QUARTERLY
NATIONAL ACCOUNTS
INVENTORY

BULGARIA

Description of data sources and methods used
for Quarterly National Accounts

Under EC Grant Agreement No.831408/2018

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Abbreviations

BNB	Bulgarian National Bank
BNSI	Bulgarian National Statistical Institute
BoP	Balance of Payment
BS	Business Statistics
CFC	Consumption of Fixed Capital
COP	Constant Prices
CPI	Consumer Price Index
CUP	Current Prices
DSS	Demographic and Social Statistics
DTP	Data Transmission Program
ECB	European Central Bank
ESA 2010	European System of Accounts 2010
ESS	European Statistical System
EU	European Union
FISIM	Financial Intermediation Services Indirectly Measured
FNA	Financial National Accounts
FTS	Foreign Trade Statistics
GFCF	Gross Fixed Capital Formation
GDP	Gross Domestic Product
GNI	Gross National Income
GO	Gross Output
GVA	Gross Value Added
HBS	Household Budget Survey
IC	Intermediate Consumption
IIP	International Investment Position
MES	Macroeconomic Statistics
NA	National Accounts
NACE, Rev.2	European Classification of Economic Activities, Revision 2
NFNA	Non-Financial National and Regional Accounts
NPISH	Non-Profit Institutions Serving Households
NSI	National Statistical Institute
NSP	National Statistical Program
NSS	National Statistical System
QNA	Quarterly National Accounts

R&D	Research and Development
SUT	Supply and Use Tables
VAT	Value Added Tax

Preliminary remarks

The present document contains the detailed description of the quarterly methods and sources used for the compilation of the GDP in compliance with the ESA 2010. It is an updated version of the description of quarterly calculation of national accounts in accordance with ESA 1995.

Structure and content of this document is based on the recommendations of Eurostat. The document is focused exclusively on the quarterly GDP and its components compilation.

The description is the result of a Eurostat grant 831408-2018/BG/NA-BOP.

This document will be updated in the future if there are significant changes in the methodology or calculation procedures.

Chapter 1 Overview of the system of quarterly National Accounts

1.1. Organisation and institutional arrangements

The BNSI is a legal budgetary entity with the status of state agency. It is managed by a President and Deputy presidents which are appointed by the Bulgarian Council of Ministers for a term of seven years.

According to the Statistics Act, BNSI is a government institution with the functions to organise, coordinate and produce official statistics independently within the National Statistical System. The activity of BNSI is conducted according to the Annual National Statistical Program approved by the Council of Ministers and based on a five years strategic plan and the related documents of European Statistical System. Once approved by the Council of Ministers and by the Parliament, the NSP has a status of legal document, which sets obligations and responsibilities to all parts in the statistical process: both to the observed statistical units and to the statistical authorities.

The NSS carries out activities related to collecting, processing, analysing and storing of statistical data, as well as provision and dissemination of official statistical information in the country. Its mission is to provide objective, timely and accurate information about the state and directions for development of the economic, social, demographic and environmental fields. The NSI plays the leading methodological and coordinating role in the NSS. The NSS includes also other Bodies of Statistics – the respective structural units within ministries, institutions and other central and territorial bodies of the executive power, which carry out statistical activity.

The BNSI consists of the Head office in Sofia and six main Regional offices. The organisation and coordination of the statistical work is a matter of competence of the Head office, while the regional offices are engaged in the collection of primary data and the execution of the procedures for statistical control of the incoming data defined by the head office.

Within the organisational structure of the Head office, three directorates are directly engaged in production of statistical information - Business Statistics directorate, Macroeconomic Statistics directorate and Demographic and Social statistics directorate.

In Bulgaria, NA indicators are compiled by the BNSI. The position of the BNSI as an agency including its mission, tasks, organizational structure, its rights and duties are defined by the Statistics Act, amended on 14 of November 2008.

As regards the responsibilities in the field of NA, two divisions in the MES are involved in the work - "Non-financial national and regional accounts" and "Financial national accounts". NFNA division is involved in the process of elaboration of the annual and quarterly national accounts for GDP, GNI, SUT, Employment and hours worked, Sector accounts and other relevant indicators on national and (where applicable) regional level. The integral work of the NFNA both for preparation of short term and annual indicators provide an opportunity to ensure a close and permanent monitoring of the data sources and consistency between them. The work in the field of NFNA area is distributed among 13 experts. FNA division is responsible for the Annual financial accounts and EDP and 8 experts are engaged in the unit.

1.2. Publication timetable, revisions policy and dissemination of QNA

Two main types of revisions of national accounts data are applied in practice. The routine revisions relate mostly to the different periods when the source data are available for NA purposes and respectively to the stages of finalisation of the national accounts. Main (benchmark) revisions are introduced in cases of methodological changes and improvements of the compilation procedures, or when new data sources become available.

Routine revisions:

Three versions of national accounts data exist as regards the applied policy for regular revision: preliminary annual data as cumulative aggregates of quarterly estimates; pre-defined annual data when more detailed annual information from statistical surveys, bookkeeping reports and administrative information become available; final estimates resulting from the balanced SUT.

The timetable for production and dissemination of the national accounts data and their revisions is closely related to the Data Transmission Programme under ESA 2010, GNI and EDP reporting obligations.

Flash GDP estimate by production approach is available at 30 days after the reference period.

First quarterly data /flash estimates/ of GDP by production and expenditure approaches are available at 42-43 days after the reference period.

For the first time the flash estimates for GDP in Bulgaria were officially presented for Q1 2009. Starting from the estimate for first quarter of 2008 as an experimental work, these estimates were published approximately 45 days after the end of the reference quarter under the official name "GDP express preliminary estimate ".

Scope of preliminary estimates is limited to volume indices and current values at current prices of GDP and its main components from the production and expenditure side.

The first set of regular quarterly data for GDP (excluding flash estimates at T+42-43 days after the reference period) is produced 60 days after the reference period.

The next set of semi-definitive results based on the detailed annual statistical, bookkeeping and administrative data sources are produced nine months after the reference year.

The revisions of quarterly data are conducted regularly after the compilation of the annual national accounts - pre-defined and finally balanced annual national accounts. The revisions are introduced in September each year when the preliminary estimates of the previous year are prepared, together with the revised annual national accounts data.

The revisions of the preliminary quarterly results for previous quarters within the same year are performed only in the cases of significant differences occurred in the source data. Quarters of the current year may be corrected on the basis of more complete and updated quarterly data sources.

Main revisions:

In accordance with the revision policy, time series of national accounts data can be revised as a result of applying new methodologies and procedures and as a result of basic changes in the sources and methods of compiling of GDP aggregates as well as introduction in the official data GNI reservations and recommendations.

Table 1-1 Timetable for compilation and dissemination of national accounts data according to the National statistical program

Sets of accounts - periodical versions of the accounts	preliminary data	pre-defined data	final data
	days	months	years
Quarterly accounts			
GDP preliminary flash estimates	T+30 d		
GDP flash estimates - production and expenditure	T+42-43 d		
GDP - production, expenditure and income	T+60 d	T+9 m	T+3 y
Employment	T+42-43 d		
Employment and Hours worked	T+60 d	T+9 m	T+3 y
Labour productivity	T+60 d	T+9 m	T+3 y

Non-financial accounts by institutional sectors - general government and rest of the world account	T+90 d	T+9 m	T+3 y
Annual accounts			
GDP - production, expenditure and income	T+60 d	T+9 m	T+3 y
Labour accounts and labour productivity	T+60 d	T+9 m	T+3 y
Regional GDP		T+12 m	T+3 y
GDP by expenditure approach - detailed expenditure groups		T+9 m	T+3 y
Non-financial accounts by institutional sectors		T+12 m	T+3 y
SUT, Input Output tables			T+3 y
Financial balance sheets by institutional sectors, revaluation, other changes in volume		T+9 m	T+3 y
Financial accounts transactions		T+9 m	T+3 y
Government accounts			
Annual non-financial accounts by sub-sectors of general government	T+90 d	T+12 m	T+3 y
EDP notification of general government deficit and debt	T+90 d	T+10 m	T+3 y
Annual expenditures by sub-sectors and by COFOG groups		T+12 m	T+3 y
Annual tax statistics and social security contributions		T+9 m	T+3 y
National accounts for EU own resources purposes			
GNI at market prices	T+60 d	T+9 m	T+3 y
Weighted average VAT rate			T+1 y

1.3. QNA compilation approach

The methodology for compilation of QNA follows the recommendations and principles of the European System of Accounts (ESA 2010). Statistical methods used for compiling QNA belong mainly to the group of the so called "direct procedures". This approach is facilitated by availability of relatively extensive direct data sources, represented mainly by the quarterly enterprise survey, household budget survey, labour force survey, administrative fiscal data, balance of payments and international investment position. The use of indirect procedures consisting in desegregation of annual figures with the help of proxy indicators is limited to the cases when sufficient quarterly sources are not available.

In principle the same procedure is applied for reconciliation of pre-definitive and final annual national accounts data among quarters.

1.4. Balancing, benchmarking and other reconciliation procedures

Quarterly GDP is compiled independently using two methodological approaches – the production approach and the expenditure approach. The income approach is not involved in the balancing process because gross operating surplus (including mixed income) is derived as a residual item.

The differences between first preliminary annual results and pre-defined and final annual figures are allocated among the quarters proportionally to the initial quarterly structure of the preliminary estimates within the year. In addition, the direct information observed by the annual enterprise surveys about the periods within the year when the units were being active is used.

1.5. Volume estimates

General procedure for volume measures consists of two steps: First figures at current prices are converted to an average previous year prices using appropriate price indices. Figures at previous year prices are then chain-linked in order to obtain comparable time series of volume measures.

Chain-linking of quarterly figures is performed using the annual overlap technique. The differences between first preliminary annual results and predefined and final annual figures are allocated among the quarters proportionally to the initial quarterly structure of the preliminary estimates within the year.

1.6. Seasonal and calendar adjustment

In 2008, GDP and its components according to the production, expenditure and income approaches are experimentally calculated in terms of seasonally adjusted time series. Since September 2010, the seasonally adjusted data have been officially published. Calculations are made using the Tramo/Seats method using JDemetra+ software . Seasonal adjustment is conducted each quarter. Once a year, within estimate for second quarter (published in September) become available, whole time series of seasonally adjusted data are revised. Within estimates for the other quarters, revision of adjusted data is limited only to periods for which raw data are revised. Working-day correction is performed in JDemetra+.

1.7.Additional information

Main website dedicated to the statistical data of Bulgaria is: http://www.nsi.bg/en

GDP data are published on: http://www.nsi.bg/en/node/5437

Data on Employment, Hours worked and labour productivity are published on: http://www.nsi.bg/en/node/13220

All national accounts data before 2014 (for quarterly data) are published in a database: https://infostat.nsi.bg/infostat/pages/external/login.jsf

Chapter 2 Publication timetable, revisions policy and dissemination of QNA

2.1. Release policy

Current estimates of the QNA indicators are published about 65 days after the end of the reference period. News releases (press releases) of GDP data include information for the main indicators at current prices and seasonal adjusted data.

Emphasis is put both on GDP by production and expenditure approaches. The news releases are accompanied by a set of tables and time series. All the information is published on the web site of the BNSI - http://www.nsi.bg/en/node/17033/

A separated press release is published for Labour productivity data - http://www.nsi.bg/en/node/17031/

According to the release policy, BNSI publishes a press release for Bulgaria and EU presenting the information for Member states GDP estimates published by Eurostat - http://www.nsi.bg/en/node/17037

In addition to current estimates, preliminary GDP estimates are also published, approximately on the 45th day after the end of the reference quarter. The press releases of preliminary estimate include only information on year-on-year and quarter-on-quarter GDP growth rate - http://www.nsi.bg/en/node/16793/

The quarterly accounts are revised in connection with the publication of Annual National Accounts in September so that all outputs of the national accounts are consistent.

2.2. Contents published

Data on GDP based on production (at activity level NACE Rev2, A10), expenditure and income (NACE Rev2, A10) approaches and also time series of employment and hours worked (NACE Rev2, A10) indicators and Labour productivity (NACE Rev2, A3) are published on the BNSI website in the "Macroeconomic statistics" section. Data for previous years can be found in the web based Informational system "Infostat".

All quarterly data for non-financial sector accounts are in compliance with the core NA when the QNAs are published. Indicators for Total economy, General government and Rest of the world sectors are published around 95 days after the end of the quarter at current prices, which are not seasonally adjusted and also in time series since the first quarter of 1999. No press release concerning quarterly sector accounts. The data are also sent to Eurostat under the Data Transmission Programme of ESA 2010.

Table 2-1: Overview of quarterly releases of seasonally unadjusted and seasonally adjusted data published at the BNSI website:

	GDP by production approach	GDP by income approach	GDP by expenditure approach	Employment	Hours worked	Labour productivity	QSA
Current prices	x	x	x			x	x
Previous year prices	x		x			x	
At average 2010 prices	x		x			x	
Volume indices	x		x			x	
Number of units (persons, thousand hours worked)				x	x		
Seasonally adjusted at prices of 2010	x		x				
Seasonally adjusted rates of change compared with the previous quarter	x		x				
Seasonally adjusted rates of change compared with the corresponding quarter of previous year	x		x				
Press release	x		x	x	x	x	

2.3. Special transmissions

The quarterly results of the Bulgarian national accounts are transmitted to Eurostat in accordance with the compulsory ESA 2010 Data Transmission Programme. Apart from the legally binding DTP, there are some additional arrangements between Eurostat and the Member States – so called "Gentleman's Agreements" - regarding early data transmission of national GDP results. Due to such an agreement, the result of the national GDP flash release (GDP flash estimate) after t+45 days is transmitted to Eurostat one day prior to publication subject to an embargo to enable calculation and simultaneous publication of European GDP.

In 2016, Eurostat started to publish an additional "preliminary flash estimate" for the EU and Euro area GDP, which is released after t+30 days. Again, national results are transmitted to Eurostat one day prior to publication subject to an embargo, allowing the Bulgarian national result only to be used for calculating European aggregates but not to be published.

No user has the right to obtain QNA estimates before the official date and time of release with the exception of the following institutions which receive the data one hour in advance: National Assembly, President, Prime Minister, Council of Ministers, Ministry of Finance, Ministry of Economy and Energy, Ministry of Labour and Social policy.

2.4. Policy for metadata

QNA data for Bulgaria are provided in compliance with the Euro SDMX Metadata Structure (ESMS). Metadata relating to the national accounts can be found at www.nsi.bg under "metadata" items on every single indicator position.

Chapter 3 Overall QNA compilation approach

3.1. Overall compilation approach

The methodology for compilation of QNA follows the recommendations and principles of the European System of Accounts (ESA 2010). Statistical methods used for compiling QNA belong mainly to the group of the so called "direct procedures". Direct procedures are based on the availability at quarterly intervals, with appropriate simplifications, of the similar sources as used to compile the annual accounts. This approach is facilitated in BNSI by availability of relatively extensive direct data sources, represented mainly by the quarterly enterprise survey, quarterly conducted household budget survey, and quarterly enterprise survey on employment and labour costs, quarterly labour force survey. The use of indirect procedures consisting in desegregation of annual figures with the help of proxy indicators is limited to the cases when sufficient quarterly sources are not available. Working-day correction is performed only for selected time series for which this effect is explainable from the economic point of view. Regression approach with one regression variable is applied (i.e. working days and non-working days are distinguished).

The process of quarterly GDP estimation can be briefly described in following steps:

- Acquisition of source data from surveys and administrative sources;

- Validation of source data and making possible corrections of the data;

- Quarterly conceptual adjustments and adjustments for exhaustiveness;

- Balancing of the production approach and the expenditure approach to GDP at current prices - obtaining the final GDP at current prices;

- Conversion of GDP components of the production approach and the expenditure approach from current prices to previous year prices;

- Balancing of the production approach and the expenditure approach to GDP at previous year's prices - obtaining the final GDP at previous year' prices;

- Seasonal adjustment of GDP and its components - separately for current prices and chain-linking volume measures.

Validation and corrections of source data, included in the second step, consists mainly in correction of obvious mistakes in surveys, etc. The main elements of the checking procedures are the following: comparison of the source data received in the previous quarters and the same quarters of the previous year; consistency between basic data elements used for measuring national accounts indicators – industrial production indices, industrial and trade turnover indices; comparison of price information used for deflation purposes – industrial price indices for exports with the foreign trade

export price indices, industrial price indices, services producer price indices and consumer price indices.

Conceptual adjustments are made due to differences between business accounting rules and national accounts concepts and definitions. Adjustments for exhaustiveness are made with the aim to cover transactions that are not directly observed via regular statistical surveys or administrative sources. The direct information is used for the adjustments for holding gains/losses in the changes in stocks, income in kind and measurement of small scale business activities, activity of self-employed persons, adjustments for employees working without labour contract. When reliable quarterly data for some conceptual adjustment or adjustment for exhaustiveness are not available, estimates based on the quarterly pattern of surveyed data or expert estimates based on the annual accounts from the previous year are used.

3.2. Balancing, benchmarking and other reconciliation procedures

GDP is compiled independently using two methods – the production approach and the expenditure approach. The income approach is not involved in the balancing process because gross operating surplus (including mixed income) is derived as a residual item. In principle the differences between the results of both approaches are removed in the balancing process and no discrepancies are shown in published results (with the exception of chain-linked series, where discrepancies inevitably result from the method of chain-linking).

The simultaneous balancing is done at current prices and previous year's prices using the frame of the last available annual SUT. The production approach is considered as more reliable and in the case of outstanding imbalances, they are presented as an item within the expenditure side of GDP.

Benchmarking represents an integral part of the compilation process and it is conducted at the most detailed compilation level – at two digit level of NACE, Rev.2. Quarterly figures are benchmarked to corresponding annual figures mainly using the pro-rata method, i.e. annual values are split according to the proportions indicated by the four quarterly observations. Ratio of the last available annual value to the sum of corresponding quarterly values is extrapolated to quarters for which no annual data are yet available.

Imputed rents are calculated by the stratification method using the available quarterly information for built up area of dwellings and related rentals.

3.3. Volume estimates

General procedure of volume measures calculation consists of two main steps: First figures at current prices are converted to previous year's average prices using appropriate price indices. Figures at previous year's prices are then chain-linked in order to obtain comparable time series of volume measures.

The following price statistics are used for quarterly price and volume national accounts calculations:

- Agricultural production price indices;

- Construction production indices;

- Industrial production indices;

- Total producer price indices;

- Services producer price indices;

- Turnover indices in division "Retail trade, except of motor vehicles and motorcycles";

- UVI - Employee indices - national accounts /employment survey/, wages and other labour costs, Employed persons by economic activities;

- Consumer price index;

- Harmonized index of consumer prices;

- Price indices of import and export of goods.

Quarterly figures expressed at previous year's prices are benchmarked to corresponding annual figures mainly using the pro-rata method. Benchmarking of chain-linked series is not needed due to the fact that quarterly figures are chain-linked using the annual overlap technique.

Seasonal adjustment of volume measures is performed after chain-linking. GDP is adjusted directly but some aggregates are derived indirectly in terms of previous year's prices (e.g. total final consumption expenditure is derived as a sum of final consumption expenditure of households, general government and NPISHs).

3.4. Seasonal and calendar adjustment

GDP and its components according to the production, expenditure and income approach are prepared also in the seasonally adjusted form on experimental basis. Calculations are made using JDemetra+ - the Tramo/Seats method. Seasonal adjustment is conducted each quarter. Once a year, whole time series of adjusted data are revised.

The set of variables for seasonal adjustment covers GDP components. Quarterly data on the number of employees and hours worked are also subject to seasonal adjustment.

The adjustments are done both in current and constant prices - constant prices of the previous year and chain volume measures with reference year 2010.

Working-day correction is performed using JDemetra+.

The seasonally adjusted figures are regularly prepared and published on BNSI web site.

The time span of raw series covers the period from Q1 2000 to Q2 2019.

When choosing a method for seasonal adjustment, X-12-ARIMA or TRAMO/SEATS is the most important issue. After experimental calculations, the TRAMO/SEATS method has been selected for Bulgaria instead of the X12-ARIMA method. The evaluations show that seasonal adjustments with TRAMO/SEATS, applied to Bulgarian time series, produce seasonal adjustments series with good quality. The seasonal adjustment of GDP total data is done by applying JDemetra+ software. From the technical point of view, software tool JDemetra+ is utilized for performing this method of adjustment. JDemetra+ parameters are fixed annually (the applied ARIMA model, its parameters, the regression variables quantifying the effects of trading days and holidays), which changed only if it is justified by the revision of data.

Time consistency between seasonally adjusted quarterly data and corresponding seasonally non-adjusted annual data is ensured in the Bulgarian quarterly national accounts by automatic check in JDemetra+. Therefore, there is no inconsistency in the time series.

GDP is adjusted directly. The calculation of quarterly GDP by the production approach is considered to be more reliable due to the existence of exhaustive data sources and a very detailed level of calculation. The discrepancies between GDP and the sum of its components by three types of calculation approaches (expenditure, production and income) are allocated in a specific way for each of these approaches without affecting GDP.

Revision policy of seasonally adjusted data is different from that applied for raw data. Once a year, whole time series of adjusted data are revised. Simultaneously new identification of models and estimation of their parameters is done. At the same time, possible methodological changes may be implemented (e.g. switch to newer version of the adjustment method). Within estimates for the other quarters, revision of adjusted data is limited only to periods for which raw data are revised.

Working-day correction is performed only for selected time series for which this effect is explainable from the economic point of view.

Chapter 4 GDP components: the production approach

GDP by production approach characterizes the outcome of economic activity and is measured by the value added created during the production of goods and services by resident units within the economic territory of the country. From the production side, GDP at market prices is calculated as a sum of the gross value added (GVA) at basic prices for the economy as a whole and the adjustments.

GDP by production approach is calculated under the following methodological scheme:
    Gross domestic product (market prices) =

             Gross value added (basic prices)

             plus Adjustments;

    where:

             Adjustments = Net taxes (taxes less subsidies) on products

Information sources for the quarterly GDP calculations are: regular statistical quarterly reports; statistical annexes; consolidated reports on implementation of the state budget; customs information; tax information; balance of payments and other specific information. Quarterly GDP calculations use monthly or quarterly data from regular surveys, various data on prices and quantities and other indicators from the statistical system and other available data sources (see Chapter 9).

4.1. Gross value added, including industry breakdowns

The quarterly gross value added (GVA) is derived as the difference between output and intermediate consumption. Output (in basic prices) is the value of goods and services produced as a result of production activity of resident units during the three month period. It can be market and non-market depending of the type of producers.

Estimates of output and intermediate consumption are compiled at the industrial breakdown according to two-digit NACE, Rev.2 classification. For publishing purposes, almost all data are aggregated to the level of 10 activities (sections of the NACE, Rev.2 classification).

Table 4-1: Economic sectors and economic activity groupings (NACE rev. 2)

	A 10

Agriculture, forestry and fishing	A
Mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities	B_E
Construction	F
Wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities	G_I
Information and communication	J
Financial and insurance activities	K
Real estate activities	L
Professional, scientific and technical activities; administrative and support service activities	M_N
Public administration and defence; compulsory social security; education; human health and social work activities	O_Q
Arts, entertainment and recreation, repair of household goods and other services	R_U

NACE A Agriculture, forestry and fishing

Calculations of value added for the agriculture, forestry and fishing activities (NACE A) are done separately for agriculture (NACE 01), for forestry (NACE 02) and for fishing (NACE 03).

Main data sources used to extrapolate value added for agriculture (NACE 01) are indicators based on various monthly and quarterly surveys conducted by NSI's agriculture department.

For forestry, data are obtained from the forestry accounting network

For fishing, data are obtained from shipping registry accounts.

NACE B, C, D, E, H, I, J, M, N, (O, P, Q – market part), (R, S, T – market part)

Similar approach is used to estimate quarterly value added for most kind of activities. The main source is the quarterly statistical survey on main financial indicators of non-financial enterprises, which is the basis for direct estimation of output and intermediate consumption in S.11 at current prices. The value added for S.14 is measured indirectly; i.e. is based on annual estimates.

Market output is calculated as a sum of:

Net revenue from sales (less the book value of goods sold);

plus　Expenses on acquisition of self-produced fixed assets;

plus　Changes in inventories of finished goods and work in progress.

Intermediate consumption is obtained from the following indicators:

	Raw materials and Energy consumed;
plus	External services;
plus	Others;

NACE F Construction

Construction, including building of dwellings, belongs to the long term expanding industries in Bulgaria. The production account for construction is compiled separately for each of its sub-branches at 2-digit level of NACE Rev 2. The calculation procedures presented in previous paragraph are applied as initial estimates based on the source data.

However, there is a specific conceptual adjustment in construction activity. The household sector acquires part of dwellings by individual housing construction and reconstruction. Data on construction of household dwellings are based mainly on statistical survey on completed houses. The survey is conducted quarterly among the municipality administrations.

The second data source is household budget survey. It is used for evaluating intermediate consumption for individual construction of dwellings. In the household budget survey, a special group of expenditures related to construction of family houses is evaluated.

NACE G Wholesale and retail trade, repair of motor vehicles and motorcycles

The production output at current prices of wholesale, retail trade and wholesale and retail trade of motor vehicles is compiled by using data from quarterly statistical survey in SBS. The output is calculated as trade margins realised on the goods purchased for resale.

NACE K Financial and insurance activities

Quarterly estimates of GVA are made separately for the central bank (Bulgarian National Bank), banking monetary institutions and insurance companies.

Output of the Bulgarian National Bank is computed using the cost method. This means that personal and social costs, depreciation of tangible and intangible assets and intermediate consumption are included in the total output. Intermediate consumption is composed of fee and commission expenses, new currency expenses, purchased services and other operating expenses. The difference between the total output (based on costs) and fee and commissions income is added to intermediate consumption of banking monetary institutions. Input data are taken from the income statement of commercial banks.

Banking monetary institutions provide their monthly income statement of commercial banks and the BNSI uses quarterly aggregated figures. Output is derived from fee and commission income and other operating income. Output also includes FISIM. Intermediate consumption comprises fee and

commission expenses, other operating expenses, advertising expenses, audit, legal and tax consultancy expenses, information technology expenses, outsourcing expenses, hire and other purchased services expenses.

Estimates for non-banking monetary institutions are based on the quarterly information - statistical survey on employees and labour costs and the estimates are based on the proportions per employee derived from annual pre-defined national accounts.

Estimates for insurance companies are based on the quarterly statistical survey on insurance. Output of non-life insurance services is equal to gross premiums written reduced by the change in the provision on unearned premiums, plus the premium supplements, minus claims paid, gross amount increased by the change in the provision for outstanding claims. Intermediate consumption comprises expenses on material, energy and services, increased by payments of non-life insurance services, and adjusted by mandatory accident insurance underpayment revenues (or overflow payments) and by the estimate of reinsurance balance (based on annual figures).

Non-life insurance services are used for intermediate consumption of all resident sectors, for household final consumption expenditure and a part of services is exported. The distribution among institutional sectors is done in proportion to gross premiums written for each sector (weights are available from annual accounts only). The households´ use of non-life insurance services is broken down into intermediate and final consumption in proportion of premiums paid by households in their capacity of consumers on the one hand and their business activities and as owners occupied dwellings on the other hand to the total amount of premiums paid by the household sector (also using annual weights).

Output and intermediate consumption of life insurance services is calculated similarly. Life insurance services are recorded as household final consumption expenditure and as exports.

NACE L Real estate activities

In the Bulgarian national accounts, the estimates of the actual and imputed rents are calculated by means of the stratification method. The estimate has been calculated from the data on the number of flats and their structure.

BNSI explored new sources for the calculation of the price element for the stratification model and applied adjustments to bring the sourced data in line with the requirements of the Commission Regulation 1722/2005 on dwelling services. The new source used for actual and imputed rents is the databases of the three biggest real estate agencies collecting information on the rental offerings for various types of dwellings across Bulgaria.

NACE O, P, Q – non - market part

The cost method is used for non-market activities. The output is estimated as the sum of all current expenses (cost of materials, external services, labour, social security, etc.) incurred to produce it. Intermediate consumption includes the value of all goods and services, transformed or entirely consumed in the production process during the period, excluding consumption of fixed assets recorded as consumption of fixed capital (depreciation).

Quarterly data are taken from Ministry of Finance (MoF) – a report on cash execution of budgetary program of government institutions (budgetary organizations both on central and local level, state funds, extra-budgetary funds and accounts) and from the statistical surveys. Very important computing tools represent so-called bridges for conversion of the indicators used in national budgetary classification on one hand and indicators of national accounts on the other hand.

Quarterly data on compensation of employees, other taxes on production and other subsidies on production are available, too. Quarterly consumption of fixed capital structured by sector and sub-sector, by industry and type of product is calculated in the same way as one in ANA.

NACE R, S – non - market part

Similar to the general government sector, GVA in the sector of NPI-s is generated by non-market activities. The cost method is used for calculation of output of these activities, i.e. non-market output is derived as a sum of intermediate consumption, compensation of employees, other taxes on production and consumption of fixed capital. Compensation of employees is estimated using total wages (including other personal costs) from the statistical survey. The other items at current prices are estimated using the values per employee from the annual accounts and numbers of employees from the quarterly statistical survey on employment and labor costs.

The output of reclassified units from public sector to General Government is calculated by cost method and recorded to respective NACE activity.

Conceptual and exhaustiveness adjustments of output and intermediate consumption

Conceptual adjustments are made due to differences between business accounting rules and national accounting rules. Some adjustments are covered by quarterly data sources: Holding gains/losses from inventories; Imputed rent for housing services provided by owner-occupiers to themselves and others. For the rest of conceptual adjustments no quarterly information is available. Therefore their quarterly pattern is taken from annually surveyed data on output and intermediate consumption.

Adjustments for exhaustiveness are made with the aim to cover transactions that are not directly observed via regular statistical surveys or administrative sources. Following adjustments are: undeclared additional business activities of households and individuals above the threshold for tax obligations; Illegal activities (drugs, prostitutions, smuggling); Individual housing construction; Income of individuals below the tax threshold; Shuttle trade; Registered but not responded units; employees observed in LFS but not covered by labor business statistics; Self employed persons not covered by statistical surveys; VAT Fraud; undeclared activities of self employees; Employees without labor contract; Income in kind, Tips.

GDP by production approach is calculated in *current and constant prices* by economic sectors (agriculture and forestry, industry, services), sectoral affiliation (according to Classification of Economic Activities - 2008).

The presentation of time series data on annual average prices of *a reference year - in 2010 prices -* is based on recalculation using the volume index for each quarter to the corresponding quarter of previous year. For this purpose, the annual overlap technique is applied, which provides vertical additivity, ie the sum of the quarterly figures is equal to the annual value of the indicator, but the results are non-additive in aggregation, ie the aggregate is not equal to the sum of its components.

4.2 FISIM

The calculation procedures for allocation of the financial intermediation services indirectly measured among user sectors in QNA are the same applied in ANA because on the fact that the main data sources are available at quarterly frequency. In our practice, the quarterly results are used additively for annual national accounts.

The main sources of information are the bookkeeping reports for revenues and expenditures of commercial banks and for stocks of credits and deposits separated by institutional sectors described in Chapter 9. Data for households sector are presented by purposes: – dwelling loans; consumer loans; other loans, including loans extended to households for business purposes. Sources are the http://www.bnb.bg/ (Bulgarian National Bank).

Methods used – the total amount of allocated FISIM for each institutional sector is a sum of estimated financial services as a part of accrual interest on credits and accrual interest on deposits. Financial services for every institutional sector, as a part of interest payable on credits, are calculated as a multiplication of average sum of stocks of loans for the reference period (quarter) and the difference between effective interest rate on credits and referent rate.

Financial services for every institutional sector, as a part of accrual interest on deposits, are calculated as a multiplication of average sum of stocks of deposits for the reference period and the difference between reference rate and effective interest rate on deposits.

Effective interest rates on credits and deposits are evaluated as a relation between interest flows and average sum of stocks for the reference period.

The referent interest rate is calculated as the ratio of interest payable on deposits within and between subsectors S.122 and S.125 stock of deposits within and between subsectors S.122 and S.125 as follows.

$$\text{referent rate (domestic)} = \frac{\text{interest payable on deposits within and between subsectors S.122 and S.125}}{\text{stock of deposits within and between subsectors S.122 and S.125}}$$

The external reference rate is calculated as the ratio of interest on loans plus interest on deposits between resident Financial Institutions and non-resident Financial Institutions, to the stock of loans plus the stock of deposits between resident Financial Institutions and non-resident Financial Institutions.

FISIM allocated to non-financial enterprises and other financial intermediaries except commercial banks is recorded as intermediate consumption with negative effect on value added.

FISIM allocated to General Government sector as a producer of non - market services for individual and collective consumption is recorded as intermediate consumption and output, without impact on the value added. On the expenditure side, FISIM is recorded in "Final consumption expenditure of government" and "Collective consumption", distributed proportionally on the estimated government output by functions.

FISIM allocated to NPISHs as a producer of non-market services, is recorded as intermediate consumption and output without impact on the value added. On the expenditure side, FISIM is recorded in "Final consumption expenditure of NPISHs".

FISIM allocated to households is recorded in NA categories according to the information on credits and deposits classified by purposes:

- stocks of dwelling loans – this part of financial intermediation services to households is recorded as intermediate consumption;
- consumer credits and deposits of households – this part of financial intermediation services is recorded as final consumption expenditures of households;
- credits and deposits extended to households for business purposes – this part of financial intermediation services is recorded as intermediate consumption. Financial intermediation

services recorded as intermediate consumption are allocated to the economic activities according to the branch structure of gross output in the economy.

The allocated FISIM by institutional sector leads to an increase of the nominal level of GDP within an interval between 0.4 and 1.0 %.

For conversion of FISIM to previous year's prices, two deflators are computed – of output and imports.

Deflator of output is used also for deflation of household final consumption expenditure of FISIM and exports of FISIM. Intermediate consumption of FISIM is deflated using weighted average of both deflators.

The allocated FISIM at previous year's prices is derived in the following steps:

- The average stocks of loans and deposits are deflated by the general deflator of domestic final demand (final consumption and investment).
- The deflated stocks of loans are multiplied by the difference between annual average effective interest rates and annual average referent rate of the previous year.
- The deflated stocks of deposits are multiplied by the difference between annual average referent rate and the annual average effective interest rates of the previous year.
- The total amount of allocated financial intermediation services for each institutional sector is a sum of estimated financial services as a part of accrual interest on credits and accrual interest on deposits.

4.3. Taxes less subsidies on products

4.3.1. Taxes on products (D.21)

National Revenue Agency provides quarterly data - report on VAT declarations and cash receipts (see Chapter 9). Customs Agency provides information on excises (on domestic production and on imports) - report on excises (see Chapter 9). The data on taxes on products are time adjusted and broken down into following types of taxes:

- Value added tax;
- Excise duties and consumption taxes – by commodity type: fuel and gas, alcohol, tobacco, other excise goods and services;
- Custom duty;
- Other taxes on products (e.g. real estate transfer tax, fees on permanent change in use of agricultural and forest lands, admission fee tax, fees for stay at a spa or recreational stay fee).

4.3.2. Subsidies on products (D.31)

The basic data sources covering other subsidies on products are administrative data from the Ministry of Finance: quarterly cash execution of the budget program by central and local budgetary organizations, central and local semi-budgetary organizations and extra-budgetary funds. The information for agricultural subsidies from EU is obtained from Ministry of Agriculture.

Subsidies on products are recorded as a negative tax on products according to the national accounts methodology. The total subsidies on products are subtracted as a negative correction of total gross value added at basic prices to GDP at market prices.

Chapter 5 GDP components: the expenditure approach

5.1. Household final consumption expenditure

Estimates of the household final consumption expenditure (HFCE) at current prices are based mainly on the household budget survey (HBS) carried out on quarterly basis and from available quarterly indices of retail trade turnover. Household final consumption expenditure is calculated in accordance with COICOP. The consumption expenditure is presented at 12 main divisions. The data obtained per capita are multiplied by the current population number

Additional information for the expenditures on electricity and heating is derived from the administrative sources – National Energy Company.

HFCE on life and non-life insurance services is calculated using results of quarterly surveys in insurance companies.

Imputed rents are calculated by the stratification method using the available quarterly information for newly constructed dwellings and related rentals. Quarterly distribution is estimated according to development of the price index of market rents of the dwellings.

Consumption of own-account produced agricultural products is estimated from the quarterly survey on agricultural production (a part related to small households' plots) and HBS (see Chapter 9).

The estimated income in kind from the production and income sides of the accounts are included in the total consumption expenditures of households.

The estimated income in kind from the production and income sides of the accounts are included in the total consumption expenditures of households.

Conversion from current prices into previous year's prices is calculated with the use of consumer price indexes of corresponding consumer groups.

5.2. Government final consumption, including split individual/collective consumption

Government final consumption expenditure for services provided to individual households include free services provided in health, social security, education, sport, culture and art. They are measured by the gross output of these activities, less the fees paid (if any) included in intermediate consumption of other sectors or in final consumption expenditure of households. Compilation of general government final consumption comes out from the production approach (see chapter 4). The substantial part of general government final consumption expenditures is represented by other non-market output, produced by the government. It is calculated as a difference between the output of

non-market services and special types of revenue from them (market output, output for own final use and payments for other non-market output sold at economically significant prices).

The data sources for the other part of government final consumption expenditures – social transfers in kind - are administrative data provided by Ministry of Finance, an expenditure side of the cash execution of the budget program.

The quarterly national accounts figures on individual and collective consumption expenditures of the government are based on the same administrative source and correspond to the data estimated in quarterly sector accounts of the general government sector.

5.3. NPISH final consumption

Final consumption expenditure of NPISHs are measured by the output of this institutional sector. These are expenditures of trade unions, religious, charity and other NPISHs rendering goods and services to households free or at economically insignificant prices. Final consumption expenditure of NPISHs is equal to the value of goods and services produced by NPISHs and provided to households free of charge (P.132 – other non-market output), both at current prices and previous year's prices. Calculation of P.132 is described in chapter 4. No social benefits in kind (D.631) are assigned to the sector of NPISHs.

5.4. Gross capital formation

5.4.1. GFCF with its breakdowns in the ESA2010 transmission programme

Quarterly estimates of GFCF are based mainly on quarterly sample statistical survey on expenditures for acquisition of tangible fixed assets in business units, entrepreneurs, financial institutions, insurance companies, pension funds, health insurance companies and selected government and other institutions (Chapter 9). The sample is designed to observe exhaustively all public sector units and a stratification approach is adopted for the private sector investors where the big enterprises are observed exhaustively and the observation probability is proportional for medium and small units according to their size class. The statistical indicators, included in the quarterly survey are expenditure on acquisition of tangible fixed assets and acquired tangible fixed assets since the beginning of the year and during the quarter under review.

Investments in Intellectual property products are not surveyed quarterly. Estimates for intangible fixed assets are performed implicitly in extrapolating of the quarterly NA data reconciled with the annual accounts.

Base quarter GFCF data are compiled in the process of reconciliation between initial quarterly NA estimates and the final annual NA data. The surveyed data for the current quarter are used to calculate volume indices and deflators. In addition deflator of construction output, deflator of investment goods sold on internal market and deflator of imported investment goods are also calculated from the results of other statistical surveys. Paashe type CPI is used for "Other assets". Base quarter GFCF data are extrapolated for the current quarter.

The assets breakdown of quarterly GFCF in the ESA2010 transmission programme is based on the structure of previous year final annual breakdown.

Full description of the survey is available at http://www.nsi.bg/en/content/6202/expenditure-acquisition-tangible-fixed-assets-economic-activity-groupings

5.4.2. Changes in inventories

The quarterly enterprise sample survey (Chapter 9) which is conducted among corporations is the source for the estimation of changes in stocks. Inventories at current prices are available for the stocks at the beginning and at the end of the reporting period by type: raw materials, work-in-progress, finished goods and goods for resale.

The source data are used for national accounts purposes at two digit level of NACE. Rev. 2 industry aggregates and additional calculations are introduced mainly in order to apply procedures for elimination of holding gains/losses due to the price changes during the observed period.

The source data do not present the commodity breakdown of the inventory. For raw materials, the transformation of stocks by commodity groups is based on the structural proportions of commodity intermediate consumption for each industry. The assumption that commodities present the characteristic output is applied for stocks finished goods, work in progress and stocks for resale.

Holding gains/losses are calculated separately using appropriate price indexes – monthly domestic PPI, CPI and import prices - for each commodity group. The stocks at the beginning are inflated by appropriate monthly price indices - (T+1m/T) or (T+2m/T) depending on the average transaction period in months. The deflation procedure using the same price indices is applied for the stocks at the end of the period.

In the "Production account' the estimated holding gains/losses in the changes in stocks of finished goods and work in progress are eliminated when the industry's gross output is calculated.

Conversion into previous year's prices is carried out using price indexes used for deflation.

c.   *Acquisitions and disposals of valuables*

For quarterly estimates of acquisition less disposal of valuables, no information is available.

5.5. Imports, Exports of goods and services

5.5.1. Exports and imports of goods

Primary data on external trade in goods are obtained by means of Intrastat (since 2007) and Extrastat systems and then transmitted to the External Trade Statistics Department of the BNSI. Monthly results broken down into two-digit SITC and two- and three- digit CPA classification are overtaken for quarterly national accounts compilation.

Exploring Intrastat data as essential information for economic statistics analyses and for national accounts purposes, the quality of the data in terms of coverage of both transactors and transactions is very important – especially as regards the traders below the applied threshold for reporting and also adjustments for non-response.

Exports of goods are valued f.o.b. (free on board) at the customs border of the exporting country. This value consists of the value of the goods at basic prices and the related transport and distributive services up to the point of the border, including the cost of loading onto a carrier for onward transportation.

Imports of goods are valued at c.i.f. price (cost-insurance-freight). The c.i.f. price is the price of the goods delivered at the frontier of the importing country before including any import duties or other taxes on imports or trade and transport costs within the importing country.

Conversion from current prices to previous year prices is realized by means of export and import price indices (unit value indices) at the level of two-digit SITC which are constructed at the Foreign Trade Statistics Department of the BNSI. Since 2006 in addition to the UVIs for export and import of goods, Business Statistics Department produces direct export price indices as a part of total PPIs. In national accounts the exact price index is used after the comparison of the price indices for CPA commodity groups.

5.5.2. Exports and imports of services

Presently the national accounts estimates for exports and imports of services are based on the monthly information of the Balance of Payments (BoP) statistics (Chapter 9).

Exports and imports of services are adjusted by:

- FISIM;

- 25% of custom duties which are collected from imports of goods from the "third" countries and paid into EU; it is a commission and a settlement of costs connected with custom duties collection (data source: Ministry of Finance);

Direct price indices for conversion of exports and imports of services from current prices to previous year's prices are not available. Service items are reclassified into groups at the level of CPA classification according to converter between service classification and CPA. Then, data on individual groups of services are converted by means of corresponding price indices –mainly by relevant domestic CPIs for export of services and EU CPIs for imported services.

Chapter 6 GDP components: the income approach

In Bulgarian National accounts, the income approach for measuring GDP is not entirely independent, since operating surplus and mixed income are computed as balancing items between value added by production approach and the other income components of value added. Nevertheless, exhaustiveness and credibility of all the other value added components are checked using regularly updated statistical and administrative data sources. The compilation process of the income components of GDP is similar to the compilation of components of GDP by production approach and both two approaches are based on the same or similar data sources. It starts with different types of data sources as input and includes series of adjustments to the basic data – conceptual, exhaustiveness and balancing. Enterprise accounting data serve as initial and the most important data source. The sources that are relevant to a particular approach can be used optionally for the other two approaches (Chapter 9).

The components of the income approach are grouped by industries and are only valued at current prices as follows:

6.1. Compensation of employees, including components (Wages and salaries and Employers' social contributions)

The structure of compilation of compensation of employees is similar to the compilation of components of GDP by the production approach. Compilation starts with different types of data sources as input. It includes series of adjustments to the basic data – conceptual, exhaustiveness and balancing.

Compensation of employees (D.1) is defined as the total remuneration in cash or in kind, payable by an employer to an employee, in return for work done during the accounting period. Compensation of employees has two components:

- Wages and salaries payable in cash or in kind;
- Employers' social contributions.

The quarterly data for wages and salaries are sourced from the statistical questionnaire "Employees, wages and salaries and other labour costs", quarterly questionnaires on financial results derived from Business statistics directorate and from administrative data sources provided mostly by the Ministry of Finance.

Wages and salaries (D.11) are incomes of individuals from employment and emoluments. In Bulgarian national accounts, they are recorded as gross amounts, i.e. before deduction of contributions of employees to social and health insurance, taxes and deductions agreed with the employee.

Wages and salaries in kind are bonuses for work done paid out in the form of goods and services or other benefits. Quarterly wages and salaries in kind are derived from the quarterly survey "Employees, wages and salaries and other labour costs", an additional estimates are introduced by national accountants for produced goods and services in the production units which are provided to the employees as remuneration in kind – in coal mining, food industry, clothing industry, hotels and restaurants.

Additional adjustment for income in kind is done for education services and public transport.

Non-reported wages for employees working without any contract are calculated. In order to avoid tax and social contribution payments employers employ workers without any labour contract.

As a part of D.11, adjustment are made for private use of business cars and tips. The same adjustments correspond to other approaches for GDP estimates. Tips are estimated in the following industries: restaurants, bar, transport and other service activities (hairdressing and other beauty treatment) based on the final consumption expenditures of households and foreign visitors.

Employers' social contributions (D.12) are estimated on the basis of the quarterly enterprises' survey on employment and labour remuneration, quarterly questionnaires on financial results derived from Business statistics directorate and the information from quarterly report of MoF for the cash execution of the budget program of social insurance.

6.2. Taxes less subsidies on production

Other taxes on production (D.29) consist of all taxes that enterprises incur as a result of engaging in production and that are payable to general government. These are taxes independent of the quantity or value of the goods and services produced or sold. Data on other taxes on production (D.29) are available both from the side of recipients - from financial statements of general government – ten different types of taxes and fees without allocation to the sector or industry of payers are distinguished on the side of recipients. There are two kinds of breakdown of taxes from the side of payers, i.e. by kind of activity and by institutional sector. The reconciliation of other taxes from the payers' side with the amount of time-adjusted collected taxes is carried out within the process of conceptual adjustments.

Other subsidies on production (D.39) consist of all subsidies -except subsidies on products that resident producers may receive from government - as a consequence of engaging in production. Data on other subsidies on production from the side of recipients are broken down by kind of activity and by institutional sector. Other subsidies on production from payers' side (general government) are made more detailed in budgetary classification. During the compilation process, other subsidies on production from the recipients' side are reconciled with the amount of subsidies paid out by government units.

6.3 Gross operating surplus & mixed income

Gross operating surplus and mixed income are the balancing items of the generation of income account. Both items are broken down by industry. Operating surplus is not estimated independently on the basis of surveyed data, but has been derived as balancing item, i.e. difference between value added calculated by production approach and the other income components of GDP. Operating surplus of owner-occupiers producing dwelling services, calculated as one component of imputed rent, is the only exception for which the cost method of calculation is applied. Distinction between operating surplus and mixed income is according to the ESA 2010 convention.

Chapter 7 Population and employment

7.1. Population

Figures on population are taken from the Demographic Information System based on the population censuses and current demographic statistics. The information is updated on monthly basis and for the purposes of quarterly national accounts a special data base module with the following dimensions: population at the end of the quarter, distribution by sex, distribution by age and by region. The population is calculated as an average of the number of inhabitants on the first and last days of the quarter.

Quantification of the number of residents working abroad - Quantification is based on the labour force survey that separately identifies workers by country of employment. Workers who commute across the border daily or monthly or who are abroad for less than three months are included. Data on the number of residents who work as members of diplomatic missions, institutions of the EU and international organizations are provided by the Ministry of Foreign Affairs.

Quantification of the number of non-residents working in Bulgaria - Numbers of non-resident workers in Bulgaria are provided by the Ministry of Labour and Social Affairs, based on the number of work permits issued. Data are available by individual country and by kind of permit (seasonal workers who stay in Bulgaria for less than one year, cross-border workers, short-term attachment workers, students etc.). The Ministry of Foreign Affairs provides information about the number of non-residents employed by the Bulgarian embassies.

7.2. Employment: persons

Data on employment and hours worked in Bulgarian National Accounts are calculated in terms of persons combining data from Labour Force Survey and enterprise survey on employment and labour costs, in order to carry into effect the national accounts purposes according to the ESA 2010. Estimations are undertaken separately by industry, and subsequently added to get the total employment. For each industry, the most reliable source or combination of sources are used, and adjusted as necessary for conceptual differences with NA, lack of coverage, exhaustiveness, etc.

Number of employees - Data on employees are calculated as sum of two elements: Employees working under labour contract, and Employees working under other than labour type of contract or without any contract.

Data on employees working under labour contract are derived from enterprises' survey on employment, wages and salaries and other labour costs with an exception for data in armed forces and conscripts derived from LFS.

The LFS data are adjusted according to the ESA 2010 methodology in order to ensure quality and comparability of data used in NA. The LFS provides the information of the number of employees working under civil contract, other type of contract or without any contract.

The quarterly enterprise survey is considered the main source for data on employees for the following reasons:

- more reliable NACE breakdown;

- use of domestic concept;

- better coverage.

Data on armed forces, security and conscripts are added to the number of employees. Data are derived from the LFS as average quarterly number of employees by employment contract in activity Public administration and defense, and average quarterly number of conscripts.

The following adjustments on LFS data for employees by other type of contract or without any contract are introduced:

- The numbers of persons working abroad are subtracted in order to meet the domestic concept;

- Persons not declaring the branch of activity are proportionally distributed across all activities;

After the mentioned coverage adjustments and combination of the information from the main sources – enterprises' survey on employment and labour costs, LFS, Farm Structural Survey (FSS), the final estimation of total number of employees can be made.

Numbers of self-employed - For the case of self-employed, the same procedure has been followed – using data from LFS. Some other sources are used for specific activities – self-employed in Agriculture. The results from the FSS have been incorporated in order to provide data on the contingents of self-employed in Agriculture. Quarterly estimates are prepared on the base of quarterly distribution of self-employed data in Agriculture, according to LFS. The LFS does not include the persons who produce for their own consumption with exception in the cases when this production covers the biggest part of households' consumption. For this reason the Farm Structure Survey is chosen as a main source of information for self-employed in Agriculture but without identifying by main and second job.

7.3. Employment: total hours worked

Data on hours worked by employees are calculated as sum of two elements: hours worked by employees under labour contract, and hours worked by employees working by other than labour type of contract or without any contract. The situation is the same like in employed persons, i.e. the quarterly enterprise survey provides data only on hours worked by employees under labour contract on a monthly basis, and the LFS provides information for other type of contract or without contract.

The quarterly enterprise survey is chosen as main source for data on hours worked by employees under labour contract (although such kind of data are available in the LFS also) for the same reason, as for employment data.

The data from Quarterly enterprise survey as well as data from LFS are adjusted according to the general concepts:

- Quarterly data are calculated as a sum of monthly hours worked by employees, provided by quarterly enterprise survey;

- Data on armed forces, security and conscripts are added to the hours worked by employees in the corresponding activity. Data in this branch are derived from LFS as number of actually worked by employees' number of hours worked by conscripts. As no authentic data are available for working time of conscripts, this is estimated assuming 40 hours per week as standard. Data on hours worked by this group are converted to quarterly figures;

- The hours worked by persons working abroad are subtracted in order to meet the domestic concept;

- Average weekly hours worked in the same category are applied for each person worked in the reference period, but not declaring the number of hours;

- Number of hours worked on second job is added to the number of hours worked in relative activities.

Data on hours worked by self-employed are estimated using mainly the LFS data for hours actually worked by self-employed in the reference period, adjusted in the same way, presented for employees without labour contract.

Data on hours worked in Agriculture are based on the Farm Structure Survey. Specifically for Agriculture quarterly distribution of hours worked by self-employed is made according to the estimated quarterly distribution of number of self-employed and average hours worked by self-employed, provided by LFS.

Chapter 8 Flash estimates

8.1. Flash GDP data

Flash GDP data provides: *„...the earliest picture of the economy according to national accounts concepts, which is produced and published as soon as possible after the end of the quarter, using a more incomplete set of information than that used for traditional quarterly accounts...”*

Flash estimates for GDP in the context of general conditions for the preparation of short-term indicators are based on preliminary short-term information (subject to subsequent update and revisions) expert assessments and models for the components of GDP structure, for which direct basic information at the time of calculation is not available.

Flash estimates of GDP are prepared within 42-45 days after the reference period. They are presented in a standard format for publication of quarterly national accounts data - current prices, relative shares of the components in the GDP structure and growth rates as compared to the previous quarter and compared to the same period of the previous year.

According to the Release Calendar, the NSI prepares and publishes preliminary quarterly estimates of GDP in accordance to Eurostat' press release calendar.

First quarterly data (preliminary flash estimates) of GDP by production and expenditure approaches are available at 30 days after the reference period. For the first time the flash estimates for GDP in Bulgaria were officially presented for Q1 2016. Starting from the estimate for first quarter of 2014Q2 as an experimental work, these estimates are published approximately 30 days after the end of the reference quarter under the official name "GDP preliminary flash estimate". Scope of preliminary estimates are limited to volume indices and current prices of GDP and its main components from the production and expenditure side.

Flash estimates of GDP by production and expenditure approaches are available at 42-45 days after the reference period. For the first time the flash estimates for GDP in Bulgaria were officially presented for Q1 2009. Starting from the estimate for first quarter of 2008 as an experimental work, these estimates were published approximately 45 days after the end of the reference quarter under the official name "GDP express preliminary estimate". Scope of preliminary estimates are limited to volume indices and current values at current prices of GDP and its main components from the production and expenditure side.

The data required for the compilation of the national accounts is obtained from a wide range of sources – administrative and surveys sources, which in practice can vary, both in comparison and quality, as well in timeliness. Early estimates of the national accounts aggregates have to be based on less information that will be available later. Later information is based on more comprehensive and higher quality data sources, which can yield substantial improvements in the quality of the national accounts data. This can lead to different results that can deviate over time both at absolute

levels but also at growth rate. The process of incorporating these quality improvements inevitably leads to revisions of earlier published estimates. At the same time new data requirements or new regulations could lead to the adoption of new methodologies or the introduction of new classifications.

Calendar of national accounts releases (covering both quarterly and annual national accounts) is a part of the BNSI calendar for all statistical releases based on the annual national statistical program. It can be found at: http://www.nsi.bg/en/content/79/basic-page/release-calendar

8.2. Flash employment estimate

Besides the GDP flash estimate, the BG NSI further elaborates also a preliminary estimate of employment data – employees and self-employed. This estimate is provided to Eurostat according to the agreed timetable but at national level, the data are not published.

Within the preliminary estimate of employment the number of employed persons is only estimated. The indicators are compiled for the total economy split by A21 NACE Rev.2.

The methodology of estimating the number of employed persons is the same within the preliminary estimate as for the standard estimate (see Chapter 7). The data sources are the same for both deadlines of the estimate as in the case of the standard estimate (only with the difference that the preliminary estimate is based on the preliminary data sources).

The difference between the preliminary estimate and the standard estimate is usually very small and results from differences in data sources. Other existing flash estimate – the preliminary flash GDP estimate is available at 30 days after the reference period by production approach.

Chapter 9 Main data sources used

9.1 *Quarterly statistical survey on non-financial enterprises* - The survey covers enterprises in the non-financial corporations sector and the household unincorporated sector – small units with the single bookkeeping system. The survey is carried out exhaustively for units from public sector and by a sample for units from private sector. The sampling for enterprises in the private sector is stratified random sampling. The universe is stratified in four strata according to the number of employees, as follows: first strata - to 49 employees; second strata - 50 to 99 employees; third strata -100 and more employees. The sampling probability in first strata is 5%, in second – 40%, in third – 100%. All selected units are obliged to fill in the appropriate questionnaire.

Grossing up is made by the re-weighting method.

Name of the survey: **Survey in non-financial enterprises**
Link to surveys undertaken at the European level (e.g. short term business statistics): **The survey is carried out for the purposes of Quarterly national accounts**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Quarterly.**
Time of availability of the results: **43 days after the end of the reference quarter**
Main variables used in QNA Related to "Production accounts": • receipts from sales, • own account GFCF, • changes in stocks of finished goods and work in progress, • book value of tradable goods sold, • expenditures of raw materials and external services.   Related to "Generation of income account": • labour remuneration, • social security contributions,

- amortization of fixed assets.

Related to inventories – stocks at the beginning and at the end of the period:

- raw materials,
- finished goods,
- tradable goods,
- work in progress

Further adjustments made to the survey data

Adjustments related to transition from business accounting to NA concepts:

- holding gains/losses in change of the inventories;
- mark up adjustments for profit on own the expenditures on account GFCF;
- intermediate consumption of insurance services;
- business trip's daily allowances transferred from intermediate inputs to compensation of employees;
- income in kind.

9.2 *Quarterly survey on Number of employees, wages and salaries and other labour costs* - The survey collects statistical data for employees under labour contract in national economy and their average monthly wages and salaries

Name of the survey: **Quarterly survey on Number of employees, wages and salaries and other labour costs**
Link to surveys undertaken at the European level (e.g. short term business statistics): **The survey results are used for producing STS variables on number of employees, wages and salaries, hours worked and calculation of Labour Cost Index.**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Quarterly.**
Time of availability of results (e.g. 40 days after the end of the reference period): **Q1; Q2; Q3 - 40 days after the end of the reference quarter; Q4 - 45 days after the end of the reference quarter.**

Main variables used in QNA:
 	
  • Number of employees;
  • Hours worked;

- Total labour costs;
- Wages and salaries costs;
- Employers' imputed social contributions;
- Employer's statutory and voluntary social security contributions;
- Wages and salaries in kind;
- Taxes on labour costs;
- Employed under non-labour contract (civil contract) - number at the end of the month and remuneration costs;
- Employed under contract for management and control contract - number at the end of the month and remuneration costs;
- Honorary, lecturer and other type of remunerations.

9.3 *Labour Force Survey* - The LFS is a sample survey and its objects are non-institutional households.

Name of the survey: **Labour Force Survey**
Link to surveys undertaken at the European level (e.g. short term business statistics): **EU Labour Force Survey**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Quarterly.**
Time of availability of results (e.g. 40 days after the end of the reference period): **45 days after the end of the reference quarter.**
Main variables used in QNA: • Employed persons; • Employees under labour contract; • Employees under other type of contract or without contract; • Self-employed persons; • Employed persons having second job; • Employed in police and armed forces; • Hours worked by employed persons

- Hours worked by employees under labour contract;
- Hours worked by employees under other type of contract or without contract;
- Hours worked by self-employed persons;
- Hours worked on the second job;
- Hours worked by police and armed forces;

9.4 *Statistics on Foreign Trade in Goods*

Name of the survey: **Statistics on Foreign Trade in Goods.**
Link to surveys undertaken at the European level (e.g. short term business statistics): **https://ec.europa.eu/eurostat/web/international-trade-in-goods/overview**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Monthly.**
Time of availability of results (e.g. 40 days after the end of the reference period):   **Detailed data on the trade with third countries (Extrastat) and aggregated data (totals) on the trade with EU (Intrastat) - 40 days after the end of the reference period;**   **Detailed data on the trade with the EU (Intrastat) - 70 days after the end of the reference period.**
Main variables used in QNA: - Exports and imports of goods to/from third countries;   - Dispatches and arrivals to/from the EU Member States;   - Data on exports and imports of goods by CPA for calculation of indices - provided on quarterly basis;   - Exports and imports for/after processing – provided annually;
Further adjustments made to the survey data: Estimations are calculated to compensate the impact of Intrastat exemption thresholds, which release the information providers from statistical formalities, as well as, to take into account the late or not response of the providers. The

estimations are calculated by Member State and by chapters of the Combined nomenclature.

9.5 *Receipts and expenditures in agriculture* - The survey collects information for receipts and expenditures of agricultural enterprises – farms registered under VAT act. The questionnaire consists of two parts: Part 1, receipts from sales of goods and services; Part 2, Expenditures for production activity, with annexes for more detailed information by type of raw materials and external services used in agricultural production.

Name of the survey: **Receipts and expenditures in agriculture**
Periodicity (e.g. quarterly/monthly/other- to be specified):   **Quarterly**
Time of availability of results (e.g. 40 days after the end of the reference period):   **35 days after the reported quarter**

Main variables used in QNA
 	
 Related to the compilation of "Production account" in Agriculture
 	
 • receipts from sales of goods and services, separated for agricultural activity (plant growing, live stocks breeding and agricultural services) and for secondary non agricultural activities;
 • production expenditures by types, separated for agricultural activity (plant growing, live stocks breeding and agricultural services) and for secondary non agricultural activities:
    o   raw materials
    o   external services
    o   wages and salaries
    o   social insurance and other compensations
    o   amortization of fixed assets*;*
 • type of raw materials, energy consumption, seeds for put in, fertilizers and pesticides
 • type of external services

> Further adjustments made to the survey data:
>
> **Conceptual adjustments regarding NA definitions**

9.6 *Survey on production of agricultural products* - The survey collects information in quantities of agricultural products separated for plant growing and live stock breeding activities. The sample covers big farms in the corporate sector (600 units) and also small household producers (1400 units).

Name of the survey: **Survey on production of agricultural products**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Quarterly**
Time of availability of results (e.g. 40 days after the end of the reference period): 35 days after the reported quarter
Main variables used in QNA Related to the compilation of "Production account" in Agriculture, non-financial sector and unincorporated household sector and final consumption of own produced agricultural products. • production by products – 80 plant growing and 15 animal products, • exports of agricultural products • live stock breeding, • production for internal processing and for direct consumption in households Further adjustments made to the survey data Conceptual adjustments regarding NA definitions

9.7 *Statistical survey on insurance companies* - The survey covers all commercial insurance companies. Insurance companies use special accounting rules for insurance companies. The statement is used as the main source for quarterly national accounts.

Name of the survey: **Statistical survey on the activity of insurance companies**
Periodicity (e.g. quarterly/monthly/other- to be specified):   **Quarterly**
Time of availability of results (e.g. 40 days after the end of the reference period):   35 days after the reported quarter
Main variables used in QNA   Related to the compilation of Production account and allocation of insurance services to the households as consumers and to the Rest of the World   Separated for Life insurance and non-life insurance   • Insurance premiums accrued, total and from individuals,   • Premiums under active and passive re-insurance, total and with foreign companies,   • Claims accrued, total and to individuals,   • Claims under active and passive re-insurance, total and with foreign companies,   • Commission fees,   • Investment income,   • Changes in mathematical reserves,   • Expenditures for commissions,   • Expenditures on external services,   • Expenditures on wages and salaries, social insurance contributions,   • Depreciation of assets,   • Other administrative costs,   • CIT accrued,   • VAT invoiced
Further adjustments made to the survey data

9.8 *Expenditure on acquisition of tangible fixed assets* - The survey covers the investment activity of performed by all institutional sectors except unincorporated activities of households.

Name of the survey: **Survey on expenditures on acquisition of fixed assets**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Quarterly**
Time of availability of results (e.g. 40 days after the end of the reference period): 40 days after the reported quarter
Main variables used in QNA Related to the compilation of GFCF Expenditures on acquisition of fixed assets and acquired assets by type: • Buildings and infrastructures; • Machines, equipment and transport means; • Gross wages and salaries paid to employees; • Non-wage labour costs.
Further adjustments made to the survey data Conceptual adjustments regarding NA definitions, adjustments after comparison with other data and balancing the investment commodity flows

9.9 *Building permissions* - This data source is derived from administrative files of municipalities and it serves as a supplementary source for estimation of construction part of gross fixed capital formation in household sector. Permissions are split in dwellings and other buildings and structures.

Name of the survey: **Building permissions**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Quarterly**
Time of availability of results (e.g. 40 days after the end of the reference period): 50 days after the reported quarter
Main variables used in QNA Related to the compilation of GFCF – supplementary source - own account construction of dwellings and other buildings in households

Further adjustments made to the survey data

9.10 *Household budget survey* - The main objective of the household budget survey is to provide data on the income, expenditure, consumption and other elements of the living standard of the population as well as changes which have occurred during the years.

The unit of observation is every randomly chosen ordinary household irrespective of the number of members and their material and personal status.

The general population from which the sample for the survey is formed comprises all the households in the country. When forming the sample a two stage cluster's sampling on a territorial principle is implemented as follows:

- at the first stage the census enumeration areas (clusters) are selected;

- at the second stage the households to be surveyed are identified.

Name of the survey: **Household budget survey**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Monthly**
Time of availability of results (e.g. 40 days after the end of the reference period): 35 days after the reported quarter
Main variables used in QNA Households' expenditures for individual consumption; Production for own final consumption of households, other informal activities of households
Further adjustments made to the survey data Conceptual adjustments regarding NA definitions

9.11 *Consumer price indices (CPIs)* - CPI is structured by the national version of COICOP, developed by the National Statistical Institute on the basis of the COICOP/HICP.

CPI compilation is based on four types of sampling:

Consumer basket - sample of goods and services, offered at the consumer market;

Geographic coverage - sample of settlements, where observation points are to be sampled; Observation points - sample of stores, shops, restaurants, cafes, etc. in the sample of settlements;

Target number of prices – set of prices of goods and services to be priced at the sampled observation points.

Name of the survey: **Consumer price index**
Periodicity (e.g. quarterly/monthly/other- to be specified):   **Monthly**
Time of availability of results (e.g. 40 days after the end of the reference period):   25 days after the reference period
Main variables used in QNA   Deflation purposes of national accounts indicators: • production approach: services mainly provided to households   • final consumption expenditures of households   • export of services
Further adjustments made to the survey data

9.12 *Producers' price indices (PPIs)* - Indexes for particular economic activity measure the average change in the prices of industrial products, which are produced and sold by the Bulgarian enterprises. This is done based on a constant sample of groups of products, produced by the activity and sold on the domestic market or directly exported on non-domestic market and that sample is representative for total industrial production.

PPIs are based on the monthly survey on prices applied from Bulgarian producers.

Name of the survey: **Producer Price Indices (PPIs)**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Monthly**
Time of availability of results (e.g. 40 days after the end of the reference period): 30 days after the reference period
Main variables used in QNA Deflation purposes of national accounts indicators: • production approach: industrial activities gross output, a component of the deflator of intermediate consumption; • products for own households' consumption – PPI, domestic market; • investment in machinery and equipment – domestically produced; • holding gains/losses in inventories; • export of goods – PPI, export
Further adjustments made to the survey data

9.13 *Agricultural price indices* - The survey includes procurement prices of crop products and the survey on procurement prices of live animals and animal products.

Name of the survey: **Agricultural price indices**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Quarterly**
Time of availability of results (e.g. 40 days after the end of the reference period): 65 days after the reference period
Main variables used in QNA Deflation purposes of national accounts indicators: • agricultural gross output, intermediate consumption of agricultural products of other industries – in the frame of SUT;

• investment, live stocks breeding
Further adjustments made to the survey data
Conceptual adjustments – subsidies on agricultural products

9.14 *Industrial Production Indices* - Currently two types of indexes that represent production of industrial enterprises are calculated and published by NSI.

- Index of industrial sales;

- Index of industrial production.

For compilation of Industrial production index NSI has accepted method of deflated value of production.

The index is based on monthly survey on sales and stocks of finished products of industrial enterprises.

For calculation the 'industrial production' NSI uses approximation to the 'production value' and the following elements are included:

+ Receipts from sales of finished products, goods and services

- Value of goods purchased for resale in the same conditions as received

+/- Change in stocks of finished products.

The survey is carried out by a stratified sample survey. The enterprises sample is representative at branch group (3-digit) level of NACE, Rev.2. The total population includes all industrial enterprises, which according to NACE, Rev.2

Name of the survey: **Industrial Production Indices**
Link to surveys undertaken at the European level : The survey is carried out in the framework in the EU Short-term business statistics. https://ec.europa.eu/eurostat/web/short-term-business-statistics

Periodicity (e.g. quarterly/monthly/other- to be specified): **Monthly**
Time of availability of results (e.g. 40 days after the end of the reference period): 30 days after the reference period
Main variables used in QNA Flash estimates of GDP and its components, for checking the coherence of the quarterly national accounts results in production approach
Further adjustments made to the survey data

9.15 *Retail trade turnover index*

Name of the survey: **Retail trade turnover index**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Monthly**
Time of availability of results (e.g. 40 days after the end of the reference period): 35 days after the reference period
Main variables used in QNA Flash estimates of GDP and its components, for checking the coherence of the quarterly national accounts results elements of production approach and of expenditure approach.
Further adjustments made to the survey data

9.16 *Survey on transport activities*

Name of the survey: **Survey on transport activities**
Periodicity (e.g. quarterly/monthly/other- to be specified): **Quarterly**

Time of availability of results (e.g. 40 days after the end of the reference period):   60 days after the reference period
Main variables used in QNA   For checking the coherence of the quarterly national accounts results elements of production approach and of expenditure approach.
Further adjustments made to the survey data

9.17 *Income statement of commercial banks* - The Income statement is collected by BNB for supervision purposes. The monthly documents for each bank operated in the domestic territory are published on the web page of BNB

Name of the survey: **Income statement of commercial banks**
Organisation collecting the data, and purposes for which it is collected: BNB for supervision purposes
Periodicity   **Monthly**
Time of availability of the results   30 days after the reported month
Main variables used in QNA   Related to "Production accounts": ,   • financial and operating income and expenses,   • interest income,   • interest expenses,   • fee and commission income,   • fee and commission expenses,

• administration costs
Further adjustments made to the survey data
Adjustments related to transition from business accounting to NA concepts

9.18 *Loans and Advances – BNB monthly document -* The document is used for supervision purposes of BNB. It contains information about specific provisions for impairment losses and interest income by currencies. The documents for each bank operating in domestic territory are published on the web page of BNB.

Name of the survey: **Loans and Advances**
Organisation collecting the data, and purposes for which it is collected: BNB for supervision purposes
Periodicity (e.g. quarterly/monthly/other- to be specified): **Monthly**
Time of availability of the results 30 days after the reported month
Main variables used in QNA Related to the procedures for allocation of FISIM: stocks and interest income by sectors, in BGN and Euro • Central government • Credit institutions • Non-credit institutions • Corporations • Retail exposures – residential mortgage loans to individuals, consumer loans
Further adjustments made to the survey data Adjustments according to the procedures for FISIM allocation

9.19 *Balance of payments*

Name of the survey Balance of Payments
Organisation collecting the source data, purposes for which it is collected Bulgarian National Bank,- according to 5th edition of IMF BoP manual
Periodicity (e.g. quarterly/monthly/other- to be specified): **Quarterly**
Time of availability of the results 35-37 days after the reference month
Main variables used in QNA   Current account, Capital account and Financial account components
Further adjustments made to the survey data