



HELLENIC REPUBLIC



HELLENIC STATISTICAL AUTHORITY

**GENERAL DIRECTORATE OF STATISTICAL SURVEYS
DIVISION OF NATIONAL ACCOUNTS**

QNA inventory based on ESA 2010 methodology

FINAL REPORT

July 2016

Grant Agreement Number 04121.2015.002-2015.165

Table of Contents

CHAPTER 1. OVERVIEW OF THE SYSTEM OF QUARTERLY ACCOUNTS	4
1.1. Organisation and institutional arrangements	4
1.2. Publication timetable, revisions policy and dissemination of QNA	4
1.3. QNA compilation approach	5
1.4. Balancing, benchmarking and other reconciliation procedures.....	6
1.5. Volume estimates	6
1.6. Seasonal and calendar adjustment	7
1.7. Additional information	7
CHAPTER 2. PUBLICATION TIMETABLE, REVISIONS POLICY AND DISSEMINATION OF QNA	8
2.1. Release policy	8
2.2. Contents published.....	9
2.3. Special transmissions	10
2.4. Policy for metadata	10
CHAPTER 3: OVERALL QNA COMPILATION APPROACH	11
3.1. Overall compilation approach	11
3.2. Balancing, benchmarking and other reconciliation procedures.....	13
3.3. Volume estimates	15
3.4. Seasonal and calendar adjustment	16
CHAPTER 4. GDP AND COMPONENTS: THE PRODUCTION APPROACH	18
4.1. Gross value added, including industry breakdowns.....	18
4.2. FISIM	27
4.3. Taxes less subsidies on products	27

CHAPTER 5. GDP COMPONENTS: THE EXPENDITURE APPROACH	28
5.1. Household final consumption	28
5.2. Government final consumption, including split individual/collective consumption.....	28
5.3. NPISH final consumption	29
5.4. Gross capital formation.....	29
5.5. Imports, exports	31
CHAPTER 6. GDP COMPONENTS: THE INCOME APPROACH	33
6.1. Compensation of employees, including components (Wages and salaries and Employers' social contributions).....	33
6.2. Taxes less subsidies on production.....	34
6.3. Gross operating surplus and mixed income	34
CHAPTER 7. POPULATION AND EMPLOYMENT	35
7.1. Population.....	35
7.2. Employment: persons	35
7.3. Employment: total hours worked.....	35
CHAPTER 8. FLASH ESTIMATES.....	37
CHAPTER 9. MAIN DATA SOURCES USED.....	38

CHAPTER 1. OVERVIEW OF THE SYSTEM OF QUARTERLY ACCOUNTS

1.1. Organisation and institutional arrangements

The Greek Quarterly National Accounts (hereafter referred to as QNA) are compiled by the Hellenic Statistical Authority (ELSTAT), namely by the National Accounts Division. The Hellenic Statistical Authority (ELSTAT) is an independent Authority enjoying operational independence, as well as administrative and financial autonomy. It is not subject to the control of governmental bodies or other administrative authority. Its operation is governed by the provisions of the Law 3832/2010 «*Hellenic Statistical System Establishment of the Hellenic Statistical Authority as an independent Authority*» as amended and in force. ELSTAT is responsible for the conduct and dissemination of official statistics.

The Division for National Accounts consists of 6 sections:

- Synthesis of Accounts and Accounts with the rest of the World Section
- Business Accounts Section
- Household and Non-Profit Organizations Accounts Section
- General Government Accounts and Financial Accounts Section
- Quarterly Regional and Satellite Accounts Section
- Public Sector Surveys Section

The Quarterly Regional and Satellite Accounts Section is responsible for compiling the Quarterly National Accounts. The compiling process involves 3 persons -one for each approach- and the Head of Section.

1.2. Publication timetable, revisions policy and dissemination of QNA

The data of each quarter are announced at a two-stage process as follows: the quarterly figures of Gross Domestic Product (GDP) without particular breakdown (flash estimates) are published approximately 45 days after the end of the reporting quarter. More detailed figures are published in the form of a detailed press release, posted on ELSTAT's website, approximately 60 days after the end of the reporting quarter (provisional data). This second release includes detailed tables on the basis of

the production and expenditure approach at current prices and chain-linked volumes, as well as detailed tables at current prices on the basis of the income approach. All tables are disseminated in gross including seasonally adjusted time-series.

The revision policy of quarterly national accounts data is defined in the timetable of Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013, setting out the transmission program as follows:

45 calendar days after the end of quarter Q_i ($i = 1, 2, 3, 4$) the first estimation for quarter Q_i is calculated, as well as possible revisions of previous quarters of the current year.

60 calendar days after the end of quarter Q_i the second estimation of quarter Q_i is calculated.

Additionally, when annual national accounts data are revised, the respective quarterly data are also revised, in order to ensure their internal consistency.

1.3. QNA compilation approach

Quarterly national accounts are compiled in accordance with the European System of Accounts -[ESA 2010](#) as defined in Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013.

Greek Quarterly National Accounts are compiled using the indirect approach. According to the indirect approach, statistical techniques are applied using information from the annual accounts and short-term indicators to interpolate and extrapolate from the annual estimates. A range of data feeds into the compilation of quarterly national accounts, such as short term statistics on production, prices, employment, services and external trade. A calendar showing all future release dates for the current year can be found on the web page of ELSTAT, on the press releases calendar for National Accounts at the following link:

http://www.statistics.gr/documents/20181/300673/calendar_gr_2016.pdf/.

1.4. Balancing, benchmarking and other reconciliation procedures

Quarterly National Accounts are consistent with the Annual National Accounts. QNA are benchmarked to the annual data in October after the revision of annual accounts (in September). Revised quarterly data are published in November (with the release of the Q3 of the year t). Greek Quarterly National Accounts use some variables to adjust for any possible lack of additivity between the total GDP as determined from the output approach and the sum of its components from the expenditure and income approach. These variables are effectively used as balancing items. This is only possible at current and at previous year's prices, because of the lack of additivity induced by the chain-linking technique. The balancing variables are P.52+P.53 (change in inventories plus net acquisition of valuables) for the expenditure approach and B.2G+B.3G (gross operating surplus and mixed income) for the income approach.

Annual accounts data are revised when the supply and use tables are published, that is, approximately two years after the end of the statistical reference year. However, seasonally adjusted time series may be revised with every release irrespective of whether the original time series has been revised or not.

1.5. Volume estimates

National accounts aggregates are estimated at current prices (valuation at the price level in the accounting period) and at chain-linked volumes (reference year=2010).

The purpose of the valuation in volume terms is to assess the dynamics of economic development irrespective of price fluctuations.

National accounts aggregates are also compiled at previous year prices, on the basis of Commission Decision 98/715/EC. This ensures that volumes are measured using the most recent price structure. The annual volume changes are calculated from previous year prices and are, then, chain-linked together to form a continuous volume growth rate series (CLV), so that the reference year levels are carried forward. Currently the year 2010 is used as the reference year for the Greek national accounts.

Chain linking of quarterly data is technically more complicated than that of annual data. EU Member States and a vast majority of other countries have decided to use for the chain-linking of quarterly estimations, the average prices of the previous year (annual overlap technique), rather than the prices of the previous quarter.

1.6. Seasonal and calendar adjustment

EL.STAT compiles quarterly accounts both in raw and seasonally adjusted form, following European Statistical System guidelines on seasonal adjustment which is available at the following link on Eurostat webpage:

<http://ec.europa.eu/eurostat/en/web/products-manuals-and-guidelines/-/KS-RA-09-06>.

Seasonal adjustments are carried out using JDemetra+ software with Greek calendar regressors. The calendar regressors are used to adjust for the different number of days worked in each quarter for those series where the variation as regards the days worked is found statistically significant. The seasonal adjustments (including calendar adjustment where relevant) are performed applying the TRAMO/SEATS method. QNA seasonally adjusted series are published at both current prices and chain-linked volumes (reference year=2010). Seasonally adjusted aggregates at current prices are summed up from seasonally adjusted sub-series, but seasonally adjusted aggregates at chain-linked volumes are not summed up from seasonally adjusted sub-series.

1.7. Additional information

ELSTAT homepage: <http://www.statistics.gr/en/home>

Press release calendar: <http://www.statistics.gr/en/calendar>

National accounts press releases and data tables:

<http://www.statistics.gr/en/statistics/eco>

CHAPTER 2. PUBLICATION TIMETABLE, REVISIONS POLICY AND DISSEMINATION OF QNA

2.1. Release policy

The data of each quarter are announced at a two-stage publication process through press releases in Greek and English:

45 calendar days after the end of quarter Q_i ($i = 1, 2, 3, 4$) (Flash estimates). The release concerns only the GDP.

60 calendar days after the end of quarter Q_i . The release concerns GDP and its components (Provisional data).

The quarterly data are preliminary when first released at 45 days. These estimates are subsequently revised at 60 days. Every time new data are released the data of previous quarters of the current year are revised accordingly. The quarterly data become final when they are adjusted to the final annual data. Moreover, on account of statistical methods in compilation of seasonally adjusted series, these series are slightly revised when a new quarter is added even if there is no revision in the raw series. After the publication of the annual accounts in October and the possible revisions for previous years, the QNA database tables are also revised for these years, adjusted to the revised years of annual accounts. In this case, the new quarterly data will also affect the seasonally adjusted series, for the quarters preceding it.

Data are released simultaneously to all interested parties by disseminating the Press Release entitled "*Quarterly National Accounts Press Release*" to the media at 12:00. At the same time, the release is distributed by electronic means to subscribers and is posted on the ELSTAT's Portal: (<http://www.statistics.gr>) and http://www.statistics.gr/portal/page/portal/ESYE/PAGE-themes?p_param=A0704.

The relevant data are also included in the following online publication of ELSTAT "Greek economy": <http://www.statistics.gr/portal/page/portal/ESYE/PAGE-economy>

There are also press releases for Quarterly Non-Financial Sector Accounts and Quarterly Non-Financial Accounts of General Government. The Quarterly Non-

Financial Sector Accounts are finalized and transmitted to Eurostat after the validation of the results, especially for General Government sector.

In September of each year, ELSTAT publishes a Press Releases Calendar setting out the precise release dates for the next year. The calendar is distributed to the press and is available free of charge to all interested parties. The calendar is also posted on the portal of ELSTAT: (<http://www.statistics.gr>) under the item "Calendar of Press Releases" (in Greek and English).For more information, please see the following link: <http://www.statistics.gr/portal/page/portal/ESYE/PAGE-prcrawler>.

2.2.Contents published

The QNA second release (provisional data) includes detailed tables on the basis of the production, expenditure and income approach. The data are published on ELSTAT's web page and are accessible via the link: [Quarterly national accounts](#)> Gross domestic product – Time series. The time series according to ESA 2010 starts from 1995Q1 till most recent quarter available and is presented in the following tables:

Table 01. Quarterly GDP – Non-Seasonally adjusted, Current Prices and Chain-linked volumes reference year 2010
Table 02. Quarterly GDP - Seasonally adjusted, Current Prices and Chain-linked volumes reference year 2010
Table 03. Quarterly GDP - Non-Seasonally adjusted, Current prices
Table 04. Quarterly GDP - Non-Seasonally adjusted, Chain-linked volumes, reference year 2010
Table 05. Quarterly GDP - Seasonally adjusted, Current prices
Table 06. Quarterly GDP - Seasonally adjusted, Chain-linked volumes, reference year 2010
Table 07. Quarterly GDP - Non-Seasonally adjusted, Chain-linked volumes, year on year percentage change
Table 08. Quarterly GDP - Seasonally adjusted, Chain-linked volumes, percentage change against previous quarter
Table 09. Quarterly GDP - Seasonally adjusted, Chain-linked volumes, % change vis-à-vis the same quarter of the preceding year
Table 10. Quarterly GDP - Production Approach, Current Prices (Gross value added by Industry A10, Seasonally and non-seasonally adjusted figures)

Table 11. Quarterly GDP - Production Approach, Chain-linked volumes , reference year 2010 (Gross value added by Industry A10, Seasonally and non-seasonally adjusted figures)
Table 12. Quarterly GDP - Expenditure Approach, Current Prices (Seasonally and non-seasonally adjusted figures)
Table 13. Quarterly GDP - Expenditure Approach, Chain-linked volumes , reference year 2010 (Seasonally and non-seasonally adjusted figures)
Table 14. Quarterly GDP - Income Approach, Current Prices (Compensation of Employees by Industry A10, Seasonally and non-seasonally adjusted figures)

Tables for Gross Fixed Capital Formation from 1995Q1 onwards are also published on the webpage of ELSTAT, at the following link: [Quarterly national accounts](#)> Gross fixed capital formation – Time series.

Table 01. Quarterly Gross fixed capital formation by Asset, Current Prices (Seasonally and non-seasonally adjusted figures)
Table 02. Quarterly Gross fixed capital formation by Asset, Chain-linked volumes , reference year 2010 (Seasonally and non-seasonally adjusted figures)

2.3. Special transmissions

QNA data are transmitted to Eurostat according to ESA 2010 Transmission Programme as defined in Annex B of Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013 (cf. also Article 3 of this Regulation). There are no privileged users. The first estimate of annual data is transmitted to Eurostat at t+2 months, deriving from the sum of the quarters.

2.4. Policy for metadata

ELSTAT follows the SDDS requirements for metadata. For details please see: <http://dsbb.imf.org/Pages/SDDS/DQAFBase.aspx?ctycode=GRC&catcode=NAG00>.

More information on the methodology is also published on the website of ELSTAT, at: [Quarterly national accounts](#)> Gross domestic product – Methodology.

CHAPTER 3: OVERALL QNA COMPILATION APPROACH

The purpose of the Quarterly National Accounts (QNA) is to provide a rapid macro-economic overview of economy. Greek Quarterly National Accounts consist of a set of indicators which provides an overview of the economic activity in Greece over a short term period. Quarterly National Accounts are compiled in accordance with the European System of Accounts -ESA 2010 as defined in Regulation (EU) No 549/2013 of the European Parliament and of the Council of 21 May 2013.

National Accounts statistics are compiled on the basis of an accounting framework using contributions from a variety of primary statistics. Some of the primary statistics are based on sample surveys, some other derive from administrative data and other are the result of statistical modeling. National Accounts current works are produced according to ESA 2010 data. QNA series are produced in accordance with ESA2010. The quarterly series start from 1995 until the last reference quarter.

3.1. Overall compilation approach

The methodology adopted for the calculation of quarterly data in Greece combines the domestic demand for short-term data on the Greek economy, with the statistical principles on the calculation of the respective annual data. This is achieved through the use of economic indicators that are consistent with both the economic theory and the statistical methods based on the principles of Eurostat (ESA, 2010). These figures are Gross Domestic Product (GDP) and domestic expenditure components namely private consumption, gross fixed capital formation, the changes in inventories, General Government final consumption, exports and imports.

The process begins with the processing of data in the primary stage systems for values, volumes and prices; data are collected and duly processed in order to be used in the national accounts. Indicators derive from the processing of these data. For the majority of data series there are always indicators for two out of the three elements (value, volume and price). The calculation of the variables is conducted by means of the relationship: $\text{value} = \text{price} * \text{quantity}$.

There is a strong relationship between price and volume measures in the QNA and in the Annual National Accounts(ANA). QNA must be consistent with the ANA, which

are usually more firmly based than the QNA, thus providing a firm benchmark as a starting point for the QNA. As a result, a benchmarking procedure is required. The method that used to benchmark the QNA to the ANA is a relatively simple pro rata method when the relationship between the ANA and the sum of the QNA each year is consistent.

The methods that are used to breakdown the annual GDP to quarterly GDP are under some restrictions. The most important of these limitations is that quarterly national accounts have to be reconciled with annual accounts data (i.e. annual estimates and the sum of the four quarterly estimates should be equal). Quarterly national accounts revisions are more substantial and occur more frequently than revisions of annual accounts because of the characteristics of data sources and compilation methods.

There are some methods used to breakdown the annual GDP to quarterly GDP. The methods are distinguished separated into two main categories:

- (i) the direct method without using economic indicators.
- (ii) the indirect method by using economic indicators.

The direct method is based on the availability of data on a quarterly basis, which is a similar but simpler procedure than that applied in the annual accounts and it is used for the calculation of quarterly gross value added, and therefore, the quarterly GDP. The use of the direct compilation method requires sufficiently exhaustive source data. The indirect method is based on the distribution of available annual figures to the corresponding quarters in accordance with mathematical or statistical methods using relevant indicators. These indicators must allow for the estimation of the final figures of the year and allow making extrapolations for the current year. Currently, in Greece quarterly data are not available; therefore the indirect method is mostly used.

Quarterly GDP is compiled by applying this method in two different ways: a) by using economic indicators that reflect the economic activity in the main economic activity classes of the Greek economy and b) by using the estimates of the Domestic Expenditure Component. At a first stage, the components of GDP are compiled from the side of production, i.e. the evolution of value added in each economic activity class is followed (agriculture, fisheries, industry, etc.) with the help of some indicators. Subsequently, the estimated monthly data of the components are summed up to a quarter to give (after aggregation) an estimate of the quarterly GDP. This method provides results with less variability and makes more efficient use of the information available.

The indicators that have been chosen are selected either directly from statistical sources, or from a weighted combination of data based on various statistical sources. For the calculation of the current values of QNA the data of the indicators and the data of annual national accounts is combined using benchmarking and extrapolation methods. An important factor for the reliability of the results is the absence of constant statistical bias in the indicators estimates. If there is bias in an indicator, then it should be corrected before the benchmarking and extrapolation. These changes-adjustments may concern the whole time series of an indicator, or an observation of the indicator.

It is very important to consider all the range of available indicators and to select the most appropriate indicators for each variable of interest. This research focuses on indicators which were available. Most of the indicators used in the GDP breakdown come from the publications of ELSTAT which are posted on its website (www.statistics.gr).

Indicators are often revised, especially for the most recent months or quarters, as more complete information gradually becomes available. Moreover, the existence of missing values of an indicator at the time when the quarterly accounts are compiled requires the extrapolation from the previous preceding results due to the pressing obligation to publish quarterly accounts before full information becomes available. For instance, for some turnover indices the information becomes available at a later stage with the publication of the flash or provisional QNA estimations. In this case the method is usually extended by assuming that existing trends of the previous quarter will continue. When the extrapolated figures are replaced by the observed data, revisions take place. Finally, the seasonal adjustment required for each indicator is re-estimated with each new publication.

3.2. Balancing, benchmarking and other reconciliation procedures

GDP is calculated on the basis of three approaches: the production approach, the expenditure approach and the income approach. A description of each approach is provided in the following paragraphs. GDP at market prices is the final result of the production activity of resident producer units. It can be defined in three ways:

a.GDP Output approach

On the basis of the production side, GDP can be measured as:

- (B.1g) = gross value added (at basic prices)
- (D.21) + taxes on products
- (D.31) - subsidies on products
- (B.1*g) = Gross Domestic Product at market prices

b.GDP Expenditure approach

From the expenditure side, GDP can be measured as:

- (P.3) +final consumption expenditure of households
- + final consumption expenditure of NPISH
- = private final consumption expenditure
- + final consumption expenditure of General Government
- = total final consumption expenditure
- (P.51) + gross fixed capital formation
- (P.52) + changes in inventories
- (P.6) + exports of goods and services
- (P.7) - imports of goods and services
- (B.1*g) = Gross Domestic Product at market prices

c.GDP Income approach

From the income side, GDP can be measured as:

- (D.1) +compensation of employees
- (B.2g/B.3g) + gross operating surplus / mixed income
- (D.2) + taxes on production and imports
- (D.3) - subsidies on production
- (B.1*g) = Gross Domestic Product at market prices

While each method should, conceptually, produce the same estimate of GDP, if the three measures of GDP are compiled independently using different data sources, then different estimates of GDP result. These tables have been compiled from 1995, up to

the year preceding the latest complete financial year. For years balanced using supply and use tables, quarterly GDP is benchmarked to annual GDP. However, the three estimates of GDP can be different for any given quarter. The annual GDP estimate produced by balancing with the use of supply and use tables forms the benchmark for the production of quarterly GDP. The basic approach for the compilation of the Greek QNA is the Output approach. The discrepancy in the results between the Output approach and the other two approaches (Expenditure approach and Income approach) are consolidated in a residual item; this residual is considered to be part of the changes in inventories for the expenditure side and part of the Gross Operating Surplus for the income side.

3.3. Volume estimates

Benchmarking

There are inconsistencies between ANA and QNA which could arise from the use of different source data and compilation methods. ANA are based on Input-Output account or annual survey, whereas quarterly indicators or survey results are used in QNA. Benchmarking addresses the problem of combining a series of high-frequency data (e.g. quarterly data) with a series of less frequent data (e.g. annual data) for a certain variable into a consistent time series. The problem arises when the two series show inconsistent movements and the less frequent data are considered the more reliable of the two. The purpose of benchmarking is to combine the relative strengths of the low and high frequency data hence benchmarking is defined as the process of correcting inconsistencies between two sources of data for the same target variable which are produced with different frequencies. Benchmarking techniques can be categorized into two approaches.

- Numerical approach: the family of Denton, Bassie.
- Statistical modeling approach: Chow-Lin, GLS model, etc.

Benchmarking process consists of distribution and extrapolation. Distribution is the alignment of quarterly data within annual benchmark, while extrapolation is to adjust data for recent quarters whose annual benchmark is not available.

The proportional Denton method is mostly used. It is easier to implement and it preserves the short-term movement of original series. Therefore, this method is applied for Greek QNA. Furthermore, the benchmarked results are compared with pro-rata distribution. Pro-rating distributes the annual total according to the proportions of quarterly values within a year.

$$X_{q,\beta} = A_{\beta} \times \frac{I_{q,\beta}}{\sum_{q=1}^4 I_{q,\beta}} = I_{q,\beta} \times \frac{A_{\beta}}{\sum_{q=1}^4 I_{q,\beta}}$$

where:

$X_{q,\beta}$: benchmarked value for quarter q of year β ,

$I_{q,\beta}$: quarterly indicator or estimates before benchmarking

A_{β} : annual benchmark for year β

$\frac{A_{\beta}}{\sum_{q=1}^4 I_{q,\beta}}$: annual BI (Benchmark to Indicator) ratio.

For recent quarters whose annual benchmark is not available, quarterly values can be extrapolated using the last quarterly BI ratio.

$$X_t = I_t \times \frac{X_{4,\beta}}{I_{4,\beta}} = X_{4,\beta} \times \frac{I_t}{I_{4,\beta}}, \text{ for } t > 4\beta$$

This extrapolation method is equivalent to using the growth rates of the quarterly indicator.

3.4. Seasonal and calendar adjustment

Data that are affected by seasonal factors are adjusted to remove the effects of these factors. Due to variations in the intensity of economic activity throughout the year, quarterly indicators are compiled in raw (non-seasonally adjusted) and in seasonally adjusted forms. At this point, two important points should be noted:

- The methods used in seasonal adjustment do not necessarily require that the sum of the adjusted current price estimates for each quarter of a year must equal the original annual total.
- Where chain-linked volume estimates have no apparent seasonality in their implicit price deflators, the estimates are adjusted using the corresponding factors for current price estimates.

Seasonal adjustments are carried out by using JDemetra+ software with Greek calendar regressors. The calendar regressors are used to adjust for the different number of days worked in each quarter for those series where the variation in the days worked is found statistically significant. The seasonal adjustments (including calendar adjustment where relevant) are performed with TRAMO/SEATS method. QNA seasonally adjusted series are published at both current prices and chain-linked volumes (reference year=2010). Seasonally adjusted aggregates at current prices are summed up from seasonally adjusted sub-series, but seasonally adjusted aggregates at chain-linked volumes are not summed up from seasonally adjusted sub-series.

CHAPTER 4. GDP AND COMPONENTS: THE PRODUCTION APPROACH

4.1. Gross value added, including industry breakdowns

GDP in Greece, as described, consists, primarily, of the sum of gross value added (GVA) of industrial classes (often named also as economic activity classes). The contribution of these classes to GDP varies. Following this approach, GDP is compiled using indicators which represent the main areas of the economy. At a first stage, the calculations are made for 80 industrial classes of the Greek economy based on the NACE REV.2, but the final table which is published contains aggregated data on value added for 10 industries. Industries are classified into the following three main classes:

The first is primary production, which includes agriculture, forestry and fishing. The second is secondary production and includes mining and quarrying, manufacturing, electricity, gas, steam and air conditioning supply, water supply, sewerage, waste management and remediation activities and construction. The third main class involves services. It is divided into two areas: the private services and the General Government services. The private services include trade, repair of motor vehicles and motorcycles, transportation and storage, accommodation and food service activities, information and communication services, financial and insurance activities, real estate activities, professional, scientific and technical activities, administrative and support service activities, and arts, entertainment and recreation, repair of household goods and other services. The General Government services include public administration and defense, education, health and social work activities.

For the GDP breakdown, from supply-side, indicators are used reflecting the main economic activity classes of the economy, i.e. industry, construction, internal trade and services. For the estimates in the industry the index of industrial production (IPI) is used, in construction the monthly data of building permits are used, in domestic trade the turnover indices in wholesale and in retail trade are used. For the other economic activities, namely agriculture-livestock, fisheries and other services (public and private), available indicators are used.

In the absence of statistical or administrative data, other sources are also sought and used for the compilation of quarterly national accounts indicators. Data from industry

associations, industry experts, or leading enterprises in a particular industry may help with the calculation of quarterly indicators.

The following tables present the QNA source data for Value (Table 1), Volume (Table 2) and Prices (Table 3) in 80 industries, which describe the economic activity in Greece, based on the Statistical Classification of Economic Activities NACE REV.2 of the European Union. The tables report QNA primary source data for values, volumes and prices, which consist of all the available short term indicators. The fourth column presents the frequency (monthly, quarterly) of the indicators.

Table 1: QNA Value Source data at NACE REV. 280 Industries

NACE REV.2Industry		Value	
Code	Description	Source Data	Frequency
A030	Fishing and aquaculture	Sea fishery survey data / AquaCulture Balance sheet data	Quarterly, Monthly
A410-430	Construction of buildings, Civil engineering, Specialised construction activities	Gross Fixed Capital Formation (methodology on building permits monthly data)	Monthly
A450	Wholesale and retail trade and repair of motor vehicles and motorcycles	Motor trades Turnover Indices	Quarterly
A460	Wholesale trade, except of motor vehicles and motorcycles	Wholesale trade (Turnover Index)	Quarterly
A470	Retail trade, except of motor vehicles and motorcycles	Retail Trade Turnover Index	Monthly
A490	Land transport and transport via pipelines	Transport Turnover Index	Quarterly
A500	Water transport	Transport Turnover Index	Quarterly
A510	Air transport	Transport Turnover Index	Quarterly
A520	Warehousing and support activities for transportation	Transport Turnover Index	Quarterly
A530	Postal and courier activities	Turnover Index	Quarterly
A580	Publishing activities	Turnover Index	Quarterly
A590	Motion picture, video and television programme production, sound recording and music publishing activities	Turnover Index	Quarterly
A600	Programming and broadcasting activities	Turnover Index	Quarterly

A610	Telecommunications	Turnover Index	Quarterly
A620	Computer programming, consultancy and related activities	Turnover Index	Quarterly
A630	Information service activities	Turnover Index	Quarterly
A640	Financial service activities, except insurance and pension funding	FISIM Output (monthly stocks of loans deposits, Interest rates)	Monthly
A650	Insurance, reinsurance and pension funding, except compulsory social security	Insurance premiums, Hellenic Insurance Association	Monthly
A660	Activities auxiliary to financial services and insurance activities	Extrapolation using FISIM	Quarterly
A681	Real estate activities -Buying and selling of own real estate	Extrapolation	Quarterly
A682	Real estate activities -Renting and operating of own or leased real estate	Rents Expenditure (Calculation Based on building permits monthly data and rents prices)	Monthly
A700	Activities of head offices; management consultancy activities	Turnover Index	Quarterly
A710	Architectural and engineering activities; technical testing and analysis	Turnover Index	Quarterly
A720	Scientific research and development	Extrapolation, Disaggregation	Quarterly
A730	Advertising and market research	Turnover Index	Quarterly
A770	Rental and leasing activities	Extrapolation, Disaggregation	Quarterly
A780	Employment activities	Turnover Index	Quarterly
A790	Travel agency, tour operator reservation service and related activities	Turnover Index	Quarterly
A800-820	Security and investigation activities, Services to buildings and landscape activities, Office administrative, office support and other business support activities	Turnover Index	Quarterly
A840	Public administration and defence; compulsory social security	Final Consumption Expenditure from Short Term Public Finance Statistics (STPFS)	Quarterly
A850	Education	1) Output Calculated with STPFS for S13 General Government 2) Employment data for S11 Non financial corporations	Quarterly
A860	Human health activities	Output Calculated with STPFS for S13 and Employment data for S11	Quarterly
A910	Libraries, archives, museums and other cultural activities	Receipts - Museums and archaeological Sites	Monthly

Table 2 : QNA Volume Source data at NACE REV.280 Industries

NACE REV.2Industry		Volume	
Code	Description	Source Data	Frequency
A011	Growing of non-perennial crops	Extrapolation using employment for current year's quarter, disaggregation of annual data for previous years	Quarterly
A012	Growing of perennial crops		Quarterly
A014	Animal production		Quarterly
A020	Forestry and logging		Quarterly
A050	Mining of coal and lignite	Industrial Production Index(IPI)	Monthly
A060	Extraction of crude petroleum and natural gas	IPI	Monthly
A070	Mining of metal ores	IPI	Monthly
A080	Other mining and quarrying	IPI	Monthly
A100	Manufacture of food products	IPI	Monthly
A110	Manufacture of beverages	IPI	Monthly
A120	Manufacture of tobacco products	IPI	Monthly
A130	Manufacture of textiles	IPI	Monthly
A140	Manufacture of wearing apparel	IPI	Monthly
A150	Manufacture of leather and related products	IPI	Monthly
A160	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	IPI	Monthly
A170	Manufacture of paper and paper products	IPI	Monthly
A180	Printing and reproduction of recorded media	IPI	Monthly
A190	Manufacture of coke and refined petroleum products	IPI	Monthly
A200	Manufacture of chemicals and chemical products	IPI	Monthly
A210	Manufacture of basic pharmaceutical products and pharmaceutical preparations	IPI	Monthly
A220	Manufacture of rubber and plastic products	IPI	Monthly
A230	Manufacture of other non-metallic mineral products	IPI	Monthly
A240	Manufacture of basic metals	IPI	Monthly
A250	Manufacture of fabricated metal products, except machinery and equipment	IPI	Monthly
A260	Manufacture of computer, electronic and optical products	IPI	Monthly
A270	Manufacture of electrical equipment	IPI	Monthly

A280	Manufacture of machinery and equipment	IPI	Monthly
A290	Manufacture of motor vehicles, trailers and semi-trailers	IPI	Monthly
A300	Manufacture of other transport equipment	IPI	Monthly
A310	Manufacture of furniture	IPI	Monthly
A320	Other manufacturing	IPI	Monthly
A330	Repair and installation of machinery and equipment	IPI	Monthly
A350	Electricity, gas, steam and air conditioning supply	IPI	Monthly
A360	Water collection, treatment and supply	IPI	Monthly
A370-390	Sewerage, Waste collection, treatment and disposal activities; materials recovery, Remediation activities and other waste management services	Employment	Quarterly, Monthly
A470	Retail trade, except of motor vehicles and motorcycles	Retail Trade Volume Index	Monthly
A55-56	Accommodation, Food and Service Activities	Employment	Quarterly, Monthly
A69	Accommodation, Food and Service Activities	Employment	Quarterly, Monthly
A720	Scientific research and development	Extrapolation, Disaggregation	Quarterly
A740	Other professional, scientific and technical activities	Employment	Quarterly, Monthly
A870-880	Residential care activities; Social work activities without accommodation;	Employment	Quarterly, Monthly
A900	Creative, arts and entertainment activities	Employment	Quarterly, Monthly
A920	Gambling and betting activities	Employment	Quarterly, Monthly
A930	Sports activities and amusement and recreation activities	Employment	Quarterly, Monthly
A940	Activities of membership organizations	Employment	Quarterly, Monthly
A950	Repair of computers and personal and household goods	Employment	Quarterly, Monthly
Code	Description	Source Data	Frequency
A960	Other personal service activities	Employment	Quarterly, Monthly

A970	Activities of households as employers of domestic personnel	Employment	Quarterly, Monthly
------	---	------------	--------------------

Table 3: QNA Price Source data at NACE REV.280 Industries

NACE REV.2Industry		Price	
Code	Description	Source Data	Frequency
A011	Growing of non-perennial crops	Agricultural Price Indices	Monthly
A012	Growing of perennial crops	Agricultural Price Indices	Monthly
A014	Animal production	Agricultural Price Indices	Monthly
A020	Forestry and logging	Extrapolation, disaggregation	Quarterly
A030	Fishing and aquaculture	1) Sea Fishery Survey (Value/Amount) 2) Consumer Price Index (CPI) sub index 01131)	Quarterly, Monthly
A050	Mining of coal and lignite	Producer Price Index	Monthly
A060	Extraction of crude petroleum and natural gas	Producer Price Index	Monthly
A070	Mining of metal ores	Producer Price Index	Monthly
A080	Other mining and quarrying	Producer Price Index	Monthly
A100	Manufacture of food products	Producer Price Index	Monthly
A110	Manufacture of beverages	Producer Price Index	Monthly
A120	Manufacture of tobacco products	Producer Price Index	Monthly
A130	Manufacture of textiles	Producer Price Index	Monthly
A140	Manufacture of wearing apparel	Producer Price Index	Monthly
A150	Manufacture of leather and related products	Producer Price Index	Monthly
A160	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	Producer Price Index	Monthly
A170	Manufacture of paper and paper products	Producer Price Index	Monthly
A180	Printing and reproduction of recorded media	Producer Price Index	Monthly
A190	Manufacture of coke and refined petroleum products	Producer Price Index	Monthly
A200	Manufacture of chemicals and chemical products	Producer Price Index	Monthly

A210	Manufacture of basic pharmaceutical products and pharmaceutical preparations	Producer Price Index	Monthly
A220	Manufacture of rubber and plastic products	Producer Price Index	Monthly
A230	Manufacture of other non-metallic mineral products	Producer Price Index	Monthly
A240	Manufacture of basic metals	Producer Price Index	Monthly
A250	Manufacture of fabricated metal products, except machinery and equipment	Producer Price Index	Monthly
A260	Manufacture of computer, electronic and optical products	Producer Price Index	Monthly
A270	Manufacture of electrical equipment	Producer Price Index	Monthly
A280	Manufacture of machinery and equipment n.e.c.	Producer Price Index	Monthly
A290	Manufacture of motor vehicles, trailers and semi-trailers	Producer Price Index	Monthly
A300	Manufacture of other transport equipment	Producer Price Index	Monthly
A310	Manufacture of furniture	Producer Price Index	Monthly
A320	Other manufacturing	Producer Price Index	Monthly
A330	Repair and installation of machinery and equipment	Producer Price Index	Monthly
A350	Electricity, gas, steam and air conditioning supply	Producer Price Index	Monthly
A360	Water collection, treatment and supply	Producer Price Index	Monthly
A370-390	Sewerage, Waste collection, treatment and disposal activities; materials recovery, Remediation activities and other waste management services	CPI 0443	Monthly
A410-430	Construction of buildings, Civil engineering, Specialised construction activities	Prices of Work Categories and Construction Costs of New Residential Buildings (Price Indices)	Quarterly
A450	Wholesale and retail trade and repair of motor vehicles and motorcycles	CPI 071+0723	Monthly
A460	Wholesale trade, except of motor vehicles and motorcycles	CPI	Monthly
A490	Land transport and transport via pipelines	Producer Price Indices for Services	Quarterly
A500	Water transport	CPI 0734	Monthly
A510	Air transport	Producer Price Indices for Services	Quarterly

A520	Warehousing and support activities for transportation	Producer Price Indices for Services	Quarterly
A530	Postal and courier activities	Producer Price Indices for Services	Quarterly
A550	Accommodation	CPI 112	Monthly
A560	Food and beverage service activities	CPI 111	Monthly
A580	Publishing activities	PPI Services & CPI	Quarterly
A590	Motion picture, video and television programme production, sound recording and music publishing activities	CPI	Monthly
A600	Programming and broadcasting activities	PPI Services (731212)	Quarterly
A610	Telecommunications	CPI 083	Monthly
A620	Computer programming, consultancy and related activities	Extrapolation, disaggregation	Quarterly
A630	Information service activities	Extrapolation, disaggregation	Quarterly
A640	Financial service activities, except insurance and pension funding	CPI	Monthly
A650	Insurance, reinsurance and pension funding, except compulsory social security	CPI 125	Monthly
A660	Activities auxiliary to financial services and insurance activities	CPI 125	Monthly
A682	Real estate activities -Renting and operating of own or leased real estate	CPI 041	Monthly
A690	Legal and accounting activities	PPI Services 692	Quarterly
A700	Activities of head offices; management consultancy activities	PPI Services 7022	Quarterly
A710	Architectural and engineering activities; technical testing and analysis	PPI Services (712)	Quarterly
A730	Advertising and market research	PPI Services	Quarterly
A740	Other professional, scientific and technical activities	Extrapolation, disaggregation	Quarterly
A770	Rental and leasing activities	CPI 07242003	Monthly
A790	Travel agency, tour operator reservation service and related	CPI 096	Monthly

	activities		
A800-820	Security and investigation activities, Services to buildings and landscape activities, Office administrative, office support and other business support activities	PPI Services	Quarterly
A840	Public administration and defence compulsory social security	Deflator calculated with Employment and CPI data	Quarterly, monthly
A850	Education	Deflator calculated with Employment and CPI data	Quarterly, monthly
A860	Human health activities	Deflator calculated with Employment and CPI data	Quarterly, monthly
A870-880	Residential care activities; Social work activities without accommodation;	CPI 06302	Monthly
A900	Creative, arts and entertainment activities	CPI 0942	Monthly
A910	Libraries, archives, museums and other cultural activities	CPI 0942	Monthly
A920	Gambling and betting activities	Extrapolation, disaggregation	Quarterly
A930	Sports activities and amusement and recreation activities	CPI 0941	Monthly
A940	Activities of membership organisations	Extrapolation, disaggregation	Quarterly
A950	Repair of computers and personal and household goods	CPI 0915	Monthly
A960	Other personal service activities	CPI 1211+031402	Monthly
A970	Activities of households as employers of domestic personnel	CPI 05621	Monthly

The time series with and without seasonal adjustments, according to ESA 2010, start from 1995Q1 until most recent quarter available.

4.2. FISIM

Calculation of FISIM per institutional user sector

FISIM per user sector is currently extrapolated on a quarterly basis using the calculations for loans and deposits which are based on the following formulas for each user sector:

$$\text{FISIMLoans} = \text{Interests of Loans} - (\text{Internal Reference rate}) * (\text{Stocks of Loans})$$

$$\text{FISIMofDeposits} = (\text{Internal Reference rate}) * (\text{Stocks of Deposits}) - \text{Interests on Deposits}$$

Internal Reference Rate (IRR) is calculated using a weighted average of the available interbank rates. Stocks on Loans and deposits are available from the respective financial accounts data for each institutional user sector, as provided by the Bank of Greece. Data on the flows of accrued interest by user sector were not directly available and the sectorised weighted (on available temporal stock structure) interest rates are extracted on the basis of interest rate statistics (MIR statistics), as published from Bank of Greece.

Imports and exports of FISIM

Imports of FISIM are mainly extrapolated (especially for non-financial corporations and households) using Balance Of Payments (BOP) data on interests receivable and payable.

Exports of FISIM are extrapolated using interests as derived from exported stocks of loans and deposits and interest rates for non-financial corporations.

4.3. Taxes less subsidies on products

The quarterly estimates of taxes and subsidies on products are obtained from the General Government quarterly accounts data set. The estimation of taxes on products at current prices is based on revenues and expenditures recorded in government administrative data.

CHAPTER 5. GDP COMPONENTS: THE EXPENDITURE APPROACH

The expenditure approach is based on the aggregates of household final consumption, General Government consumption, gross fixed capital formation, imports and exports. The expenditure side is balanced with the production approach by using changes in inventories as a residual item.

5.1. Household final consumption

The quarterly pattern of Households final consumption expenditure has been derived from the processing of Households Budget Survey data for the benchmark calculations. The most important source data for indicators are Turnover and Volume Indices in retail trade. Household final consumption is calculated using the classification of individual consumption by purpose (COICOP breakdown) and relies mostly on matching retail trade statistics to respective categories. The monthly retail trade turnover index is available at 60 days after the reference month. For certain categories that mainly concern services where no respective retail trade statistics exist, the corresponding turnover and volume indices used in the calculation of output and gross value added are used. This mainly applies to transport, telecommunications, hotels and restaurant expenditure, education and health expenditure which use the respective turnover indices or the Labour Force Survey (LFS) based volume indicators. Additional data source is the monthly household consumption of electric power and the corresponding revenues from Public Power Corporation SA.

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

The main data source of government final consumption is Quarterly Non- Financial Accounts of General Government. The two main components of government final consumption are Intermediate Consumption and Compensation of Employees.

The deflator is calculated taking into account the two main elements that constitute the final consumption of General Government, that is, the expenditure for the compensation of employees and the expenditure for the intermediate consumption. These expenses are used as weights for the calculation of a weighted price index using the following price indices:

- The overall consumer price index (CPI), which is used for the deflation of the intermediate consumption
- The price index for the compensation of employees, which is calculated from the value index of the annual changes of the compensation of employees and the volume index of the annual change of the number of employees in the General Government.

5.3. NPISH final consumption

The total compensation of employees paid by the total economy (S.1), adjusted for compensation paid to and received from the rest of the world, is totally attributed to the households and NPISH's sector. There are no quarterly surveys covering the sector of NPISH. Therefore, the calculation of QNA estimation process for this sector is based on annual national accounts data by using the benchmarking method.

5.4. Gross capital formation

a. GFCF with its breakdowns in the ESA2010 transmission programme

Gross fixed capital formation is broken down by asset type as follows:

AN.111 dwellings

AN.112 other buildings and structures

AN.113 + AN.114 machinery and equipment + weapon systems

- AN.1131 transport equipment

- AN.1132 ICT equipment

- AN.1139 + AN.114 other machinery and equipment + weapon systems

- AN.115 cultivated biological resources

- AN.117 intellectual property products

Calculations are made by type of asset. As regards investments, machinery equipment data along with imports (machinery imports) and transport equipment data from new vehicles circulation licenses are available on time, approximately in 60 days. As regards construction, data are obtained from new building permits in 42 days. Data are available on time for the aggregates of the total number and volume of building permits.

Dwellings and other buildings and structures

The main data source is the monthly data on building permits (Volume index).

The variable used for dwellings is surface in m^2 , while for other buildings and structures the variable used is volume in m^3 .

The Quarterly Price Index of Work Categories (PPI in construction) of new residential buildings is used as price index for both dwellings and other buildings.

Machinery and equipment + weapon systems

The main data source for machinery and equipment (AN.113) is imports of goods (SITC 2 70-79). For weapon systems (AN.114), data is obtained from Ministry of Defense. The main data source for transport equipment (AN.1131) is new registrations of motor vehicle circulation licenses (Buses and Lorries), for ICT equipment (AN.1132), imports of goods. For all the above categories, the Import Price Index in Industry (MPI) is used as price index.

Cultivated biological resources (AN.115) and intellectual property products (AN.117) are calculated by disaggregating available annual data using Ecotrim.

b. Changes in inventories and acquisitions less disposals of valuables

There is no available quarterly data for changes in inventories and acquisitions less disposals of valuables. Therefore, they are treated as balancing items between estimation of total GDP from the production approach and the sum of other components from the expenditure approach. As they can get both positive and negative values they cannot be chain-linked and are calculated only at current prices and in previous year's prices.

5.5. Imports, exports

The main data sources for imports and exports are International Trade Goods Statistics (ITGS) from ELSTAT and Balance of Payments Statistics from the Bank of Greece. Imports and exports data are generally available within 60 days. Data on imports and exports of goods from external trade statistics of ELSTAT are available within 55 days. Imports and exports of services from the Balance of Payment Statistics provided by the Bank of Greece are available within 52 days.

Exports of goods: Monthly values on exports of goods from International Trade Goods Statistics.

Exports of Services: Monthly values (receipts) from Balance of Payments.

Imports of goods: Monthly values on imports of goods from International Trade Goods Statistics.

Imports of Services: Monthly values (payments) from Balance of Payments.

Figures are produced according to the geographical breakdown: EU, EA, Intra EU extra EA, Extra EU (Tables 120, 121 of ESA 2010 transmission programme).

For the calculation of quarterly figures the following adjustments are made:

A. Exports in goods (QNA)

- ITGS exports regarding processing, repairs and ships (CN 89) are excluded from QNA exports. Reallocation from Goods to QNA Services takes place (artworks, antiques, etc).

The data from the Bank of Greece on exports of ships and Net Merchanting are included in QNA exports. Part of travel services obtained by BOP is allocated to exports of goods (the proportion is based on National Accounts survey).

B. Imports in goods (QNA)

ITGS imports for processing, repairs, ships (CN 89) are excluded from QNA imports. Reallocation from Goods to QNA Services takes place (artworks, antiques, etc).

- Data from the Bank of Greece on imports of ships and Supplies are included in QNA imports. Part of travel services obtained by BOP is allocated to imports of goods (the proportion is based on NA survey).
- Data on Illegal goods and Smuggling are obtained from ANA.

The Producer Price Index in industry for the Non- domestic market (PPI) is used as price deflator for exports of goods. For exports of services the same index, excluding energy, is used. For export of travel services, the Consumer Price Index is used (CPI).

For imports of goods, the Import Price Index in Industry (MPI) is used as deflator, while the same index, excluding energy, is applied for the deflation of imports of services. Sub-indices for Eurozone Market(MPI) and Non-Eurozone Market(MPI) are applied, respectively, for the geographical breakdown.

CHAPTER 6. GDP COMPONENTS: THE INCOME APPROACH

The income approach corresponds to table 103 of ESA 2010 transmission programme. The following variables are calculated: Compensation of employees (by industry A10), gross operating surplus and mixed income and taxes less subsidies on production. From the income side, GDP can be measured as:

(D.1)	+compensation of employees
(B.2g/B.3g)	+ gross operating surplus / mixed income
(D.2)	+ taxes on production and imports
(D.3)	- subsidies on production
(B.1*g)	= Gross Domestic Product at market prices

For estimating the income aggregates and in order to assure consistency of annual and quarterly series the use of temporal disaggregation of annual data with quarterly indicators is applied.

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

Compensation of employees (D1) is defined as the total remuneration, in cash or in kind, payable by an employer to an employee in return for the work done by the latter during the accounting period. It is composed by:

- Wages and salaries (D.11)
- Employers' social contributions (D.12)

The quarterly indicator for Wages and Salaries is calculated as:

$$\text{Value Index} = \text{Price index} * \text{Volume Index}$$

Main data sources:

Labour Force Survey (quarterly figures) by Division of NACEREV.2 -2digit codes

-Average wages and salaries for price index.

-Employment (Employees and self-employed) for volume index

Labour Cost Index for price index.

General Government Non Financial Accounts (quarterly data)

-D1 for S1311 and S1313 for the value index of the General Government.

Quarterly employers' social contributions are estimated using the previous year ratio of contributions to wages. Adjustments are made taking into account new legislation for the current quarter.

6.2. Taxes less subsidies on production

The main data source for taxes on production is General Government Accounts (quarterly data). The data for subsidies are obtained from the “Greek Payment and Control Agency for Guidance and Guarantee of Community Aid” (OPEKEPE), a private legal entity supervised by the Ministry of Rural Development and Food. It is an annual estimation of the subsidies that are to be paid to producers in the current year. The annual total amount of subsidies on products is distributed to the four quarters of the year, by applying the structure of the previous year.

6.3. Gross operating surplus and mixed income

Gross operating surplus and mixed income are calculated from the generation of income account as a residual item by deducting compensation of employees, taxes on production and adding subsidies on production, from GVA calculated from the production side.

CHAPTER 7. POPULATION AND EMPLOYMENT

Population and employment data correspond to tables 110 and 111 of ESA 2010 transmission programme. The calculated variables are: Population, Employment (employees and self-employed), Hours worked, Employment and hours worked by industry A10.

7.1. Population

The main data source for population is the estimated population on the 1st of January and in the middle of the year, from the Population and Labour Market statistics Division of ELSTAT. The quarterly figures correspond to the estimated population in the middle of the relevant quarter.

7.2. Employment: persons

The main data source for Employment is Labour Force Survey (LFS). Data obtained from LFS are number of persons employed by Division of NACE REV.2-2-digit codes (employees and self-employed). Rates of change by industry, derived from the quarterly LFS, are used to extrapolate National Accounts data for total employment and employees separately.

Adjustments are made for NACE REV.2 Divisions (2 digit codes) where the coverage of the survey is not satisfactory. Additional data sources are monthly data (flows) for private economy employment from the Ministry of Labour (ERGANI) and data from the register of civil servants (Ministry of Interior and Administrative Reform) for General Government employment.

7.3. Employment: total hours worked

Data on total hours worked are calculated by using LFS data (average weekly hours and number of persons employed).

Hours worked per week = average weekly hours * number of persons employed.

Average quarterly hours: Hours worked per week*number of weeks in relevant quarter.

Quarterly hours worked= Average quarterly hours* number of persons employed.

CHAPTER 8. FLASH ESTIMATES

The estimates of the quarterly national accounts are produced under the restriction of tight deadlines (see table 1). More specifically, after 45 days from the end of the reference quarter the flash estimates are published. These results offer an initial estimate of GDP by presenting only the GDP variation without including its components. According to ESA 2010 rules for the flash estimates, the quarterly GDP is estimated at current prices, at previous year prices and at chain-linked volumes (reference year=2010). Also, in the flash estimates the QNA seasonal adjustments of GDP series are published at both current prices and chain-linked volumes (reference year=2010). After 60 days from the end of the reference quarter the results of the provisional data estimates are published by presenting the GDP variation including its components. These results offer a better and more detailed overview of the economy than the flash estimates, by giving a greater degree of precision of the data to the aggregate indicators. According to ESA 2010 rules for the provisional data, the quarterly GDP is estimated at current prices, at previous year prices and at chain-linked volumes (reference year=2010). Furthermore, in the provisional data estimates the QNA seasonal adjustments of GDP series are published at both current prices and chain-linked volumes (reference year=2010).

Table 4: Quarterly National Accounts (production approach)

Work Process	Implementation Schedule		
Quarterly data of National Accounts Description: Quarterly estimations of GDP (production approach) Method: The estimations for the Quarterly GDP based on the indirect method which uses economic indicators. Legal framework: Regulation (EU) No 549/2013 of the European Parliament and of the Council on the European System of National and Regional Accounts in the European Union - ESA 2010 (Official Journal of the European Union, L 174/1).	Preparation	Data selection	Data processing and checking
	continuously during the quarter	continuously during the quarter	45 days after the end of the reference quarter (flash estimates) 60 days after the end of the reference quarter (provisional estimates)
	Send data to Eurostat	Publication of data in ELSTAT 's website	
	45 days after the end of the reference quarter (flash estimates)	45 days after the end of the reference quarter (flash estimates)	

	60 days after the end of the reference quarter (provisional estimates)	60 days after the end of the reference quarter (provisional estimates)	
--	--	--	--

CHAPTER 9. MAIN DATA SOURCES USED

The main data sources of the QNA are particularly described in the tables (1, 2, 3) of the chapter 4.