Polish Quarterly National Accounts based on ESA 2010 methodology

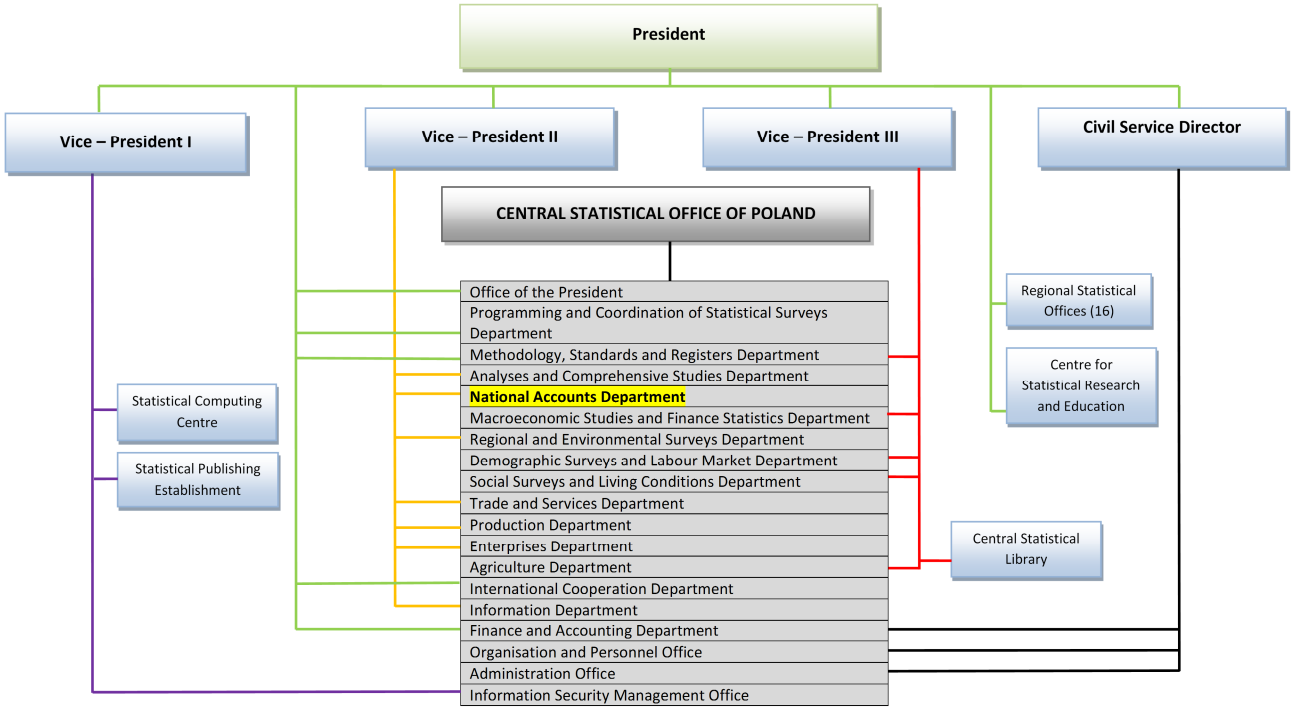
Contents

Chapter 1 Overview of the system of quarterly national accounts

1.1 Organization and institutional arrangements

The Polish Quarterly National Accounts (QNA) have been compiled by Central Statistical Office (CSO) of Poland since 1995. The Central Statistical Office of Poland is a public administration office supporting the President of the Central Statistical Office according to the Regulation of the Prime Minister of 11 December 2001 on granting a statute to the Central Statistical Office available at: http://bip.stat.gov.pl/en/organization-of-official-statistics/central-statistical-office/statute-of-thehttp://bip.stat.gov.pl/en/organization-of-official-statistics/central-statistical-office/statute-of-the-central-statistical-office/central-statistical-office/

The Central Statistical Office of Poland is the national statistical authority designated as the body responsible for coordinating all activities at the national level for the development, production and dissemination of European statistics. It is the national statistical institute as specified in the Articles 4 and 5 of the regulation 223/2009 as amended. In majority of cases, the CSO acts as the contact point for the European Commission (Eurostat) on statistical matters.



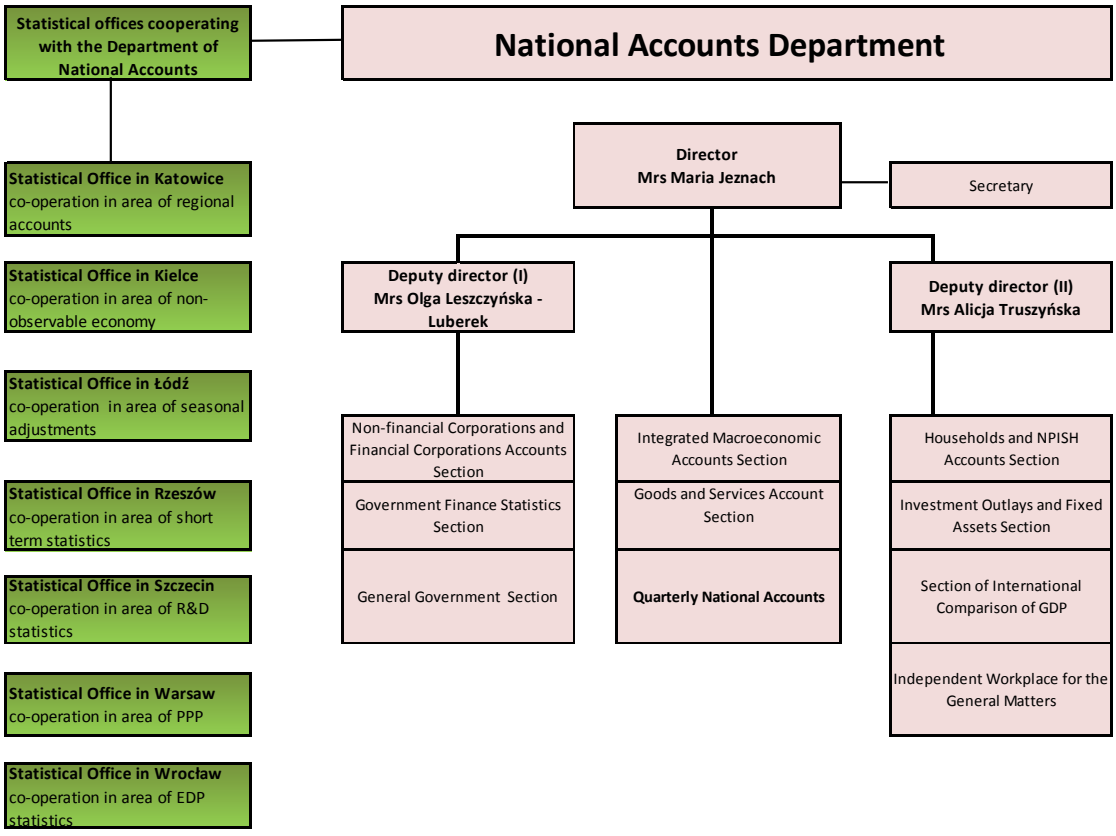
Organization structure of the CSO of Poland (as of 29.06.2016)

The system of quarterly national accounts is based on European System of National and Regional Accounts in the European Union (ESA 2010), introduced by the Regulation No 549/2013 of the European Parliament and of the Council (EU) of 21 May 2013. They are elaborated by Quarterly National Accounts Section within National Accounts Department of CSO. There are five people responsible for the calculation. Besides, there is a close cooperation among other units within National Accounts Department to provide information for calculating QNA data i. e.

- Government Finance Statistics Section – provides quarterly information on final consumption expenditure of general government sector, output and intermediate consumption of general government sector and taxes on products, including VAT;
- Investments Outlays and Fixed Assets Section – provides quarterly information on fixed assets and investments outlays;
- Integrated Macroeconomic Accounts Section – provides annual national accounts data for further revisions of quarterly figures;
- Non-financial Corporation and Financial Corporations Accounts Section – provides quarterly information on output and intermediate consumption in financial corporations sector and on financial intermediation services indirectly measured (FISIM).

Additionally, QNA Section cooperates with regional statistical offices in Łódź and Rzeszów in area of seasonal adjustment, benchmarking and GDP flash estimations.

Organization structure of National Accounts Department.



1.2 Publication timetable, revisions policy and dissemination of QNA

The first quarterly GDP so-called "flash estimate" is released around 45 days after the reference quarter. The next QNA releases are the regular ones at around t+2 (months) after the reference quarter including the detailed breakdown of production and expenditure sides of GDP. The data is published as a press release including a note and tables with detailed figures for reporting quarter. Routine revisions take place twice a year – April and October when annual estimates are updated. QNA are

also revised due to major changes to methods, concepts and classifications. QNA data is available on CSO website and Eurostat database.

1.3 QNA compilation approach

QNA adopt the same principles, definitions and methods as the annual accounts including certain modifications due to the period of time covered and the way of using available statistical and administrative data. Adopting the same framework for compilation as for annual accounts ensures consistency in time. QNA applied the direct method based on monthly and quarterly statistical reports and administrative data. Additionally, quarterly indicators are used to extrapolate annual figures. The estimates of quarterly GDP cover: production and distribution accounts, foreign trade turnover and non-financial quarterly accounts by institutional sectors.

1.4 Balancing, benchmarking and other reconciliation procedures

The Polish QNA system applies two approaches of calculating GDP – output and expenditure approach. The sources of information for the measures are independent. These two approaches of calculating GDP are consistent by definition and provide the single measure of GDP. In practice, a discrepancy is usually found between them. Output estimates are considered to have the higher reliability than expenditure estimates due to more detailed data sources available. The balancing these two sides of GDP is based on adjusting expenditure side to output one. There are no residuals used as balancing items.
For deriving QNA estimates consistent with annual benchmark, the UM– uniform and multiplicative method is used based on assumption that the error is allocated proportionally to the levels of preliminary quarterly estimates.

1.5 Volume estimates

For eliminating the effect of price change to measure the real growth QNA are converted into the constant prices values. To obtain volume estimates, Laspeyres price indices are used. Volume estimates are derived in the average prices of the previous year, in the average prices of the same year and chain-linked volumes. Chain-linked volume estimates are calculated using annual overlap method when the chain-linked quarterly series are consistent with the corresponding chain-linked annual series.

1.6 Seasonal and calendar adjustment

Seasonal adjustment of quarterly series is conducted using TRAMO/SEATS method implemented in the JDemetra+ software. TRAMO/SEATS is one of the method recommended by Eurostat for seasonal adjustment and is commonly used in various statistical areas affected by seasonality. The seasonal adjustment in quarterly national accounts is done and updated every time when new data, expressed in chain-linked volumes with the reference year 2010, becomes available. The seasonal adjustment is carried out directly which means that the QNA aggregate and each of its components are seasonally adjusted separately. In working/trading day adjustment country specific holidays is used.

1.7 Additional information

QNA press releases contains mainly q/q and y/y GDP real growth, seasonally unadjusted and seasonally adjusted. The regular publication of QNA also provides the tables with current prices values and contribution to GDP growth. QNA press release is published in Polish and English versions

and is available at 10.00 am at: http://stat.gov.pl/obszary-tematyczne/rachunki-narodowe/ for both flash and regular estimates.

Chapter 2 Publication timetable, revisions policy and dissemination of QNA

2.1 Release policy

The first quarterly GDP so-called flash estimate is released around 45 days after the reference quarter. The content of the publication is GDP growth rates on a quarter/year earlier, seasonally adjusted and unadjusted figures without any breakdown. The next QNA release is the regular one at around t+2 (months) after the reference quarter including the detailed breakdown of production and expenditure sides of GDP.
The calendar of the release is published on CSO's website:
http://stat.gov.pl/banki-i-bazy-danych/sdds/kalendarz-upowszechniania-danych/
Both flash and regular estimates are a subject to revisions when new data sources or new annual data become available (annual benchmark revisions). There are also revisions related to seasonally adjusted data.

Release dates:

Flash estimates – t+45;
First regular release – t+2 (months);
Second release – October year t: q1 - q2 year t and q1 – q4 year t-1 are revised - when preliminary annual estimates for year t-1 are available;
Third release – April year t+1: q1 – q4 year t-1 and q1 – q4 year t are revised – when final annual estimates for year t-1 are available;
Final release – April year t+2: q1-q4 for year t are revised when final annual estimates for year t are available.

2.2 Contents published

The first regular release of QNA contains full set of information. It covers GDP expenditure and production approach in current prices and growth rates for non-seasonally adjusted series (year-on-year changes) and also seasonally adjusted series – values and growth rates (year-on-year and quarter-on-quarter changes). It covers the period of three years.
Actual press release of QNA is published at the CSO' website:
http://stat.gov.pl/obszary-tematyczne/rachunki-narodowe/

The following components of production approach are published in quarterly releases:

- gross value added with the breakdown by kind of activity:

  - industry including: mining and quarrying (B); manufacturing (C); electricity, gas, steam and air conditioning supply (D); water supply, sewerage, waste management and remediation activities (E);
  - construction (F);
  - wholesale and retail trade, repair of motor vehicles(G);
  - transportation and storage (H);
  - accommodation and food service activities(I);
  - information and communication (J);
  - financial insurance activities (K);
  - real estate activities (L);
  - professional, scientific and technical activities (M) and administrative and support service activities (N);

- public administration and defense, compulsory social security (O);education (P);health and social work activities (Q).

Gross value added for NACE Rev. 2 sections: agriculture, forestry and fishing (A); art, entertainment and recreation (R); other service activities (S) and activities of households as employers, products-producing activities of households for own use (T) is not presented separately but it is included in total value of gross value added.

The following components of expenditure approach are published in quarterly releases:

- domestic uses:
  - final consumption expenditure:
    of which:
    - consumption expenditure in the households sector,
    - public consumption expenditure
  - gross capital formation:
    of which:
    - gross fixed capital formation,
    - changes in inventories
  - foreign trade turnover:
    of which:
    - exports,
    - imports.

The data is presented in current prices (nominal values), as volume growth rates y/y and q/q unadjusted and seasonally adjusted in average annual prices of the previous year and chain-linked with the reference year 2010. Additionally, contribution to GDP growth calculated over quarter on the same quarter of previous year is published.
http://stat.gov.pl/obszary-tematyczne/rachunki-narodowe/kwartalne-rachunki-narodowe/rachunki-kwartalne-produktu-krajowego-brutto-w-latach-2010-2015,6,10.html

2.3 Special transmissions

QNA at the most disaggregated level required by Transmission Programme ESA2010 are sent to Eurostat. The transmission includes main quarterly variables in Table 1 delivered within 2 months after the reference quarter in non-seasonally adjusted form, as well as seasonally adjusted form (including calendar adjustment where relevant. Some unadjusted aggregates are transmitted to IMF within Special Data Dissemination Standard (SDDS). Quarterly time series are sent to Ministry of Finance and National Bank of Poland under the special agreement. They are also available for other institutions and individual users upon request.

2.4 Policy for metadata

Updated information including methodological notes and the description of main data sources used for GDP compilation from both production and distribution side, and non-financial national accounts by institutional sectors are available in annual publication “Quarterly National Accounts of gross domestic product” – see page: http://stat.gov.pl/obszary-tematyczne/rachunki-narodowe/kwartalne-rachunki-narodowe/rachunki-kwartalne-produktu-krajowego-brutto-w-latach-2010-2015,6,10.html
Methodological information can also be found at IMF’s SDDS - see page: http://stat.gov.pl/banki-i-bazy-danych/sdds/

Chapter 3 Overall QNA compilation approach

3.1 Overall compilation approach

3.1.1 General architecture of the QNA system

The compilation of Polish QNA applies the direct method based on statistical data from monthly, quarterly, semi-annual and annual reports and administrative sources. Additionally, an extrapolation of annual figures by short-term indicators is used.

QNA adopt the same principles, definitions and method as the annual accounts including certain modifications due to the period of time covered and the way of using available statistical and administrative data. Adopting the same framework for compilation as for annual accounts ensures consistency in time.

The calculation of quarterly national accounts of GDP and its elements includes:

- non-seasonally adjusted data presented:
  - in current prices,
  - in average annual prices of the previous year and chain-linked volume estimates
- seasonally adjusted data and trend – cycle data presented in chain-linked volumes with reference period 2010.

The estimates of quarterly GDP cover:

- production accounts (generation of GDP) by NACE rev. 2 sections – the following items are calculated: output, intermediate consumption, gross value added and GDP;
- expenditure accounts of GDP – the following items are calculated: private consumption expenditure i.e., consumption expenditure in the households sector and consumption expenditure in non-profit institutions serving households sector; public consumption expenditure of general government sector; gross capital formation, i.e., gross fixed capital formation, changes in inventories and acquisitions less disposals of valuables;
- foreign trade turnover i.e. exports and imports of goods and services;
- non-financial quarterly accounts of GDP by institutional sectors expressed in current prices.

3.2 Balancing, benchmarking and other reconciliation procedures

3.2.1 Quarterly GDP balancing procedure

The Polish quarterly national accounts system applies two approaches of calculating GDP – output and expenditure approach. The sources of information for these approaches are independent. These two approaches of calculating GDP are consistent by definition and provide the single measure of GDP. In practice, a discrepancy is usually found between them. Output estimates are considered to have the higher reliability than expenditure approach due to more detailed sources of data. The balancing those two sides is based on adjusting expenditure side to output one.

3.2.2 Benchmarking of QNA and ANA

Benchmarking procedure is applied to remove the discrepancy between annual data y_t, and relevant higher frequency data $x_{it,}$ e.g. quarterly data. The difference between annual estimate y_t and the sum of quarterly estimates $\sum_i x_{it}$ should be distributed between x_{it} to create benchmarked values z_{it}. In this way we obtain the equality $y_t = \sum_i z_{it}$. To avoid arbitrariness and randomness it is recommended that the series of benchmarked values should reflect the shape of the series of unbechmarked values. There are many methods of benchmarking to choose from depending on how the shape series of unbechmarked values.

Let us denote the matrix of unknown values (benchmarked values) by $B = [z_{it}]_{M\times 4l}$ and the matrix of preliminary values (unbenchmarked) by $X = [x_{it}]_{M\times 4l}$, which form M quarterly time series of l considered years, where $i = 1,2,\dots,M;\ t = 1,2,\dots,4l$. Matrices B and X are related in the following way:

$$z_{it} = x_{it} + \varepsilon_{it}$$

where ε_{it} are random errors with zero expected value and variance-covariance matrix Ω, which takes the form depending on the benchmarking method used.
Let z and x denote vectorized matrices B and X, respectively. Benchmarking is understood as the procedure of obtaining values z in such way that the errors between preliminary and benchmarked values are minimized and the target values meet additional linear conditions. These conditions take the following form

$$H \cdot z = y, \tag{1}$$

where matrix H and vector y are given. Using equation (1) we can form a condition that the sum of quarterly values is equal to the sum of yearly values or the sum of economy sections is equal to the value of the whole economy.
Benchmarked values z are obtained with generalized least square method

$$\min_{z}(z-x)' \cdot \Omega^{-1} \cdot (z-x) \tag{2}$$

with respect to the condition (1), for known, non-singular, symmetric matrix Ω. By $'$ we denote the transposition of matrix.
In Polish QNA UM method– uniform and multiplicative benchmarking – is used.
This method minimizes relative deviation $z_{i,t}$ from $x_{i,t}$, and is equivalent to problem (2) with matrix

$$\Omega = Diag(x) I_M \otimes I_{4l} Diag(x),$$

where $Diag(x)$ is diagonal matrix formed from vector x.

Two-dimensional benchmarking

The purpose of two-dimensional benchmarking is to benchmark quarterly data against annual data and to benchmark M time series in a given quarter to the given value.

We apply two-dimensional benchmarking to GDP estimations based on expenditure and production approach. We assume that annual value of GDP in any approach is the same as well as some of the series are already balanced. Balanced time series are not benchmarked.
$R+1$ series of quarterly values from the expenditure approach are given where the last series is the sum of already balanced series, the so-called constant series. The data is gathered in a matrix

$$X_g = [x_{it}]_{R\times 4l}$$

and contains series to be benchmarked from the expenditure approach, whereas

$$s^{(g)} = x_{R+1}^{(g)} = \left[x_{R+1,t}\right]'_{1\times 4l}$$

is a vector of constant series. It is a sum of net export and public consumption.
In the same way $S+1$ quarterly series from the production approach is considered, in which the last series is the sum of already balanced series. Unbenchmarked data is in a matrix

$$X_d = [x_{it}]_{S\times 4l}$$

whereas

$$s^{(d)} = x_{S+1}^{(d)} = \left[x_{S+1,t}\right]'_{1\times 4l}$$

is a vector of constant series from that approach. It is a sum of value added of financial intermediation and value of taxes minus subsidies on products.
In the same way we obtain

$$Y = \begin{bmatrix} Y_g \\ Y_d \end{bmatrix},$$

of dimensions $[(R+S) \times l]$.

Preliminary data on GDP from the expenditure approach is gathered in matrix X_g, the expression $\sum_{i=1}^{R} x_{it}, \quad (t = 1, \dots, 4l)$ gives quarterly estimate of GDP in t^{th} quarter from that approach.
Preliminary data on GDP from the production approach are gathered in matrix X_d. Each odd row $(2k-1)$ is a global production while each even row $(2k)$ is intermediate consumption of k^{th} section of the economy. To calculate GDP we sum up value added from all of the sections, which is the difference between global production and intermediate consumption.
Let us create matrix $\tilde{X}_d$ transforming X_d in the following way:

1. Even rows of X_d and $\tilde{X}_d$ are the same,
2. Odd rows of X_d and $\tilde{X}_d$ are opposite.

For $\tilde{X}_d = [\tilde{x}_{it}]_{S \times 4l}$ the expression $\sum_{i=1}^{S} \tilde{x}_{it} \quad (t = 1, \dots, 4l)$ gives quarterly estimate of GDP in t^{th} quarter from that approach with a minus sign.

Assume that

$$\tilde{X} = \begin{bmatrix} X_g \\ \tilde{X}_d \end{bmatrix},$$

and

$$\tilde{Y} = \begin{bmatrix} Y_g \\ \tilde{Y}_d \end{bmatrix},$$

where $\tilde{Y}_d$ is a matrix formed from Y_d is the same way as $\tilde{X}_d$. In a result, we obtained quarterly data in $\tilde{X}$ and yearly data $\tilde{Y}$. Our aim is to find $\tilde{B}$ such that the sum of quarterly values is equal to yearly values in each year for each series, and

$$\sum_{i=1}^{M} z_{it} = \sum_{i=1}^{R} z_{it} + \sum_{i=1}^{S} z_{(R+i),t} = x_{M+1,t}, \quad t = 1, \dots, 4l$$

which means that the difference between GDP estimated based on the expenditure and production approach is equal to the given values $s = (s_1, \dots, s_{4l})$, which stems from the equality

$$x_{M+1} = s^{(d)} - s^{(g)}$$

Matrix $\tilde{B}$ contains modified series for both methods. In order to get the final results, the operation in which matrix $\tilde{X}$ was obtained from matrix X_g and X_d is performed in reverse order.

3.2.3 Other reconciliations of QNA different from balancing and benchmarking

No such reconciliations are applied.

3.2.4 Amount of estimation in various release

The first regular release is based on business surveys of CSO, data from National Bank of Poland (NBP) and administrative source. However, information on certain categories of units employing less than 10 persons is not available at the time. Missing data is covered by a system of weights taken from annual surveys. For section A - agriculture, forestry, and fishing forecasts of annual production in a year are the basis for calculating gross value added in quarterly periods. Gross value added for particular quarters is determined using indices which reflect proportions of productivity in agricultural households in consecutive quarters.
The missing information is completed in the first benchmarked revision - t+9 months when annual data become available for t period.

3.3 Volume estimates

3.3.1 General volume policy

QNA volumes are calculated in the annual average prices of the previous year,
the annual average prices of the same year (base year), and chain-linked estimates with the reference year 2010.

3.3.1.1 Annual average prices of the previous year

Double deflation method is adopted in Polish national accounts to obtain figures for measuring gross value added in annual average prices of the previous year. The method relies on calculating output and intermediate consumption in annual average prices of the previous year separately and gross value added is a difference between these categories expressed in annual average prices of the previous year All the categories from expenditure side are estimated individually in average constant prices of previous year.
To obtain data in annual average prices of the previous year, quarterly data for analysed year in current prices is deflated by Laspeyres volume index (previous year =100).
Volumes of quarterly GDP and its elements in current prices and annual average prices of the previous year are basis for estimations of volume index. Implicit price indices for GDP and its elements are achieved indirectly - value index is divided by volume index.
In quarterly national accounts value index is computed by dividing values in current prices for analysed quarter and volumes for corresponding quarter of the previous year in annual average prices of the same year.
Volume index is computed by dividing volumes of analysed quarter in annual average prices of the previous year by volumes of corresponding quarter of the previous year in annual average prices of the same year.
Each element of GDP is calculated in annual average prices of the previous year separately. It means that GDP in annual average prices of the previous year is the sum of aggregated elements for both sides: production and expenditure one.
The algorithm of quarterly GDP calculation in annual average prices of the previous year is described in consecutive steps:

1. The elements of GDP (at the lowest level of aggregation) are compiled in annual average prices of the same year for all quarters of analysed base year.

To compile individual quarters in annual average prices of the same (base) year 2014, price indices (2014 = 100) are used:

For 1 quarter 2014 $\rightarrow$ $\frac{1\ quarter\ 2014}{year\ 2014}$

For 2 quarter 2014 $\rightarrow$ $\frac{2\ quarter\ 2014}{year\ 2014}$

For 3 quarter 2014 $\rightarrow$ $\frac{3\ quarter\ 2014}{year\ 2014}$

For 4 quarter 2014 $\rightarrow$ $\frac{4\ quarter\ 2014}{year\ 2014}$

The indices used ensure coherence and additivity of quarterly and annual data for 2014, i.e. the sum of quarterly annual average prices values in 2014 is equal to the sum of quarterly current prices values in 2014;

2. The elements of GDP (at the lowest level of aggregation) are compiled in annual average prices of the previous year for analysed quarter.

Below the example for the second quarter 2015.

For 2 quarter of 2015 the compilation in annual average prices of 2014 (base year) is carried with the use of Laspeyres volume indices. Current prices value for 2 quarter of 2015 is divided by the index;

$$\text{For 2 quarter 2015} \rightarrow \frac{2\ quarter\ 2015}{year\ 2014}$$

3. To calculate volume growth index for 2 quarter 2015, volume estimates for 2 quarter 2015 (previous year prices) (see point 2) are divided by volume estimates for 2 quarter 2014 (base year price) (see point 1);

4. Price index is received as the quotient of the value index and the volume index.

The values and volumes indices for 2 quarter 2015 can be described as:

$$\text{Value index} = \frac{2\ quarter\ 2015\ in\ current\ prices}{2\ quarter\ 2014\ in\ annual\ average\ prices\ of\ 2014}$$

$$\text{Volume index} = \frac{2\ quarter\ 2015\ in\ constant\ prices\ of\ 2014}{2\ quarter\ 2014\ in\ annual\ average\ prices\ of\ 2014}$$

Each category of GDP is calculated separately in annual average prices of the previous year following the formulae above.

For deflation the relevant indices PPIs and CPIs are used such as: price index of sold production of industry, price index of transport, storage and communication, price index of construction and assembly production, price index of consumer goods and services by products etc. for quarterly periods with corresponding year = 100.

Taxes on products are estimated in constant prices by extrapolating with volume indices for relevant transactions. VAT is extrapolated by growth rate of gross value added, excise tax by growth rate of income from sale in non-financial corporations sector, duties and border taxes are extrapolated by imports growth rate. For subsidies on products deflating method is used by implicit price index of gross value added.

3.3.1.2 Chain-linking estimates

Quarterly time series are recalculated into constant prices with the reference year of 2010 (chain-linked volumes) with the use of annual overlap method. It is based on recalculation of each quarter into constant prices with reference year 2010 using nominal values in current and average annual prices of the previous year for annual and quarterly periods, separately for total GDP and its elements.

Table 1. The method of chain-linked calculation

	Current prices	average constant prices	volume index	chain-linked volume index	constant prices	chain-linked volume index	constant prices	chain-linked volume index	constant prices	real growth rate	
		(t-1) = 100	(t-1) = 100	2002 = 100		2005 = 100		2010 = 100		y/y growth rates	q/q growth rates
02Q1	189 432,4	-	-	-	189 432,4	82,9	204 150,0	65,8	237 887,5		
02Q2	198 065,0	-	-	-	198 065,0	86,7	213 453,3	68,8	248 728,2		104,6
02Q3	200 614,4	-	-	-	200 614,4	87,8	216 200,8	69,7	251 929,7		101,3
02Q4	222 505,0	-	-	-	222 505,0	97,4	239 792,1	77,3	279 419,7		110,9
2002	**810 616,8**	**810 616,8**	**100,0**	**100,0**	**810 616,8**	**88,7**	**218 399,0**	**70,4**	**1 017 965,2**		-
03Q1	194 477,3	193 447,7	95,5	95,5	193 447,7	84,7	208 477,2	67,2	242 929,9	102,1	86,9
03Q2	207 393,5	205 486,0	101,4	101,4	205 486,0	89,9	221 450,8	71,4	258 047,4	103,7	106,2
03Q3	208 549,9	208 428,4	102,8	102,8	208 428,4	91,2	224 621,8	72,5	261 742,5	103,9	101,4
03Q4	235 509,3	232 132,8	114,5	114,5	232 132,8	101,6	250 167,9	80,7	291 510,2	104,3	111,4
2003	**845 930,0**	**839 494,9**	**103,6**	**103,6**	**839 494,9**	**91,9**	**226 179,5**	**73,0**	**1 054 230,0**	**103,6**	-
04Q1	214 096,2	209 043,7	98,8	102,4	207 453,5	90,8	223 571,2	72,1	260 518,2	107,2	89,4
04Q2	225 401,5	218 401,3	103,3	107,0	216 739,9	94,9	233 579,1	75,3	272 180,0	105,5	104,5
04Q3	228 740,2	217 316,0	102,8	106,4	215 662,8	94,4	232 418,4	75,0	270 827,4	103,5	99,5
04Q4	259 068,3	244 612,8	115,7	119,8	242 752,0	106,2	261 612,2	84,4	304 845,7	104,6	112,6
2004	**927 306,2**	**889 373,8**	**105,1**	**108,9**	**882 608,2**	**96,6**	**237 795,2**	**76,7**	**1 108 371,3**	**105,1**	-
05Q1	228 986,4	225 535,3	97,3	105,9	214 664,1	94,0	231 342,0	74,6	269 573,2	103,5	88,4
05Q2	237 306,1	231 925,4	100,0	108,9	220 746,1	96,6	237 896,6	76,7	277 211,0	101,8	102,8
05Q3	241 777,7	237 013,9	102,2	111,3	225 589,4	98,7	243 116,1	78,4	283 293,1	104,6	102,2
05Q4	276 848,7	265 722,9	114,6	124,8	252 914,5	110,7	272 564,2	87,9	317 607,8	104,2	112,1
2005	**984 918,9**	**960 197,5**	**103,5**	**112,7**	**913 914,1**	**100,0**	**246 229,7**	**79,4**	**1 147 685,0**	**103,5**	-
06Q1	244 581,9	243 402,0	98,9	111,4	225 854,7	98,9	243 402,0	78,5	283 626,2	105,2	89,3
06Q2	254 724,5	251 323,7	102,1	115,1	233 205,3	102,1	251 323,7	81,1	292 857,0	105,6	103,3
06Q3	262 350,5	258 318,9	104,9	118,3	239 696,2	104,9	258 318,9	83,3	301 008,3	106,3	102,8
06Q4	303 552,2	292 867,5	118,9	134,1	271 754,1	118,9	292 867,5	94,5	341 266,3	107,4	113,4
2006	**1 065 209,1**	**1 045 912,1**	**106,2**	**119,7**	**970 510,2**	**106,2**	**261 478,0**	**84,3**	**1 218 757,8**	**106,2**	-
07Q1	272 329,1	266 763,7	100,2	119,9	243 047,9	106,4	261 931,1	84,5	305 217,4	107,6	89,4
07Q2	284 635,2	274 751,6	103,2	123,5	250 325,7	109,6	269 774,3	87,0	314 356,7	107,3	103,0
07Q3	292 692,2	279 345,4	104,9	125,6	254 511,1	111,4	274 284,9	88,5	319 612,7	106,2	101,7
07Q4	337 116,6	321 061,3	120,6	144,3	292 518,4	128,0	315 245,1	101,7	367 341,9	107,6	114,9
2007	**1 186 773,1**	**1 141 922,0**	**107,2**	**128,3**	**1 040 403,2**	**113,8**	**280 308,8**	**90,4**	**1 306 528,8**	**107,2**	-
08Q1	300 664,7	292 946,5	98,7	126,7	256 816,1	112,4	276 769,0	89,3	322 507,3	105,7	87,8
08Q2	310 786,1	300 117,0	101,2	129,8	263 102,3	115,2	283 543,5	91,5	330 401,4	105,1	102,4
08Q3	313 623,2	301 877,6	101,7	130,6	264 645,7	115,8	285 206,9	92,0	332 339,7	104,0	100,6
08Q4	352 247,9	338 357,9	114,0	146,4	296 626,7	129,8	319 672,6	103,1	372 501,1	101,4	112,1
2008	**1 277 321,9**	**1 233 299,0**	**103,9**	**133,4**	**1 081 190,8**	**118,3**	**291 298,0**	**94,0**	**1 357 749,5**	**103,9**	-
09Q1	319 039,9	308 589,1	96,6	128,9	261 205,7	114,3	281 499,5	90,8	328 019,7	101,7	88,1
09Q2	328 122,2	316 834,7	99,2	132,3	268 185,2	117,4	289 021,3	93,2	336 784,5	101,9	102,7
09Q3	335 218,7	319 552,7	100,1	133,5	270 485,8	118,4	291 500,7	94,0	339 673,6	102,2	100,9
09Q4	379 469,1	365 992,7	114,6	152,9	309 795,0	135,6	333 863,9	107,7	389 037,7	104,4	114,5
2009	**1 361 849,9**	**1 310 969,2**	**102,6**	**136,9**	**1 109 671,6**	**121,4**	**298 971,4**	**96,4**	**1 393 515,5**	**102,6**	-
10Q1	331 557,7	327 171,8	96,1	131,5	266 588,3	116,7	287 300,4	92,7	334 779,2	102,1	86,1
10Q2	349 638,5	340 667,5	100,1	137,0	277 585,0	121,5	299 151,4	96,5	348 588,7	103,5	104,1
10Q3	357 003,9	347 511,7	102,1	139,7	283 161,8	123,9	305 161,5	98,4	355 592,0	104,7	102,0
10Q4	406 859,8	396 872,0	116,6	159,6	323 381,9	141,5	348 506,4	112,4	406 100,0	104,4	114,2
2010	**1 445 059,9**	**1 412 223,0**	**103,7**	**142,0**	**1 150 717,0**	**125,9**	**310 029,9**	**100,0**	**1 445 059,9**	**103,7**	-
11Q1	359 634,3	350 965,7	97,1	137,9	279 477,9	122,3	301 191,4	97,1	350 965,7	104,8	86,4
11Q2	377 603,7	365 904,4	101,3	143,8	291 373,7	127,5	314 011,4	101,3	365 904,4	105,0	104,3
11Q3	386 883,3	374 658,2	103,7	147,2	298 344,5	130,6	321 523,8	103,7	374 658,2	105,4	102,4
11Q4	442 434,8	425 908,2	117,9	167,4	339 155,4	148,4	365 505,4	117,9	425 908,2	104,9	113,7
2011	**1 566 556,0**	**1 517 436,6**	**105,0**	**149,1**	**1 208 351,4**	**132,2**	**325 558,0**	**105,0**	**1 517 436,6**	**105,0**	-
12Q1	379 557,2	374 579,5	95,6	142,6	288 929,1	126,5	311 376,9	100,4	362 834,6	103,4	85,2
12Q2	398 315,6	385 490,8	98,4	146,7	297 345,5	130,1	320 447,2	103,4	373 403,7	102,0	102,9
12Q3	401 589,5	391 776,6	100,0	149,1	302 194,0	132,3	325 672,4	105,0	379 492,4	101,3	101,6
12Q4	449 529,7	439 175,4	112,1	167,2	338 754,7	148,3	365 073,6	117,8	425 405,1	99,9	112,1
2012	**1 628 992,0**	**1 591 022,3**	**101,6**	**151,4**	**1 227 223,3**	**134,3**	**330 642,5**	**106,6**	**1 541 135,8**	**101,6**	-
13Q1	381 569,3	382 435,8	93,9	142,2	288 113,2	126,1	310 497,6	100,2	361 809,9	99,7	85,1
13Q2	401 716,0	399 684,1	98,1	148,6	301 107,5	131,8	324 501,4	104,7	378 128,0	101,3	104,5
13Q3	407 624,2	407 837,8	100,1	151,6	307 250,2	134,5	331 121,4	106,8	385 841,9	101,7	102,0
13Q4	465 431,2	459 636,1	112,9	170,9	346 273,1	151,6	373 176,1	120,4	434 846,6	102,2	112,7
2013	**1 656 340,7**	**1 649 593,8**	**101,3**	**153,3**	**1 242 743,9**	**136,0**	**334 824,1**	**108,0**	**1 560 626,5**	**101,3**	-
14Q1	400 014,9	396 495,6	95,8	146,8	297 488,6	130,2	320 601,4	103,4	373 583,5	103,3	85,9
14Q2	417 735,1	413 829,9	99,9	153,2	310 494,5	135,9	334 617,7	107,9	389 916,1	103,1	104,4
14Q3	424 266,9	421 475,0	101,8	156,0	316 230,5	138,4	340 799,5	109,9	397 119,4	102,9	101,8
14Q4	477 129,4	478 910,4	115,7	177,3	359 324,0	157,3	387 241,0	124,9	451 235,8	103,8	113,6
2014	**1 719 146,3**	**1 710 710,9**	**103,3**	**158,3**	**1 283 537,6**	**140,4**	**345 814,9**	**111,5**	**1 611 854,8**	**103,3**	-
15Q1	413099,6	413 415,5	96,2	152,3	308661,5	135,1	332 642,4	107,3	387 614,4	103,8	85,9
15Q2	431035,4	428 725,8	99,8	158,0	320092,4	140,1	344 961,4	111,3	401 969,1	103,1	103,7
15Q3	437120	437 727,2	101,8	161,3	326813,0	143,0	352 204,1	113,6	410 408,8	103,3	102,1
15Q4	508440,9	502 021,5	116,8	185,0	374816,0	164,0	403 936,6	130,3	470 690,5	104,3	114,7
2015	**1 789 695,9**	**1 781 890,0**	**103,6**	**164,1**	**1330382,9**	**145,6**	**358 436,1**	**115,6**	**1 670 682,7**	**103,6**	-

Deriving quarterly chain-linked volume estimates of GDP – annual overlap method (refer to the table 1)

The steps taken:

a) Having derived estimates of total GDP expressed in the average constant prices of the previous year, the second step is to obtain volume index for year t-1 by dividing values in the average constant prices of the previous year by the average quarterly value in current prices for t-1 year:
   For example, the volume index for 2015Q2 = [428725.8/(1719146.3/4)] = 99.8
b) In the third step quarterly volume indices are linked with shifting base and reference year 2002 using annual indices as linking factors and then, the chain-linked indices are multiplied with the average quarterly value for 2002 to obtain chain-linked values with the reference year 2002:
   For example, the chain-linked index with the reference year = 2002 for Q22015 = 99.8*158.3/100 = 158.0 and the chain-linked value = [158.0*(810616.8/4)] = 320092.4
c) In the fourth step chain-linked indices with reference 2002 for each quarter are divided by the annual chain-linked index for 2010 with reference 2002 and then the obtained chain-linked indices with reference 2010 are multiply with the average quarterly value for 2010 to obtain chain-linked values with the reference year 2010 :
   For example, the chain-linked index with the reference year = 2010 for 2015Q2 = 158.0/142.0 = 111.3 and the chain-linked value = [111.3*(1445059.9/4)] = 401969.1

3.3.1.3 Contributions to growth rates

Component's contribution to real growth of GDP depends on both its share in value of GDP and its real growth in analysed period. Small components can influence even stronger on GDP growth than bigger ones. That's why the impact scale of components on real growth of GDP is very useful analytical tool.

The calculation of contribution to GDP volume growth rate is based on additive absolute values and is derived as absolute differences of GDP individual component in previous year prices related to absolute differences of GDP total value in previous year prices weighted with GDP real growth for a period.

Calculation from additive absolute values:

(1) $R(t)=\frac{Y(t)-Y(t-1)}{Y(t-1)}$

where: r(t) = GDP growth rate

$Y_{(t)}$ = GDP in period t

(2) $W_i(t)$ $Wi(t)=\frac{Ai(t)-Ai(t-1)}{Y(t)-Y(t-1)}$

where: $W_i(t)$ = weight of aggregate i in period t

$A_i(t)$ = aggregate A in period t

(3) $Ci = r(t)xWi(t)$

where: C_i = contribution to GDP growth rate of aggregate A_i

Contributions is calculated for GDP volume growth compared to the same quarter of the previous year. To calculate real change of each component values in average prices of the previous year and value in average prices of the same year are used.

The contribution is expressed in percentage points and their sum is equal to GDP growth in %.

Table 2. Percentage shares of selected components in GDP nominal values and their contributions to GDP growth for 2014Q1- 2015Q4.

	Percentage share in GDP nominal value (current prices)								Contribution to GDP growth							
	2014				2015				2014				2015			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
GDP in %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	3.3	3.3	3.3	3.3	3.6	3.1	3.4	4.3
Domestic uses	98.6	98.4	98.5	99.2	96.1	97.1	98.5	97,0	3.7	5.3	5.5	4.5	2.8	2.9	3,0	4.4
Final consumption expenditure	84.8	80.1	78.9	70.9	82.7	78.4	78.4	68.9	1.5	2.8	2.3	2.7	2.3	2,0	2.1	3.1
Consumption expenditure of the household sector	66,0	60.9	60.3	51.3	64.6	59.8	60.3	48.8	1.5	1.8	1.4	1.4	2,0	1.9	1.9	1.5
Gross capital formation	13.8	18.3	19.6	28.3	13.4	18.7	20.1	28.1	1.5	1.8	1.4	1.4	2,0	1.9	1.9	1.5
Gross fixed capital formation	13.1	17.6	19,0	27.8	14,0	18.2	19.3	27.5	1.5	1.6	1.8	2.6	1.5	1,0	0.8	1.2
Changes in inventories	0.7	0.7	0.6	0.5	-0.6	0.5	0.8	0.6	0.7	0.9	1.4	-0.8	-1,0	-0.1	0.1	0.1
External balance	1.4	1.6	1.5	0.8	3.9	2.9	1.5	3,0	-0.4	-2,0	-2.2	-1.2	0.8	0.2	0.4	-0.1
Exports	49,0	48.2	48.4	44.8	51.8	50.1	49.9	46.4	3.6	3.1	2.3	3,0	4,0	2.5	2.7	3.6
Imports	47.6	46.6	46.9	44,0	47.9	47.2	48.4	43.4	4,0	5.1	4.5	4.2	3.2	2.3	2.3	3.7
Gross value added	89.1	88.3	88.3	89.1	89.6	88.5	88.1	88.7	2.8	2.9	3.1	2.9	2.9	2.6	2.9	3.7
Taxes less subsidies	10.9	11.7	11.7	10.9	10.4	11.5	11.9	11.3	0.5	0.4	0.2	0.4	0.7	0.5	0.5	0.6

3.3.2 Chain-linking and benchmarking

Annual overlap method applied for quarterly chain-linking ensures consistency of quarterly chain-linked data with the respective independently derived annual chain-linked data so there is no further benchmarking necessary. However, chain-linked components of GDP do not add up to total GDP except for the data relating to the reference year and the one following the reference year. Non-additivity arises for only mathematical reasons and cannot be interpreted as indications of quality. There is no additional benchmarking to make these two approaches of calculation consistent.

3.3.3 Chain-linking and seasonal adjustment

A direct approach is used to undertake seasonal adjustment of quarterly GDP and all components of QNA at any level of aggregation. The use of direct approach makes not applicable issues referring to the non-additivity of chained volumes in the context of seasonal adjustment. There are not taken any additional adjustment, corrections or balancing of seasonally adjusted data in order to re-establish identities and to ensure consistency between lower level aggregates and higher level aggregates. Therefore, the identities are not automatically preserved by the seasonal adjustment procedure and they do not occur exactly in seasonally adjusted data. However, in a case where one component is the most important component and dominates the aggregate, the consistency between adjustment of this component and the aggregate is controlled and analysed – what refer to the comparison of model specifications and estimation results, other adjustment parameters and figures of finally adjusted series. It significantly reduces the possibly discrepancies.

The direct approach was chosen, because there are not strict requirements to preserve arithmetic consistency in case of seasonally adjusted QNA data and it is not the most important thing from users' point of view. The lack of consistency between components and aggregates do not affect significantly their interpretation. The most important is the quality of seasonally adjusted aggregates. The aggregated series of GDP is much more regular than some of its components and some effects can be better observed at this level, what causes higher quality of adjustment. Direct approach can provide seasonally adjusted GDP series with higher quality what is the priority.

3.4. Seasonal and calendar adjustment

The process of seasonal and calendar adjustment of QNA variables is consistent with the *ESS Guidelines on Seasonal Adjustment*. Calendar (working days) adjusted series (with calendar adjustment only, without seasonal adjustment) are neither published nor produced. Calendar adjustment is done only as a part of seasonal adjustment process. Working day adjustment is an element of pre-treatment in the seasonal adjustment process. All the descriptions below concern the policy of seasonal and calendar adjustment of quarterly GDP and its main components.

3.4.1 Policy for seasonal adjustment

Seasonal adjustment is performed on the time series of quarterly GDP and its main components in current prices and fixed prices (chain-linked). Each series mentioned is adjusted directly. Therefore, there is no the issue of compiling seasonally adjusted series from other separately adjusted series. The direct approach to seasonal adjustment as the general policy of seasonal adjustment in QNA is described and explained in section 3.3. All series are adjusted at national level and they are processed as quarterly series. To summarise, the seasonal adjustment is performed on the series of the same frequency and aggregation level as they are produced and disseminated. The TRAMO/SEATS method with full implemented pre-treatment is used to perform all the adjustment process. Since Q1 2016 all adjustments are performed using Eurostat JDemetra+ software (currently – version 2.1). The former adjustment, performed until Q4 2015, was done with the use of "old" software Demetra (before Demetra+). Any problems were not noticed with "old" Demetra, which performed well and stable and the quality of results was found good and satisfying. For the reasons mentioned and the importance of comparability of QNA over time, it was used as long as it was acceptable. However, after release of final version of JDematra+, clear recommendation JDemetra+ as official software in ESS and changes in ESS guidelines, it was decided to introduce a new software starting from the new year. The change of software has not changed the method of adjustment; the rules of adjustment and the policy are fully consistent with the previously used. However, the new software has options and functionalities which more adequate support to *ESS Guidelines on Seasonal Adjustment*. Using the same adjustment method, the new software offers slightly different tests and diagnostics what can lead to slightly different results. Therefore, during the first adjustment with the new software the outcome was carefully analysed and strictly controlled for its comparability and consistency with those previously published.

In the pre-treatment of series, all kinds of outliers are detected using the automatic procedure implemented in the software. Outliers detected automatically can be modified after detailed analysis including graphs. Another criterion is the consistency with previously detected outliers – important changes in outliers pattern in the historical part of series should be explained. The pattern of outliers can be also modified in order to assure consistency between series which have and should have similar trajectory, which share an important part of volume. The natural interpretation of changes and phenomena in QNA variables is percentage interpretation therefore, the multiplicative decomposition seems more natural than additive one and is generally preferred. However, additive decomposition may be considered after analysis in case of graphical and/or statistical evidence and is natural in case of balances, series with acceptable negative values or very high relative short-term fluctuations. In case of ARIMA model identification and estimation of model parameters, the full automated estimation procedure implemented in the software is used as a general rule. Some interventions into the model specification are applied in case of not sufficient quality of the model or quality of the adjustment based on the automatically estimated model. It may be simplification of model structure, including the use of 'airline' model. Comparability with the results of former adjustments and consistency with 'related' series can also cause manual changes in model specification.

3.4.2 Policy for calendar adjustment

Calendar adjustment is performed in QNA as a part of the process of producing seasonally adjusted data and is the element of pre-treatment in the seasonal adjustment procedure. To treat calendar effect regression approach is used. It is done by RegARIMA during the process of calendar and seasonal adjustment by TRAMO/SEATS method implemented in JDemetra+ software. Main calendar effects are modelled by two repressors, taking into account fluctuations in total number of working days and period length (leap year effect). It is one of possible standard approaches, called 'working days' approach. Because quarterly series are modelled, the calendar effects are to week to extract stable and reliable effects connected with each kind of weekday. The 'working day' approach is optimal in such a case and is well supported by theory and experience including test performed. The estimates of parameters describing working day effects are controlled taking into account a sign and absolute value of estimate, in order to preserve the proper direction of relation (if the volume of particular variable is usually created in working or non-working days) and to reasonably limit the size of effects (it should correspond to the relation between the potential calendar fluctuation and the length of the period). Only positively verified results of working days adjustment are accepted. In the analysis and extraction of calendar effects the specific for Poland national calendar of holidays is used. The data was also examined by testing the presence of the Easter effect. However, after performing statistical analysis it can be concluded that this effect is not reliable and in practice the QNA series are not adjusted by Easter effect.

3.4.3 Revision policy for seasonally adjusted data

The QNA variables are considered firm, stable and reliable. Considered that, the principle of the revision policy for seasonally adjusted QNA data is to avoid unnecessary fluctuations and revisions of previously published data without explained reasons, interpretation of data and observation of trends. However, it could not lead to the acceptance of adjustments not satisfying quality requirements.

There are two important elements in the policy:

- how the models, parameters and results of seasonal adjustment are revised in the internal, technical processing,
- how the revisions and corrections, resulting from the internal processing are communicated to the public.

Internal policy concerns the re-estimation of models and parameters, versus between current and concurrent adjustment. Generally models and all their parameters are verified and revised once a year, when the data for the first quarter is processed. In other periods the model from the previous term is used. It means that the current adjustment strategy is used for revisions once a year (in Q1). Current adjustment is also used in case of the annual notification, in order to preserve the coherence with previously published quarterly data. Concurrent adjustment is used always in case of major revisions of unadjusted data. However, the result of each current quarterly adjustment is verified for its quality i.e. the model and other elements of adjustment are verified. In some cases it may lead to the full revision of the model especially if there are important changes in the seasonality pattern or some revisions in the unadjusted data. On the other hand, in case of concurrent adjustment the new model, its quality diagnostics and the series of adjusted data resulting from it are always compared with the previous ones. If the change of model lead to significant revisions of the adjusted data series, not explained by changes in unadjusted data, seasonality pattern or important model quality improvement, it may be an argument for intervention into the new model, preserving some elements of the previous one. The quarterly current adjustment is in fact a partial current adjustment because regression parameters (concerning calendars effects and outliers) are re-estimated. The re-estimation does not concern ARIMA parameters (as well as the structure of model, outliers position and type does not

changes). It is coherent with the current strategy implemented in JDematra+ software. The verification of model structure (re-identification), calendar effects, outliers set and re-estimation of ARIMA parameters take place during the annual review when concurrent adjustment is used. The importance of series stability and the intention to minimise the frequency and size of revisions is the argument against more adaptive approaches like quarterly partial concurrent adjustment. Another argument is a stability of the seasonality in main QNA series. Revisions to seasonally adjusted data are published when a new observation is added to time series and when the original, unadjusted data is revised.

Chapter 4 GDP and components: the production approach

4.1 Gross value added, including industry breakdowns

In the estimation of GDP the direct method is applied. It is based on the use of available statistical data from monthly, quarterly, semi-annual and annual statistical reports and administrative sources.
The following categories are calculated from the production side of GDP: output, intermediate consumption, gross value added and taxes on products less subsidies on products.
Output is equal to the sum of output of products (goods and services) of all ownership sectors or institutional sectors, or to the sum of output of products (goods and services) of all NACE Rev. 2 sections, divisions.
According to the kind of conducted activity output includes:
- in the non-financial corporations sector: revenues from the sale of self-manufactured products (goods and non-financial services) as well as margins realized on sale of commodities purchased for resale, value of products in form of settlements in kind, products designated for increasing value of own fixed assets, changes in inventories of finished goods and work in progress, production for own final use.
- in the financial corporations sector: for banks and cooperative savings and credit unions output constitutes commission and payments revenues from the operating activity of banks as well as financial intermediation services indirectly measured (FISIM) – financial services for which fees are not charged directly and result from the difference between interest rates on credits, loans as well as deposits and calculated interest rate (not including risk premium) used in transactions between financial intermediaries (FISIM concerns banks, cooperative savings and credit unions, financial leasing enterprises; Central Bank is not included in FISIM estimates), for financial leasing enterprises output consists revenues from payments of interests (payments of lease), for brokerages – balance of commissions from operations involving securities, conducted for clients as well as sum of revenues from: managing packages of securities, offering securities in public turnover, underwriting issues, securities consulting, managing securities accounts and monetary accounts of clients as well as other operating activity, for currency exchange offices – balance of foreign currency turnover expressed in zloty, for financial intermediation entities – revenues from services connected with financial and securities consulting, for companies of investment funds – revenues from activities connected with managing entrusted founds, for general pension societies – revenues from activities connected with managing open pension funds (OFE), for insurance companies – balance of insurance premiums received and claims paid, commissions as well as technical and total income, for open pension funds (investment portfolio OFE) – benefits from investing of insurance premiums of these funds, for insurance companies – premiums earned plus premium supplements less claims paid less increase (plus decrease) in the technical provisions. Output of foreign insurers serving in Poland based on the freedom to provide services, is measured using the similar method. Open pension funds (OFE) – output equals the sum of costs with no portfolio incomes included.

- in the general government sector (on accrual basis): output which constitutes the costs of current activity including the consumption of fixed capital. Output consists of non-market output, market output which constitutes revenues on market sales as well as output produced for own final use.

Moreover, since 2004 subsidies on products in particular, supplementary area payments, separate sugar payments, payments for producers of tomatoes and payments for energetic plants have been included in output of households in agriculture in connection with joining European Union.

Intermediate consumption includes the value of consumed materials in net terms (after subtracting value of recyclable wastes), raw materials (including packaging), fuel, energy, technological gases, external services (outside processing, transport services, equipment rental, telecommunication and accounting services, commissions paid for banking services), costs of business trips as well as other costs

(e.g. advertising, representation, rental costs, ticket costs for business trips, costs of lump-sums payments for using personal vehicles for official business), stock exchange payments as well as payments from participating in the National Depository for Securities. Intermediate consumption also includes new method of allocation of Central Bank output, financial intermediation services indirectly measured (FISIM), distribution of output of foreign insurers serving in Poland for institutional sectors.

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

Gross domestic product constitutes balancing item of production approach and is equal to the sum of gross value added of all sections (divisions) of national economy, increased by taxes on products less subsidies on products.

Estimates of GDP are compiled for sections and selected divisions of NACE Rev.2 by volume classes of units. The units are classified according to their predominant activity.

The study covers all units of the national economy.

Data in the publication is presented for following sections and groups of sections:

- industry including: mining and quarrying (B); manufacturing (C); electricity, gas, steam and air conditioning supply (D); water supply, sewerage, waste management and remediation activities (E);
- construction (F);
- wholesale and retail trade, repair of motor vehicles(G);
- transportation and storage (H);
- accommodation and food service activities(I);
- information and communication (J);
- financial insurance activities (K);
- real estate activities (L);
- professional, scientific and technical activities (M) and administrative and support service activities (N);
- public administration and defense, compulsory social security (O);education (P);health and social work activities (Q).

Data for the sections (agriculture, forestry and fishing (A); art, entertainment and recreation (R); other service activities (S) and activities of households as employers, products-producing activities of households for own use (T)) is not presented separately. The estimates for these sections are included in total value of output, intermediate consumption and gross value added.

The estimates of output, intermediate consumption and gross value added in sections with market output are made with taking into consideration volume classes of entities (enterprises) of the national economy. The size of the units is determined by the number of employees.

There are three categories of units in financial reports of enterprises: first - large units with more than 49 employees; second - medium size units with 10 to 49 employees and third - small units with up to 9 employees.

For units with more than 49 employees gross value added in consecutive quarters is calculated on the basis of quarterly financial statistical surveys conducted by the Central
Statistical Office, mainly on the basis of reports on incomes, costs, financial results and investment outlays (F-01/I-01). The information about the revenues from the sale of self-manufactured products (goods and services), trade margin, changes in inventories and costs incurred to obtain revenue constitute a starting point for the calculations.
The units with 10 to 49 employees prepare monthly reports on economic activity DG-1 (sample survey) as well as semi-annual and annual reports F-01/I-01 on incomes, costs, financial results and investment outlays, which constitute the basis for calculating value added for those units in following quarters. On the basis of DG-1 global income from sale of goods and services is determined. F-01/I-01 is the basis for determining income structure, relationship between the income and costs and then the overall size of costs and their structure. In other words, all the elements that are necessary for calculating the level and structure of output and intermediate consumption.
The data for the units employing fewer than 10 persons is acquired from SP-3 annual sample survey. The basis for estimates constitutes the information about the number of employees in these units and labour productivity in units with 10-49 employees within the same section (division) of activity.
The number of employees in these units is determined on the basis of a record, from the SBR (Statistical Business Register). To calculate gross value added on a yearly basis, information on sale structure, sales-cost ratio, and structure of costs by type is necessary. This data is obtained on the basis of information about the units which are possibly the closest size to the units with less than 10 employees, that is units with 10-49 employees which submit the F-01 reports.
Each division and section of the NACE Rev. 2, particularly the general government sector and financial corporations sector, requires an individual approach. Other sectors are also treated individually. Sometimes, it depends on the kind of activity (e.g. agriculture) or specificity of information (e.g. forestry, fishing, activities of households).
Estimations of value added for market sector-dominated sections do not cause major difficulties because statistical reports regarding these sections are sufficient. The same algorithm as in annual calculations can be used here. Therefore, there is no need to make significant additional estimates.
Sections A, K and T due to the specific kind of activity and data sources, are calculated in a slightly different way than other sections.
Due to specific character of production process in section A - agriculture, forestry, and fishing quarterly estimates of gross value added are usually calculated differently than in remaining areas of the market activity. Comparing to acquiring and selling of products, income labour and materials income tend to be distributed more evenly throughout the year (despite the fact that these costs are subject to significant seasonal fluctuations).
Forecasts of annual production in a year are the basis for calculating gross value added in agriculture, forestry and fishing. Gross value added for particular quarters is determined using indices which reflect proportions of productivity in agricultural households in consecutive quarters. Then, after estimating quarterly gross value added at constant prices, gross value added at current prices is estimated by means of price indices specially designed for this purpose.
In case of section K – financial insurance activities - which consists of all units from financial corporations. FISIM: see chapter 4.2. Banking services covering National Bank of Poland (NBP) on the basis of the bank's quarterly profit and loss account and other monetary financial institutions on the basis of their profit and loss accounts received quarterly from the NBP. Insurance corporations on the basis of their profit and loss accounts as well as technical accounts received quarterly from the Polish Financial Supervisory Authority (PFSA). Output of voluntary pension funds and employees' pension funds on the basis of quarterly data from the PFSA. Brokerage houses estimated on the basis of limited scope of quarterly information and exhaustive annual data received from the PFSA.

Estimates based on semi-annual data for investment funds, investments' funds management companies, cooperative savings and credit unions. Estimates of pension societies and open pension funds as the quarterly data are available too late to be used in production of quarterly accounts. Output of other financial intermediaries: with over 49 employees on the basis on quarterly statistical financial report, with number of employees above 9 persons but below 50 – estimates on the basis of semi-annual statistical financial reports and with number of employees up to 9 persons – estimates on the basis of annual sample report on the economic activity of enterprises. Output of the central bank, open pension funds and financial intermediaries classified into the general government sector is calculated as sum of their costs. To obtain constant process estimates CPI is used.
For section T – activities of households as employers; undifferentiated goods – and services-producing activities of households for own use - the basis of gross value added estimates is quarterly data about average wages in national economy and the number of employees in section T taken from the Statistical Register Business.
The estimates of gross value added for sections with non-market output: public administration and defense, compulsory social security (O); education (P); health and social work activities (Q) are produced differently than those for the market sections. While for the first group of sections, gross value added is estimated based on income from sales in a quarter and price indices, the estimates for the second group of sections are based on the number of employees in these sections and their wages and salaries.
Sections O, P, Q are mostly budgetary units. Their output constitutes costs of current activity including consumption of fixed capital. Output consists of non-market output, market output which constitutes revenues on market sales as well as output produced for own final use.
Data for output and intermediate consumption estimates for budgetary units is acquired from adequate paragraphs of budgetary reporting, with the use of transfer key from budgetary classification to ESA 2010 codes.
Gross value added in non-profit institutions at current and constant prices is estimated with extrapolation method using average of the values from recent periods. Gross value added for these units is included in sections: J, N, P, Q, R and S.

The main data sources applied in quarterly national accounts are the results of statistical surveys of Central Statistical Office (CSO), National Bank of Poland (NBP) and administrative data sources from other institutions.
It includes from the production side of GDP:
- quarterly, semi-annual and annual reports on incomes, costs, financial results and investment outlays on fixed assets (F-01/I-01);
- quarterly, semi-annual and annual reports on financial results of financial institutions based on NBP and commercial banks data);
- data from Polish Financial Supervision Authority;
- NBP data on loans and deposits;
- monthly reports on economic activity (DG-1);
- SBR (Statistical Business Register);
- quarterly data on balance of payments from the National Bank of Poland;
- quarterly data on budget reports from Ministry of Finance;
- data on subsidies on products from The Agency for Restructuring and Modernization of Agriculture (ARMA) and from the Agricultural Market Agency.

4.2 FISIM

FISIM is calculated and allocated in accordance with the rules included in the Council Regulation 448/98, the Commission Regulation 1889/2002, the Council Decision 196/2010 and ESA2010 chapter 14. Duties are divided between the Central Statistical Office and the National Bank of Poland. The bank is responsible for calculation and allocation of data on imports and exports of FISIM, while the statistical office is responsible for the remaining estimates. Estimated value of imported and exported FISIM is included in data on foreign trade. Majority of data necessary for FISIM calculations done by the NSI come from the bank. Data is available around 45 days after the accounting period.

The calculations cover sub-sector S122 deposit-taking corporations except the central bank and sub-sector S125 other financial intermediaries, except insurance corporations and pension funds. For each sub-sector S122 and S125 data on average stocks of loans and deposits as well as the accrued interest in the breakdown by user sectors are available. To be more precise, following source information is available to the NSI on quarterly basis:

- Stocks of loans granted by resident financial intermediaries (FIs) with the breakdown by resident institutional sectors: non-financial corporations (S11), non-MMF investment funds (S124), financial auxiliaries (S126), captive financial institutions and money lenders (S127), insurance corporations (S128), pension funds (S129), central government (S1311), local government (S1312), social security funds (S1314), households as consumers and as owners of dwellings (S14), households as owners of unincorporated enterprises (S14), non-profit institutions serving households (S15);
- Stocks of deposits received by resident financial institutions with the breakdown by resident institutional sectors as listed above;
- Interest receivable on loans and interests payable on deposits with the breakdown by institutional sectors as listed above.

Total value of FISIM for each institutional sector is obtained as the sum of FISIM on loans granted to this sector and FISIM on deposits of this sector. In order to obtain amounts of FISIM on loans and FISIM on deposits following formulas stipulated in the ESA2010 paragraph 14.11 are used:

FISIM on loans granted to the institutional sector =
*Interests receivable on loans – (stocks of loans * internal reference rate)*

FISIM on deposits of the institutional sector =
*(stocks of deposits * internal reference rate) – interests payable on deposits*

Exports of FISIM is calculated as the sum of FISIM on loans granted to non-residents and FISIM on the deposits of non-residents (excluding non-residents FIs).

FISIM exports on loans granted to non-residents =
*Interest receivable on loans – (stocks of loans * external reference rate)*

FISIM exports on deposits of non-residents =
*(stocks of deposits * external reference rate) – interest payable on deposits*

FISIM imported by each institutional sector is calculated as the sum of FISIM imported for loans and FISIM imported for deposits.

*FISIM imported for loans = interest receivable by non-resident FIs – (loan stocks * external reference rate)*

*FISIM imported for deposits = (deposit stocks * external reference rate) – interest payable by non-resident FIs*

In case of households FISIM on loans in calculated separately for consumers, owners of dwellings and owners of unincorporated enterprises what ensures proper breakdown of FISIM and its allocation to households intermediate consumption and final consumption. However, the data on loans to households and deposits of households are broken down into those of households as owners of unincorporated enterprises and those of individuals. As separate data on interests on loans for households as owners of dwellings are missing, estimates are done on the basis of information on stocks of loans.
Internal reference rate is calculated as the ratio of interest receivable on loans and deposits between (and within) S122 and S125 to stocks of loans and deposits between (and within) S122 and S125.
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.
Flows of interest between and within the sub-sectors S122 and S125 and between resident and non-resident financial institutions as well as the corresponding stocks of loans and deposits impact the production of FISIM only through the internal and external reference rates.
FISIM is recorded as:

- Output for its producers;
- Intermediate consumption or final consumption for its consumers;
- Export and import.

As a result GDP increases by the amount of FISIM produced by the resident financial institutions and allocated as intermediate consumption to the general government sector and final consumption expenditures to the households as consumers and non-profit institutions serving households as well as export of FISIM. GDP decreases by the amount of imported FISIM, allocated to non-financial corporations, financial corporations excluding central bank, deposit-taking corporations except central bank and other financial intermediaries, except insurance corporations and pension funds, and to households as owners of dwellings and unincorporated enterprises.
To obtain data at constant prices general price index i.e., implicit price deflator for domestic final demand is used.

4.3. Taxes less subsidies on products

4.3.1. Taxes on products

In Poland the only beneficiary of indirect taxes is central government and local government sub-sector.
Taxes on products include following categories:

- Value added tax,
- Import duty,
- Excise duties on certain imported products,
- Fuel fee on imported fuel,
- Excise duty on domestic products,
- Fuel fee on domestic fuel,
- Stamp duty paid by legal entities,
- Tax on civil-law transactions,
- Transportation levy,
- Taxes on lotteries, gambling and betting,

- Other taxes on products.

For VAT, import duty and excise duty the direct source of data are data bases from the Ministry of Finance which in turn are based on information from tax offices. The data base files provide information on revenues of budgetary units of the central and local government both in terms of cash receipts and receivables. For the calculation of the above mentioned taxes cash receipts are taken into account which are then time-adjusted with one month lag. It is due to one month delay in payments of these taxes and is necessary to ensure that the cash is attributed to the period when the activity to generate the tax liability takes place.

For fuel fee the direct data source are special reports on executed revenues and expenditures from two funds for which the fee is the source of income: the Road Fund and the Railway Fund. The fee is calculated as pure cash receipts.

For stamp duty, tax on civil-law transactions and tax on lotteries, gambling and betting the direct data source is the same as for indirect taxes that is the data base files from the Ministry of Finance. Tax calculations in this case are based on declarations according to the following formula:

Accrual value = receivables for year n – outstanding receivables for year (n-1) + overpayments for year (n-1).

The formula above is applied in calculation annual and quarterly general government sector account.

For extra charges to stakes in lotteries belonging to state monopoly, sugar fees and fees paid to state funds the direct data source are data base files from the Ministry of Finance concerning state purpose funds. They provide information on revenues executed and taxes are calculated in this case as pure cash receipts.

4.3.2 Subsides on products

Subsides on products are paid by the general government sector and the Institutions of the EU.

Almost all subsides on products are subsidies for agriculture.

Subsidies on products in Poland are classified on the basis of the below mentioned rules:

- payable per unit of a good or service produced or imported,
- the amount of subsidies means a specific amount of money per unit of quantity of a good or service,
- the amount of subsidies means a specified percentage of the price per unit,
- the amount of subsidies specified as the difference between a specified target price and the market price paid by a buyer.

Data for the subsidies of the general government sector and the Institutions of the EU meet the demand of accrual time of recording. Data sources for subsidies granted by the institutions of the EU come from administrative sources: Agency for Restructuring and Modernisation of Agriculture (ARMA) and Agricultural Market Agency (AMA). Data are recorded when the payments are made.

Chapter 5 GDP components: the expenditure approach

5.1 Household final consumption

Households' Final Consumption Expenditure (HFCE) is defined in terms of ESA 2010 corresponding to the expenditures on goods and services used by households and is broken down by COICOP classification. HFCE is the main and largest component of Gross Domestic Product at the expenditure approach. It includes all consumption expenditures made by household residents used for direct satisfaction of individual needs.

The estimates of HFCE are independent, complete and consistent with the predominant output approach. The yearly HFCE is calculated as a bottom up estimate.

The quarterly estimates are mainly based on surveys conducted by Central Statistical Office such as report on monthly economic activity of enterprises with the data of monthly retail trade available (DG-1), household budget survey and consumer opinion survey. The results of these surveys are available within 60 days (or even faster). The trends are also analysed.

Analysis based on yearly data provides information on importance of monthly retail trade statistics and HBS within household final consumption.

The quarterly HFCE is calculated by COICOP 1-digit level based on indices deriving from report on monthly economic activity of enterprises (DG-1) and HBS Retail trade statistics (incl. within DG-1) gives not only the total value of retail sales but also retail sales by separate goods that enables to make estimates by COICOP items.

Consumer opinion survey includes consumer confidence indicators giving consumers attitude and changes over the following 12 months towards changes in the household's financial condition, the economic situation of the country, trends in unemployment and saving propensity. Indicators based on consumer opinion survey allow to forecast the trend of expenditures made by households and check and confirm/verify the forecasts made based on monthly retail trade statistics (within DG-1) and household budget survey.

The description on main sources used for quarterly estimation of HFCE is given in Chapter 9 Main data sources used.

5.2 Government final consumption, including split individual/collective consumption

5.2.1 Coverage of general government sector

In Polish national accounts general government sector is divided into three sub-sectors:

- central government sub-sector, includes all administrative departments of the state and other central agencies, non-profit institutions which are controlled by the central government,
- local government sub-sector, includes those types of public administration whose competence extends to only a local part of the economic territory, non-profit institutions which are controlled by the local government and whose competence is restricted to the economic territories of the local governments,
- social security funds sub-sector, includes central and local institutional units whose principal activity is to provide social benefits and which fulfil each of the following two criteria:

a) by low or by regulation certain groups of the population are obliged to participate in the scheme or to pay contributions, and

b) general government is responsible for the management of the institution in respect of the settlement or approval of the contributions and benefits independently from its role as supervisory body or employer.

5.2.2. Final consumption expenditure of general government

Final consumption expenditure (P.3) by general government is equal to the sum of non-market output, other (P.132) and social transfer in kind (D.63).
Social transfer in kind (D.63) consist of individual goods and services provided for free or at prices that are not economically significant to individuals households by government units and non-profit institutions serving households (NPISHs), whether purchased on the market or produced as non-market output by government units or NPISHs.
The quarterly data on social transfers in kind related to expenditure of central and local government are available from the Ministry of Finance provided cash reports on the state budget execution. Using information on liabilities cash data is adjusted to an accrual basis.
Data on social transfers in kind related to expenditure of social security funds are available from annual and semi-annual accrual reports on budget execution of the National Health Fund and central and local health care institutions. Quarterly figures are estimated basing on annual or semi-annual data, partly available quarterly information obtained directly from these units and analysis of long time series of historical data and take into account the trends on the market during the given year.

Non-market output, other (P.132*)* should be calculated in the following way:

P.132 = Output (P.1) - Market output (P.11) - Output produced for own final use (P.12) - Payments for other non-market output (P.131)

The output (P.1) is calculated as a sum of costs: intermediate consumption (P.2), compensation of employees (D.1), consumption of fixed capital (P.51c), other taxes on production (D.29) less other subsidies on production (D.39). Due to fact, that in this section there is market output, there is also operating surplus.
As a market output (P.11) in the general government sector there are recorded revenues of public universities from fees of education services, sale of research and development and other economic activity. For other schools there are revenues from rentals, revenues from sales of products and services.
Output produced for own final use (P.12) includes mainly revenue from investments on own account.
The payments for non-market output (P.131) are fees for the use of dormitories and student canteens in public universities. For other schools there are also parents payments for the maintenance of children in care and educational institutions and receipts from various fees.
According to COFOG classification the category of individual consumption expenditure includes the value of services in housing, health, recreation and culture, education and social protection. Collective consumption expenditure includes among others expenditures borne for public administration, system of justice, national defense, scientific and research activity.

5.2.3. Sources

One of the main sources of administrative data are data base files from the Ministry of Finance on Central and Local Government revenues and expenditures concerning budgetary and extra budgetary units. The data from these data base files are then adjusted to ESA transactions in full compliance with accrual rules and definitions provided by ESA for each transaction.
Data base files from the Ministry of Finance comprise detailed information on revenues and expenditures of budgetary and extra budgetary units classified in the Central and Local Government sectors both in terms of types of economic activities and in terms of types of flows, e.g. for revenues – cash flows and receivables and for expenditures – cash flows and payables. The data bases are designed on the base of budget classification in which the lowest grade , that is paragraphs are allocated to each single type of revenues and expenditures existing in the General Government sector.

The second grade are chapters grouping revenues and expenditures according to the type of economic activity. The last grade are sections grouping chapters in the main types of economic activities.
According to ESA 2010 rules each transaction (with few exceptions) should be registered when an economic activity takes place even if the cash flow connected with it has not been yet executed that is in full compliance with accrual accounting based on receivables and payables. The major exception are indirect taxes and income tax where accrual method is based on cash flows with one month delay.
The way in which the data bases are designed allows for smooth transition between administrative data and ESA transactions in two major steps:

1) By calculating accrual values for each paragraph of the Ministry of Finance data bases following the subsequent formula:

For revenues:
receivables for the year n minus outstanding receivables for the year (n-1) plus overpayments for the year (n-1)
For expenditures :
a) For the central government sector:
Expenditures executed plus total stock of liabilities at the end of accounting period for the year n minus total stock of liabilities at the end of accounting period for the year (n-1).
b) For the local government sector:
Expenditures executed plus total stock of liabilities at the end of accounting period for the year n minus total stock of liabilities at the end of accounting period for the year (n-1) minus expenditures which have not expired by the end of budget year for the year n plus expenditures which have not expired by the end of budget year for the year (n-1).
For indirect taxes, e.g. VAT, custom duties, excise duties , and for personal and corporate income tax:
Cash revenues with one month delay, that is:
revenues for the year n are calculated as the cash revenues accrued from February till December of the year n plus cash revenues for January of the year (n+1).

2) By allocating each single paragraph of the budget classification to the relevant ESA transaction on the base of information included in the budget classification concerning types of revenues and expenditures and types of economic activities and ESA descriptions of transactions. It has allowed to design an algorithm in which all paragraphs and chapters are linked to the ESA transactions and which is constantly updated on the base of new information.

For social security sub-sector the main source of data is based on budget reports for:
- funds managed by Social Insurance Institution (excluding Demographic Reserve Fund),
- funds managed by Board of Social Insurance for Farmers (excluding Contribution Fund and Motivation Fund),
- Labour Fund.

Data from budget reports are on accrual basis and are available separately for each of unit.
As mentioned above the budgetary classification on which data base files are constructed allows to distinguish which kind of transaction has taken place through analysing the activities assigned to the particular titles, chapters and paragraphs. Each paragraph from the budgetary classification is attributed to the particular ESA transaction.
The structure of inflows and outflows is appropriate to distinguish different ESA categories.
Data for Demographic Reserve Fund, Contribution Fund and Motivation Fund CSO receives from Ministry of Finance. They are on accrual basis. All positions in finance statements we classify to the particular ESA transactions.
For National Health Fund CSO receives data directly from NHF. These are profit and loss statements and balance sheets.

Estimates are needed for compiling statistics for high schools and for cultural and health care institutions and for entities which are not included in budgetary reports. Quarterly figures are estimated based on annual reports for year t+1, partly available quarterly information obtained directly from these units and analysis of long time series of historical data and take into account the trends on the market during the given year. It must be underlined that importance of estimates in the general government sector is insignificant.

5.3 NPISH final consumption

Final consumption expenditure in the non-profit institutions sector serving households is assumed to be on the level of output of this sector less payments to population.

The value of final consumption expenditure of this sector includes the expenditures by NPISHs on goods and services produced by market producers that are supplied without any transformation to households for consumption as a social transfer in kind.

Generally, quarterly data (t+2 months after the end of the quarter) for NPISH sector are not available. Therefore this transaction are calculated based on annual data, i.e. relation FCE for NPISH to GDP are used. The structure slightly differ in each quarter and this is the result of the balancing procedure.

Table 3. Share of NPISH final consumption in GDP in %

Year/Quarter	1	2	3	4	1-4
2014	0,81	0,83	0,80	0,64	0,77
2015	0,81	0,83	0,79	0,61	0,75

The estimate of NPISH final consumption in current prices is calculated into constant prices using CPI index.

Yearly final consumption expenditure of non-profit institutions serving household is estimated mainly on the basis of SOFs reports. However, only non-market producers are obliged to complete them. SOFs reports does not cover religious organizations (including church) so for this type of units special estimations are made basing on the report entitled „Finance of Catholic Church in Poland" - detailed description of the sources is given in Chapter 9.1.

The data sources applied to estimate NPISH consumption expenditure are the same as used for output because these two transactions are closely related. FCE for NPISH is calculated on the level of output less payments by population and increased by social transfer in kind.

NPISH sector is well recognized in Poland and there are exist special annual surveys, type SOF, which cover all type of non-profit units, i.e.:

SOF-1 Reporting units are: foundations, associations, social organizations

SOF-2 Reporting units are: trade unions

SOF-3 Reporting units are: political parties

SOF-4 Reporting units are: economic and professional self-governing authorities and employer organizations

SOF-1, SOF-2, SOF-4 are conducted every two years while SOF-3 every four years.

SOFs reports does not cover religious organizations (including church) so for this type of units special estimations are made basing on the report entitled „Finance of Catholic Church in Poland". For small part of NPISH's units F-01/s report is used with data including revenues, costs and financial result of higher education institutions.

There is not exist special data sources for calculating NPISH sector. Therefore the quarterly estimates of NPISH final consumption expenditure based on relations from annual basis.

5.4 Gross capital formation

5.4.a Gross fixed capital formation broken down according to Transmission Program ESA2010

Information on gross fixed capital formation (GFCF) include outlays on new fixed assets as well as improvement of existing ones, i.e. rebuilding, enlargement, modernization, reconstruction. Routine repairs and maintenance are not included.

Quarterly estimates of gross fixed capital formation (P.51) include:

- outlays on tangible fixed assets,
- outlays on intellectual property products,
- estimates of non-observed economy.

5.4.a.1 Outlays on tangible fixed assets

Data on outlays on tangible fixed assets in quarterly periods are derived largely from the same reporting sources as information used to estimate GDP from the production side, in particular short term statistics of enterprises. These outlays, on quarterly bases are being developed for each institutional sector separately. Information sources are, for:

1. non-financial enterprises sector units data on:
   - non-financial enterprises employing 50 persons or more from report F-01/I-01 (part II) - Report on income, costs, financial results and investment outlays (Part II - Outlays on fixed assets) for quarter 1, 2,3 and 4;
   - non-financial enterprises employing 10-49 persons from report F-01/I-01 for quarter II and IV; data for quarter 1 and 3 are estimated;
   - legal entities employing up to 9 persons - estimated on the basis of generalized results of the annual sample survey SP-3 - Yearly report on economic activity of enterprise;
2. financial institution sector units data on:
   - units employing more than 9 persons - from report I-01 - Report on investment outlays for quarter 1, 2, 3 and 4;
   - units employing up to 9 persons - estimated on the basis of annual data from the survey on SP-3 questionnaire;
3. general government sector units data:
   - from Ministry of Finance quarterly reports:
     - Rb-28 - Report on central government expenditures; the report includes also expenditures on weapons systems, which according to ESA2010 are among outlays on fixed assets,
     - Rb-28S - Report on local government expenditures
     - Rb-30S - Report on realization of financial plans of budgetary establishments,
     - Rb-35 - Report on execution of the revenue and expenditure plans of the executive agencies,
   - information on quarterly investment outlays financed from National Road Fund (on construction, extension or modernization of roads and highways) obtained from Bank Gospodarstwa Krajowego,
   - data on investment outlays of legal persons classified to S.13 sector:
     - from report F-01/dk - Cultural institutions quarterly financial report, and
     - estimated (on the basis of annual reporting) - for other legal persons belonging to the sector, including public institutions of higher education, independent public health care units;
4. household sector - estimated information including data for:

- natural persons employing up to 9 persons - estimated on the basis of generalized results of the annual sample survey SP-3 - Yearly report on economic activity of enterprise,
- individual housing construction – on the basis of quarterly report B-07 - Report on residential buildings and dwellings in non-residential buildings provided for use - in terms of usable floor of individual dwellings submitted to use,
- individual agriculture, in which:
  - farm buildings - on the basis of data from report B-08 - Report on non-residential buildings provided for use,
  - agricultural machinery - on the basis of the data on their production, import and export;

5. non-profit institution sector - data estimated on the basis of the cyclic (every 2-3 years) report SOF (and its corresponding mutations) on the activities of foundations, associations, political parties, trade unions, social organizations, employees organizations, economic and professional self-government and on the number of units at the end of each quarter in the Statistical Units Database.

5.4.a.2. Outlays on intellectual property products

Outlays on intellectual property products includes:
- expenditures on research and development,
- expenditures on computer software (purchased and made for own final use).

Expenditure on research and development are compiled in the annual data for the national accounts in accordance with the methodology adopted in the *Manual on the Measurement Research and Development in ESA 2010*. The data from the R&D survey carried out in accordance with the methodology of Frascati manual, on reports PNT-01 are used here. This survey is conducted annually by the Statistical Office in Szczecin. According to the adopted methodology PNT survey data are then converted to data for national accounts according to ESA 2010.

In a quarterly periods, due to the lack of quarterly reporting data, the value of expenditures on research and development activities is determined by estimation using the dynamic indicators of the average wages and salaries for the same period of the previous year, varied for individual institutional sectors.

After developing annual data on R&D on the basis of direct data source (report PNT-01), quarterly data in this regard are revised.

Expenses incurred for the software include software purchased and the software produced on own account. Data for purchased computer software are collected from the reports listed in point 5.4.a.1.

Own account computer software data are compiled in the annual data for the national accounts, in accordance with the recommendations of the Task Force: Software Measurement, using the cost method. The costs incurred in performing work for the creation of software for own final use are taken to the estimates. The account is being developed for the institutional sectors and in type of activities in which the phenomenon of own account software creation occurs.

In quarterly periods, value of outlays on computer software:
- purchased, is determined for non-financial enterprises on the basis of data from report F-01/I-01, for financial institutions - from the report I-01, while for other entities is developed on the basis of annual data,
- produced for own final use, due to the lack of quarterly reporting data, similarly as in case of outlays on R&D, is determined by estimation using the dynamic indicators of the average wages and salaries for the same period of the previous year, varied for individual institutional sectors.

After developing annual data on expenditure on software purchased and the software for own final needs, quarterly data in this regard are revised.

5.4.a.3 Non-observed economy

Non-observed economy is the activity which is not covered by official statistics. It involves:
- activity in the hidden economy

- illegal activity
- self-activity of households for own use
- missed activity as a result of deficiencies in the way of collecting basic data.

Value of VAT Fraud and the hidden economy are provide for gross fixed capital account. Due to the lack of well-defined measurement methods the assessment process requires expertise. This estimation take into accounts the results of consumer confidence in industry and trade surveys and unemployment rate. Estimation indicators for investment outlays in respect of the hidden economy involves dwellings, other buildings, machinery and transport equipment.

5.4.a.4 ESA 2010 modifications

In addition to reporting data and estimates described above, GFCF include also conceptual modifications resulting from ESA 2010. There are outlays on: research and development, military weapon systems, small tools, decommissioning cost of large capital assets.
These modifications were included in the sectors concerned.
Estimation methodology of expenditures on R&D is given in point 5.4.a.2
Expenditure on military weapon systems, that meet the general criteria for fixed assets, that is are used continuously for more than one year to provide services in the field of defence, such as armoured vehicles, warships, submarines, military aircraft, tanks, rocket launchers, according to the ESA 2010, are classified to gross fixed capital formation. According to ESA 95 methodology, these expenditures were included in intermediate consumption.
The intermediate consumption still records expenditure on disposables, such as ammunition, missiles, rockets and bombs, treated as military inventories.
The sources for GFCF on weapons systems in Poland are data on military expenditure on military weapon systems - from budgetary reporting (quarterly and annual) of the Ministry of Finance on forms Rb - 28, identified on the basis of the relevant paragraphs of Budgetary classification.

As a result of changes introduced by ESA 2010, small tools have been reclassified from intermediate consumption to GFCF. According to the ESA 95 small tools, that value was less than 500 euro in 1995 prices, were classified as intermediate consumption. Currently, spending on small tools, regardless of their value if they are used in the production process for more than one year are recorded in the national accounts as GFCF. The exception is spending on affordable tools commonly used, such as for example: saws, spades, knives, axes, hammers, screwdrivers, wrenches, which are still recorded as intermediate consumption.
The value of gross outlays on small tools in quarterly periods is determined taken into account the same as in the annual data share of expenditures for small tools in the value of investment outlays on machinery and equipment estimated quarterly.

According to ESA 2010 decommissioning costs of large capital assets (terminal costs) should be recorded as gross fixed capital formation. In Poland, the terminal costs concern in particular entities engaged in mining operations and mineral exploitation, as well as companies engaged in the liquidation of mines.
Entities operating in the mining operations, on the basis of legal provisions, the expected decommissioning costs include in the initial value. Thus, the data on investment outlays of these entities, shown in the report F-01/I-01 also include the expected costs of mine closure.
In the case of companies engaged in the liquidation of the mines, the costs incurred by the companies on their liquidation are classified as gross fixed capital formation and in the same values reflected in the depreciation of fixed assets in the period of liquidation. These data are derived also from the report F-01/I-01.

5.4.a.5 Gross fixed capital formation broken down according to AN code

The basis for estimates of gross fixed capital formation by AN code are data from quarterly reports F-01/I-01, I-01 and annual reports SP, F-03, SG-01 part 4, SOF as well as SP-3 filled by units according with Fixed Assets Classification which is obligatory in polish accounting records and is consistent with AN classification.
The scope of these reports includes data on investment outlays incurred on new property and improvement (enlargement, rebuilding, reconstruction and modernization) of existing ones, allowing direct connection with AN classification, with detailing outlays on:

- land improvement - AN.1123
- building and places - AN.1121
- residential buildings - AN.111
- civil engineering works - AN.1122
- machinery and technical equipment - AN.113 excluding AN.1131 and AN.1139,
- transport equipment - AN.1131,
- tools, instruments, movables and endowments - AN.1139,
- livestock (issuing repeatable products) - AN.1151,
- planting (issuing repeatable products) - AN.1152,
- mineral exploration - AN.1172,
- software purchase - AN.11731.

Any adjustments to GFCF and conceptual modifications associated with ESA 2010 are added at the spot to this AN positions which they relate, and so:

a) estimated values are recorded in following positions of AN classification:

- outlays on individual residential buildings (including garages) - AN.111,
- outlays on farm buildings in individual agriculture - AN.1121,
- livestock (issuing repeatable products) in individual agriculture - AN.1151,
- planting (issuing repeatable products) in individual agriculture - AN.1152,
- fixed assets manufactured and retained by producer for his own final use - AN code in line with kind of asset,
- software for own final use - AN.1173,
- valuables - AN.13

b) conceptual modifications associated with ESA 2010:

- small tools - AN.1139,
- military weapon systems - AN.114,
- R&D - AN.1171,
- cost of liquidation of big assets are included in initial value (purchase price, production cost) of fixed assets they relate, which means, that they are included in different position of AN classification.

5.4.b Changes in inventories

Estimations of changes in inventories are registered on both sides: production and expenditure of gross domestic product (GDP). The calculation of changes in inventories is carried out quarterly. The annual value of changes in inventories represents the aggregate of relevant quarterly values.
Changes in inventories include 4 different categories:

- Materials and supplies (AN 121)
- Work-in-progress (AN 122)
- Finished goods (AN 124)
- Goods for resale (AN 125)

Table 4. Changes in inventories by categories in 2015Q2.

Specification	In mln PLN	% of GDP	% of total changes in inventories
Total changes in inventories	1 416,3	0,3	100
- materials	1 713,9	0,4	121,0
- work-in-progress	1 315,3	0,3	92,9
- finished goods	-1 196,5	-0,3	-84,5
- goods for resale	-416,4	-0,1	-29,4

The main data sources of changes in inventories are:

- quarterly reports on income, costs, financial result and investment outlays for big units (above 49 persons employed) classified by materials, finished goods, work-in-progress, goods for resale for beginning of period and end of period (F-01/I-01),
- semi-annual reports on income, costs, financial result and investment outlays for medium units (10-49 persons employed) in the same scope as for big units (F-01/I-01),
- annual report on economic activity of enterprise for small units (under 9 persons employed) - data on changes in inventories for whole economy (SP-3),
- yearly report of enterprise (SP).

Big units report information every quarter whereas medium ones in the second and the fourth quarter of a year. There is no information on inventories in small units in quarterly periods therefore they have to be estimated. The basis for that is the share of each type of inventories to output in big units referred to output in small units. The value is then corrected when data from annual reports on economic activity of enterprises - SP-3, covering information on annual inventories in small units, become available.

The accounting system used to value the inventories is the First-in-first-out (FIFO) method – a cost assignment system in which goods are withdrawn from inventories in the same order in which they entered (in other words, the goods withdrawn from inventories are those which were acquired earliest so that, at any stage, inventories will consist of the most recently acquired goods).

The calculation of inventories

1. The assumption has been made that the closing book value of accounting period is equal to opening book value of following accounting period. The difference between the closing and the opening stocks is the book value of changes in inventories.

   There is no direct information on inventories by product, commodity composition of stocks is estimated from the product structure in supply and use tables (SUT) framework. For calculating materials the structure of intermediate consumption from the use table is used whereas for calculating work-in-progress, finished goods and goods for resale the structure of output from the supply table is used. The structures are applied for weighting boundary values of inventories in particular activities of NACE rev. 2 to produce matrix of inventories by products. The difference between these both matrices with the closing book values and with the opening book values constitutes the book value of changes in inventories by products and by industries.
2. The next step is revaluating inventories at book values to constant prices. The steps involved are as follows:

- The matrix with opening book values of inventories is divided by the price indices at the beginning of the period,

- The matrix with closing book values of inventories is divided by the price indices at the end of the period,
- The difference between deflated values in both matrices at the end and at the beginning of accounting period reflects changes in inventories at constant prices.

The price indices used for deflating the inventories are:

- PPI for work-in-progress and finished goods,
- CPI for goods for resale,
- Wage indices for materials.

3. The next step is multiplying the value of changes in inventories at constant prices by the average price indices of the period which gives changes in inventories at average current prices of accounting period by product groups and by activities (NACE rev. 2).
4. Holding gains are estimated as a difference between the matrix with changes in inventories at book values and the matrix with changes in inventories estimated at average current prices of period (point 3) for products and for industries.

Example of the calculation of NHG for use a raw material – coal (2015Q2)

(1) Change in book value

(a) Book value of inventories at the beginning of period		= 3 962 696,00
(b) Book value of inventories at the end of the period		= 4 005 550,00
(c) Change in book value	(b)-(a)	= 42 854,00
(d) Price index at the beginning of period		= 98,0
(e) Price index at the end of period		= 96,7
(f) Average price index for period		= 96,4

(2) Revaluation to constant prices

Constant prices level		= book value/price index*100
(g) Beginning of period	(a)/(d)*100	= 4 043 567,30
(h) End of period	(b)/(e)*100	= 4 142 244,05
(i) Change of inventories at constant prices	(h)-(g)	= 98 676,75

(3) Revaluation to current basic prices

(k) Changes in inventories at current basic prices = change at constant prices*average price index for period/100 (i)*(f)/100 = 98 676,75*96,4/100 = 95 124,39

(4) Derivation of NHG

NHG = change in book value- change at current basic prices (c)-(k)

= 42 854,00 – 95 124,39 = -52 270,39

5.4.c Acquisitions less disposals of valuables

Data on the acquisition less disposals of valuables are estimated based on a model developed on the basis of pilot survey concerning:

- valuables, completed by completed by entities, which could buy or sell:
  - antiques and other art objects, such as paintings and sculptures,
  - precious metals and stones; diamonds, non-monetary gold, platinum, silver, etc.
  - other valuables, among others: jewellery made of precious metals and stones, collections,
- museum collections, including collections of artistic, numismatic, crafts and other museum objects, and also

1) the annual data on:
   - manufacture of jewellery and jewellery items made of gold, silver and precious metals, other items made from precious metals;

- issued and distributed gold and silver collector coins - collected from the National Bank of Poland;

2) import and export of precious stones, gold, silver, diamonds, platinum, jewellery and jewellery items made of gold, silver and precious metals, products made of precious metals, works of art, collectibles, antiques - from statistics of Foreign Trade (INTRASTAT system - in the field of turnover with EU countries and the system EXTRASTAT- in the field of trade with countries other than EU).

5.5. Imports, exports

5.5.1 Goods

International trade-in-goods statistics is business statistics which serves different needs. The statistics together with other basic statistics, such as statistics on production, construction, finances, provides data for national accounts and balance of payments.

Since 1 May 2004, i.e., the date of Poland's accession to the European Union two complementary systems exist in the foreign trade of goods statistics:

- EXTRASTAT system - the system of trade in goods with "third countries", i.e., countries which are not members of the European Union;
- The INTRASTAT system - the system of trade in goods with Member States of the European Union.

Data sources*:*

The main sources of data are the following:

- Customs declaration for the EXTRASTAT system;
- Two declarations for the INTRASTAT system:
  INTRASTAT - DISPATCH declaration
  INTRASTAT – ARRIVAL declaration

In addition, alternative data sources are used for goods which should be regarded as specific.

To this group of products belong sea products, for whom the additional data source which complements the data is mainly data on purchase and sale of "fish from the side". These data are obtained from the Fishery Monitoring Centre under the Fishery Department in the Ministry of Agriculture and Rural Development.

Foreign trading of goods data on electricity and natural gas are totally collected from statistical reports of the Energy Market Agency.

For the purpose of controlling the compliance with the reporting obligations of entities which make the transfer of ownership of vessels or aircrafts, statistical data are obtained from the Polish Permanent Vessel Register maintained by the Maritime Chambers under the District Courts in Gdansk and Szczecin and from the Civil Aircraft Register of Poland maintained by the Civil Aviation Office.

The INTRASTAT system consists in collecting data on trade between Member States directly from the suppliers and receivers of the goods. Any physical movement of EU goods from one Member State to another is the subject of statistical analyses relating to the trading of goods between Member States.

Goods which have to be reported to the INTRASTAT system need not be the subject of commercial transactions involving the payment.

The obligation to provide data for the INTRASTAT system is imposed on natural or legal persons and on organizational entities without legal personality, engaged in trade of goods with Member States of the European Union.

Exemptions for entities from the obligation to provide data for the INTRASTAT system result from the values of statistical thresholds which are annually defined and which wholly or partly exempt small and medium-sized companies from this obligation.

The reporting period for goods covered by the INTRASTAT system is the calendar month in which the physical movement of goods (arrival/dispatch) took place.
Data on operators which are not covered by the reporting obligations, i.e., those which have not exceeded the definite threshold are estimated. The estimates are made on the basis of data on the volume of intra-EU supplies or acquisitions, which are obtained from the VAT system. The value of turnover of those operators is added to the actual data reported to the INTRASTAT system. This value is disaggregated into goods and partner countries.
Turnover for operators which have not submitted the INTRASTAT declarations on time in the reporting month are also estimated. The estimation is based on the real turnover of the operator obtained in the corresponding month of the previous year. The goods and country structure is also used to disaggregate the data.
The EXTRASTAT system covers the trade of goods with the so called "third countries", i.e., with non-member countries. In the system there are recorded goods which cross the customs border of the country and are covered by export or import according to the guidelines formulated in the special trade system.[1] Data on trading of goods with third countries are included in the statistical set on the basis of the date of the customs clearance.
The primary source of data for the EXTRASTAT system is a customs declaration.
The basic classification of goods applied in both systems is the 8-digit Combined Nomenclature (CN) which is based on the 6-digit Harmonized Commodity Description and Coding System (HS). The Combined Nomenclature is reviewed annually.
Another important classification of goods is the Standard International Trade Classification (SITC). Now its fourth version is applied.

For the purpose of statistics on the directions for exports and imports of goods The Classification by Broad Economic Categories (BEC) is used.
Data on foreign trade of goods are also presented in accordance with the sub-section of the Polish Classification of Goods and Services.
Information concerning the partner countries is obtained on the basis of "Geonomenclature", which is based on the ISO 3166 standard. The ISO standard is not fully applied - there are some differences:

- There is no specific code for Monaco. The turnover for Monaco counts to France;
- Overseas territories of the French Republic: Martinique, Guadeloupe, Réunion and French Guiana;
- Turnover for the Channel Islands and the Isle of Man count to the United Kingdom;
- Kosovo is a separate country;
- There is no specific code for Puerto Rico. The turnover for Puerto Rico counts to the US;
- There are specific codes for: The European Union (considered as a country in trading of goods with non-member countries, for declaring the origin of goods), high seas, ships and aircraft stores and provisions, countries and territories not specified.

Using "Geonomenclature" it is possible to display countries by the required headings.
Foreign trade turnover is presented for exports by country of destination (this is the last country, if known, to whom the goods are to be delivered, regardless of where the goods were initially dispatched). Imports may be presented by country of origin (the country where the goods were manufactured, processed or remade, and as such arrived at the Polish customs territory), or by country of dispatch (the country from the territory of whose the goods entered the territory of Poland regardless of their origin).

1 The special trade system is used where the statistical territory shall comprise only a certain, defined part of the economic territory.

5.5.2 Services

International trade in services statistics (ITSS) is one of the statistics which are classified as the economic statistics. Data on cross-border trade in services are used for compilation of trade in services information carried out between Polish residents and non-residents. These data are essential to compile the services account within the Current Account of the Balance of Payments and then National Accounts.

Methodology of data compilation and reporting is consistent with requirements defined in *Manual on Statistics of International Trade in Services 2010* (MSITS 2010) which was prepared by the Interagency Task Force on Statistics of International Trade in Services (TFSITS) and approved by the UN Statistical Commission in 2010. Moreover all requirements imposed by Balance of Payments Manual version 6 (BPM6) are also met.

International trade in services data are recorded as export if Polish residents provide services to non-residents and as import if Polish residents acquire services from non-residents. Since January 1st, 2013 data have been collected on the basis of the Extended Balance of Payments Services Classification (EBOPS 2010) for all service components (earlier data were collected in accordance with EBOPS 2002). Moreover information about resident – non-resident transactions are recorded by trading partner – country or international organization (consistent with the list annexed to the Commission Regulation (EU) No 555/2012 of 22 June 2012 concerning balance of payments, international trade in services and foreign direct investment). Collected data allow to compile identical sets of information for both intra EU and extra EU.

The following sources are used in the process of international trade in services data compilation:

- for manufacturing services on physical inputs owned by others, maintenance and repair services, transport and other services – data are collected quarterly and annually within statistical survey, which is jointly supervised and conducted by Central Statistical Office (CSO) and National Bank of Poland, directly from all Polish enterprises engaged in international trade in services regardless of their economic activities or number of employed persons,
- value of acquired freight transport services is increased by the value of services derived from reclassification of part of imported goods (source: international merchandise trade statistics),
    - value of acquired passenger transport services is increased by the value of expenditures incurred by Polish residents owing to their travels abroad (source: CSO questionnaire survey) (goods purchased for resale are classified as merchandises),
    - travel – data are collected and compiled by CSO within questionnaire surveys,
    - value of insurance and pension services is calculated by National Bank of Poland on the basis of data collected by CSO directly from enterprises and on the Financial Supervision Authority data,
    - FISIM – data compiled by National Bank of Poland,
    - illegal sector – data compiled by CSO.

Chapter 6 GDP components: the income approach

In the income approach exists the following variables:
Compensation of employees, including components wages and salaries and employers' social contributions,
Other taxes less subsidies on production,
Gross operating surplus and mixed income.
In Polish quarterly national accounts the income approach of GDP is not calculated independently. Compensation of employees, other taxes on production, other subsidies on production are calculated based on the same data sources as for production approach. Gross operating surplus or mixed income are calculated as balancing items. Data are compiled by institutional sectors and sections of NACE Rev. 2. All these data are used to prepare quarterly table 103 of the ESA 2010 transmission programme.

6.1 Compensation of employees, including components (Wages and salaries and Employer social contributions)

Data for compensation of employees including components: wages and salaries and employers' social contributions.
Total value of compensation of employees (D.1.) is derived as a sum of values from institutional sectors.
For the non-financial sector data are obtained from 01/I-01 report on income costs, financial results and investment outlays and DG-1 monthly questionnaire on economic activity.
For the financial corporations sector the main data sources are financial statement of the National Bank of Poland and financial statements of financial institutions (of which commercial banks, insurance companies, open pension funds, open pension associations, brokerages, co-operative saving and credit unions). Moreover data are obtain from 01/I-01 report on income costs, financial results and investment outlays.
For the general government sector the main data sources are the Ministry of Finance reports on realisation of financial plans of budgetary units and extra budgetary units and data on pensions paid by the Ministry of National Defence, the Ministry of Justice and the Ministry of the Interior and Administration.
For households and non-profit institutions sectors data are calculated based on average quarterly wages and salaries in national economy.
These data from the statistical reports are available about t+90 days.
Data on compensation of employees by sections of NACE Rev.2 are only annual, therefore, the estimated method, enabled to split annually national accounts data, is used. This method is based on the simplified idea that the changes in compensation of employees by quarters and sections are the same as in annual data. It is used when annual data of compensation of employees appears, i.e. about t+9 months.
If annual data are not available estimation of provisional quarterly data are calculated by another method. Compensation of employees by sections are derived by applying percentage rates of the wages and salaries by sections in total wages and salaries and multiplying them by total value of compensation of employees for each section.

6.1.1. Gross wages and salaries

Quarterly data on gross wages and salaries, fully coherent with yearly national accounts data, for the purposes of 103 table ESA 2010 transmission programme, are prepared by Demographic and Labour Market Surveys Department.

First of all, the comparison between national accounts data and social statistics data is made.

The comparison of the components of the data on gross wages and salaries from national accounts and from social statistics showed that many parts of the gross wages and salaries are collected in the both data. In the two cases, gross wages and salaries include monetary payments as well as the value of benefits in kind or their equivalents due to employees for work performed. Both national accounts data and social statistics data embrace basic salary, personal wages and salaries, wages and salaries for employees of budgetary sphere entities, premiums and prizes, bonuses (e.g for seniority, for performing work in unhealthy conditions, for shift hours, for performing night work, for serving in management positions), wages and salaries for time off (paid lay-off, holidays, illness) and allowances, payments from profit and balance surplus in co-operatives, annual extra wages and salaries for employees of budgetary sphere entities, fees paid to selected groups of employees for performing work in accordance with a labour contract, e.g., journalists, film producers, radio and television programme producers.

In both cases, exclusions from wages and salaries are also almost the same (e.g the costs of medical services).

However, there are some differences between those data. The short-term data are collected only for calculate the average gross wages and salaries. They embrace only personal wages and salaries. They do not include such components as: impersonal wages and salaries, agency commission wages and salaries, wages and salaries of outworkers nor apprentices, funded scholarships, tips and income from non-registered work, nor the data on the hidden economy.

The quarterly social statistics data does not embrace all units of the national economy. Quarterly data are collected from units of the national economy excluding economic entities employing up to 9 persons (and from budgetary units, without taking into consideration the number of persons employed). Data do not embrace private agriculture, people employed abroad (with the exception of the number of employees), employed in social, political and trade union organizations and employed in the scope of national defense and public safety, hidden economy.

The methods of social statistics data collecting do not allow to complete short-term data to the level of annually data from national accounts. That is why, the estimated method, allowing to split annually national accounts data, was elaborated. This method was based on the idea that the changes in gross wages and salaries would be the same in national accounts and social statistics data.

Variables used for QNA: annually national accounts gross wages and salaries; data used for splitting - data on quarterly social statistics gross wages and salaries.

Further adjustment made to the data: Division of yearly national accounts data by quarters, by sections of NACE rev.2.

Methodology:

For the compilation of quarterly data within the table 103 according to ESA 2010, it was necessary to split yearly data from national account, using social statistics data on gross wages and salaries, collected by surveys carried out by the CSO.

Source of social statistics data for the indicators, serving for splitting yearly national accounts data by quarters:

-quarterly survey Z-03 (carried out by the CSO), concerning budgetary units without taking into consideration the number of the employed

- DG-1 monthly and quarterly survey (carried out by the CSO), concerning units of “enterprise sector”, with the number of persons employed more than 9.

The method of calculation of the quarterly data on gross wages and salaries is different in the case of provisional and final data.

Provisional quarterly data:

As the yearly national accounts data are available only after the end of the calendar year, the provisional data are calculated by multiplying of national accounts data (by NACE rev.2) by share in the increase or drop in social statistics quarterly gross wages and salaries, quarter-to-quarter, by NACE rev.2.

Quarterly data, compatible with national accounts yearly data, for the last available quarter, are multiplied by the coefficient showing the drop or increase in social statistics data.

Example:

Gross wages and salaries from social statistics surveys section A Last quarter=100	
(2015Q1*/4Q'14)	£1
(2015Q2*/1Q'15)	£2
(2015Q3*/2Q'15)	£3
(2015Q4*/3Q'15)	£4
(2016Q1*/4Q'15)	£5

Example:
Final data for 2014Q4, section A=2765,7 mln PLN
2015Q1=2014Q4 *£1=2765,7 **£1= 2414,4 mln PLN
2015Q2=2015Q1 *£2=2389 mln PLN

Final quarterly data:

After having received finally data from national accounts, the method, splitting annual data, is used.
Firstly, the quarterly social statistics are summed up, separately for every section of NACE rev.2 and from it are made annual data:

Below, the example of calculation for the total of gross wages and salaries, in Polish currency.

$$\alpha = (q1+q2+q3+q4)$$

Data on quarterly social statistics on gross wages and salaries, section A of NACE rev.2 *
2014Q1 social statistics
2014Q2 social statistics
2014Q3 social statistics

2014Q4 social statistics
2014A social statistics (sum of quarterly data)

**The quarterly social statistics data does not embrace all units of the national economy. Quarterly data are collected from units of the national economy excluding economic entities employing up to 9 persons (and from budgetary units without taking into consideration the number of persons employed in those units). Data do not embrace private agriculture, people employed abroad (with the exception of the number of employees), employed in social, political and trade union organizations and employed in the scope of national defense and public safety.*

Then, gross wages and salaries for every quarter are divided by the sum of the social statistics quarterly data on gross wages and salaries.

Quarterly social data, divided by the sum of quarterly social statistics data
2014Q1/ divided by the sum of quarterly social statistics data
2014Q2/ divided by the sum of quarterly social statistics data
2014Q3/ divided by the sum of quarterly social statistics data
2014Q4/ divided by the sum of quarterly social statistics data

The ”coefficient β” appears, which is calculated for every quarter

$$\beta 1 = Q1/(Q1+Q2+Q3+Q4)$$

$$\beta 2 = Q2/(Q1+Q2+Q3+Q4)$$

$$\beta 3 = Q3/(Q1+Q2+Q3+Q4)$$

$$\beta 4 = Q4/(Q1+Q2+Q3+Q4)$$

Coefficient (quarterly gross wages and salaries from social surveys, divided by the sum of quarterly data)	
2014Q1/ divided by the sum of quarterly social statistics data	β1
2014Q2/ divided by the sum of quarterly social statistics data	β2
2014Q3/ divided by the sum of quarterly social statistics data	β3
2014Q4/ divided by the sum of quarterly social statistics data	β4

Secondly, the annually data from national accounts are multiplied by the mentioned-above coefficients for every quarters.

$$NA\ annual*\beta 1$$
$$NA\ annual*\beta 2$$
$$NA\ annual*\beta 3$$
$$NA\ annual*\beta 4$$

Final data appears.

Quarterly final gross wages and salaries in section A, coherent to national accounts yearly data	
2014Q1	2217,3
2014Q2	2378,2
2014Q3	2434,8
2014Q4	2765,7
2014 (sum of quarterly data)	9796,0

It is important to add that yearly data on gross wages and salaries from national accounts, section A of NACE rev.2 are equal to 9796 mln PLN.

In such a way, we calculate data for every section of NACE rev.2. Data for the total are calculated as the sum of data by sections.

Such a method allows to split national accounts yearly data by quarters in such a manner that the average of quarterly data is fully harmonized with the yearly data of national accounts.

In addition, the trends within the year are also assured.

In the most of cases, the same trends may be observed also among years. The only drawback of this method is the fact that it can be used only „ex-post", not "ex-ante".

Periodicity: quarterly

Availability of data: about 65 days after the reference period

6.1.2 Employers' social contributions

The data on employers' social contributions is derived as a residual value and consists the difference between compensation of employees and wages and salaries. It is calculated for all sections.

6.2 Taxes less subsidies on production

6.2.1 Other taxes on production

Other taxes on production are compulsory, unrequited payments, in cash or in kind levied by general government or UE institutions in respect of the production and import of goods and services, the employment of labour, the ownership or use of land, buildings or other assets necessary for production process.

Other taxes on production consist of all taxes that enterprises incur as a result of engaging in production, independent of the quantity or value of the goods and services produced or sold. They may be payable on land, fixed assets or labour employed in the production process or on certain activities or transactions.
The information on other taxes on production are derived from budgetary statistics (data base files from the Ministry of Finance) and from the Road Fund and the Railway Fund.
Other taxes on production paid to the institutions of the European Union include the following taxes collected by national governments on behalf of the institutions of the European Union: receipts from the common agricultural policy: levies on imported agricultural products, monetary compensatory amounts levied on export and imports, sugar production levies and the tax on isoglucose, co-responsibility taxes on milk and cereals; receipts from trade with third country: customs duties levied on the basis of Integrated Tariff of the European Communities (TARIC).

6.2.2 Other subsidies on production

In Poland other subsidies on production are paid by the general government sector and the institutions of the EU. The most important position in other subsidies on production are subsidies paid by State Fund of the Rehabilitation of the Disabled to the units classified outside the public finance sector and from state and local budget. The most important position in EU other subsidies on production is single area payment.
In Poland subsidies for producers are classified to other subsidies on production as a consequence of engaging in production, e.g. subsidies payable on the total wage or salary or the employment of handicapped persons or unemployed for long period, subsidies to reduce pollution, grants for interest relief which are intended to encourage capital formation.
Subsidies granted by the Institutions of the EU are current unrequited payments which the Institutions of the European Union make to resident producers, with the objective of influencing their levels of production, their prices or the remuneration of the factors of production. The final beneficiaries are non-governmental entities like enterprises, households and non-profit institutions.
Data sources for subsidies granted by the institutions of the EU come from administrative sources: Agency for Restructuring and Modernisation of Agriculture (ARMA) and Agricultural Market Agency (AMA).
Data for the subsidies of the general government sector and the institutions of the EU meet the demand of accrual time of recording. Data from AMA and ARMA are recorded when the payments are made.

6.3 Gross operating surplus & mixed income

6.3.1 Gross operating surplus

Gross operating surplus represents the value, which remains in units after redistribution of value added between employees and general government institutions.
In national accounts, gross operating surplus for market units is calculated as gross value added less compensation of employees less other taxes on production plus other subsidies on production. For non-market units, it is equal: in scope of market production to gross value added less compensation of employees less other taxes on production plus other subsidies on production, in scope of non-market production to consumption of fixed capital.

6.3.2 Mixed income

Mixed income is calculated as a residual value as the difference between gross value added, compensation of employees, other taxes on production plus other subsidies on production. It is

calculated for all sections of the households sector. There is an exception for section L for imputed rents. Mixed income for imputed rents is not calculated.

Chapter 7 Population and employment

7.1 Population

Population used in the national accounts based on the official current population statistics. On a given date, the total population of Poland consists of all persons, national or foreign, who are permanently settled in the territory of a country, even if they are temporarily absent from it.
The estimates on population size are conducting according to balance method in intercensual period (quarterly and annually). The base for balances of population in Poland is number of people obtained from national census (the last census was conducted in 31 March 2011). The methodology of calculation of the population is based on the idea of computing the demographic events (births, deaths) and migration (moves from and to Poland) and adding this information to the population of the previous reference date. For the period after census we use the balance method according to following pattern:
size of population for the beginning period (quarter) in gmina
+ live births;
- deaths;
+ registrations for permanent residence (moving from other units of administrative division and from abroad);
- deregistration from permanent residence (in connection with moving to other units of administrative division and abroad);
+(-) address changes of the population due to changes in the administrative division
= size of population at the end of reference period (quarter) in gminas.

The number of population is the sum of population from gminas (through powiats and voivodships).
All data taken into consideration in balances of population are taken from official administrative data (vital statistics and migration that occurred after census) and concern legally documented facts come from the Civil Status Offices and local registration offices of individual gminas in Poland. Data on permanent migrants come from Population Register PESEL (PESEL Register).
Data on the population prepared for the needs of the table 110 of the ESA2010 transmission programme correspond to
- the quarterly population averages used in the national accounts are calculated as the arithmetic mean of two successive quarters survey dates of the current population statistics e.g. for the 1st quarter it would by the average of the population as of 31st of December and 31st of March,
- the annual population results in national accounts are number of population for the mid-year e.g. current population statistic for June 30.

Table 5. Population (in thousands)

Period	Population				
	31.12.2013	31.03.2014	30.06.2014	30.09.2014	31.12.2014
	38495,7	38485,8	38484,0	38492,2	38478,6
2014Q1	38490,7				
2014Q2		38484,9			
2014Q3			38488,1		
2014Q4				38485,4	
2014 year	38484,0				

Population data for the National Accounts was prepared using the balance method for years 2000-2008 based on the results of the National Population and Housing Census 2002 (as of May 20, 2002) and data beginning from year 2009 based on the Population and Housing Census 2011 (as of March 31, 2011). Data for years 1995-1999 was determinant by estimation on the basis of the National Population and Housing Census as of 20 May, 2002.

7.2 Employment: persons

In the scope of ESA transmission program quarterly data on employment in persons are presented in two tables, i.e. 110Q and 111Q.

Table 110

This table contains data on population, economically active population, unemployment, total employment, employees and self-employed. Apart from the population data, all data are available on the basis of the Polish quarterly Labour Force Survey, which is carried out by households. Data on employment from this source contain all elements of labour market according to the national concept, requested by the national accounts methodology, including people working in hidden economy.

The institution responsible for the mentioned-above survey is the CSO of Poland.

Data from Labour Force Survey embrace all categories of persons employed, i. e. both employees and self-employed (self-employed contain also contributing family workers).

Data on the persons employed, for the purposes of the national accounts, are rounded to reach the exact sum of employees and self-employed.The annual data from the Labour Force Survey are calculated as the average of four series of quarterly data.

The main criterion for dividing the population into the employed, unemployed and economically inactive is work, i.e. performing, holding or seeking work. The method of separating particular categories of population guarantees that each person would be classified in one category only.

Persons employed

Data for the purposes of national accounts in the frame of the quarterly table 110 have been collected since 1995. Among the employed are included all persons aged 15 and more who during the reference week:

- performed for at least one hour any work generating pay or income, i.e. were employed as employees, worked on their own (or leased) agricultural farm, or conducted their own economic activity outside agriculture, assisted (without pay) in work on family agricultural farm or in conducting family economic activity outside agriculture,
- had work but did not perform it:
    - due to sickness, maternity leave, parental leave or vacation,
    - due to other reasons, but the break in employment:

- did not exceed 3 months,
- exceeded 3 months, but these persons worked as employees and during that period received at least 50% of the hitherto remuneration (since the first quarter of 2006).

Since 2004, among own-account workers have been included agents in all system of agencies.
Among employees are also included persons performing outwork and apprentices with whom enterprises or natural persons signed a contract for occupational training or learning skills for a particular job (if they receive a payment).
Data for the purposes of the table 110 concern the resident persons in employment. Those data are included in the table 110, filled according to the national concept, i.e they contain cross-border workers, who maintain their principal dwelling in the national territory, but do not contain foreigners not residents, working on the domestic territory). Data contain all element requested by the national accounts methodology, including people working in hidden economy.

Table 111

The main data source for all tables of ESA 2010 concerning persons employed is the same as in the table 110: it is Labour Force Survey, carried out quarterly by the CSO of Poland. Such method assure the harmonization, the comparability and the reliability of all data concerning labour market.

As the data for table 111 are prepared according to the “domestic concept”, it is necessary to adjust data from Labour Force Survey by excluding residents working abroad and by including foreigners working for the Polish employers.
The data on foreigners working in Poland are taken from the annual survey Z-06 on employment, wages and salaries, and hours worked. The survey is carried out by the CSO of Poland. The survey covers all enterprises of national economy, in which the number of persons employed is more than 9 persons (in the case of budgetary units- without taking into consideration the number of employed). This survey is exhaustive and compulsory. Data are collected via electronical questionnaire.
Data on persons employed are collected in persons. Quarterly data on persons employed are disseminated in the non-adjusted form, as well as seasonally adjusted (software JDemetra +).
There is a full coherence and comparison between table 111 in persons and the other yearly and quarterly tables, prepared according to the “domestic concept”, such as the table 303 or regional tables. The variable “persons employed” is the sum of the variables “employees” and “self-employed”. The sum of data by NACE is equal to the total. Annual data are the average of the four series of quarterly data.
As the full comparison between all tables in domestic and national concept in persons is also assured, it can be seen that the method used to compile data allows to maintain the comparability, reliability and coherence in the frame of all ESA 2010 tables, concerning employment.

7.3 Employment: total hours worked

According to the definition of ESA 2010 (11.27) "Total hours worked represents the aggregate number of hours actually worked as an employees or self-employed person during the accounting period, when their output is within the production boundary."
Data on the number of hours worked (table 111) are transmitted on a quarterly basis on the national level, total and by sections of NACE rev.2 and they are prepared according to the A10 aggregation according to the ESA 2010. The reported data are consistent with the methodology of the European Classification of National Accounts ESA and fully adapted to the requirements of Eurostat.
In order to calculate data on the number of hours worked in the table 111 estimates are made quarterly and annually.
The basis for the calculation of hours worked is the estimated number of employed persons.

The total number of hours worked of all persons employed in the table 111 consists of: total number of hours worked by employees (from the survey LFS, according to the “domestic concept”) and the number of hours worked by foreigners working in resident units (statistical survey Z-06 conducted by enterprises).
In the LFS, the average number of hours worked per week is calculated as the ratio of the sum of hours worked in the reference week (the actual number of hours) to the number of persons working in the reference week.
For the table 111 the following method of estimation of the number of hours worked by employees is adopted.
- number of total hours worked by employed persons working in the quarter is multiplied by the number of employed persons and the average number of hours worked in the reference week and the average number of weeks in the quarter.
- number of total hours worked by employees in the first quarter is multiplied by the number of employees and the average number of hours worked in the reference week and the average number of weeks in the quarter.

- number of total hours worked by self-employed in the quarter is multiplied by the number of self-employed and the average number of hours worked in the reference week and the average number of weeks in the quarter.
The number of hours worked in total employment is the sum of total hours worked in the different sections of NACE rev.2.
In order to fulfill the table 111, data on the number of hours worked for the various sections of NACE Rev.2 are estimated and aggregated at the level of the A-10 in accordance with the requirements of the ESA 2010.
There is a full consistency and comparability of data on the number of hours worked posted in the table 111 and the table 303.
The consistency between quarterly and annual data is monitored.
The annual number of hours worked are the sum of quarterly data (examples are presented in the Chapter 9).
The variable "hours worked” in the table 111 is fully consistent with the variable “employed persons”.
The full comparison between all tables of labour market, in domestic and national concept, and in persons or in hours worked is assured. The method used to compile data allows to maintain the comparability, reliability and coherence in the frame of all ESA 2010 tables, concerning labour market.

Chapter 8 Flash estimates

According to the regulation (eu) no 549/2013 of the European Parliament and of the Council of 21 May 2013 on the European system of national and regional accounts in the European Union, flash estimates are key macroeconomic aggregates, providing an overview of the state of the economy with a short delay after the end of the reference quarter. A flash estimate is an early estimate of an economic variable for the most recent reference period.

8.1 Flash GDP estimate

Central Statistical Office started carrying out experimental flash estimates as of the 1st quarter of 2013. In the 1st quarter of 2014 flash estimates of GDP became a standard procedure and have been ones till now thanks to relevant regulations

The quarterly GDP flash is published within 45 days after a reference period is prepared basing on limited amount of information available immediately after the end of the quarter, and do not replaced the regular, initial GDP estimates at t+2 months but complement them.

To calculate the quarterly GDP flash the two approaches are used: the direct approach with the data available in the short term from different sources and indirect approach (econometric) in case some data is missing or there is no data whatsoever. The procedure allows both to impute the missing data and to verify the results obtained.

In general, the method adopted does not vary significantly from the one used in standard preparation. The production approach is involved in the calculation. The only modification is the way of aggregating of GDP components to the total; not from NACE Rev. 2. sections but from the institutional sectors level to include the whole economy in the estimate when only limited data sources for individual sections of NACE Rev. 2 is available.

Source and methods for GDP flash production approach:

- Non-financial corporation sector – estimation of output and intermediate consumption based on processing monthly enterprise reports on economic activity,
- Financial corporation sector - estimation of output and intermediate consumption based on results of financial and insurance institutions, additionally, extrapolation methods based on previous periods and analyses of current trends are used;
- General government sector - estimation of output and intermediate consumption based on budgetary reports on revenues and expenditures,
- Households and non-profit institutions sectors – estimations based on average share of output and intermediate consumption in the national economy taken from the quarterly data for the sectors from the most recent periods.

Another set of information which is used for both direct and econometric methods consists: price indices (PPI, CPI), sold production index of industry, construction, turnover in retail trade, taxes from State Budget, subsidies from Agriculture Agencies, business and consumer's tendency surveys.

Flash estimates are subject to seasonal and working/trading-days adjustment. The afore-mentioned calculations are made with the use of the same methods and software as in the regular estimates – TRAMO/SEATS method implemented in DEMETRA program run in accordance with a strategy applied for seasonal adjustment of quarterly time series.
Flash estimates are published for GDP growth rate at annual average price of previous year seasonally unadjusted and seasonally adjusted constant prices of 2010. Flash estimates results are announced as press release on a day and time set (the publication calendar is available on the CSO website). The data in the format and the scope that is binding for all countries is also sent to Eurostat.

8.2 Flash employment estimate

Table 111

In the frame of the table 111 are transmitted 3 flash variables, concerning labour market, i.e. total of persons employed, employees and self-employed.
In Poland, the data on flash estimates are collected in the same way as quarterly data compiled in the frame of tables 111 of ESA 2010.
Data on employment from Labour Force Survey and Z-06 report on employment, wages and salaries, and hours worked contain all elements of labour market according to the domestic concept, requested by the national accounts methodology, including people working in hidden economy. There are not any additional method involved in the process of data calculation.
Data on flash estimates are calculated on the basic of preliminary data from Labour Force Survey and final data from Z-06 survey. Data are transmitted to Eurostat 45 days after the reference period.
Data are prepared in the non-adjusted form.
As all LFS data in the tables of ESA 2010 come from the same sources and are collected quickly and without many mistakes, the flash estimates do not differ from final quarterly data on persons employed, employees and self-employed. The small difference may still occur.

Example of the table 111, flash estimates.

	Total employment			Total Employees (1)			Total self-employed (2)		
2015-Q2	15881,0	P	P	12502,0	P	P	3379,0	P	P
2015-Q3	16090,0	P	P	12628,0	P	P	3462,0	P	P
2015-Q4	16134,0	P	P	12716,0	P	P	3418,0	P	P

Example of the table 111, final quarterly data.

	Total employment			Total Employees (1)			Total self-employed (2)		
2015-Q2	15881,0	P	F	12502,0	P	F	3379,0	P	F
2015-Q3	16090,0	P	F	12628,0	P	F	3462,0	P	F
2015-Q4	16134,0	P	F	12716,0	P	F	3418,0	P	F

Data on the persons employed, for the purposes of the national accounts, are balanced with the total of employees and self-employed.

The revision of flash estimated does not occur.
The main data sources and detailed method of data compilation are described in the chapter 9.
The full comparison between all tables of labour market, in domestic concept, is assured. The method used to compile data allows to maintain the comparability, reliability and coherence in the frame of all ESA 2010 tables, concerning labour market.

8.3 Other existing flash estimate

Harmonized Indices of Consumer Prices (HICP) flash is produced by the CSO of Poland on the grant agreement signed in 2014. These indices have been calculated and transmitted to Eurostat since January 2016 according to transmission schedule (no later than the penultimate calendar of the month to which the flash estimate refers). HICP flash estimates for Poland are not published.

Chapter 9 Main data sources used

9.1 Main classifications used

Main classifications used in Polish National Accounts (PNA) for the estimation of GDP according to the production approach are the classification of institutional sectors, the Polish Classification of Activities (PKD 2007) based on NACE Rev.2, the product classification based on CPA 2008 and the classification of transactions in products. The current classification of institutional sectors used in the PNA is based on the classification of institutional sectors laid down in the European system of accounts (ESA 2010). Product classification used in compilation of supply and use tables as well as input output tables. It is based on the Polish Classification of Goods and Services (PKWiU 2008). PKWiU 2008 is the classification covering products (goods and services) by 7–levels division described by Polish Classification of Activities (PKD 2007) and Commodities Nomenclature (CN 2007). PKWiU 2008 has been based on the following international classifications and nomenclatures: Nomenclature Statistique des Activites economiques dans la Communaute Europeene (NACE Rev. 2), Classification of Products by Activity (CPA 2008) and Combined Nomenclature (CN).

The main classification used in the PNA for the income approach of GDP estimation is the *Polish Classification* of Activities based on NACE Rev.2 (PKD 2007). The activity classification applies to all aggregates of income approach: compensation of employees, operating surplus, consumption of fixed capital, other taxes on production and other subsidies on production. It is adopted with the same degree of detail as for the production approach aggregates.

The main classification schemes used in PNA for the estimation of GDP according to the expenditure approach in the field of households' final consumption expenditure and actual final consumption (i.e. total final consumption) is classification of COICOP. The existing version is based on ECOICOP – European Classification of Individual Consumption by Purpose developed to get a consistency between HICP, PPP and HBS.

9.2 Main data sources used

Source 1 – Report on income, costs, financial results and investment outlays contains data on income, costs, financial results and investment outlays on the quarterly (for large units) and half-yearly basis (for medium-sized units). It serves calculation of the quarterly national accounts and semi-final annual national accounts and as structures for calculation of selected transactions in annual national accounts.

Name of survey: F-01/I-01 Report on income, costs, financial results and investment outlays
Link to surveys undertaken at the European level: structural business statistics
Reporting units: enterprise
Periodicity: quarterly & half-year
Time of availability of results: 60 days after the end of I, II, III quarter and 80 days after the end of IV quarter
Sampling frame: Base of Statistical Units (BSU)
Survey is compulsory or voluntary? compulsory
Main features of survey methodology: The survey includes legal units, organizational units without legal personality and natural persons which fulfil the following criteria: - number of persons employed at the end of the previous year exceeded 9 persons – half-year, 50 persons and more - quarterly, - conducted full book keeping system, - conducted economic activity and the principal kind of activity classified under one from the sections: A (except individual agricultural farms), B, C, D, E, F, G, H, I, J, K (except banks, cooperative savings and credit unions, insurance companies, brokerage houses, investment and pension societies, national investment funds), L, M, N, P (except higher education institution), Q (except independent public health care facilities), R (except cultural institutions with legal personality), S. Electronic questionnaire is used.
Population size: quarterly 17500; half-year 31000
Sample size: full survey
Survey response rate: quarterly - 95%; half-year - 70%
Method used to impute for missing data: no concern
Variable used for grossing-up to the population: in national accounts: revenues, number of persons employed, number of units.
Sample coverage, as % in terms of variable used for grossing-up: no concern
Main variables collected: revenues (of which income from sales of products, income from sales of products for resale), costs (of which materials, energy, services, taxes and fees, wages and salaries, compensation of employees, other costs, costs of purchased goods for resale, financial results, employment, current and fixed assets, long- and short-term liabilities, investment outlays
Further adjustments made to the survey data: methodological adjustments in national accounts

Source 2 – Report on revenues, costs and the financial result of higher education institutions contains data on income, costs, financial results of higher education and is used for calculation of data for non-financial corporations sector, general government sector and non-profit institutions serving households sector.

Name of survey: F-01/s Report on revenues, costs and the financial result of higher education institutions
Link to surveys undertaken at the European level: -
Reporting units: enterprise
Periodicity: annual
Time of availability of results: 6 months after the end of the survey period
Sampling frame: Base of Statistical Units (BSU)
Survey is compulsory or voluntary? compulsory
Main features of survey methodology: panel of respondents; higher schools which are functioning on basis of Higher School Act or Higher Professional School Act
Population size: 452 (2012)
Sample size: full survey
Survey response rate: 445 (98,45%)
Method used to impute for missing data: not applicable
Variable used for grossing-up to the population: the higher schools' base is updated annually
Sample coverage, as % in terms of variable used for grossing-up: not applicable
Main variables collected: profit and losses account (revenues, costs, financial results), funds (of which the student's scholarships' fund), investments outlays and repairs cost.
Further adjustments made to the survey data: data are corrected – if necessary – after making an arrangement with Ministry of Science and Higher Education. - methodological adjustments in national accounts

Source 3 - Yearly report of enterprise contains data on demography of enterprise, kinds of activities of enterprise, balance sheet (fixed assets, current assets, share equity (funds), liabilities), profit and losses account (revenues, costs, financial results), investment outlays, fixed assets, basic data for local units: average paid employees and employed persons, wages and salaries, value of production, investment outlays, fixed assets. The report is conducted for enterprises with more than 9 persons employed, which conduct economic activity and the principal kind of activity classified under sections: A (division 03), B, C, D, E, F, G, H, I, J (except cultural institutions having legal personality), L, M, N, P (except higher education), Q (except independent public health care), R (except cultural institutions having legal personality), S.

Name of survey: SP Yearly report of enterprise
Link to surveys undertaken at the European level: structural business statistics
Reporting units: enterprise, local unit
Periodicity: annual
Time of availability of results: 12 months after the end of the survey period
Sampling frame: Base of Statistical Units (BSU)
Survey is compulsory or voluntary? compulsory
Main features of survey methodology: The survey includes legal units, organizational units without legal personality and natural persons which fulfil the following criteria: - number of persons employed at the end of the reference year exceeded 9 persons, - conducted full book keeping system or income and expenditure books, - conducted economic activity and the principal kind of activity classified under sections: A(division 03), B, C, D, E, F, G, H, I, J (except cultural institutions having legal personality), L, M, N, P (except higher education), Q (except independent public health care), R (except cultural institutions having legal personality), S. Electronic questionnaire is used.
Population size: 104356 units
Sample size: full survey
Survey response rate: 73,9%
Method used to impute for missing data: not applicable
Variable used for grossing-up to the population: in national accounts: revenues, number of persons employed, number of units.
Sample coverage, as % in terms of variable used for grossing-up: 100%
Main variables collected: demography of enterprise, kinds of activities of enterprise, balance sheet (fixed assets, current assets, share equity (funds), liabilities), profit and losses account (revenues, costs, financial results), investment outlays, fixed assets, basic data for local units: number of persons employed and employees, wages and salaries, value of production, investment outlays, fixed assets; within revenues: income from sales of products, income from sales of products for resale; within costs: materials, energy, services, taxes and fees, wages and salaries, compensation of employees, other costs, costs of purchased goods for resale.
Further adjustments made to the survey data: methodological adjustments in national accounts

Source 4 – Yearly report on economic activity of enterprise contains data on economic activity of micro enterprises. Collected information: persons employed wages and salaries, investment outlays, fixed assets, income tax, income and costs, value of inventories and specific information for particular activities: trade, transport, health care. SP-3 is the representative survey with the sample about 4% (110 000 units) from about 2.6 ml units registered in BSU (Base of Statistical Units) in 2012. The response of the units in this sample survey in 2012 can be described as follows: 62.3% of units responded positively on the survey; 16.9 % of units did not conduct economic activity (suspended activity, liquidated, did not undertake any activity, and units with activity outside the scope of the

survey); 20.8% of units refused to respond on survey or there were no contact with them. The information on activity is known directly from survey (question on status of activity is asked) and by the additional interview by phone or e-mail.
The grossing-up is done on the basis of approved data sets. The primary weights for units which took part in the survey are corrected due to non-response (from different reasons). The precision of the result is an important element of SP-3 survey. It depends on sample size and distribution of the results. The coefficient of variation (CV) can be shown as follows:

- for number of enterprises: total – <0.1%, at sections level – from 0.3% (in trade) to 7.5% (in electricity, gas, steam, and air conditioning),
- for number of persons employed: total – 0.3%, at sections level – from 0.7% (in trade) to 7.4% (in electricity, gas, steam, and air conditioning),
- for income: total – 1.7%, at section level – from 2.4% (in trade) to 21.2% (in mining and quarrying).

Name of survey: SP-3 Yearly report on economic activity of enterprise
Link to surveys undertaken at the European level: structural business statistics
Reporting units: enterprise
Periodicity: annual
Time of availability of results: 10 months after the end of the survey period
Sampling frame:: Base of Statistical Units (BSU)
Survey is compulsory or voluntary? Compulsory
Main features of survey methodology: Sample survey; The survey includes legal units, organizational units without legal personality and natural persons which fulfil the following criteria: - number of persons employed at the end of November of the reference year did not exceed 9 persons, - conducted full book keeping system, income and expenditure books, evidence of revenues or simplified accounting - conducted economic activity and the principal kind of activity classified under sections: A (division 02,03), B-J, K (division 64, 66), L, M, N, P (without higher education), or Q (without independent health care facilities), R, S (division 95, 96). Electronic questionnaire and postal questionnaire (for units with number of employment up to 5 persons) are used.
Population size: 2646416 units
Sample size: 110000 (4%)
Survey response rate: 62.3%
Method used to impute for missing data: -
Variable used for grossing-up to the population: number of persons employed and units
Sample coverage, as % in terms of variable used for grossing-up: about 60%
Main variables collected: number of persons employed and employees, wages and salaries, investment outlays, fixed assets, income tax, income and costs, value of inventories; information for trade activities: retail, wholesale and catering sales, number of retail sales outlets; information for transport activities: number of lorries and road tractors, transport of goods, number of buses and number of seats in buses; information for health care activities: number of consultation provided.
Further adjustments made to the survey data: methodological adjustments in national accounts

Source 5 – INTRASTAT, EXTRASTAT

Name of survey: Intrastat. Extrastat
Link to surveys undertaken at the European level (e.g. short term business statistics): http://ec.europa.eu/eurostat/web/international-trade/statistics-illustrated
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):first data 40 days after reference month, detail data 75 days after, annual data: 22 months after reference year
Main variables used in QNA: : Community code according 8 digital CN, partner country (country of origin and country of dispatch for imports, country of destination for exports), mas net, quantity in supplementary units, statistical value, nature of transaction,
Further adjustments made to the survey data: We did not make further adjustments

Name of data source: The main data source for value of exports of goods is the foreign trade statistics (FTS) compiled by CSO on the basis of INTRASTAT declarations and customs statistics (data from SAD)
Organisation collecting the data, and purposes for which it is collected: Ministry of Finance of Poland (Customs Services) is responsible for collecting, recording, checking data and creating data sets for CSO.
Periodicity: monthly
Variables used for QNA: Community code according 8 digital CN, partner country (country of origin and country of dispatch for imports, country of destination for exports), mas net, quantity in supplementary units, statistical value, nature of transaction,
Further adjustments made to the data: We did not make further adjustments

Source 6 – International trade on services

Name of survey: International trade in services
Link to surveys undertaken at the European level (e.g. short term business statistics): http://form.stat.gov.pl/formularze/2016/passive/DNU-K.pdf
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): first data - 3 months after reference quarter, final data - 9 months after reference year
Main variables used in QNA: total services (provided and acquired)
Further adjustments made to the survey data: none

Name of data source: International Trade in Services survey
Organisation collecting the data, and purposes for which it is collected: Central Statistical Office of Poland is responsible for collecting, checking, compiling data based on surveys for balance of payments purposes
Periodicity: quarterly
Variables used for QNA: total services (provided and acquired)
Further adjustments made to the data: non-response data adjustment; insurance services adjustment according to balance of payments requirements; fob/cif basis adjustment; FISIM, travel and illegal sector values are added

Source 7 – International trade in services survey

Name of survey: International trade in services
Link to surveys undertaken at the European level (e.g. short term business statistics): http://form.stat.gov.pl/formularze/2016/passive/DNU-R.pdf
Periodicity (e.g. quarterly/monthly/other- to be specified): annually
Time of availability of results (e.g. 40 days after the end of the reference period): 9 months after reference year
Main variables used in QNA: total services (provided and acquired)
Further adjustments made to the survey data: none

Name of data source: International Trade in Services survey is the main source
Organisation collecting the data, and purposes for which it is collected: Central Statistical Office of Poland is responsible for collecting, checking, compiling data based on surveys for balance of payments purposes
Periodicity: annually
Variables used for QNA: total services (provided and acquired)
Further adjustments made to the data: non-response data adjustment; insurance services adjustment according to balance of payments requirements; fob/cif basis adjustment; FISIM, travel and illegal sector values are added

Source 8 – Cultural institutions quarterly financial report contains data on profit and losses account (revenues, costs, financial results). The report is filled in by cultural institutions having legal personality with no limit of persons employed, which conduct economic activity and the principal kind of activity is classified under the sections: J (division 59), R (divisions 90, 91). Data collected on this report are used in elaboration of transactions for the general government sector.

Name of survey: F-01/dk Cultural institutions quarterly financial report
Link to surveys undertaken at the European level:
Periodicity: quarterly
Time of availability of results: 80 days after the end of I, II, III, IV quarter
Main variables used in QNA: - revenues (of which income from sales of products), - costs (of which materials, energy, service, taxes and fees, wages and salaries, compensation of employees, other costs) - investment outlays
Further adjustments made to the survey data: methodological adjustments in national accounts.

Source 9 – Report on the execution of plan for state budget revenues

Name of data source: Rb-27 Report on the execution of plan for state budget revenues
Organisation collecting the data, and purposes for which it is collected: Ministry of Finance
Periodicity: quarterly
Time of availability of results: 45 days after the end of I, II, III quarter and 80 days after the end of IV quarter
Variables used for QNA: - data concerning revenue of state budget budgetary entities prepared according to a structure that contains -divisions, -sections and articles of the budgetary classification,

Further adjustments made to the data: methodological adjustments in national accounts.

Source 10– Report on the execution of plan for budget revenues of local government entities

Name of data source: Rb-27s Report on the execution of plan for budget revenues of local government entities
Organisation collecting the data, and purposes for which it is collected: Ministry of Finance
Time of availability of results: 45 days after the end of I, II, III quarter and 80 days after the end of IV quarter
Periodicity: quarterly
Variables used for QNA: - data concerning revenue of state budget budgetary entities prepared according to a structure that contains -divisions, -sections and articles of the budgetary classification,
Further adjustments made to the data: methodological adjustments in national accounts.

Source 11 – Report on the execution of plan for state budget expenditures

Name of data source: Rb-28 Report on the execution of plan for state budget expenditures
Organisation collecting the data, and purposes for which it is collected: Ministry of Finance
Time of availability of results: 45 days after the end of I, II, III quarter and 80 days after the end of IV quarter
Periodicity: quarterly
Variables used for QNA: . data concerning expenditure of state budget budgetary entities prepared according to a structure that contains -divisions, -sections and articles of the budgetary classification - investment outlays
Further adjustments made to the data: methodological adjustments in national accounts.

Source 12 – Report on the execution of plan for budget expenditures of local government entities

Name of data source: Rb-28s Report on the execution of plan for budget expenditures of local government entities
Organisation collecting the data, and purposes for which it is collected: Ministry of Finance
Time of availability of results: 45 days after the end of I, II, III quarter and 80 days after the end of IV quarter
Periodicity: quarterly
Variables used for QNA: - data concerning expenditure of budgetary entities of local self-government entities budgets prepared according to a structure that contains divisions, sections and articles of the budgetary classifications - investment outlays
Further adjustments made to the data: methodological adjustments in national accounts

Source 13 – Report on the execution of financial plans of budgetary establishments

Name of data source: Rb-30s Report on the execution of financial plans of budgetary establishments
Organisation collecting the data, and purposes for which it is collected: Ministry of Finance
Time of availability of results: 45 days after the end of I, II, III quarter and 80 days after the end of IV quarter
Periodicity: quarterly
Variables used for QNA: - data concerning revenue and expenditure of budgetary establishments of state budget entities and of local self-government entities budgets prepared according to a structure that contains divisions, sections and articles of the budgetary classifications - investment outlays
Further adjustments made to the data: methodological adjustments in national accounts

Source 14 – Report on execution of financial plan of state special purpose fund

Name of data source: Rb-33 Report on execution of financial plan of state special purpose fund
Organisation collecting the data, and purposes for which it is collected: Ministry of Finance
Time of availability of results: 45 days after the end of I, II, III quarter and 80 days after the end of IV quarter
Periodicity: quarterly
Variables used for QNA: revenue and costs of the funds according to the structure containing divisions, sections and paragraphs of the budgetary classification as well as current assests and liabilities
Further adjustments made to the data: methodological adjustments in national accounts

Source 15 – Report on execution of revenues and expenditures of the local budget entities acting in education system and related to: inheritance, bequests and donations of money to the budget entities, compensations and payments for lost or damaged property

Name of data source: : : Rb-34S Report on execution of revenues and expenditures of the local budget entities acting in education system and related to: inheritance, bequests and donations of money to the budget entities, compensations and payments for lost or damaged property
Organisation collecting the data, and purposes for which it is collected: Ministry of Finance
Time of availability of results: 45 days after the end of I, II, III quarter and 80 days after the end of IV quarter
Periodicity: quarterly
Variables used for QNA: data concerning revenue and expenditure of local budget entities acting in education system prepared according to a structure that contains divisions, sections and articles of the budgetary classifications
Further adjustments made to the data: methodological adjustments in national accounts

Source 16 – Report on the execution of financial plan defined in the Budget Act of special purpose fund / executive agency / budget institution / the Social Insurance Institution

Name of data source Rb-40 Report on the execution of financial plan defined in the Budget Act of special purpose fund / executive agency / budget institution / the Social Insurance Institution
Organisation collecting the data, and purposes for which it is collected: Ministry of Finance
Periodicity: quarterly
Time of availability of results: 45 days after the end of I, II, III quarter and 80 days after the end of IV quarter
Variables used for QNA: - completed tasks, revenue, costs, income and expenditure
Further adjustments made to the data: methodological adjustments in national accounts

Source 17 – Report on investment outlays contains data on investment outlays on the quarterly. It serves calculation of the quarterly and annual national accounts.

Name of survey: I-01 Report on investment outlays
Link to surveys undertaken at the European level: structural business statistics
Periodicity: quarterly
Time of availability of results: 60 days after the end of the survey period
Main variables used in QNA: investment outlays
Further adjustments made to the survey data: methodological adjustments in national accounts.

Source 18 – Questionnaire R&D is filled by legal persons, organisational units without legal personality and natural persons conducting economic activities in which:
– a type of activity is classified into Scientific research and development – division 72 of PKD 2007 (full method);
– R&D is conducted apart from other main economic activity, regardless the number of persons employed (purposive sampling method).

Name of survey: PNT-01 Questionnaire R&D
Link to surveys undertaken at the European level: Commission regulation no 955/2012 laying down detailed rules for the implementation of Decision No 1608/2003/EC of the European Parliament and of the Council concerning the production and development of Community statistics on science and technology.
Periodicity: annual
Time of availability of results: 9 months after the end of the survey period
Main variables used in QNA: Expenditures on R&D, calculated on the annual basis are used for revisions of quarterly data
Further adjustments made to the survey data:-

Source 19 – Questionnaire R&D (governmental institutions) is filled by the Chancellery of the Prime Minister, Ministries, Marshal Offices, Voivodship Employment Offices (full method); Central Offices, City and Municipality Offices (purposive sampling method).

Name of survey: PNT-01/a Questionnaire R&D (governmental institutions)
Link to surveys undertaken at the European level: Commission regulation no 955/2012 laying down detailed rules for the implementation of Decision No 1608/2003/EC of the European Parliament and of the Council concerning the production and development of Community statistics on science and technology.
Periodicity: annual
Time of availability of results: 9 months after the end of the survey period
Main variables used in QNA: Expenditures on R&D for governmental institutions, calculated on the annual basis are used for revisions of quarterly data
Further adjustments made to the survey data:-

Source 20 – Questionnaire R&D (HES) is filled by higher education institutions which operate on the basis of Higher Education Act of 27 July 2005.

Name of survey: PNT-01/s Questionnaire R&D (HES)
Link to surveys undertaken at the European level: Commission regulation no 955/2012 laying down detailed rules for the implementation of Decision No 1608/2003/EC of the European Parliament and of the Council concerning the production and development of Community statistics on science and technology.
Periodicity: annual
Time of availability of results: 9 months after the end of the survey period
Main variables used in QNA: Expenditures on R&D on higher education institutions, calculated on the annual basis are used for revisions of quarterly data
Further adjustments made to the survey data:-

Source 21 - SOF-1 Report on activities of foundation, associations and similar organizations

Name of survey: SOF-1 Report on activities of foundation, associations and similar organizations
Link to surveys undertaken at the European level: -
Periodicity: every 2 years, since 1997
Time of availability of results: 21 months after the end of the survey period
Main variables used in QNA: number of organizations by their type, areas of activity, members, volunteers, employees, management, beneficiaries, volunteer work, income, expenditures, costs, fixed assets.
Further adjustments made to the survey data: -

Source 22 - SOF-2 Statistical survey on non-profit institutions activity

Name of survey: SOF-2 Statistical survey on non-profit institutions activity
Link to surveys undertaken at the European level: -
Periodicity: carried out in 1997, 1998, 2014, since 2014 every 2 years
Time of availability of results: 7 months after reference date
Main variables used in QNA: field of activities, input, output, fixed assets, members
Further adjustments made to the survey data: -

Source 23 – SOF-3 Report on activities of political parties

Name of survey: SOF-3 Report on activities of political parties
Link to surveys undertaken at the European level: -
Periodicity: every 2 years, since 1997
Time of availability of results: 12 months after the end of the survey period
Main variables used in QNA: number of organizations, members, volunteers, employees, income, expenditures, fixed assets.
Further adjustments made to the survey data: -

Source 24 - SOF-4 Report on activities of business and professional organizations, employers' organizations

Name of survey: SOF-4 Report on activities of business and professional organizations, employers' organizations
Link to surveys undertaken at the European level: -
Periodicity: every 2 years, since 1997
Time of availability of results: 21 months after the end of the survey period
Main variables used in QNA: number of organizations, members, volunteers, employees, volunteer work, income, expenditures, fixed assets.
Further adjustments made to the survey data:-

Main data sources used for population and employment

This part of Chapter 9 provides the full inventory and detailed description of methods used to construct time series of employment indicators in the frame of the tables of ESA 2010 concerning employment and hours worked. Is contains also the detailed description of all steps done in the process of compilation of the time series of employment and hours worked data, identifying priorities and specific statistical areas used during the preparation of data. It shows step by step the work done and the results achieved.

Thanks to the described-below methods, a more systematic, reliable, consistent and exhaustive compilation of national accounts figures was possible.

Source 25 – Population

For preparing the population data in Poland are used the derivative sources:
The results of the last National Population Census

Name of survey: National Population Census
Link to surveys undertaken at the European level: Regulation (EC) No 763/2008 of the European Parliament and of the Council of July 2008 on population and housing censuses.
Periodicity: Every 10 years
Time of availability of results: the next year after census
Main variable used in QNA: population
Further adjustments made to the survey data: using the administrative sources

The results of current reporting data on vital statistics (births, deaths)

Births

The source of data on births is the document of the Ministry of Health ”Notification of birth”, which is basic document for civil status acts and is secondarily utilized by national statistics of Poland.

Name of data source: Notification of birth
Organization collecting the data, and purposes for which it is collected: Preliminary document for making birth certificate. The information on child birth – filled by a doctor.
Periodicity: monthly (preliminary data), quarterly (final data)
Variables used for QNA: alive births
Further adjustments made to the data: -

Deaths

The source of data on death is the document of the Ministry of Health “Statistical certificate to notification of death”, which is basic document for civil status acts and is in the part secondarily utilized by national statistic of Poland.

Name of data source: Statistical certificates to notification of death
Organization collecting the data, and purposes for which it is collected: Preliminary document for making of death certificate. The information on death – filled by a doctor.
Periodicity: monthly (preliminary data), quarterly (final data)
Variables used for QNA: number of deaths (of which infants)
Further adjustments made to the data: -

Estimations for inter-regional and international migration (for permanent residence) The source of data on migration data is mainly population register PESEL (the Common Electronic System of Population Register) conducted by Ministry of Digital Affairs and estimates produced on the basis of the different data sources.

Name of data source: the Population register (PESEL)
Organization collecting the data, and purposes for which it is collected: Among others for statistical purposes.
Periodicity: quarterly
Variables used for QNA: registering and cancelling registration for permanent residence
Further adjustments made to the data: -

Source 26 – Report on employment, wages and salaries, hours worked is filled by legal units, organizational units without legal personality and natural persons which fulfil the following criteria: concerns all enterprises of national economy having more than 9 persons employed (in the case of budgetary entities- all units). It does not embrace private agriculture, people employed abroad in foreign enterprises (excluding persons employed), employed in social, political and trade union organisations and employed in the scope of national defence and public safety.

Name of survey: Z-06 Report on employment, wages and salaries, hours worked
Link to surveys undertaken at the European level: None
Periodicity: annual
Time of availability of results: 7 months after the end of the survey period
Main variables used in QNA: Data on employment and wages and salaries are used to calculate annual own account production of software. Annual estimates are the base for quarterly data revisions.
Further adjustments made to the survey data: -

Source 27 – Report on structure of wages and salaries by occupations is a sample survey; two-stage sampling scheme are applied to sample section, with stratification at the first stage. The first-stage sampling units are establishments, while at second stage are selected employees, who were employed for the entire month in October.

Name of survey: Z-12 Report on Structure of wages and salaries by occupations
Link to surveys undertaken at the European level: http://ec.europa.eu/eurostat/web/labour-market/earnings/database
Periodicity: every 2 years
Time of availability of results: 10 months after the end of the survey period
Main variables used in QNA: Information on employees earning by occupational characteristics: the type of occupation, the kind of activity and the ownership sector are the base for calculation of computer software production for own final use for the year surveyed. For the year not surveyed the dynamics indicators of the average salary and employment (from Z-06) are used. Annual estimates are the base for quarterly data revisions.
Further adjustments made to the survey data: -

Source 28 – for table 110

Name of survey: Labour Force Survey
Link to surveys undertaken at the European level: The main regulation implementing labour force survey in the European Community Member States is the Regulation of the European Council No. 577/98 of March 9th, 1998 on the organization of the labour force sample survey in the Community (as amended). The LFS methodology is based on the definitions of the economically active population which were implemented by Resolution concerning statistics of the economically active population, employment, unemployment and underemployment, adopted by the Thirteenth International Conference of Labour Statisticians in October 1982 (as amended) and recommended by the International Labour Office.
Organization collecting the data, and purposes for which it is collected: Central Statistical Office of Poland; Purposes: to fulfill obligations towards European Union and to assure comparability of European data in the domain of labour market.
Periodicity: Every quarter
Time of availability of results: about 60 days after every quarter
Main variables used in QNA: persons employed, employees, self-employed.
Further adjustments made to the survey data: none

Methodology:

The LFS scrutinizes the situation of the economic activity of population, i.e. the fact of being employed, unemployed, or economically inactive in the reference week.

The following categories of people are considered as members of a household:

- persons present in a household (registered for a permanent or temporary stay, staying or intending to stay without registering for 12 months and more),
- persons absent (the total duration of absence actual and planned is considered) for duration shorter than 12 months(e.g. persons staying temporary abroad, living in institutional households or other households in the country for duration shorter than 12 months),

The Labour Force Survey is a probability sample survey.

The survey covers all people at the age 15 years and more, living in the sampled dwellings. A sample of dwellings to be visited is changed every week. Weekly samples result from a random distribution of a quarterly sample into 13 parts. The quarterly sample currently amounts to 54704 dwellings. It was

constructed in such a way that every one of 13 weekly samples is not only the same size but has also the same structure.
Since the third quarter of 2012, generalization of the survey results over the overall population has been carried out with the use of the data on population of Poland aged 15 years and more coming from the balances compiled on the basis of the Population and Housing Census 2011. Moreover, there have been introduced methodological changes targeted at harmonization of the population covered with the survey in accordance with Eurostat recommendations. Since the third quarter of 2012, persons absent from a household for 12 months or longer, i.e. persons staying abroad or living in institutional households (such as lodging-houses for employees, student hostels, boarding schools, social welfare homes, etc.). in Poland are excluded from the survey range. Until the second quarter of 2012, the duration of absence was over 3 months. Due to the changes introduced into the survey since the third quarter 2012, in order to ensure comparability of time series, the data sine the first quarter of 2010 were recalculated including the introduced changes, therefore they are not fully comparable with the data for the previous periods.

The annual data from the Labour Force Survey in the frame of the table 110 of ESA 2010 are calculated as the average of quarterly data.

Example:

time	Persons employed
2015Q1	15837
2015Q2	15986
2015Q3	16234
2015Q4	16280
2015A	16084

The variable “persons employed” is calculated as the sum of the variables “self-employed” and “employees”, as in the mentioned-below example of the table 110 of ESA 2010:

	Total	Employees (1)	Self-employed (2)	Sum of employees and self-employed
2015Q2	15986	12586	3400	15986

Revisions of data

Data from LFS are revised after the modification of the basis of data generalization, which are censuses (and, more precisely, population balances, derived on the basis of the last census of the population and housing). After every census of the population and housing, data are corrected according to the current data on the population, collected by the census. The last revision after the Population and Housing Census 2011 concerned data from the I quarter 2010. The length of the revised time series was agreed with Eurostat.

Source 29 – for table 111

- in persons

Name of survey: Labour Force Survey, Z-06 on employment, wages and salaries, and hours worked
Link to surveys undertaken at the European level: LFS: The main regulation implementing labour force survey in the European Community Member States is the Regulation of the European Council No. 577/98 of March 9th, 1998 on the organization of the labour force sample survey in the Community (as amended). The LFS methodology is based on the definitions of the economically active population which were implemented by Resolution concerning statistics of the economically active population, employment, unemployment and underemployment, adopted by the Thirteenth International Conference of Labour Statisticians in October 1982 (as amended) and recommended by the International Labour Office. Z-06- none
Organization collecting the data, and purposes for which it is collected: Central Statistical Office of Poland; Purposes: for national purposes and to fulfill obligations towards European Union and to assure comparability of European data in the domain of labour market.
Periodicity: LFS:every quarter; Z-06- every year
Time of availability of results: LFS:about 60 days after every quarter; Z-06- about 7 months after the calendar year (final data- 10 months after the reference period).
Main variables used in QNA: LFS:persons employed, employees, self-employed; Z-06- non-residents working inside the economic territory, i.e. foreigners working in the domestic enterprises in the main place of work
Further adjustments made to the survey data: none

The detailed methodology of the Labour Force Survey and the revisions of this survey were described in the frame of table 110.
Methodology of the Z-06 survey:
The survey is carried out by enterprises.
The survey covers all enterprises of national economy, i.e. enterprises of legal persons, units without legal personality and natural persons carrying out economic activity, in which the number of persons employed is more than 9 persons (in the case of budgetary units- without taking into consideration the number of employed).
It does not embrace private agriculture, people employed abroad in foreign enterprises (excluding persons employed), employed in social, political and trade union organizations and employed in the scope of national defense and public safety. This survey is exhaustive and compulsory.
Data are collected via electronical questionnaire.

The revisions of data:

The data are revised between the 7 to the 10 months after the reference period due to final Z-06 data availability.
The detailed method of data preparation in the frame of the table 111

In the table 111, data on cross-borders, working outside the economic territory are excluded from the data of Labour Force Survey. To those data are added foreigners working in the resident enterprises (from Z-06 statistical survey).

The detailed method is presented below: (annual data, 2015, Q2)

Sign	persons employed	persons employed
=	NA employment - national concept (in persons)	15986
-	Residents working outside the economic territory (data available from LFS)	131
+	Non-residents working inside the economic territory (based on the Z-06 enterprise survey)	26
=	NA employment - domestic concept (in persons)	15881

The variable “number of foreigners working in resident units” is directly available from the Z06 statistical survey by NACE rev.2 sections and compiled at A10, according to the ESA 2010 requests.
The variable “persons employed” is calculated as the sum of the variables “self-employed” and “employees”, as follow:

Time	Persons employed	Employees	Self_employed	TIME	Persons employed
2015-Q2	15881	12502	3379	sum of employees and self employed	15881

Yearly data are the average of the quarterly data.

Time	Persons employed
2015Q1	15710
2015Q2	15881
2015Q3	16090
2015Q4	16134
2015A	15953,8

Data for the purposes of ESA 2010 tables are prepared in such a way that there is comparison between:

- quarterly and yearly data;

- sum of employees and self –employed, as well as the total of persons employed
- sum of data by NACE is equal to the total of data

Quarterly data on persons employed are disseminated in the non-adjusted form, as well as seasonally adjusted (by using software JDemetra +).
The full comparison between all tables in domestic and national concept is assured. The method used allows to maintain the comparability, reliability and coherence of data in the frame of ESA 2010 tables.

– in hours worked

Name of survey: Labour Force Survey, Z-06 on employment, wages and salaries, and hours worked
Link to surveys undertaken at the European level: LFS: The main regulation implementing labour force survey in the European Community Member States is the Regulation of the European Council No. 577/98 of March 9th, 1998 on the organization of the labour force sample survey in the Community (as amended). The LFS methodology is based on the definitions of the economically active population which were implemented by Resolution concerning statistics of the economically active population, employment, unemployment and underemployment, adopted by the Thirteenth International Conference of Labour Statisticians in October 1982 (as amended) and recommended by the International Labour Office. Z-06- none
Organization collecting the data, and purposes for which it is collected: Central Statistical Office of Poland; Purposes: for national purposes and to fulfill obligations towards European Union and to assure comparability of European data in the domain of labour market.
Periodicity: LFS: Every quarter; Z-06- every year
Time of availability of results: LFS: about 60 days after every quarter; Z-06- about 7 months after the calendar year (final data- 10 months after the reference period).
Main variables used in QNA: LFS: hours worked of persons employed, employees, self-employed; Z-06- hours worked of non-residents working inside the economic territory, i.e. foreigners working in the domestic enterprises in the main place of work
Further adjustments made to the survey data: none

The detailed methodology of the Labour Force Survey and the revisions of this survey were described in the frame of table 110.
The detailed methodology of the Z-06 survey and the revisions of this statistical survey were described in the frame of the table 111, concerning employment in persons.
In accordance with the recommendations of the Eurostat, data transmitted on the number of hours worked refer to the entire working population, i.e. employees and self-employed according to the - NACE rev. 2. Quarter is the reference period .
According to the Eurostat requirements, consistency of quarterly data concerning the number of hours worked with the annual data is maintained by using the same methods, classifications and definitions. The quarterly data on the number of hours worked for total employment are comparable to annual data, i.e. data on the number of hours worked from four quarters sum up to annual data.

The number of hours worked in total employment is the sum of hours worked for each group of employed persons i.e. the number of hours worked by employees and the number of hours worked by self-employed.

Total hours worked					
Time	Total employment	Employees	Self-employed	Time	Total employment
2015Q2	8124599.40	6271598.90	1853000.50	Quarterly data are the sum of employees and self-employed	8124599.40

Total hours worked					
Time	Total employment	Employees	Self-employed	Time	Sum of employees and self-employed
2015Q1	7889012.20	6224243.90	1664768.30	Quarterly data are the sum of employees and self-employed	7889012.20
2015Q2	8124599.40	6271598.90	1853000.50		8124599.40
2015Q3	8529815.70	6536615.40	1993200.30		8529815.70
2015Q4	8070563.50	6316126.40	1754437.10		8070563.50
2015A Annual data are the sum of the quarterly data.	32613990.80	25348584.60	7265406.20	Annual data are the sum of employees and self-employed	32613990.80

The consistency between quarterly and annual data is monitored. The annual number of hours worked are the sum of quarterly data.
The variable "hours worked" in the table 111 is fully consistent with the variable “employed persons”.

For the annual estimates of the number of hours worked, a method of arithmetic average is used, i.e. an average of 4 quarters for the total employed persons and for each group of employed persons: employees and self-employed.
Quarterly estimates of hours worked are used for preliminary estimates of the annual number of hours worked. Then, those quarterly estimates are the basis for the correction of data in the process of the calculation of the final data.
Quarterly data on hours worked are adjusted seasonally and according to the calendar effects, taking into consideration the number of working days during the quarter (software JDemetra+).
Data on the number of hours worked are subject to revisions as data on employment in persons.
In order to maintain comparability of time series, the number of hours worked is recalculated on the basis of data revisions concerning the "input data", mainly persons employed.
The revision of the data refers to quarterly estimates of the number of hours worked both raw and seasonally adjusted.
The full comparison between all tables of labour market, in domestic and national concept, and in persons or in hours worked is assured. The method used to compile data allows to maintain the comparability, reliability and coherence in the frame of all ESA 2010 tables, concerning labour market.

9.3 Other data sources used

Financial and insurance activities	Central bank (K64)	National Bank of Poland	Q	Profit and loss account
	Other monetary financial institutions (K64)	National Bank of Poland	Q	Profit and loss account
	Insurance	Polish Financial	Q	Profit and loss

	corporations (K65)	Supervisory Authority		account, technical account
	Brokerage houses (K64)	Polish Financial Supervisory Authority	Q limited detail A	Profit and loss account
	Investment funds (K64)	Polish Financial Supervisory Authority	Semi-annual	Financial reports
	Investments' funds management companies (K64)	Polish Financial Supervisory Authority	Semi-annual	Profit and loss account
	Cooperative savings and credit unions (K64)	Polish Financial Supervisory Authority	Semi-annual	Profit and loss account
	Pension societies (K66)	Polish Financial Supervisory Authority	Q	Financial reports
	Open pension funds (K65)	Polish Financial Supervisory Authority	Q	Financial reports
	Voluntary pension funds and employees' pension funds (K65)	Polish Financial Supervisory Authority	Q	Financial reports
	Other financial intermediaries with over 49 employees	CSO	Q	Statistical financial report
	Other financial intermediaries with number of employees above 9 persons but below 50	CSO	Semi-annual	Statistical financial report
	Other financial intermediaries with number of employees up to 9 persons	CSO	Annual	Statistical report on the economic activity of enterprises

Bibliography

Central Statistical Office of Poland, 2016, Gross National Income Inventory (ESA 2010) Poland

Di Fonzo T. and Marini M, 2005, Benchmarking Systems of Seasonally Adjusted Time Series

Eurostat, 2001, Handbook on prices and volumes measures in national accounts

Eurostat, 2009, ESS Guidelines on Seasonal Adjustment, the Final Report of the Task Force of Seasonal Adjustment of QNA

Eurostat, 2013, Handbook on quarterly national accounts

Eurostat, 2013, Handbook on Seasonal Adjustment

Eurostat, 2014, Manual on measuring Research and Development in ESA 2010

Eurostat, 2015, Inventory of the methods, procedures and sources used for the compilation of deficit and debt data and the underlying government sector accounts according to ESA2010

European Commission, ESA 2010 European System of Accounts

International Monetary Fund (IMF), 2001, QNA Manual

List of abbreviations and acronyms

ANA	Annual National Accounts
ARIMA	AutoRegressive Integrated Moving Average (model)
BPM6	Balance of Payment and International Investment Position, 2008
COICOP	Classification of Individual Consumption by Purpose for households

CPI	Consumer Price Index
CSO	Central Statistical Office of Poland
ESA	European System of Accounts
EU	European Union
EXTRASTAT	System covering trade of EU Member States with the so-called “third countries” (e.g. non-member countries
FISIM	Financial Intermediation Services Indirectly Measured
GDP	Gross Domestic Product
GFGC	Gross Fixed Capital Formation
HFCE	Household Final Consumption Expenditure
HICP	Harmonized Indices of Consumer Prices
INTRASTAT	Statistical system covering trade between EU Member States and based on data obtained from INTRASTAT declarations
NACE	Nomenclature Statistique des Activites economiques dans la Communaute Europeene
NBP	National Bank of Poland
NPISH	Non Profit Institutions Serving Households
NSI	National Statistical Institute
OFE	Open Pension Funds
PFSA	Polish Financial Supervisory Authority
PPI	Producer Price Index
R&D	Research and Developments
QNA	Quarterly National Accounts
TRAMO/SEATS	(TRAMO) Time series Regression with ARIMA noise, Missing values and Outliers; (SEATS) Signal Extraction in ARIMA Time Series (seasonal adjustment method)
VAT	Value Added Tax