they are constrained. This ensures that the sum of quarterly values is equal to the value obtained by annual calculations, i.e. that quarterly growth rates of indicators are maintained as much as possible. In some cases, an alternative approach based on the proposal of Fernàndez (1981) has been implemented in place of Chow-Lin.

The estimate of GDP is derived from both the production and the expenditure approach. Calculations are not derived by using completely independent data sources, because in the statistical system of the Republic of Serbia there is still no reliable quarterly information at current prices which could be directly used as an indicator for the calculation of changes in inventories. Therefore, quarterly changes in inventories at current and previous year prices are obtained indirectly, as a residual item. Consequently, quarterly changes in inventories may contain a statistical discrepancy, which could occur from the implementation of the two independent calculations.

The quarterly income approach has not been implemented yet, due to lack of short-term data sources for the specific components.

1.4   VOLUME ESTIMATES

Volume estimates are calculated at prices of the previous year. This system guarantees up-to-date price structures in the calculation of volume estimates.

The calculation of GDP at previous year prices means that the previous year is taken as base year. In this way, the structural changes in relative prices that occurred between two consecutive years in an economy are taken into account. The measurement of the real GDP movement in year t relative to year t-1 requires that GDP in both years is valued at the same prices. This means that GDP in year t at constant prices, i.e. previous year prices is compared with GDP of year t-1 at current prices. Time series calculated at previous year prices could not be used for real growth rate calculations since data are not comparable (each year is valued at previous year's prices).

To obtain comparable series, the method of chain-linking is applied, where indicators in the form of indices referenced to the previous year are chain-linked to a single reference year. The choice of the reference year does not affect the growth rate changes, as they always remain the same. Currently, the year 2010 is used as the reference year.

For the purpose of quarterly chain-linking the recommended annual overlap method is applied. This technique is used for calculating quarter-on-quarter growth rates, which are considered the most important figures for business cycle analysis.

1.5   SEASONAL ADJUSTMENT AND WORKING DAY CORRECTION

Seasonal adjustment is a process of time series decomposition which removes seasonal effects from time series. Seasonal adjustment in Serbia is carried out using specialized DEMETRA software, developed by Eurostat and, within DEMETRA, the model based approach of TRAMO/SEATS. Seasonal adjustment is performed mainly using the automatic module with default parameters for new automatic processing.

To produce seasonally adjusted aggregates an indirect approach is followed, that is seasonally adjusted aggregates are derived by aggregation of seasonally adjusted components. The adjustment for seasonal effects is done on the indicator series, which are used to decompose the reference annual series through benchmarking techniques. Even if some of the indicators are available at monthly level, seasonal adjustment is performed at a quarterly level. Chain-linked volume series are seasonally adjusted.

Seasonally adjusted GDP by production approach is estimated at the section level of NACE Rev. 2.

Seasonally adjusted GDP by expenditure approach is estimated at the following level:

- 1-digit level of the Classification of Individual Consumption According to Purpose (COICOP) for Household final consumption expenditure (HFCE);
- Individual and collective Government final consumption expenditure (GFCE);
- Non-profit institutions serving households (NPISH) final consumption expenditure, total level;
- Gross fixed capital formation (GFCF) by type of fixed assets;
- Exports and imports, separately for exports/ imports of goods and exports/ imports of services.

1.6   ADDITIONAL INFORMATION

This methodological description focuses on explaining the specific procedures in obtaining QNA data. The calculation of annual GDP by all three approaches, at current and constant prices, as well as compilation of full set of non-financial accounts at the level of total economy and for institutional sectors is described in the other methodological papers and documents.

Official website of the Statistical office of the Republic of Serbia is:
http://webrzs.stat.gov.rs/WebSite

The publications calendar can be found at the following address:
http://webrzs.stat.gov.rs/WebSite/Public/CalendarView.aspx?pKey=37&cType=1

The press calendar can be found at the following address:
http://webrzs.stat.gov.rs/WebSite/Public/CalendarView.aspx?pKey=226&cType=2

Additionally, an Electronic library provides customers with the information on current statistical publishing activities, as well as on old and rare books dating from the period of the Kingdom of Serbia (State Statistics, Statistics of the Kingdom of Serbia, Church and Monastery possessions in the Kingdom of Serbia and so on) which can be found at the following address:
http://pod2.stat.gov.rs/ElektronskaBiblioteka/

Quarterly GDP statistical releases and related press releases can be found at the following address:
http://webrzs.stat.gov.rs/WebSite/Public/PageView.aspx?pKey=63

QNA data in the database are at the following address:

http://webrzs.stat.gov.rs/WebSite/public/ReportView.aspx

A summary methodology regarding the estimation of QNA is available at:
http://webrzs.stat.gov.rs/WebSite/Public/PageView.aspx?pKey=64

2 PUBLICATION TIMETABLE, REVISIONS POLICY AND DISSEMINATION OF QNA

2.1 RELEASE POLICY

Official releases calendar is available on the SORS website approximately one month before the beginning of the year.

The SORS publishes the flash estimate of the quarterly gross domestic product since March 2010. This estimate is published 30 days after the end of the reference quarter. It is released on the SORS website as a single figure, showing Q to Q-4 real growth rate in form of press release and it is included in the official releases calendar.

The more detailed estimates of QNA aggregates are published 60 days after the end of the reference quarter. Data are released simultaneously to all users by issuing the press release, as electronic statistical release, on the Internet, and in the SORS database. At 12:00 am copies of the press release and statistical release as well as data series are available both in a Serbian and in an English version on the SORS website. Data are available at current prices, at previous year prices and as chain-linked volume measures (reference year 2010). They are expressed in original form and in seasonally adjusted form.

The revision policy of QNA is closely related to that of annual national accounts. Being compiled following an indirect method together with benchmarking procedures, QNA results are completely consistent with ANA results when the annual data are available. For the current year, while the annual aggregates are still not available, quarterly estimates are calculated using benchmarking models with related series.

When annual data become available, new annual econometric relationships are estimated and the Chow-Lin quarterly disaggregation procedure, which is run with new estimated coefficients, may lead to revision of the quarters. In addition, occasional revisions of ANA and subsequently of QNA may be carried out according to particular reasons. Data are revised when new/higher quality data can significantly contribute to the quality of data-based decision-making or when due to publication deadlines determined by the European or national legislation or when due to unpredictable obstacles in data processing and less accurate data have been published on the basis of incomplete coverage.
QNA data may be revised due to:

a) changes in annual accounts;
b) changes/revisions in the short-term indicators used – inclusion of a more complete/additional data source or a change in the data source;
c) availability of indicators and the replacement of forecasts with actual data;
d) improvement of methodology due to a change in the statistical method or a change in classifications, concepts and definitions.

Data for quarters of a current year are revised until the fourth quarter data are published: together with the second quarter data, revised data for the first quarter are published, together with the third quarter data, revised data for the first and the second quarters are published, together with the fourth quarter data, revised data for the first, the second and the third quarters are published. These are current revisions.

After the publication of the fourth quarter data, quarterly accounts are revised only due to reconciliation with annual accounts data. Revisions due to compilation of annual national accounts are made twice a year. The first revision is carried out when the preliminary annual accounts data (sum of four quarters) become available and the second when the final annual accounts data have been determined. The exception to the general rule is seasonally adjusted data; they are revised in the context of the whole time series.

2.2   CONTENTS PUBLISHED

The quarterly figure of GDP real growth rate without any breakdown is published as flash estimate in a press release 30 days after the end of a reference quarter.

The more detailed estimates of QNA aggregates are published 60 days after the end of the reference quarter in the Statistical release that contains following tables:
1. Quarterly gross domestic product, real growth rates (non-seasonally adjusted growth rates, compared to the same quarter of the previous year and seasonally adjusted growth rates, compared to the previous quarter)
2. Quarterly gross domestic product, at current prices (data on GVA at the A 10 level of NACE Rev. 2[1] and taxes less subsidies on products, values in million RSD)
3. Quarterly gross domestic product, real growth rates, compared to the same period of the previous year (data on GVA at the A 10 level of NACE Rev. 2 and taxes less subsidies on products)
4. Use of Quarterly gross domestic product, at current prices (expenditure categories, values in million RSD) and
5. Use of Quarterly gross domestic product real growth rates, compared to the same period of the previous year (expenditure categories).

In the database on the SORS website, data on GDP by production and expenditure approach are available at current prices, at previous year prices and as chain-linked volume measures (reference year 2010), in million RSD. In addition, shares in current prices, and volume changes comparing the quarter to the same quarter of the previous year are also available. Seasonally adjusted GDP data are available as chain-linked volume measures (reference year 2010) in million RSD and in the form of the growth rates compared to the previous quarter. All time series are available from the first quarter 1996.

In addition, two tables are subject to the transmission to Eurostat. Questionnaire 0101 - Gross value added at basic prices and gross domestic product at market prices and Questionnaire 0102 - GDP identity from the expenditure side contain time series from the first quarter 1996.

2.3   SPECIAL TRANSMISSIONS

SORS regularly send questionnaires to the other international institutions (IMF, UN, OECD etc.).

Specific requests by other institutions or individuals are dealt with on an ad hoc basis.

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[1] According to the ESA 2010 Transmission programme of data, activities are aggregated into 10 aggregates: A; B,C,D,E; F; G,H,I; J; K; L; M,N; O,P,Q; R,S,T.

2.4   POLICY FOR METADATA

Serbia participates in the General Data Dissemination System (GDDS) and its metadata, including metadata for the annual NA, were posted on the IMF Data Dissemination Bulletin Board, see: http://dsbb.imf.org/Pages/GDDS/CtyCtgList.aspx?ctycode=SRB.

Under the EU's Instrument for Pre-Accession Assistance 2007 programme, a comprehensive NA Description of Sources and Methods for Serbia was produced, which was released in November 2009. Part C of this Description is dedicated to QNA. This Inventory represents to large extend an updated version of the Description of sources and methods written under IPA 2007.

A summary methodology on the estimation of Serbian QNA is available at:
http://webrzs.stat.gov.rs/WebSite/Public/PageView.aspx?pKey=64

3   OVERALL QNA COMPILATION APPROACH

The first results of the quarterly GDP compilations at constant prices in the Republic of Serbia (fixed based year approach, 2002=100) were published in June 2005. The time series covered the period from the first quarter 1999 to the first quarter of 2005, without seasonal adjustment. GDP was estimated by the production approach, at section and division level of NACE Rev. 1.1. Since September 2008, quarterly GDP time series have been extended backwards to the first quarter of 1997. The first results of the quarterly calculations of the seasonally adjusted GDP at constant prices were published in September 2009. Seasonally adjusted GDP was estimated at section level. The time series covered the period since the first quarter 1997.

In order to improve the quality of the quarterly calculations SORS published revised quarterly GDP calculations at constant prices (previous year's prices), derived according to the production approach in June 2011. To show real growth, series were presented in the form of chain-linked volume measures with 2005 as the reference year. In addition, NACE Rev. 2 came into use in January 2011. Series of indicators from the first quarter of 2001 have been recalculated and used for quarterly QNA aggregates calculations. For earlier years, there were no comparable data series that could be used as indicators.

Furthermore, SORS published the results of the quarterly GDP calculation at current prices by the production approach in June 2011. Calculations at current prices have been implemented starting from the first quarter of 2001.

In addition, SORS has started to publish results of quarterly GDP calculation by the expenditure approach at current and constant prices, starting from the first quarter 2003 in June 2011.

From December 2013, according to Eurostat recommendations, 2010 has been implemented as the reference year for chain linked volume measures.

According to the Plan of SNA 2008 / ESA 2010 Implementation, since September 2014 the Statistical Office of the Republic of Serbia has officially started to implement the new methodology of national accounts ESA 2010 in parallel with EU Member States. Therefore, the SORS has completed the revision of quarterly data for the period 2001-2013 published so far, and for the first time the quarterly GDP calculation for the period 1996-2000.

3.1   OVERALL COMPILATION APPROACH

Quarterly aggregates are derived following an indirect method using related time series, which are indicators observed at higher frequencies than annual (quarterly or monthly). The choice of such related indicators is crucial to guarantee the accuracy of QNA estimates. Different criteria are used to select indicators. The most important ones are:

> a) coherency with the economic concept of the aggregate;
> b) statistical correlation between the (annualized) indicator and the annual aggregate;
> c) timeliness and accuracy;
> d) length of the series.

The choice also depends on the availability of data for the current period.

Data sources for the quarterly GDP calculation are numerous and various and cover a range of economic and financial indicators. Data are obtained from the SORS regular statistical surveys, designed for monitoring specific areas or features of the economy (production, prices, employment, etc.), as well as from administrative sources (Ministry of Finance and National Bank of Serbia).

The estimate of GDP is derived by the production and expenditure approaches. Calculations are not yet completely independent because there is still no reliable quarterly information at current prices which could be directly used as an indicator for the calculation of changes in inventories. Therefore, quarterly changes in inventories at current and previous year prices are obtained indirectly, as a residual item. Consequently, quarterly changes in inventories may contain a statistical discrepancy as well, which results from the implementation of two independent compilations, each with their own data sources.

The income approach has not been implemented yet, due to lack of short-term data sources for the specific components.

QNA estimates are produced at current prices, at previous year prices and as chain-linked volume measures (in monetary terms). Generally, current prices estimates are first derived on the basis of quarterly indicators on values; volume estimates are then obtained by deflation with quarterly prices. Some exceptions to this practice exist when extrapolation is applied.

Classifications used in QNA calculations:
- Nomenclature générale des Activités économiques dans les Communautés Européenne, NACE Rev. 2;
- Classification of Individual Consumption According to Purpose, COICOP;
- Classification of the Functions of the Government, COFOG;
- Breakdown of fixed assets by type.

3.2   BALANCING, BENCHMARKING AND OTHER RECONCILIATION PROCEDURES

Quarterly GDP is determined from the production components. Short-term indicators on output are generally more reliable and more readily available than the data sources used for expenditure aggregates calculation. Furthermore, the low quality of data sources for changes in inventories at the quarterly frequency makes the independent GDP compilation from the expenditure side less reliable. The current practice is to derive changes in inventories as a balance between uses and resources, i.e. subtracting the estimates of final consumption, gross fixed capital formation and net exports from the production-based GDP estimate. The accuracy of such a balancing item is certainly inferior to independently derived estimates of the other components, since it also includes possible statistical discrepancies between production and expenditure components' estimates. Given this property, the magnitude of the resulting

estimate of changes in inventories is considered as an implicit measure of the quality of the other estimated components.

The current practice for quarterly GDP balancing may change in the future. In fact, a supply and use scheme that will be introduced in ANA both at current and previous year prices could be very useful to assess the discrepancies between production and expenditure estimates.

Benchmarking in QNA is largely based on the proposal of Chow and Lin (1971). The authors proposed a solution of the problem based on a generalized least-squares regression that exploits the relationship with one (or more) indicator series and restricts the quarterly results to be in line with given annual benchmarks. Furthermore, these methods are usually referred to as *temporal disaggregation* techniques when they imply the estimation of statistical relationships between the variables involved. This choice implies a smoothed distribution of the annual residuals over the quarters, guaranteeing a better fit to the movements of the indicator series. Different methods exist to estimate the AR (1) parameter used in the models: the most appropriate one from the statistical point of view is maximum likelihood. The Chow-Lin method is considered to be the first choice for any disaggregation process, while the approach of Fernàndez is an alternative. Moreover, for certain aggregates a quasi-direct approach is followed that generates very small discrepancies. In such cases, the method proposed by Denton (1971) is used in place of Chow-Lin. In fact, this approach does not require any estimation process: the distribution of the differences between the annual totals and the quarterly (aggregated) series is done via a 'movement preservation principle' that guarantees strict closeness of the disaggregated and preliminary series in terms of growth rates.

3.3   VOLUME ESTIMATES

Volume estimates, previously expressed at constant prices of a fixed base year, are now calculated at prices of the previous year: the new system guarantees up-to-date price structures in the calculation of volume estimates.

The calculation of GDP at previous year prices means that the previous year is taken as a base year. In this way, the structural changes in relative prices that occurred between two consecutive years in an economy are taken into account. In the constant prices calculations of GDP according to the production approach, weights in the base year are determined by the share of GVA of each division, taxes on products and imports and subsidies on products in the GDP. In the constant prices calculations of GDP according to expenditure approach weights in the base year are determined by the share of expenditure components in GDP.

Time series calculated at previous year prices could not be used for real growth rate calculations since data are not comparable (each year is valued at previous year's prices). To obtain comparable series, chain-linking is applied, where series are chain-linked to the reference year. The choice of the reference year does not affect the growth rates. According to Eurostat recommendations, 2010 is currently used as the reference year. The recommended annual overlap method has been applied for quarterly chain-linking. Chain-linked series obtained by this method are used for calculating quarter-on-quarter growth rates, which are considered the most important figures for business cycle analysis.

The previously used fixed base year method of constant price estimation ensured that GDP elements in volume terms are valued at the prices of the fixed based year so that values could be added together to obtain the aggregates. In this case the requirement for additivity is fulfilled. With the transition to the calculations at previous year prices additivity still exists, but there are no comparable data in the series, because the GDP elements for each year are valued at previous year's prices. To obtain comparability, the series of GDP elements are chain-linked to the reference year. After converting chain-linked volume indices

to monetary terms, using reference year prices, non-additivity may occur since aggregates cannot be obtained by summing their elements. Additivity exists only in the reference year (at the annual level) and the year after (at the annual and quarterly levels).

GDP from the production side at constant prices is obtained as the sum of gross value added (GVA) of all economic activities plus taxes on products and imports (customs duties) and less subsidies on products at constant prices.

Quarterly value added at previous year prices is derived as the difference between output and intermediate consumption at previous year prices.

Quarterly output at constant prices is calculated following the next procedure for most divisions:

1. Benchmarked quarterly output at current prices is deflated with a benchmarked suitable deflator;
2. The resulting chain-linked series to reference year 2010 are benchmarked and converted to previous year prices.

Quarterly intermediate consumption at previous year prices is obtained using previous year annual ratios of intermediate consumption over output (the same ratio is applied for all four quarters).

Quarterly value added at previous year prices is derived as the difference between output and intermediate consumption at previous year prices. Then, the aggregate is chain-linked to obtain GVA with 2010 as reference year. The resulting chain-linked series to reference year 2010 are benchmarked and converted to previous year prices.

For taxes on products and imports, the calculations at constant prices have been carried out using a ratio approach. For subsidies on products at constant prices calculation, applied is the extrapolation method. Taxes on products and imports and subsidies on products are chain-linked to obtain series with 2010 as reference year. These series are benchmarked and converted to previous year prices. Taxes on products and imports less subsidies on products at previous year prices are obtained by summing up taxes on products and imports (customs duties) and by subtracting subsidies on products at previous year's prices. Then, the aggregate is chain-linked to obtain series with 2010 as reference year.

Quarterly GDP by the production approach at previous year prices is obtained as the sum of gross value added (GVA) of all economic activities plus taxes on products and imports (customs duties) and less subsidies on products at previous year prices. Then, the aggregate is chain-linked to obtain GDP with 2010 as reference year.

Quarterly GDP by the expenditure approach at constant prices represents the sum of final uses of goods and services by resident institutional units plus exports minus imports of goods and services at constant prices.

Household final consumption expenditure at constant prices has been calculated at the 3-digit level of the COICOP, for the residents in the rest of the world and the non-residents on the Serbian territory, by a deflation method using appropriate deflators for the corresponding categories. The resulting chain-linked series to reference year 2010 are benchmarked and converted to previous year prices. The series at previous year prices for the 3-digit COICOP level and for the residents in the rest of the world are summed up, minus non-residents on the Serbian territory to derive total household final consumption expenditure at previous year prices. This aggregate is chain-linked to obtain total HFCE value with reference 2010 year. Individual and collective GFCE at constant prices has been calculated at the level of input cost categories, using deflation and extrapolation methods. The resulting chain-linked series to reference year 2010 are

benchmarked and converted to previous year prices and summed up to obtain GFCE at previous year prices. This aggregate is chain-linked to obtain total GFCE value with reference 2010 year.

Non-profit institutions serving households final consumption expenditure at constant prices has been calculated by a deflation method using appropriate deflator. The resulting chain-linked series to reference year 2010 are benchmarked and converted to previous year prices.

Gross fixed capital formation at constant prices has been calculated in accordance with the breakdown of fixed assets by type using the deflation method with appropriate deflators. The resulting chain-linked series to reference year 2010 are benchmarked and converted to previous year prices and summed up to obtain GFCF at previous year prices. This aggregate is chain-linked to obtain GFCF value with reference 2010 year.

Exports and imports of goods and services at constant prices have been calculated separately for exports/imports of goods and exports/imports of services, by a deflation method using appropriate deflators for the corresponding categories. The resulting chain-linked series to reference year 2010 are benchmarked and converted to previous year prices.

Values of exports of goods and exports of services at previous year prices are summed up to obtain the total exports value at previous year prices. Then, the aggregate is chain-linked to obtain the total exports value with 2010 as reference year.

Values of imports of goods and imports of services at previous year prices are summed up to obtain the total imports value at previous year prices. Then, the aggregate is chain-linked to obtain the total imports value with 2010 as reference year.

Changes in inventories and Acquisitions less disposals of valuables at previous year prices have been calculated as a residual between estimation of total GDP by the production approach at previous year prices and the sum of other components of GDP by the expenditure approach at previous year prices (household final consumption expenditure, NPISH final consumption expenditure, government final consumption expenditure, gross fixed capital formation and net export). This residual may contain a statistical discrepancy.

3.4   SEASONAL ADJUSTMENT AND WORKING DAY CORRECTION

Seasonal adjustment in Serbia is carried out using DEMETRA, developed by Eurostat, and within DEMETRA, with the model based approach of TRAMO/SEATS (Gomez and Maravall, 1997). Seasonal adjustment is performed using the automatic module with default parameters for automatic processing.

The seasonally adjusted GDP estimates are obtained indirectly and derived by adding up the independently adjusted component series.

Seasonally adjusted GDP by production approach is estimated at the level of divisions and for taxes on products, custom duties and subsidies on products.

The procedure for calculation by production approach is as follows:

- Seasonally adjustment of the chain-linked indicators;
- Temporal disaggregation of the annual data with the seasonally adjusted chain-linked indicators;
- Chain-linked seasonally adjusted series are converted to seasonally adjusted data at previous year prices;

- This division level data at previous year prices are added up to obtain sections, GVA and GDP at previous year prices and chain-linked again to obtain seasonal adjusted sections, GVA and GDP.

Seasonally adjusted GDP by expenditure approach is estimated at the following levels:

- 1-digit COICOP level for Household final consumption expenditure;
- Individual and Collective Government final consumption expenditure;
- NPISH final consumption expenditure at the total level;
- Gross fixed capital formation by type of fixed assets;
- Exports and imports, separately for exports/imports of goods and exports/imports of services.

The procedure for calculation by expenditure approach is as follows:

- Seasonally adjustment of the chain-linked indicators;

- Temporal disaggregation of the annual data with the seasonally adjusted chain-linked indicators

- Chain-linked seasonally adjusted series are converted to seasonally adjusted data at previous year prices;

- Aggregation of the components - Data at previous year prices of the expenditure components are added up to obtain the main expenditure aggregates at previous year prices and chain-linked again to obtain seasonal adjusted expenditure aggregates - HFCE, GFCE, NPISH final consumption expenditure, GFCF and Exports and Imports of goods and services.

4 GDP COMPONENTS: THE PRODUCTION APPROACH

Gross domestic product from the production side is obtained as the sum of gross value added (GVA) of all economic activities plus taxes on products and imports (customs duties) and less subsidies on products.

Quarterly GDP calculations use monthly or quarterly data from SORS regular statistical surveys, various data on prices and quantities and other indicators from the statistical system and other available data sources. According to the information on the respective trends and with the use of statistical models, the disaggregation of the available annual to quarterly data and the extrapolation of the current year quarterly values are implemented.

Calculations have been implemented starting from the first quarter 1996, at the level of divisions of the NACE Rev. 2.

4.1 GROSS VALUE ADDED

Gross value added calculations are done at the 88 division level of NACE Rev. 2.

Gross value added at current prices

Gross value added is calculated as a difference between output and intermediate consumption at current prices.

Annual outputs are disaggregated with quarterly output indicators. The main data source for output indicators is the Quarterly Structural Business Survey (SBS-03) which is based on a sample of selected units

(enterprises and other legal entities that produce goods and provide services, mainly for market purposes, i.e. the entities that are, by the way of functioning, classified in non-financial business economy). This survey was introduced into the statistical system of the Republic of Serbia in 2007 and contains following data for calculation of national accounts aggregates: revenues from sales of goods, products and services; revenues from the own use of products and services; revenues from premiums, subsidies, donations, etc. and other operating income (revenues from rents, memberships, license reimbursements and other operating income), purchase value of sold goods; costs of materials; costs of salaries, remuneration and other personal costs; costs of production and non-production services, excluding taxes and contributions. For years before 2007 output indicators are indirectly obtained using volume indices multiplied with respective price indices. To obtain comparable time series overlap coefficients were applied.

The other data sources from the statistical system used in the current price calculations are: values of construction works done, data on sales and purchase values of agricultural products, retail trade turnover values, wholesale trade turnover values, trade of motor vehicles turnover values, catering turnover values, wages and salaries and number of employees, producer price indices, consumer price indices, composite price indices for buildings and structures, etc.

Data used in the current price calculations from the administrative sources are monthly data on expenditures and revenues of government budget (Ministry of Finance), monthly statements on deposits and bank claims and quarterly data on insurance premiums (National Bank of Serbia).

The following table presents an overview of the indicators used to obtain quarterly output by activities, at current prices.

Table 1. Applied indicators for quarterly output by activities, at current prices

Activity	Indicator
A Agriculture, forestry and fishing	volume index, PPI
B Mining and quarrying	quarterly data from the survey "Quarterly Structural Business Survey", volume index, PPI
C Manufacturing	quarterly data from the survey "Quarterly Structural Business Survey", volume index, PPI
D Electricity, gas and steam supply	quarterly data from the survey "Quarterly Structural Business Survey", volume index, PPI
E Water supply, sewerage, waste management and remediation activities	quarterly data from the survey "Quarterly Structural Business Survey", volume index, PPI
F Construction	quarterly data on value of construction works done
G Wholesale and retail trade; repair of motor vehicles and motorcycles	quarterly data on trade of motor vehicles turnover value, wholesale trade turnover value, retail trade turnover value
H Transportation and storage	quarterly data from the survey "Quarterly Structural Business Survey", volume index, CPI
I Accommodation and food service activities	quarterly data from the survey "Quarterly Structural Business Survey", quarterly data on turnover value of catering, volume index, CPI
J Information and communication	quarterly data from the survey "Quarterly Structural Business Survey", volume index, CPI
K Financial and insurance activities	monthly statements on deposits and bank claims, quarterly data on insurance premiums, volume index, CPI

Table 1. Applied indicators for quarterly output by activities, at current prices (continued)

Activity	Indicator
L Real estate activities	quarterly data from the survey "Quarterly Structural Business Survey", volume index, CPI
M Professional, scientific and technical activities	volume index, CPI
N Administrative and support service activities	volume index, CPI
O Public administration and defense; compulsory social security	output from the calculations of collective GFCE at current prices
P Education	output from the calculations of individual GFCE (part for Education) at current prices, indicators for market output
Q Human health and social work activities	output from the calculations of individual GFCE (parts for Human health and social work activities) at current prices, indicators for market output
R Arts, entertainment and recreation	volume index, CPI
S Other service activities	volume index, CPI
T Activities of households as employers	volume index, CPI

Since reliable short-term indicators of intermediate consumption are not available, intermediate consumption is calculated based on input-output ratios (ratio between intermediate consumption and output) in the current year taken from the annual accounts data. These ratios are assumed to be constant over the year (the same ratio is applied for all four quarters). When current year data are not available, the input-output ratio from the previous year is used.

Gross value added is obtained as the difference between output and intermediate consumption.

Gross value added at constant prices

Quarterly GVA calculations at constant prices are obtained mainly using the single deflation method.

Quarterly value added at previous year prices is derived as the difference between output and intermediate consumption at previous year prices.

Quarterly output at constant prices is calculated following the next procedure:

1. Benchmarked quarterly output at current prices is deflated with a benchmarked suitable deflator for most activities.

    Specific cases for some activities:

    ▪ Division 01, Crop and animal production, hunting and related service activities - The annual output of the agricultural production at constant prices is calculated by extrapolation method, using annual index of physical volume of agricultural production (net). Distribution of annual output of agriculture at constant prices over quarters is based on quarterly movements of the sales and purchase of agricultural products at constant prices and fixed proportions of production costs over quarters (20% in the first quarter, 25% in the second quarter, 30% in the third quarter and 25% in the fourth quarter, according to international recommendations).

Quarterly movements of the sales and purchase of agricultural products at constant prices are obtained deflating quarterly movements of the sales and purchase of agricultural products at current prices with appropriate producer price indices of agricultural products.

Crop production output measurement in quarterly dynamics is specific, because the sales of crop products is taken as the main indicator of production, which is occurred mostly in one quarter (3rd or 4th quarter), while agricultural production actually takes place continuously over the year, observed from the production inputs point of view. For this reason, it is necessary to correct the share of quarters in the year, obtained from data on sales and purchase of agricultural products at constant prices with fixed ratio (20%, 25%, 30%, 25%), using the arithmetic mean.

Regarding the livestock breeding, quarterly movements of the sales and purchase of agricultural products at constant prices are used without corrections.

Due to the fact that no quarterly data on agricultural production are available, this method was adopted as provisional solution until SORS develops quarterly data sources for this division.

- Section L, Real estate activities - The calculation is carried out by quarterisation of the annual growth rate of the imputed rents. For the rest of the division 68, extrapolation of output of the previous year with the index of the number of employees is applied.

- Sections O, Public administration and defence; compulsory social security; Section P, Education; Section Q, Human health and social work activities - Output indicators are outputs from the calculations of Government collective and individual (the part for Education and the part for Human health and social work activities) final consumption expenditures at constant prices, from the expenditure side, as well as estimated market output for these sections, respectively.

2. The resulting chain-linked series to reference year 2010 are benchmarked and converted to previous year prices.

The following table presents an overview of the indicators used to obtain quarterly output by activities, at constant prices.

Table 2. Applied indicators for quarterly output by activities, at constant prices

Section	Division	Activity	Indicators
A		**Agriculture, forestry and fishing**	
	01	Crop and animal production, hunting and related service activities	annual index of physical volume of agricultural production, monthly sales and purchase value of agricultural products, at current prices, PPI of agricultural products
	02	Forestry and logging	monthly volume index of forest exploitation
	03	Fishing and aquaculture	PPI of fishing products
B		**Mining and quarrying**	
	05	Mining of coal and lignite	PPI 05
	06	Extraction of crude petroleum and natural gas	PPI 06
	07	Mining of metal ores	PPI 07
	08	Other mining and quarrying	PPI 08
	09	Mining support service activities	PPI Mining and quarrying
C		**Manufacturing**	
	10	Manufacture of food products	PPI 10
	11	Manufacture of beverages	PPI 11
	12	Manufacture of tobacco products	PPI 12
	13	Manufacture of textiles	PPI 13
	14	Manufacture of wearing apparel	PPI 14
	15	Manufacture of leather and related products	PPI 15
	16	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	PPI 16
	17	Manufacture of paper and paper products	PPI 17
	18	Printing and reproduction of recorded media	PPI 18
	19	Manufacture of coke and refined petroleum products	PPI 19
	20	Manufacture of chemicals and chemical products	PPI 20
	21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	PPI 21
	22	Manufacture of rubber and plastic products	PPI 22
	23	Manufacture of other non-metallic mineral products	PPI 23
	24	Manufacture of basic metals	PPI 24
	25	Manufacture of fabricated metal products, except machinery and equipment	PPI 25
	26	Manufacture of computer, electronic and optical products	PPI 26
	27	Manufacture of electrical equipment	PPI 27
	28	Manufacture of machinery and equipment n.e.c.	PPI 28
	29	Manufacture of motor vehicles, trailers and semi-trailers	PPI 29
	30	Manufacture of other transport equipment	PPI 30
	31	Manufacture of furniture	PPI 31
	32	Other manufacturing	PPI 32
	33	Repair and installation of machinery and equipment	PPI Section C
D		**Electricity, gas, steam and air conditioning supply**	
	35	Electricity, gas, steam and air conditioning supply	PPI 35

Table 2. Applied indicators for quarterly output by activities, at constant prices (continued)

Section	Division	Activity	Indicators
E		**Water supply, sewerage, waste management and remediation activities**	
	36	Water collection, treatment and supply	PPI Section E
	37	Sewerage	PPI Section E
	38	Waste collection, treatment and disposal activities; materials recovery	PPI Section E
	39	Remediation activities and other waste management services	PPI Section E
F		**Construction**	composite price index for buildings and structures
G		**Wholesale and retail trade; repair of motor vehicles and motorcycles**	
	45	Wholesale and retail trade and repair of motor vehicles and motorcycles	weighted CPI
	46	Wholesale trade, except of motor vehicles and motorcycles	weighted PPI for domestic market and imports UVI
	47	Retail trade, except of motor vehicles and motorcycles	weighted CPI (excluding water from public utility systems, electricity and motor vehicles, motorcycles and parts thereof)
H		**Transportation and storage**	
	49	Land transport and transport via pipelines	weighted CPI
	50	Water transport	CPI Transport services
	51	Air transport	CPI Passenger transport by air
	52	Warehousing and support activities for transportation	CPI Transport services
	53	Postal and courier activities	CPI Postal services
I		**Accommodation and food service activities**	
	55	Accommodation	CPI Accommodation services
	56	Food and beverage service activities	CPI Catering services
J		**Information and communication**	
	58	Publishing activities	CPI Services
	59	Motion picture, video and television programme production, sound recording and music publishing activities	CPI Services
	60	Programming and broadcasting activities	CPI Services
	61	Telecommunications	weighted CPI
	62	Computer programming, consultancy and related activities	CPI Services
	63	Information service activities	CPI Services
K		**Financial and insurance activities**	
	64	Financial service activities, except insurance and pension funding	CPI Financial services
	65	Insurance, reinsurance and pension funding, except compulsory social security	CPI Insurance services
	66	Activities auxiliary to financial services and insurance activities	CPI Financial services
L		**Real estate activities**	annual growth rate of the imputed rents, index of number of employees
	68	Real estate activities	

Table 2. Applied indicators for quarterly output by activities, at constant prices (continued)

Section	Division	Activity	Indicators
M		**Professional, scientific and technical activities**	
	69	Legal and accounting activities	CPI Services
	70	Activities of head offices; management consultancy activities	CPI Services
	71	Architectural and engineering activities; technical testing and analysis	CPI Services
	72	Scientific research and development	deflator for research and development
	73	Advertising and market research	CPI Services
	74	Other professional, scientific and technical activities	CPI Services
	75	Veterinary activities	CPI Veterinary and other services for pets
N		**Administrative and support service activities**	
	77	Rental and leasing activities	CPI Services
	78	Employment activities	CPI Services
	79	Travel agency, tour operator reservation service and related activities	CPI Services
	80	Security and investigation activities	CPI Services
	81	Services to buildings and landscape activities	CPI Services
	82	Office administrative, office support and other business support activities	CPI Services
O		**Public administration and defence; compulsory social security**	
	84	Public administration and defence; compulsory social security	output from the calculations of collective GFCE at constant prices
P		**Education**	
	85	Education	output from the calculations of individual GFCE (part for Education) at constant prices, indicators for market output
Q		**Human health and social work activities**	
	86	Human health activities	output from the calculations of individual GFCE (part for Health) at constant prices, indicators for market output
	87	Residential care activities	output from the calculations of individual GFCE (part for Residential care activities) at constant prices, indicators for market output
	88	Social work activities without accommodation	output from the calculations of individual GFCE (part for Social work activities without accommodation) at constant prices, indicators for market output
R		**Arts, entertainment and recreation**	
	90	Creative, arts and entertainment activities	CPI Recreational and cultural services
	91	Libraries, archives, museums and other cultural activities	CPI Cultural services
	92	Gambling and betting activities	CPI Recreational and cultural services
	93	Sports activities and amusement and recreation activities	CPI Recreational and cultural services
S		**Other service activities**	
	94	Activities of membership organizations	CPI Other services, n.e.c.
	95	Repair of computers and personal and household goods	CPI Other services, n.e.c.
	96	Other personal service activities	CPI Other services, n.e.c.
T		**Activities of households as employers; undifferentiated goods and services producing activities of households for own use**	
	97	Activities of households as employers of domestic personnel	CPI Other services, n.e.c.

For quarterly intermediate consumption, the calculations at constant prices have been carried out using a ratio approach. The annual ratio of intermediate consumption over output from the previous year is applied to the output at constant prices in the current year (the same ratio is applied for all four quarters).

Quarterly value added at previous year prices is derived as the difference between output and intermediate consumption at previous year prices. Then, the aggregate is chain-linked to obtain GVA with 2010 as reference year. The resulting chain-linked series to reference year 2010 are benchmarked and converted to previous year prices.

Calculations for the level of 21 sections of NACE Rev. 2 have been implemented by summing GVA at previous year prices of divisions classified within the respective sections. Calculations for the A 10 level of NACE Rev. 2 are done by summing GVA at previous year prices of sections classified within the respective aggregates. Then, the aggregates are chain-linked to obtain series with 2010 as reference year.

4.2   FISIM

SORS calculates FISIM on annual basis according to the Council Regulation 448/98 and the Commission Regulation 1889/2002. The information and data sources which are used to calculate and distribute FISIM to different economic activities at annual level are not available on the quarterly basis. Because of lack of the quarterly data sources, SORS does not estimate quarterly FISIM separately.

Due to the fact that FISIM has been already included in the annual series and that SORS uses benchmarking procedures for disaggregation of the available annual values to quarterly data and the extrapolation of the current year quarterly values, FISIM is automatically included in the resulting quarterly series.

4.3   TAXES LESS SUBSIDIES ON PRODUCTS

The main source of data on taxes on products is Information on distributed public revenues and earnings of the Treasury Administration of the Ministry of Finance. Data on taxes are provided on a monthly basis and on a cash basis, with the breakdown of taxes by type. For cash based aggregates an adjustment to accrual accounting is done using time adjusted method, with a variable time lag. This allows quarterly taxes to be adjusted with the annual sum of the quarters being made equal to the yearly total, which has already been adjusted.

The main data sources for subsidies are budgetary data. Data are shown as actual payments in the accounting period and are on cash basis. All this information can be found in the Bulletin of Public Finance of the Ministry of Finance, but without proper breakdowns according to actual purpose of the subsidies which is of crucial importance for the national accountants. Before they are included in the NA system, data on subsidies are carefully examined. Using all available information, they are structured according to the NA rules as: subsidies on products, subsidies on production, investment or capital grants and other current transfers.

Quarterly taxes and subsidies at current prices are obtained with the disaggregation of the available annual to quarterly data at current prices and the extrapolation of the current year quarterly values, using accrual adjusted indicators at current prices as related series.

For taxes on products and imports, the calculations at constant prices have been carried out using a ratio approach. The annual ratio of taxes on products and imports over properly chosen aggregate from the previous year is applied to the aggregate at constant prices in the current year (the same ratio is applied for all four quarters). For taxes on products, actual individual consumption is used; for taxes on imports (custom duties), total imports of goods is used.

For subsidies on products at constant prices, applied is the extrapolation of value of subsidies on products at current prices from the previous year with the composite index, derived as the weighted average of the volume index of agricultural production and the volume index of services in land transport. As weights, the annual structure of subsidies assigned from the budget for these activities is used.

Taxes on products and imports and subsidies on products are chain-linked to obtain series with 2010 as reference year. These series are benchmarked and converted to previous year prices.

Taxes on products and imports less subsidies on products at previous year prices are obtained by summing up taxes on products and imports and by subtracting subsidies on products at previous year prices. Then, the aggregate is chain-linked to obtain series with 2010 as reference year.

5 GDP COMPONENTS: THE EXPENDITURE APPROACH

The quarterly GDP by the expenditure approach represents the sum of final uses of goods and services by resident institutional units plus exports less imports of goods and services.

Quarterly GDP in Serbia is determined from the production components, due to the facts that quarterly data on changes in inventories are very limited and that the current practice is to calculate changes in inventories plus acquisition less disposals of valuables as a residual (subtracting the estimates of final consumption, gross fixed capital formation and net exports from the production-based GDP estimate).

The calculations are carried out from the first quarter 1996 for all expenditure categories. The calculations have been done at current and constant prices at the following levels:

- HFCE has been calculated at the 3-digit level of COICOP;
- GFCE are partly compiled according to COFOG;
- NPISH final consumption expenditure – total level;
- GFCF has been compiled in accordance with breakdown of fixed assets by type;
- Exports and imports, separately for exports/imports of goods and exports/imports of services.

5.1 HOUSEHOLD FINAL CONSUMPTION

As household final consumption is the largest expenditure component of GDP, a very detailed estimation procedure is applied. The quarterly estimation of household final consumption expenditure is based on the COICOP grouping expenditure on goods and services in homogenous categories according to the type of need. The calculation is done according to the national concept as it includes resident's expenditure abroad and excludes non-resident's expenditure on the territory of the Republic of Serbia. In general, a bottom-up approach is used to derive the total HFCE estimate at current prices.

The current price estimates for HFCE have been performed at the 3-digit COICOP level and the resident and non-resident categories since the first quarter of 1996. The indicators for the current price values are based on: quarterly household budget survey (HBS) data, quarterly retail trade and catering turnover data and quarterly output and GVA for some activities at current prices. For each COICOP group only one of these indicators is used. For Serbian residents' expenditure abroad and non-resident's expenditure in Serbia, Balance of Payments (BoP) data (inflow and outflow from tourism) from the National Bank of Serbia are used as the source. The choice of data source for any type of expenditure is generally determined by the perceived comprehensiveness and reliability of that source.

The constant price estimates for HFCE are obtained by a deflation method using CPIs for the corresponding COICOP categories, Serbian residents' expenditures abroad and non-residents' expenditure on the territory of the Republic of Serbia.

Deflators at the 3-digit level of COICOP aggregation and for non-residents on the Serbian territory are taken from the Price Statistics.

The deflator for Serbian residents' expenditures abroad is a composite index, derived from CPI data for the five most important partners for imports of tourism services. Information about the range of countries from which tourism services are imported is obtained from the National Bank of Serbia. Data on CPI for these countries are from their national statistics, on monthly basis. These data are adjusted for changes of exchange rates of their currencies in RSD and weighted with the share of imports of tourism services from these countries.

Benchmarked values at current prices are deflated with benchmarked deflators. The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

The series at previous year prices for the 3-digit COICOP level and residents in the rest of the world are summed up and non-residents on the Serbian territory are subtracted to derive total household final consumption expenditure at previous year prices. This aggregate is chain-linked to obtain total HFCE value with reference 2010 year.

The following table presents an overview of the indicators used to obtain HFCE at current and constant prices:

Table 3. Applied indicators for the HFCE calculation at current and constant prices

Categories		Current prices	Constant prices
01	**Food and non-alcoholic beverages**		
01.1	Food	quarterly HBS data	CPI Food (01.1)
01.2	Non-alcoholic beverages	quarterly HBS data	CPI Non-alcoholic beverages (01.2)
02	**Alcoholic beverages, tobacco and narcotics**		
02.1	Alcoholic beverages	quarterly HBS data	CPI Alcoholic beverages (02.1)
02.2	Tobacco	quarterly retail trade turnover data	CPI Tobacco (02.2)
02.3	Narcotics	trend	trend
03	**Clothing and footwear**		
03.1	Clothing	quarterly retail trade turnover data	CPI Clothing (03.1)
03.2	Footwear	quarterly HBS data	CPI Footwear (03.2)
04	**Housing, water, electricity, gas and other fuels**		
04.1	Actual rentals for housing	quarterly HBS data	CPI Actual rentals for housing (04.1)
04.2	Imputed rentals for housing	production approach aggregate, at current prices	implicit deflator for division 68
04.3	Maintenance and repair of the dwelling	quarterly HBS data	CPI Maintenance and repair of the dwelling (04.3)
04.4	Water supply and miscellaneous services related to the dwelling	quarterly HBS	CPI Water supply and miscellaneous services related to the dwelling (04.4)
04.5	Electricity, gas and other fuels	quarterly HBS	CPI Electricity, gas and other fuels (04.5)

Table 3. Applied indicators for the HFCE calculation at current and constant prices (continued)

	Categories	Current prices	Constant prices
05	**Furnishings, housing equipment, routine housing maintenance**		
05.1	Furniture and furnishings, carpets and other floor coverings	quarterly HBS data	CPI Furniture and furnishings, carpets and other floor coverings (05.1)
05.2	Household textiles	quarterly HBS data	CPI Household textiles (05.2)
05.3	Household appliances	quarterly HBS data	CPI Household appliances (05.3)
05.4	Glassware, tableware and household utensils	quarterly retail trade turnover data	CPI Glassware, tableware and household utensils (05.4)
05.5	Tools and equipment for house and garden	quarterly HBS data	CPI Tools and equipment for house and garden (05.5)
05.6	Goods and services for routine household maintenance	quarterly HBS data	CPI Goods and services for routine household maintenance (05.6)
06	**Health**		
06.1	Medical products, appliances and equipment	quarterly HBS data	CPI Medical products, appliances and equipment (06.1)
06.2	Out-patient services	production approach aggregate, at current prices	CPI Out-patient services (06.2)
06.3	Hospital services	production approach aggregate, at current prices	CPI Out-patient services (06.2)
07	**Transport**		
07.1	Purchase of vehicles	quarterly retail trade turnover data	CPI Purchase of vehicles (07.1)
07.2	Operation of personal transport equipment	quarterly retail trade turnover data	CPI Operation of personal transport equipment (07.2)
07.3	Transport services	production approach aggregate, at current prices	CPI Transport services (07.3)
08	**Communication**		
08.1	Postal services	production approach aggregate, at current prices	CPI Postal services (08.1)
08.2	Telephone and telefax equipment	quarterly HBS data	CPI Telephone and telefax equipment (08.2)
08.3	Telephone and telefax services	production approach aggregate, at current prices	CPI Telephone and telefax services (08.3)

Table 3. Applied indicators for the HFCE calculation at current and constant prices (continued)

	Categories	Current prices	Constant prices
09	**Recreation and culture**		
09.1	Audio-visual, photographic and Information processing equipment	quarterly retail trade turnover data	CPI Audio-visual, photographic and information processing equipment (09.1)
09.2	Other major durables for recreation and culture	quarterly HBS data	CPI Other major durables for recreation and culture (09.2)
09.3	Other recreational items and equipment, gardens and pets	quarterly retail trade turnover data	CPI Other recreational items and equipment, gardens and pets (09.3)
09.4	Recreational and cultural services	quarterly HBS data	CPI Recreational and cultural services (09.4)
09.5	Newspapers, books and stationery	quarterly HBS data	CPI Newspapers, books and stationery (09.5)
09.6	Package holidays	NBS data on inflow from tourism	composite index, derived from CPI data for the five most important partners for imports of tourism services
10	**Education**	production approach aggregate, at current prices	CPI Education (10)
11	**Restaurants and hotels**		
11.1	Catering services	monthly data on value of turnover for Catering services	CPI Catering services (11.1)
11.2	Accommodation services	production approach aggregate, at current prices	CPI Accommodation services (11.2)
12	**Miscellaneous goods and services**		
12.1	Personal care	quarterly HBS data	CPI Personal care (12.1)
12.3	Personal effects n.e.c.	quarterly HBS data	CPI Personal effects n.e.c. (12.3)
12.4	Social protection	production approach aggregate, at current prices	CPI Social protection (12.4)
12.5	Insurance	production approach aggregate, at current prices	CPI Insurance (12.5)
12.6	Financial services n.e.c.	production approach aggregate, at current prices	CPI Financial services n.e.c. (12.6)
12.7	Other services n.e.c.	production approach aggregate, at current prices	CPI Other services n.e.c. (12.7)
	Residents in the rest of the world	NBS data on inflow from tourism	composite index, derived from CPI data for the five most important partners for imports of tourism services
	Non-residents on the Serbian territory	NBS data on outflow from tourism	CPI Total

5.2   GOVERNMENT FINAL CONSUMPTION

Government final consumption expenditure represents current expenditures by general government units on services to the community. These services are provided free of charge or at charges which cover only small proportion of costs, therefore the government is considered to be consumer of its own output, which has no directly observable market value. General government final consumption expenditure is further divided into expenditures for collective services and expenditures for individual services, according to the activity of general government units. Individual services are health, recreation, culture and religion, education and social protection. All other activities are considered to be collective services. Government is considered to be consumer of its own output, which has no directly observable market value, but is defined to be equal to the sum of the production costs:

Output = Compensations of employees + Intermediate consumption + Consumption of fixed capital + Other taxes on production paid

The final consumption expenditure of general government is estimated as output less receipts from sales of goods and services provided by these government units (market output) plus social benefits in kind.

Final government consumption = Compensations of employees + Intermediate consumption + Consumption of fixed capital + Other taxes on production paid + Social transfers in kind - Market output

Compensation of employees and intermediate consumption constitute approximately 98% of government final consumption expenditure. The remaining variables, with a very limited share, are obtained by annual data disaggregation with a trend as related series, using ECOTRIM.

The main data provider is the Ministry of Finance. Since 2003 data on compensation of employees and intermediate consumption are available on a monthly basis for central government, Autonomous Province of Vojvodina, cities and municipalities and the social security funds. These data are the basic source for final government consumption expenditure calculation at current prices.

Government final consumption expenditure at current prices is obtained by summing up the current values of compensation of the employees, intermediate consumption, consumption of fixed capital, other taxes on production and social transfers in kind and by subtracting market output. Calculations are done for collective and individual government consumption separately.

Government final consumption expenditure at previous year prices is obtained by summing up compensation of employees, intermediate consumption, consumption of fixed capital, other taxes on production and social transfers in kind and by subtracting market output at previous year prices. This aggregate is chain-linked to obtain GFCE value with 2010 as reference year.

The compensation of employees at current prices is obtained by disaggregating annual to quarterly data, using appropriate quarterly data on compensation of the employees at current prices as indicator. The indicator for compensation of employees within individual consumption is the number of employees multiplied with average gross wages and salaries in sections P (Education) and Q (Human health and social work activities) of the NACE Rev. 2. These monthly data are obtained from the Employment and Earnings Statistics. Budgetary data on compensation of employees from the Ministry of Finance are used as indicator for compensation of employees within total government consumption. Indicator for compensation of employees within collective consumption is obtained as difference between total and individual.

The compensation of employees at constant prices is obtained by the extrapolation method, using the number of employees. The number of employees in section O (Public administration and defence; compulsory social security) of the NACE Rev. 2 is used as indicator for compensation of employees within collective consumption and the numbers of employees in sections P and Q of the NACE Rev. 2 are used as indicators for compensation of employees within individual consumption. The resulting series at previous year prices have been chain-linked with reference 2010 year, benchmarked and converted to previous year prices.

Using the average wage index is a methodologically better solution if other conditions are met, that is if an exhaustive set of data on number of employees and their salaries in a detailed breakdown by grades and activities is available. Extrapolation method with the number of employees is used due to lack of sufficiently detailed data on the breakdown of the employees in order to make a stratification of the employees in such a way that categories with significantly different changes in wage rates can be distinguished.

Intermediate consumption at current prices is obtained by disaggregating annual to quarterly data, using quarterly data on government intermediate consumption from the Ministry of Finance as indicator. The split in collective and individual intermediate consumption is carried out using the annual shares of these categories in total intermediate consumption (the same share is applied for all four quarters).

The intermediate consumption at constant prices is obtained using the deflation method. For deflation of intermediate consumption a composite price index is used. Starting point is financial statements of budgetary users, where a detailed breakdown of goods and services exists (there are 38 items of goods and services used for intermediate consumption, which are, for calculation purposes, aggregated to 19 categories). For each year the weights of these items are determined as the shares of each category in the total expenditures for use of goods and services and then an appropriate price index is chosen (the list of chosen indices is given in the table below). The next step is the calculation of the composite price index for each category – current weights (weights from the year t) of each item is multiplied with the relevant price index (in the year t) – which are used for deflation of intermediate consumption.

Benchmarked values at current prices are deflated with benchmarked deflator. The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

The following table presents an overview of the price indices used for intermediate consumption deflator calculation:

Table 4. Price indices used for intermediate consumption deflator calculation

	Goods and services	Price index
I	Regular expenses	
1.	Cost of payment operations and bank services	CPI Financial services n.e.c. (12.6)
2.	Energy	CPI Electricity, gas and other fuels (04.5)
3.	Communal services	CPI Water supply and miscellaneous services related to the dwelling (04.4)
4.	Communication	CPI Communication (08)
5.	Insurance	CPI Insurance (12.5)
6.	Rental of assets and equipment	CPI Actual rents (04.1)
7.	Other costs	CPI Subscription on radio, TV and cable TV (09.4.2.3)
II	Travelling costs	CPI Transport services (07.3), CPI Accommodation services (11.2) and Catering services index (11.1)
III	Contractual services	
1.	Administrative services	CPI Services
2.	Computer services	CPI Services
3.	Staff education and training	CPI Education (10)
4.	Information services	CPI Newspapers and periodicals (09.5.2)
5.	Expert services	CPI Services
6.	Laundering and catering services	CPI Food and non-alcoholic beverages (01) and CPI Goods and services for routine household maintenance (04.3)
7.	Presentation services	CPI Total
8.	Other general services	CPI Services
IV	Specialised services	CPI Services
V	Current repairs and maintenance (services and materials)	composite price index for buildings and structures
VI	Material	CPI Stationery and drawing materials (09.5.4)

Consumption of fixed capital at current prices is obtained by disaggregating available annual to quarterly current price data and extrapolation of the current year quarterly values, using statistical models.

Benchmarked current prices estimates are deflated with benchmarked deflator. As a deflator, quarterly PPI for capital goods is used (the same one is used for individual and for collective consumption). The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

Other taxes on production at current prices are obtained by disaggregating available annual to quarterly current price data and extrapolation of the current year quarterly values, using statistical models.

The other taxes on production at constant prices are obtained by the extrapolation method, using the number of employees. Number of employees in section O of the NACE Rev. 2 is used as indicator for other taxes on production within collective consumption and number of employees in sections P and Q of the NACE Rev. 2 is used as indicator for other taxes on production within individual consumption. The resulting series at previous year prices have been chain-linked with reference 2010 year, benchmarked and converted to previous year prices.

Social transfers in kind at current prices are obtained by disaggregating available annual to quarterly current price data and extrapolation of the current year quarterly values, using statistical models.

Benchmarked current prices estimates are deflated with benchmarked consumer price index for health. The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

Market output at current prices is obtained by disaggregating available annual to quarterly current price data and extrapolation of the current year quarterly values, using statistical models.

Market output at constant prices is obtained by the deflation method. Benchmarked current prices estimates are deflated with benchmarked deflator. For the collective part of market output, the deflator is the consumer price index for services. For the individual part of market output, deflator is a composite price index, derived by weighting the relevant consumer price indices. As weights, the annual shares of health, culture, education and social protection in total individual market output are used. The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

The following table presents an overview of the applied indicators for the calculation of government final consumption expenditure at current and constant prices:

Table 5. Applied indicators for the calculation of GFCE at current and constant prices

Categories	Current prices	Constant prices
Compensation of employees		
Collective	budgetary data, total minus individual	number of employees in section O
Individual	average wage * number of employees in sections P and Q, separately	number of employees in sections P and Q, separately
Intermediate consumption (IC)		
Collective	annual share of collective IC * budgetary data total	composite price index
Individual	annual share of individual IC * budgetary data total	composite price index
Consumption of fixed capital		
Collective	trend	PPI for capital goods
Individual	trend	PPI for capital goods
Other taxes on production		
Collective	trend	number of employees in section O
Individual	trend	number of employees in sections P and Q, separately
Market output		
Collective	trend	CPI Services
Individual	trend	composite price index
Social transfers in kind		
Collective	-	-
Individual	trend	CPI Health

Total GFCE at previous year prices is obtained by summing up compensation of employees, intermediate consumption, consumption of fixed capital, other taxes on production and social transfers in kind and by subtracting market output at previous year prices. This aggregate is chain-linked to obtain total GFCE value with 2010 as reference year.

5.3   NPISH FINAL CONSUMPTION

Non-profit institutions serving households final consumption expenditure has a small share in Serbian GDP, so quarterly estimates at current prices are obtained by disaggregating available annual to quarterly data and extrapolating of the current year quarterly values, with trend as related series, using ECOTRIM. Benchmarked current prices estimates are deflated with a benchmarked total consumer price index. The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

5.4   GROSS CAPITAL FORMATION

Gross capital formation is composed of gross fixed capital formation, changes in inventories and acquisitions less disposals of valuables (statistical discrepancy included).

Gross fixed capital formation covers a large range of different types of fixed assets, which are integrated into three main categories by technical structure:

1. buildings and structures,

2. equipment (with a split on investments in domestic and imported equipment),

3. other fixed assets.

Quarterly GFCF calculations at current and constant prices apply monthly or quarterly data at current prices from regular statistical surveys, various data on prices and quantities, and other indicators from the statistical system and other available data sources.

Quarterly values of construction works done at current prices from the Construction Statistics are an indicator for quarterly investments in buildings and structures. Implemented are the disaggregation of the available annual to quarterly data at current prices and the extrapolation of the current year quarterly values.

The indicator for investments in domestic equipment is quarterly output at current prices, from the production side, for divisions of the NACE Rev. 2 related to production of equipment. It is used as related series to disaggregate annual investments in domestic equipment.

Data on imports of equipment from the External Trade Statistics are used as indicators for imported equipment. These data are available on monthly basis in national currency (RSD).

For other investments, there is no appropriate indicator. Quarterly current price data on the other investments are obtained by disaggregating available annual to quarterly data and extrapolating of the current year quarterly values with a trend as related series, using ECOTRIM.

Table 6. Applied indicators for the current price estimates of GFCF

GFCF categories	Indicator
Buildings and structures	quarterly values of construction works done at current prices
Equipment	
Domestic	quarterly output at current prices for divisions of the NACE Rev. 2 related to production of equipment
Imported	data on imports of equipment
Other fixed assets	trend

Quarterly GFCF at constant prices is estimated using the deflation method. Benchmarked values at current prices are deflated with benchmarked deflators.

Investments in buildings and structures are the major part of the GFCF. The calculation of the quarterly investments in buildings and structures at constant prices is done by deflating the quarterly investments in buildings and structures at current prices. As deflator, a composite price index for buildings and structures is used. This index is obtained by weighting the appropriate producer price indices of industrial products and indices of average gross wages and salaries in construction. Annual weights are obtained on the basis of data from financial statements of construction enterprises. The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

The calculation of the quarterly investments in domestic equipment at constant prices is done by deflating the quarterly investments in domestic equipment at current prices. As deflator, a weighted PPI is used. This index is obtained by weighting the appropriate producer price indices of industrial products for domestic market, for divisions of the NACE Rev. 2 related to production of equipment. Annual weights are determined by the share of output of each division in the sum of outputs of above mentioned divisions. The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

The calculation of the quarterly investments in imported equipment at constant prices is done by deflating the quarterly investments in imported equipment at current prices. Quarterly deflators are composite price indices based on PPIs for the 10 most important import partners. These data are obtained from their national statistics, on monthly basis, adjusted with change of exchange rates of their currencies in RSD and weighted with the shares of imports from these countries. The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

The calculation of the quarterly investments in other fixed assets at constant prices is done by deflating the current prices values using weighted deflator. This index is obtained by weighting the appropriate producer price indices, consumer price indices and composite price index for buildings and structures. Annual weights are obtained on the basis of data from the "Annual survey on investments in fixed assets". The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

Gross fixed capital formation (GFCF) at previous year prices is obtained by summing up categories by technical structure at previous year prices. This aggregate is chain-linked to obtain total GFCF value with 2010 as reference year.

Table 7. Applied indicators for the constant price estimates of GFCF

GFCF categories	Indicators
Buildings and structures	composite price index
Equipment	
Domestic	weighted PPIs for divisions of the NACE Rev. 2 related to production of equipment
Imported	weighted PPIs for the 10 most important import partners
Other fixed assets	composite price index

Due to a fact that acquisitions less disposals of valuables have a small share in Serbian GDP and that quarterly data on changes in inventories are very limited, quarterly changes in inventories plus acquisitions less disposals of valuables at current and constant prices are treated as residuals between estimation of total GDP by the production approach and the sum of other components of GDP by the expenditure approach (household final consumption expenditure, NPISH final consumption expenditure, government final consumption expenditure, gross fixed capital formation and net export). Consequently, this residual may contain a statistical discrepancy. Since this residual can take either negative or positive value, it cannot be chain-linked and the only volume expression available is at previous year prices. The magnitude of the resulting estimate is considered as an implicit measure of the quality of the other estimated components.

5.5   IMPORTS, EXPORTS

Quarterly exports and imports calculations at current and constant prices use monthly or quarterly data at current prices from regular statistical surveys, various data on prices and quantities, and other indicators from the statistical system and other available data sources. It has been done separately for goods and services.

For quarterly calculations of exports and imports of goods and exports and imports of services, data from the National Bank of Serbia are used as indicators for current prices.

Exports of goods - Data on exports of goods at current prices from National Bank of Serbia are an indicator for export of goods. These data are available on monthly basis in national currency (RSD).

Exports of services - Data from National Bank of Serbia are used as indicators for export of services. These data are on monthly basis and in US Dollars (USD). Data in national currency (RSD) are obtained using corresponding USD exchange rate in RSD.

Imports of goods - Data on imports of goods at current prices from the National Bank of Serbia are an indicator for imports of goods. These data are available on monthly basis in national currency (RSD).

Imports of services - Data from the National Bank of Serbia are used as indicators for imports of services. These data are available on monthly basis in USD. Data in national currency (RSD) are obtained using corresponding USD exchange rate in RSD.

Export of goods - The compilation of export of goods at constant prices is done using a composite price index based on indices of export producers' prices of industrial products in the Republic of Serbia and indices of producer prices of agricultural products in the Republic of Serbia. Weights are determined as the shares of industrial and agricultural products in total export of these goods.

Export of services - The calculation of the quarterly export of services at constant prices is done by deflating the quarterly values at current prices. The deflator for the export of services is total CPI obtained from the Price Statistics, on monthly basis.

Imports of goods - The calculation of the quarterly imports of goods at constant prices is done by deflating the quarterly values at current prices with composite price index based on PPIs for the 10 most important partners for imports of goods. These data are taken from their national statistics, on monthly basis, adjusted with changes of exchange rates of their currencies in RSD and weighted with the shares of imports of goods from these countries.

Imports of services - The calculation of the quarterly imports of services at constant prices is done by deflating the quarterly values at current prices with composite price index based on CPIs for the 10 most important partners for imports of services. The information about the range of countries from which services are imported is obtained from the National Bank of Serbia. CPI data for these countries are taken from their national statistics on monthly basis, adjusted with changes of exchange rates of their currencies in RSD and weighted with the shares of imports of services from these countries.

Benchmarked values at current prices are deflated with benchmarked deflators. The resulting chain-linked series with reference 2010 year are benchmarked and converted to previous year prices.

Values of exports of goods and export of services at previous year prices are summed up to obtain the total exports value at previous year prices. The aggregate is chain-linked to obtain the total export value with 2010 as reference year.

Values of imports of goods and imports of services at previous year prices are summed up to obtain the total imports value at previous year prices. The aggregate is chain-linked to obtain the total imports value with 2010 as reference year.

Table 8. Applied indicators for the current price estimates of exports and imports

Exports/Imports categories	Indicator	
	goods	services
Exports	data on exports of goods at current prices from the National Bank of Serbia (BoP)	data on exports of services from the National Bank of Serbia (BoP)
Imports	data on imports of goods at current prices from the National Bank of Serbia (BoP)	data on imports of services from the National Bank of Serbia (BoP)

Table 9. Applied indicators for the constant price estimates of exports and imports

Exports/Imports categories	Indicator	
	goods	services
Exports	composite price index	CPI Total
Imports	composite price index	composite price index

6 GDP COMPONENTS: THE INCOME APPROACH

The quarterly income approach has not been implemented yet, due to lack of short-term data sources for the specific components.

7 POPULATION AND EMPLOYMENT

7.1 POPULATION

Population data represented in the national accounts are based on the official current population statistics data. The population trend is the result of births and deaths lists registered by the Civil Register Offices and data about migration (moves to and from Serbia). The legal basis is the law regarding population statistics.

Based on Census and annual results of processing of natural and mechanical population statistics movement, population estimates are produced for both the Census and the post Census years. Also, according to the results of the latest Census, the population estimates in the previous inter-census period are being revised. Estimated number of inhabitants, together with the data of statistics of births, deaths and the internal migration of population (by age, sex, type of settlement, etc.) constitutes a basis for annual calculation of basic demographic indicators. Also, based on the estimated age-sex structure of the population and demographic indicators trends (using a cohort-component method), future trends of the population are being projected.

The quarterly population averages in the QNA are calculated for the respective quarter as the arithmetic mean of three monthly dates of the current population statistics. The annual mean results are initially determined on the basis of the quarterly means and later reconciled with the final annual results of the current population statistics once these have been published.

7.2   EMPLOYMENT: PERSONS

Data on employment are being collected through the following surveys, conducted by the Employment and Earnings Statistics:

- Monthly survey of employees and their salaries and wages;
- Semi-annual Survey on employees and their salaries (wages) and Survey for the supplement of the Semi-annual Survey for small enterprises with up to 50 employees;
- Semi-annual Report on private entrepreneurs and their employees;
- Labour Force Survey (LFS).

Monthly figures are obtained through the regular monthly survey on employees and their salaries and wages, which is a sample survey.

Data on employees in all enterprises, institutions and organisations of all types of ownership are obtained on the basis of regular semi-annual Report on employees and their salaries and wages and by the Inquiry for the semi-annual Report supplement, which provides evaluations on employed persons in enterprises and other organisations having less than 50 employed persons. These surveys do not include foreign citizens employed in Serbia, Serbian citizens employed in the representative offices of foreign countries on the territory of Serbia, employees in military service, employees with employment status standing still for more than one year, active members of the armed forces and civilians employed in the army, employees in the institutions of interior and our branch offices abroad.

Data on private entrepreneurs and their employees are collected by the Semi-annual Report and by the National Health Insurance Fund.

The term "employed" refers to all persons that have contracted employment with an employer. The persons that work pursuant to a job contract or a contract on casual engagement are not considered employed.

Data on employed and unemployed persons, harmonized with the recommendations and definitions of the ILO and Eurostat, are collected through the Labour Force Survey that observes the population aged 15 and over, relative to the activity status in the respective week and not according to formal activity status of the persons interviewed.

The term "employed" in LFS refers to persons who performed, for at least one hour in the week in which the survey was conducted, some work in order to earn a means for their living, as well as persons who did not perform any work, due to absence from work during that week. A work providing means for living is each work being remunerated in cash or in kind.

The data coverage on employment that has been collected through the above mentioned surveys is insufficient for the purposes of employment calculation in national accounts and some additional adjustments will be done in the future.

7.3   EMPLOYMENT: TOTAL HOURS WORKED

This issue has not been dealt with by SORS.

8   FROM GDP TO NET LENDING/BORROWING

This issue has not been dealt with by SORS.

9   FLASH ESTIMATES

9.1   FLASH GDP ESTIMATE

A flash estimate is the first estimate of the quarterly gross domestic product, according to the concepts of the national accounts, calculated and published as soon as possible after the end of the reference quarter, on the basis of available information.

The SORS has published the flash estimate of the quarterly gross domestic product since March 2010. This estimate is published 30 days after the end of the reference quarter. It is released on the SORS website in the form of press release as a single figure, showing Q to Q-4 real growth rate and it is included in the official releases calendar.

To achieve maximum reliability, the general principle adopted in SORS for the GDP flash estimate is to use the same methods and sources as for the t+60 days estimates, wherever possible.

Output indicators are generally regarded as being better guides to short-term movements in GDP than expenditure indicators. The components of the output measure of real GDP can be classified in two categories: series for which data are already available (based on monthly indicators - data on retail trade sales, external trade figures, volume indices for the industrial production, the consumer price indices, the producer price indices, number of employees etc.) and series for which there is no information or exist only a part of the needed information (based on statistical models and econometric forecast procedures - missing indicators are forecasted using one or two months of the quarter that are possibly available to predict the remaining information).

9.2   FLASH EMPLOYMENT ESTIMATE

This issue has not been dealt with by SORS.

10   MAIN DATA SOURCES USED

The main data sources used for the QNA compilation are presented in the following table:

Table 10. Data sources used for the QNA compilation

	Data source	Periodicity	Indicators
1	*Quarterly Structural Business Survey*	quarterly	revenues from sales of goods, products and services; revenues from the own use of products and services; revenues from premiums, subsidies, donations, etc. and other operating income (revenues from rents, memberships, license reimbursements and other operating income)
			purchase value of sold goods; costs of materials; costs of salaries, remuneration and other personal costs; costs of production and non-production services, excluding taxes and contributions
2	*Household Budget Survey*	quarterly	the expenditure of personal consumption of households according to the COICOP
3	*Employment and Earnings*		
	Monthly survey of employees and their salaries and wages	monthly	number of employees and wages and salaries
	Semi-annual Survey on employees and their salaries (wages) and Survey for the supplement of the Semi-annual Survey for small enterprises with up to 50 employees	semi-annual	number of employees and wages and salaries
	The Semi-annual survey on private entrepreneurs (persons that independently perform activity-occupation) and their employees	semi-annual	number of employees and wages and salaries
	Labour Force Survey	semi-annual	number of employees
4	*Price Statistics*		
	Price indices of the producers' products of agriculture and fishing	monthly	price index (PPI)
	Price indices of the producers' industrial products for domestic and non-domestic market	monthly	price index (PPI)
	Consumer Price Index by COICOP	monthly	price index (CPI)
5	*Internal Trade*		
	Monthly Survey of Retail Trade	monthly	data on turnover of goods in retail trade - division 47, NACE Rev. 2
	Monthly report on purchase of agricultural products from individual holdings	monthly	data on sales and purchases of agricultural, forestry and fishing products from individual agricultural holdings

Table 10. Data sources used for the QNA compilation (continued)

	Data source	Periodicity	Indicators
	Monthly report on realized agricultural production of legal entities in agriculture	monthly	data on sales and purchases of agricultural, forestry and fishing products realized agricultural production of legal entities in agriculture
	Monthly report on turnover of agricultural products on green-markets	monthly	data on the total volume and structure of the sales of agricultural products at organized markets (so-called village markets or green markets) carried out by family agricultural holdings
	Quarterly Survey of wholesale and retail trade, and repair of motor vehicles and motorcycles	quarterly	data on turnover of goods in wholesale and retail trade, and repair of motor vehicles and motorcycles - divisions 45 and 47, NACE Rev. 2
	Quarterly Survey of wholesale trade	quarterly	data on turnover in wholesale trade in wholesale trade activity - division 46, NACE Rev. 2
	Quarterly Survey of retail trade	quarterly	data on turnover of goods in retail trade - division 47, NACE Rev. 2
6	*Tourism*		
	Monthly survey on tourist arrivals and overnight stays in accommodation facilities	monthly	number of arrivals and overnight stays in accommodation facilities
7	*Catering*		
	Quarterly statistical survey of legal units carrying on catering trade and quarterly survey of sole entrepreneurs	quarterly	turnover in catering trade (services of accommodation, food, drinks, as well as the other services usually performed in catering trade)
8	*Transport, Storage and Communications*		
	Quarterly statistical reports of enterprises in the field of Transport and communications	quarterly	the physical volume indices of transport services for railway transport, road transport, urban transport, pipeline transport, inland waterway transport, storage and transhipment services, air transport, postal activities and telecommunications
9	*Construction*		
	Quarterly survey on construction	quarterly	data on construction activity of enterprises (value of construction work done, number of workers on construction sites and hours worked on construction sites, number and floor area of completed and number of non-completed dwellings in the territory of the Republic of Serbia)
10	*External Trade*		
	Unified customs document on the imports and exports of goods – Custom Declaration	monthly	value of exports and imports of goods and indices of exports and imports unit values

Table 10. Data sources used for the QNA compilation (continued)

		Data source	Periodicity	Indicators
11		*Industry*		
		Monthly survey of industry	monthly	data on the total produced quantities, sub-contracted produced quantities, quantity of stocks at the end of the reference months and on sold industrial products from the beginning of the current year
12		*Agriculture*		
		Statistics of crop production	annual	data on sown areas in autumn and spring sowing period, harvested areas and yields for about 50 field crops, areas and yields of orchards and vineyards, and the total number of trees/vines
		Livestock breeding statistics	annual	data on livestock number and livestock balance, by type and categories, number of livestock units and beehives, production of milk, eggs, wool and honey as well as data on the total slaughtering and slaughter of livestock in slaughterhouses, meat production and increase, by species of livestock
13		*Population*	quarterly	estimates, projections and demographic indicators
14		*Monthly statements on deposits and bank claims (NBS)*	monthly	data from monthly banking statistics on stocks of loans and deposits
15		*Balance of payments (NBS)*	monthly	data on exports and imports of goods and services
16		*Exchange rates (NBS)*	monthly	data on exchange rates
17		*Insurance supervision (NBS)*	quarterly	data on insurance premiums
19		*Expenditures and revenues of government budget (Ministry of Finance)*	monthly	expenditure of the government (raw materials and utilities, services used repairs, wages and salaries); revenues (revenue from sales of goods and services, capitalization, penalties, interest, revenue from sales of equity, revenue from allowances and subsidies etc.)
20		*Treasury Administration data (Ministry of Finance)*	monthly	taxes on products and services, customs duties, subsidies

1. Quarterly Structural Business Survey

Quarterly Structural Business Survey was introduced in the statistical system in 2007, as a pilot survey. The results have been published quarterly since 2009.

The main data sources for completing the report are bookkeeping records of enterprises (financial and cost accounting) and other records (tax, personnel, etc.). The survey includes enterprises and other legal entities that produce goods and provide services mainly for the market. This survey is based on the sample of the selected units. The sample consists of about 2900 units, of which about 1500 largest are chosen on purpose.

Operating revenues include revenues from sales of goods, products and services; revenues from the own use of products and services; revenues from premiums, subsidies, donations, etc. and other operating income (revenues from rents, memberships, license reimbursements and other operating income).

Operating expenses include purchase value of sold goods; costs of materials; costs of salaries, remuneration and other personal costs; costs of production and non-production services, excluding taxes and contributions.

All data are at current prices. Value added tax (VAT) is excluded.

2. Household Budget Survey

Household Budget Survey has been carried out according to international standards and recommendations of Eurostat, ILO and UN since 2003, providing international data comparability. The Survey covered the territory of the Republic of Serbia on a sample basis (200 households are interviewed every fifteen days, i.e. 4800 households annually).

The Survey collects data on income, expenditure and household consumption, i.e. the data on basic elements of individual consumption. Besides, it compiles data on some important living standard indicators (dwelling conditions, supply with durable consumer goods, etc.), as well as certain basic data related to demographic, economic and social features of households. Individual consumption of households is presented by the 12 groups of COICOP.

3. Employment and Earnings

Data on the number of employees, who have signed a work contract with an employer (a formal legal employment contract) are collected by statistical surveys (for employees at legal entities) and from the registry records of the National Health Insurance Fund (for entrepreneurs and their employees). That is formal employment.

Data are collected through the following surveys:

- Monthly survey of employees and their salaries and wages
- Semi-annual Survey on employees and their salaries (wages) and Survey for the supplement of the Semi-annual Survey for small enterprises with up to 50 employees
- Semi-annual Report on private entrepreneurs and their employees

In addition to the above mentioned, the Labour Force Survey is conducted. The term "employed" in LFS refers to persons who performed, for at least one hour in the week in which the survey was conducted, some work in order to earn a means for their living, as well as persons who did not perform any work, due to absence from work during that week. A work providing means for living is each work being remunerated in cash or in kind.

Included are also individual agricultural producers, family workers, as well as persons who performed some work independently found and arranged without employment contract as the only source of income. This survey does not take into account the formal activity status of the person being interviewed, but the activity status of that person is determined by the actual activities performed in the respective week.

The Labour Force Survey covers the population aged 15 and over, on a sample basis. Target sample size was determined as about 22000 households.

4. Prices

Producers' prices of agricultural and fishing products are calculated based on quantities and values of purchased and sold products, obtained from the Trade Statistics and Agricultural Statistics. Starting from 2013, indices of producer prices of agricultural and fishing products are calculated according to the methodology that is harmonized with the European standards.

Indices of producer prices of agricultural and fishing products (purchase prices for products of individual agricultural producers and selling prices for products from legal entities' production), are calculated regarding the list of around 100 products of crop farming, fruit growing and viticulture, livestock breeding, home processing and fishing.

Price indices of the producers' industrial products are based on prices that are collected by monthly surveys submitted directly by selected commercial enterprises for around 1500 manufactured items of 29 divisions of industrial production. The selection of commercial enterprises is made on the basis of data on their share in the total value of industrial production. Products for monitoring of prices are selected from each industrial area, with the highest sale in the domestic and foreign market, whose prices may represent the general trend of prices in the industry by sectors and by products destination.

Index of export producers' prices is calculated according to methodology harmonized with methodology for calculating indices of producers' prices in domestic market and is based on international statistical principles and recommendations. Prices are collected in foreign currencies and indices are calculated in RSD, according to the mean exchange rate of the National Bank of Serbia.

Based on the collected prices of industrial products for domestic market and exports and appropriate weights, indices of producers' prices - total (for domestic and non-domestic market) are calculated.

For the consumer price index calculation, prices are collected for 606 products and services classified into 12 divisions by COICOP, which are purchased by households and which aim to satisfy the households' needs.

5. Internal Trade

Internal trade includes: wholesale and retail trade and repair of motor vehicles and motorcycles, wholesale trade except of motor vehicles and motorcycles and retail trade except of motor vehicles and motorcycles. Internal trade statistics comprises trade turnover of goods in terms of both value and quantity. Data are collected through regular monthly, quarterly, semi-annual and annual surveys, from bookkeeping and other records of enterprises active in retail and wholesale trade. All surveys are conducted using the sampling method. The surveys cover all large, medium-sized and small companies selected by random sampling.

6. Tourism

Tourism statistics in monthly periodicity, by a reporting method, collect data on tourism turnover and accommodation facilities from business entities that provide accommodation or mediating in this kind of services. Tourist turnover is defined by the number of arrivals and overnight stays in accommodation facilities and the capacity by the number of accommodation facilities and number of rooms and beds. Applied methodological solutions have been harmonized with international recommendations for tourism statistics (UN/WTO, Eurostat).

7. Catering Trade

Catering trade turnover presents a bookkeeping accounted value of provided catering trade services (accommodation, food, beverages) and other services that are commonly performed in the catering trade (transport of guests and luggage, catering craft activities, sales of tobacco, souvenirs, newspapers, etc.). Data on the turnover in the Catering Trades, by months, relate to legal entities and entrepreneurs turnover and present estimates derived from monthly variations and assessment of the turnover's trends.

8. Transport, Storage and Communications

Basic data for transport and communications are obtained by regular monthly, quarterly and annual statistical reports, collected from enterprises engaged in these activities. These data are used for the calculation of the physical volume indices of transport services for railway, road, urban, pipeline, inland waterway and air transport, post and telecommunications and storage services.

All classifications and nomenclatures applied in Transport, Storage and Communications statistics are harmonized, to the greatest possible extent, with the recommendations of the Committee for Domestic Transport of the Economic Commission for Europe, mostly providing the international data comparability.

9. Construction

Construction statistics provides monitoring of the construction activities of physical persons and legal entities that perform construction activity and are classified in the section of Construction, as well as legal entities that are not classified in this section, but that perform construction works, in accordance with the EU regulation.

Quarterly survey on construction collects data on value of contracted and realized works in the country and abroad, data on average number of workers on construction sites and hours worked in the reporting quarter, as well as data on number and area of completed and non-completed dwellings.

10. External Trade

The basic data source on the External Trade statistics is a Customs Declaration, the Single Administrative Document (SAD). The observation unit in the External Trade Statistics is every goods delivery carried out in the scope of goods exports and imports.

In 2010, according to the recommendations of the UN Statistics Division, the General Trade System was introduced, which presents a broader concept of exports as well as imports and it includes all goods entering or leaving the economic territory of the country, with the exception of goods in transit. The value of goods in external trade is presented on the basis of prices achieved by enterprises while concluding contracts.

11. Industry

Monthly data on industrial production are collected using two questionnaires:
 • Questionnaire which serves the purpose of collecting data on the total produced quantities, sub-contracted produced quantities, quantity of stocks at the end of the reporting months and on sold industrial products from the beginning of the current year;
 • Questionnaire for small-size business entities which serves the purpose of collecting data on monthly basis as regard the income generated by the sale of own products and services of producers belonging to the section Manufacturing.

Reporting units are local production units of companies registered in sections B (Mining and quarrying), C (Manufacturing) and D (Electricity, gas, steam and air conditioning supply) of the NACE Rev. 2, as well as parts of non-industrial companies performing industrial activity.

Based on collected data on industrial production and the corresponding weights, industrial production indices are calculated.

12. Agriculture and Forestry

The index of physical volume of agricultural production is calculated on the basis of the data from regular agricultural statistical surveys referring to the volume of crop and livestock production, as well as on the basis of the data on agricultural producers' average prices at the level of the Republic of Serbia. All economically important agricultural products are included in the list of 56 products. For agriculture as a whole, gross and net indices have been calculated. The agricultural production of all 56 products from the list has been taken into account in the calculation of the gross index number, but fodder (50% of maize, barley, oats, fodder crops and meadow hay) has been excluded from the calculation of the net index in order to avoid double counting.

The physical volume index of forests exploitation is calculated on the basis of data on the production of forest assortments and weights coefficients.

13. Population

Population data are based on the official current population statistics data. The population trend is the result of births and deaths lists registered by the Civil Register Offices and data about migration (moves to and from Serbia). The quarterly population averages presented in the national accounts are calculated for the reference quarter as the arithmetic mean of three monthly dates of the current population statistics.

14. Monthly statements on deposits and bank claims

This source contains data on stocks of deposits of non-monetary sector in commercial banks and bank claims from non-monetary sector (in RSD and in foreign currencies), by sectors (public enterprises, companies, households, entrepreneurs, local government, other financial organizations, non-profit and other organisations) and maturity (short-term and long-term). These data are published on the NBS website.

15. Balance of Payments

The Balance of Payments is compiled according to the IMF methodology. Data are disseminated at monthly and annual level, in EUR million. The value of transactions is recalculated from original currencies into reporting currency by applying the official middle exchange rates of the National Bank of Serbia on the transaction date.

Data source on the realized exports and imports of goods is a Customs Declaration, the Single Administrative Document (SAD). Data on exports and imports of goods are adjusted in accordance with Sixth Edition of the Balance of Payments and International Investment Position Manual, International Monetary Fund, 2009.

Data on exports and imports of services are obtained from the statistics of international payment transactions that are realized through the commercial banks and the National Bank of Serbia. These data are published on the NBS website.

16. Exchange rates – average for the period

Exchange rates represent average exchange rates of the RSD against foreign currencies in a month/year, calculated as an arithmetic mean of the official middle exchange rates of the RSD against foreign currencies applicable on business days during the relevant month/year. These data are published on NBS website.

17. Insurance supervision

Data on total insurance premiums are collected through quarterly reports that all registered supervised entities, engaged in activities directly linked to insurance business, deliver to the National Bank of Serbia. These data are published on the NBS website.

18. Expenditures and revenues of government budget

The Ministry of Finance collects data on expenditures and revenues of the government budget. Expenditure items include payments related to coverage of business expenses (electricity, phone bills etc.), business trips, services contracts, current maintenance and procurement of material, repayment of interests, compensation of employees, subsidies, social insurance and social welfare expenses, taxes and fees, interest, etc. Revenues include, tax revenues, revenue from sales of goods and services, penalties, property revenues (collected interest, rental fees) compensations, fines, sale of capital goods, as well as the capital transfers from non-governmental institutions.

Subsidies comprise all the funds transferred to the economic sector (public enterprises, registered agricultural holdings etc.) for coverage of current expenses and/or the grant intended for current business activities.

19. Treasury Administration data

Information on distributed public revenues of the Treasury Administration of the Ministry of Finance is the main source of data on taxes on products (value added tax - national VAT, import VAT and the arrears of turnover taxes from the previous years; excise duties - consumption taxes concerning specific products such as oil, tobacco, coffee, alcoholic beverages etc.; customs duties and other import duties - revenues from duties paid for imports of goods and services, with the exception of the VAT on imported goods that is included in VAT revenues). Data are provided on a monthly basis.