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Description of sources and methods for price and volume measures in national accounts

Albania

Price and volume measures in Albanian national accounts

In the previous description of sources and method in Albanian national accounts', most of the work has been focussed on harmonisation of current price data, such as the level of Gross National Income and Gross domestic product. Volume estimates have been an integrated part of the previous document, while in fact the volume growth of GDP is one of the most utilised figures of the national accounts.

However, an increased demand for more harmonised price and volume data has put focus on the methods used in different countries for volume compilations. In the framework of IPA 2012 Multi-beneficiary Programme on Statistics, project PP1: National Accounts, it was required to provide a separate inventory of methods and sources used for volume estimate within the national accounts.

This document describes sources and methods of prices and volume measurement in final annual national accounts of Albania and meets the requirement to forward details of the methods used to the European Commission (EUROSTAT).

Description of sources and method for price and volume measures in Albania was written by the staff of the units "Annual National accounts" and "Sector Institutional Accounts" within National Accounts Directory. Some specific sub-sections have required the contribution of other directories as well such as Directories of Economic statistics and Prices statistics.

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ABBREVIATIONS AND ACRONYMS

COFOG	Classification of Functions of Government
COICOP	Classification of Individual Consumption by Purpose
CCI	Construction Cost Index
CPA	Classification of Product by Activity
CP	Current Price
CPI	Consumer Price Index
EPI	Export price indices
ESA 2010	European System of Accounts 2010
EU	European Union
FISIM	Financial Intermediation Services Indirectly Measured
FSA	Financial Supervisory Authority
FC	Final Consumption
GDP	Gross Domestic Product
GDT	General Directorate of Taxation
GFCF	Gross Fixed Capital Formation
HBS	Household Budget Survey
HCPI	Harmonized Consumer Price Index
HFCE	Household Final Consumption Expenditure
HS	Harmonized System
IMF	International Monetary Fund
INSTAT	Albanian National Institute of Statistics
NA	National Accounts
NACE Rev. 2	Nomenclature statistique des Activités économiques dans la Communauté Européenne, Revision 2
NAD	National Accounts Directorate
NIM	Net Interest Margin
NPISHs	Non-profit Institutions Serving Households
PPI	Producer Price Index
PYP	Previous Year Prices
SNA 2008	System of National Accounts 2008
SUT-s	Supply and Use Table
UVI	Unit Value Index
VAT	Value Added Tax

CHAPTER 1 GENERAL PROCEDURES

1.1. Introduction

The Institute of Statistics of Albania compiles price and volume measures of gross domestic product (GDP) by the production and the expenditure approach, at previous year prices. The time series cover the period from year 1996 and on.

The main purpose of the compilation of price and volume measures of national accounts aggregates is to provide economic indicators from which the effect of price changes has been removed. This enables the analysis of the economic growth of a country which is the most important macroeconomic aggregate and essential for the assessment of economic developments and for the drawing up economic policies.

This document describes sources and methods of prices and volume measurement in final annual national accounts of both GDP approaches. The methodology for the first and the second annual estimates is almost the same as the methodology for the final estimate.

Description of sources and methods of price and volume measures in national accounts is written according to the requirements of the Commission Regulation No 98/715/EC, of procedures and basic statistics used to measure GDP in volume terms and its components.
Now it is a separate document from description of sources and methods annual national accounts in current prices and is updated with new compilation methods on volume estimates.
The new price and volume measures of the Albanian national accounts are related to the new developments and improvements done on prices of the previous year estimates of some industries, taxes, final consumption of households, etc. The new methods are not compiled within the framework of Supply and Use Tables.

The structure of the documents starts with general information on the compilation of price and volume measures. The second chapter describes main data sources used. Chapter 3 brings the description of the compilation of Gross domestic products aggregates by the production and expenditure approach. The final chapter describes the compilation of volume estimates for other main national accounts aggregates.

1.2. Outline of the production approach

The compilation of GDP by production approach at prices of the previous year is the most important one in determining the volume growth of annual GDP in Albania. As regards the compilation at constant prices, chaining index is used which means the use of prices of the previous year.
The GDP at prices of the previous year is measured from production side as the GVA by industry, i.e., the total sum of value added of all the economic activities at prices of the previous year plus net indirect taxes on products at prices of the previous year.

Value added at previous year prices is mostly estimated by using a single indicator method, except for agriculture and some other activities where volume estimates are generated with double deflation method.

Output at previous year prices is estimated separately for 88 activities according to NACE Rev. 2 classification. Taking into account the availability of price and volume indices, for the majority of activities, volume estimates of output are obtained by deflating current price value by price indices. For a limited number of industries output at previous year prices is estimated by using volume indicators.

Intermediate consumption at previous year prices is estimated at the level of aggregation of output, i.e., at two digits level of NACE Rev.2 classifications. Volume estimates are mostly obtained by using the same price indices as for output.

There are activities where different price index are used for output and intermediate consumption and value added is obtained as a difference between output at previous year prices and intermediate consumption at previous year prices.

For non-market producer, such as activities of general government, public education and health, the average wage index is used to deflate value added and the CPI for intermediate consumption due to lack of appropriate data on prices and volumes.

1.3. Outline of the expenditure approach

GDP at prices of the previous year from the expenditure approach is equal to the sum of all aggregates of Household consumption expenditure, government and Non-Profit Institutions Serving Household consumption expenditure, Gross fixed capital formation, Net exports and Changes in inventories at prices of the previous year. Estimates in volumes are derived by direct deflation of the current price estimates with price indexes or by extrapolation.

Volume estimates of household final consumption expenditure are derived at the four-digit level of the Classification of Individual Consumption by Purpose (COICOP). Almost all the components are estimated by deflating current price values by the corresponding consumer price index. There are a few exceptions for which quantity indicators are used;

Final consumption expenditure of government is obtained in the same way as Government output at previous year prices of production approach by using average wages' index for value added and CPI for intermediate consumption.

Final consumption expenditure of Non-Profit Institutions Serving Households (NPISHs) is deflated with CPI.

Gross fixed capital formation and changes in inventories, at previous year prices are estimated by deflating current price values by price indices

1.4. Balancing the production and the expenditure approach

Supply and use tables provide a tool for compiling volume measures of GDP in a consistent way. In order to make the GDP estimations more reliable and qualitative, INSTAT has developed a framework for SUTs compilation during IPA 2007 National Project "Support for alignment of Albanian statistics with EU standards".

In February 2015, INSTAT has published for the first time annual supply and use tables (SUT) at current prices for the years 2009 - 2011 and derived input-output tables (IOT) for year 2011. Compilations of SUT at previous year prices are not finished yet. A first estimation of SUT 2011 at previous year prices is performed but the results are still not balanced. Work is ongoing for the compilation of a simultaneous SUT for 2012 at current prices and at previous year prices. Compilation of the supply and use tables at the previous year is closely linked with the calculation of the current price SUTs. The starting point of compilation process is a balanced system of supply and use tables at current basic prices for the current and previous years. In addition, it requires the implementation on SUT of the new classification of NACE Rev. 2 and CPA 2008 for previous years.

Notwithstanding the development of the supply and use tables (SUT), they are not an integrating part of the Albanian National Accounts System yet. Up to now the SUT framework is used as an extension to regular National Accounts without having a key role in the estimation of GDP. Volume measures for both the production and expenditure sides of GDP are not compiled within the SUT framework, therefore the balancing procedure is made mainly on aggregate level. To equal both GDP at previous year prices, "statistical discrepancies" is used as balancing item and it is published separately.

This method of balancing is going to be avoided in the near future. The next stage of the development on National Account Department is the full integration of SUT into NA structure by increasing the key role of those tables in the estimation of final GDP figures at current and previous year prices. It implies improvement of the quality of the GDP estimates and the implementation of double deflation method according to recommendations of the EUROSTAT's "Handbook on price and volume measures in national accounts".

1.5. Publication of the data

The publication practice of national accounts data at constant prices follows the publication practice of current price data. Both data sets are published at the same time and according to standard revision and publication policy:

- t + 11 months: preliminary annual estimate of GDP by production and expenditure approach;

- t + 17 months: semi-final annual estimate of GDP by production and expenditure approach;
- t + 29 months: final annual accounts estimate of GDP and main national accounts aggregates.

All published data are available in electronic form on INSTAT's website (http://www.instat.gov.al) in two languages, Albanian and English. The published figures are:

- GDP by production approach with a breakdown by 35 industries,
- GDP by expenditures approach detailed by main components,
- Annual volume growth rates
- Deflators

The following table indicates the value of GDP of the year 2012 and its components expressed in prices of the previous year.

Table 1-1: GDP by production approach (in ALL millions)

Code A35	Economic activities	2011	2012			
		GVA in current prices	GVA in current prices	GVA at previous year prices	Real growth rates (%)	Deflators (%)
A1	Agriculture, forestry and fishing	237,062	250,126	249,846	5.39	0.11
A2	Mining and quarrying	44,868	60,195	52,667	17.38	14.29
A3	Manufacture of food products, beverages and tobacco products	11,233	10,197	10,612	-5.52	-3.92
A4	Manufacture of textiles, wearing apparel and leather products	19,747	17,446	17,210	-12.85	1.37
A5	Manufacture of wood and paper products, and printing	6,954	6,286	6,019	-13.45	4.44
A6	Manufacture of coke and refined petroleum products	1,782	(2,140)	-2,010	-212.81	6.44
A7	Manufacture of chemical and pharmaceutical products	1,943	1,679	1,694	-12.82	-0.89
A8	Manufacture of rubber and plastic products and other non-metallic mineral products	13,320	11,384	11,404	-14.38	-0.18
A9	Manufacture of basic metals and fabricated metal products, except machinery and equipment	12,120	10,726	10,446	-13.81	2.69
A10	Manufacture of machinery and equipment	1,665	1,522	1,521	-8.63	0.06
A11	Manufacture of furniture; other manufacturing; repair and installation of machinery and equipment	4,876	4,400	5,213	6.92	-15.59
A12	Electricity, gas, steam and air-conditioning supply	23,678	22,298	23,838	0.68	-6.46
A13	Water supply	5,333	4,953	4,889	-8.33	1.31
A14	Sewerage, waste management and remediation activities	5,553	4,720	4,569	-17.73	3.3
A15	Construction	165,378	151,793	150,823	-8.8	0.64
A16	Wholesale and retail trade and repair of motor vehicles and motorcycles	7,690	7,907	7,746	0.73	2.08
A17	Wholesale trade, except of motor vehicles and motorcycles	76,821	83,543	81,837	6.53	2.08
A18	Retail trade, except of motor vehicles and motorcycles	54,112	52,120	51,062	-5.64	2.07
A19	Land transport and transport via pipelines	27,712	26,637	27,027	-2.47	-1.44
A20	Water and air transport; warehousing	20,438	24,199	23,587	15.41	2.6
A21	Postal and courier activities	5,141	5,333	5,333	3.73	0.01
A22	Accommodation and food service activities	24,749	24,533	24,110	-2.58	1.75
A23	Publishing, audiovisual and broadcasting activities	11,604	10,924	10,750	-7.36	1.62
A24	Telecommunications	30,706	27,249	27,257	-11.23	-0.03
A25	Computer programming, consultancy and related activities; information service activities	1,647	3,561	3,491	111.98	2.03
A26	Financial and insurance activities	33,477	32,133	34,242	2.29	-6.16
A27	Real estate activities	78,368	79,883	79,676	1.67	0.26
A28	Legal and accounting activities; management consultancy activities; architectural and engineering activities	16,421	22,144	21,703	32.17	2.03
A29	Scientific research and development; other professional, scientific and technical activities	6,209	6,124	6,002	-3.34	2.03
A30	Administrative and support service activities	15,350	23,578	23,108	50.53	2.03
A31	Public administration and defense; compulsory social security	51,502	53,716	53,875	4.61	-0.3
A32	Education	50,763	57,694	56,433	11.17	2.23
A33	Human health activities	31,598	33,255	32,659	3.36	1.82
A34	Arts, entertainment and recreation	13,938	11,809	11,637	-16.51	1.48
A35	Other services and activities of households	17,364	12,818	12,551	-27.72	2.13
	GVA at basic prices	**1,131,121**	**1,154,747**	**1,142,826**	**1.03**	
	Taxes on products	179,350	179,559	177,682	-0.93	
	Subsidies on products	-9,847	-1,494	-1,451	-85.26	
	GDP at market prices	**1,300,624**	**1,332,811**	**1,319,057**	**1.42**	

Table 1-2: GDP by expenditure approach (in ALL millions)

Nr.	Description	2011	Year 2012			
		GDP (E) in current prices	**GDP (E)** in current prices	**GDP (E)** at previous year prices	**Real growth rate**	**Deflators**
1	**Final Consumption (a+b+c)**	1,156,695	1,179,194	1,158,127	0.12	1.82
a	***Final Consumption of the Households by COICOP***	1,011,826	1,032,478	1,013,098	0.13	1.91
1	Food and non-alcoholic beverages	393,935	407,175	398,717	1.21	2.12
2	Alcoholic beverages, tobacco and narcotics	31,596	32,658	31,974	1.19	2.14
3	Clothing and footwear	41,044	42,423	42,028	2.4	0.94
4	Housing, water, electricity, gas and other fuels	129,901	132,257	131,277	1.06	0.75
5	Furnishing, households equipment and routine maintenance of the house	61,317	63,378	61,927	0.99	2.34
6	Health	48,122	47,774	46,742	-2.87	2.21
7	Transport	49,368	58,651	52,495	6.33	11.73
8	Communications	19,852	19,548	19,555	-1.5	-0.04
9	Recreation and culture	133,894	124,468	122,809	-8.28	1.35
10	Education	26,146	28,490	28,375	8.53	0.4
11	Restaurants and hotels	28,952	30,723	30,174	4.22	1.82
12	Miscellaneous goods and services	47,697	44,932	47,024	-1.41	-4.45
b	***Final Consumption of General Government***	142,733	144,541	142,879	0.1	1.16
i	Individual consumption	68,475	70,533	69,119	0.94	2.05
ii	Collective consumption	74,258	74,008	73,760	-0.67	0.34
c	***Consumption of NPISHs***	2,136	2,175	2,150	0.62	1.17
2	**Gross Fixed Capital Formation**	381,944	353,044	351,930	-7.86	0.32
3	**Domestic Absorption (1+2)**	1,538,639	1,532,238	1,510,057	-1.86	1.47
4	**Net export (a-b)**	-295,703	-248,372	-249,952	-15.47	-0.63
a	***Exports of goods and services (F.O.B)***	442,390	444,514	439,565	-0.64	1.13
i	Exports of goods	197,218	212,132	209,840	6.4	1.09
ii	Exports of services	245,172	232,382	229,725	-6.3	1.16
b	***Imports of goods and services (F.O.B)***	738,093	692,887	689,517	-6.58	0.49
i	Imports of goods	511,820	490,029	489,309	-4.4	0.15
ii	Imports of services	226,273	202,858	200,208	-11.52	1.32
5	**Change in inventories**	26,628	24,522	24,316	-8.69	0.85
6	**Statistical discrepancy**	31,060	24,424	34,636	11.51	
	GROSS DOMESTIC PRODUCT (3+4+5+6)	**1,300,624**	**1,332,811**	**1,319,057**	**1.42**	

CHAPTER 2 GENERAL INFORMATION ON MAIN SOURCES USED

This chapter briefly describes data sources used to compile national accounts at previous year prices. The main data sources used for the annual estimation of GDP at constant prices are: Producer Price Index (PPI), Consumer Price Index (CPI), Construction Cost Index (CCI) and Unit Value Index (UVI). No service price indexes are available.

2.1. Producer Price Index (PPI)

2.1.1. Composition of Producer (output) price indices and their purpose

The statistical survey Producer Price Indices measures the dynamics of producer prices of industrial products produced on the territory of Albania and sold in Albania and/or abroad.

The total producer (output) price index is composed of two sub-indices:

a) The output price index of the domestic market, which measures changes in prices of manufactured goods produced and sold by producers on the domestic (Albanian) market;

b) The output price index of the non-domestic market which measures changes in prices of manufactured goods sold by producers on foreign markets;

2.1.2. Classification

The classification used for products in 6 digits is CPA 2008 where first 4 digits correspond to NACE Rev.2 (Statistical Classification of Economic Activities). The data are produced at national level, broken-down by activity at two digits level of this nomenclature. Till the second quarter 2014, the data are produced using NACE Rev.1.1. Starting from the second quarter 2014, the data are published according to NACE Rev.2.

Output prices of the manufactured goods are collected according to the Classification of Products by Activities (CPA 2008).

2.1.3. Legal Basis for the Survey

Producer price survey statistics are carried out on the basis of the Council Regulation (EC) No 1165/98 of 19 May 1998 concerning short-term statistics, and of the Regulation (EC) No. 1158/05 of the European Parliament and of the Council of 6 July 2005, amending Council Regulation (EC) No. 1165/98 concerning short-term statistics.

Law No. 9180 date 5.2.2004 “On Official Statistics”, “Official Journal” Nr.12, pg 489.

All statistics collected and published by the Statistical Institute of Albania (INSTAT) are governed by the Albanian Official Statistics Act No.55.

2.1.4. Observation Units

Observation units are enterprises and their units that according to their principal activity belong to the following sections of activities according to the Standard Classification of Activities (CPA 2008):

B – Mining and quarrying,
C – Manufacturing,
D –Electricity, gas, steam and air conditioning supply and
E – Water supply, sewerage, waste management and remediation activities.

The exception is the Export Price Index survey, which covers only enterprises and their units from sections:

B – Mining and quarrying,
C – Manufacturing,
E – Water supply, sewerage, waste management and remediation activities.

The sources for selecting enterprises are the Annual Survey on Industrial Production and Custom Data.

2.1.5. Reference Survey

In the producer price survey the information is collected for products produced and sold in domestic market and for products produced and sold in foreign market.

2.1.6. Data collection

The PPI data are based on selling prices reported by establishments of all sizes selected as being representative of the whole population. Regular collection of price data is based on a sample of units and a sample of their products.

Enterprises fill in prices in the questionnaires every quarter with information for each month. The data are collected by an interview face to face of an enumerator with a contact person of the establishment. Each questionnaire is prepared for the enterprise individually. Each representative product has a six-digit code from the CPA 2008, a five-digit code ID, a description of product and a unit of measure for which the price is stated. The time lag of the survey is three weeks and enumerators send the questionnaire to the Statistical Office of the Republic of Albania by the 20th of the month after the current quarter.

Price data is collected for a sample of typical transactions. This has been achieved by means of the following three-stage approach:

First, all categories exceeding a threshold value were selected. Commodity categories according CPA – 6 digit level – exceeding 70 – 80 percent value of total sale are selected.

Second, the largest producers within those commodity categories were selected. The selection of enterprises was made from the same source as the selection of commodity categories.

Third and finally, one or several typical transactions (specifications) where selected in consultation with the respondent.

The PPI survey covers about 741 enterprises, which report every month the prices for around 1887 products sold in domestic and foreign markets.

2.1.7. Calculation

2.1.7.1.Individual price indices

Individual indices of representative products for each current month are calculated automatically whenever price is entered, adjusted or imputed. The price ratio is automatically adjusted when the base price is adjusted. One price ratio is calculated for each product each month. It is the current price divided either by the actual base price or by an adjusted base price.

$$I_{t/d} = \frac{p_t}{p_d}$$

Where:

p_t price for a certain product in the current period t

p_d price for a certain product in the base period d

2.1.7.2. Aggregate indices at higher levels,

From individual indices we calculate with weighted arithmetic mean aggregate indices, i.e. class and group indices, division and section indices, main industrial group indices and the total index according to the following formula:

$$I_{t/d} = \frac{\sum_{i=1}^{n} \frac{p_{ti}}{p_{di}} * w_{di}}{\sum_{i=1}^{n} w_{di}}$$

Where:

- It/d index of classes, groups, etc., or the total index
- p_{ti} price of product i in the current month
- p_{di} price of product i in December
- w_{di} weight for an individual product in December
- n number of products

Each aggregate index (December of the previous year = 100) is calculated in this way and all other indices derived from this index and calculated with weights of the weight base period and with the same coverage of products are Laspeyres' indices of fixed type.

2.1.7.3.The weighting system

The process of passing from the old to the new base consists of two steps: re-weighting, i.e. the weights used for the calculation of the indexes are updated from the base year 2005 to the base year 2010; and re-referencing, i.e., the periods of reference are updated from 2005=100 to 2010=100. In the Short term statistics the two steps are used simultaneously. The data series are equivalent to each other; the growth rates are the same, and a series is convertible to the other.

Sources of weights: The weights are based on total sale values from the annual manufacturing statistics, and total export values from the annual foreign trade statistics.

Frequency of weight updates: Annually.

Formulas on Weighting and Chaining

The PPI is a chain-index with yearly links of Laspeyres type, an index defined as:

$$I_0^t = \frac{\sum_k P_{t;k} Q_{0;k}}{\sum_k P_{0;k} Q_{0;k}} = \sum_k \frac{P_{0;k} Q_{0;k}}{\sum_k P_{0;k} Q_{0;k}} \times \frac{P_{t;k}}{P_{0;k}},$$

Where:

- P_0 price at the base period
- P_t price at the period (t)
- Q_0 quantity at the base period

The summation is done over products (indexed by k). The index in the middle stage above is written as the ratio by the sum of the value of the quantity at the base period at the comparison period and the base period prices. The index could also, as in the last stage above, be written as one where the price ratios are weighted by the values in the base period. [Actual quantities will never be used in the calculations]
The index links (short-term-links) in PPI are computed monthly year y as comparison period, with December y-1 as the price base period. The weight period is y-2. One link could then be written as:

$$I_{y-1,dec}^{y,m} = \sum_k \frac{V_k^*}{\sum_k V_k^*} \times \frac{p_{y,m;k}}{p_{y-1,dec;k}},$$

Where:

P_k - price of chosen transaction at the period (y)

V^*_k - is the price updated value of the transaction k.

Formula for calculation of V^*_k:

$$V_k^* = V_{y-2;k} \times I_{y-2;g}^{y-1,dec}, \; k \in g.$$

The value weight is the value of the transaction k on period y-2 (V_{y-2}) re-calculated into the price level of December y-1 (weight calculations are done separately based on SBS).

A chained index with reference year 2010 = 100 is calculated for month m year y as:

$$I_{2010}^{y,m} = \frac{100}{\frac{1}{12}\sum_{M=JAN}^{DEC} I_{2009;DEC}^{2010M}} \times \prod_{Y=2010}^{y-1} I_{Y-1,dec}^{Y,dec} \times I_{y-1,dec}^{y,m}.$$

The first part before the equal sign is stating the price level of December 2009 in percent of the average price level during 2010, hence adjusting the average of 2010 to 100. The second term is the chained index movement from December 2009 to December y-1 (a product of yearly index links [short-term-links] from December to December). The last part is showing the movement from December y-1 to month m year y.

The calculations program handles the short term links and the chaining onto these indices.

2.1.8. Non-Response Errors

2.1.8.1.Unit Non-Response Rate

For the PPI survey the data coverage is always 100%. However, it can happen that a reporting unit goes bankrupt, or is liquidated, or changes its activity, etc. Such a reporting unit for the current year is estimated and methods for missing data are used.

2.1.8.2.Item Non-Response Rate

The item non-response rate for the PPI survey is very low. Reporting units always complete the questionnaire in full. If they do not, in the data collection and editing phase the reporting unit is called and the missing data are obtained; if the unit cannot be contacted, various methods for estimating missing prices are used.

2.1.9. Length of Comparable Time Series

PPI indices have a long tradition; at the highest level they have been published since 1999. In this period the methodology changed several times. The last major change was the revision in 2014 of the CPA 2008 and the recalculation of data to the new base year, i.e. 2010. Results according to the new CPA 2008 and with 2010 as the base year are available in the INSTAT database by quarters for the period since first quarter 2005. Export price index and Domestic producer price have been published since 2007. Data are available from 2005 on. Provisional data on PPI are not published. Only final data are published.

2.1.10. Price concept

- **PPI the index measures** the dynamics of producer prices of manufactured goods produced in Albania and sold on the domestic (Albania) and/or foreign markets,

- **Domestic Producer price index measures** the changes in prices of manufactured goods produced and sold by producers on the domestic (Albania) market. Output (producer) prices of manufactured goods of the domestic market are prices at which producers sell their products in largest quantities on the domestic market - Ex Works. The price does not include VAT (value added tax) and similar deductible taxes and duties directly linked to turnover. The price includes rebates and discounts which the producer approves to the buyer.
- **Export Price Index measures** changes in prices of manufactured goods sold by producers on foreign markets. The export price index measures changes in the f.o.b. prices of export goods. Output (producer) prices of manufactured goods of the non-domestic market are prices at which producers sell their products in largest quantities in foreign markets. The price does not include VAT (value added tax) but includes rebates and discounts which the producer approves to the buyer. Reporting units give

the price in the currency in which the transaction was conducted. For calculating the index, the prices, which are not in EURO, are converted into the national currency on the basis of the reference exchange rate of the European Central Bank on the 15th (or 16th) day of the month.

2.1.11. Base price period

The base year is: 2010 = 100. The price base period is December of the previous year.

2.1.12. Quality Adjustments

When speaking about quality adjustments one usually refers to the whole concept of item replacement. There are a lot of methods for handling the replacement; here we will look at a few of them. The choice is in most case dependent of what data is available. Mainly there are two categories:

- *Explicit valuation*
- *Implicit valuation*

Explicit

When doing explicit quality adjustments one needs to quantify the quality difference in terms of price. For PPI, as it is an output price index, the preferred way to do quality adjustments is by adjusting for differences in production cost.

The quality adjustments in the index should be done by adjusting the base price (December previous year).

Implicit

When using implicit methods for item substitution one does not have to estimate the difference in quality in terms of price. Instead you rely on "the law of one price", stating that all differences in price at a given point in time are due to differences in quality. This might not seem like a truth in many cases and it is probably not (it lies in the assumptions of a fully competitive market). However, having nothing else to rely on, the "law of one price" might be acceptable to use when substituting items for the same establishment within the same product group.

2.1.13. Publication

The PPI is published on regularly basis. All three indices calculated for output prices (PPI, Export price index, Domestic producer price index) are published at two levels of the CPA

2008, i.e. at the section level (one letter code; C-Manufacturing) and at the division level (two-digit numerical code; C10-Manufacture of food products).

The following publications include PPI and are regularly published.

- Quarterly publication "Producer Price Index
- Quarterly bulletin "Statistics"
- In "Statistical Yearbook".

On the website of INSTAT, www.instat.gov.al where methodological explanations are available as well on the link: http://www.instat.gov.al/en/themes/prices/methods/ppi-method.aspx.

Table 2-1: Producer Price Index

Name of survey:	Producer Price Index
Periodicity:	Quarterly
Link to surveys undertaken at the European level:	Council Regulation (EC) No 1165/98 of 19 May 1998 concerns short-term statistics, and of the Regulation (EC) No. 1158/05 of the European Parliament and of the Council of 6 July 2005 amending Council Regulation (EC) No. 1165/98 concerning short-term statistics
Time of availability of results:	60 days after the end of the survey period
Main variables used in ANA:	Production price indices-CPA-two-digit

2.2. Consumers' Price Index (CPI)

2.2.1. General background about Consumers' Price Index (CPI)

The Consumers' Price Index (CPI) measures the change of the prices of a fixed basket of goods and services from base period to the current period. The base period is now December 2007 and will be changed in the next base revision.

The Consumers' Price Index is used for different purposes:

- As a measuring of inflation rate in Albania.
- As a deflators for the National Account
- As a deflator for calculations of volume indices
- For compensation of change in the cost of living of households
- As a base for wage negotiations and other agreements
- As a target variable, especially for macro-economic policy,
- Monetary policy of the central bank of Albania

2.2.2. Classification system

The CPIs are classified according to the four-digit categories and sub-categories of the COICOP (Classification of individual consumption by purpose).

Main COICOP headings:

0. All-items (global index)
1. Food and non-alcoholic beverages
2. Alcoholic beverages and tobacco
3. Clothing and footwear
4. Housing, water, electricity, gas and other fuels
5. Furnishings, Household equipment and routine maintenance of the house
6. Health
7. Transport
8. Communication
9. Recreation and culture
10. Education
11. Restaurants and Hotels
12. Miscellaneous goods and services

2.2.3. Legal Basis

Consumer Price Indices are harmonised inflation figures required under the Treaty on the Functioning of the European Union. Council Regulation (EC) No 2494/95 of 23 October 1995 (OJ L 257/1) sets the legal basis for establishing a harmonised methodology for the compilation of the HICPs, the MUICP and the EICP.

2.2.4. Observation Units

Observation unit of CPI are the prices paid for goods and services in monetary transactions. The prices measured are those actually faced by consumers. CPIs comprise all goods and services purchased in monetary transactions by Albanian households within the territory of a country and abroad (i.e. national concept').

2.2.5. Data collection

Albania has 12 prefectures and CPI is using 11, where Kukes is covered by Diber prefecture. Prices are collected only in the urban area. The regional statistical offices of 11 cities used to collect the prices are Berat, Diber, Durres, Elbasan, Fier, Gjirokastër, Korçë, Lezhë, Shkodër, Tiranë and Vlora. The time of collection of the price is during 10-25th day of each month. In each city, prices for each item are collected in 8 -10 outlets. We collect about 18000 individual prices every month. The sample size of outlets is about 500. We use a standard

form for collection of the price. The price collectors enter the prices in the Excel format form and calculate the relative price for each item. The data is transmitted to the Institute of Statistics (INSTAT) on the 30th of each month.

2.2.6. Calculation

2.2.6.1.Calculation of index

The CPI is a Laspeyres prince index. The CPI is calculated at national level and also at regional level. The first step is to calculate the relative price for each item in each region. We use the geometric means of price ratios between current with previous month for calculation of relative prices.

$$PR^{t}_{t-1,ij} = \prod_{k=1}^{n} \left(P^{t}_{ijk} \Big/ P^{t-1}_{ijk} \right)^{1/n}$$

Relative Price is used in monthly chaining which gives the relative price from the base period:

$$PR^{t}_{0,ij} = PR^{1}_{0,ij} * \cdots * PR^{t}_{t-1,ij}$$

The regional CPI is calculated (but is not published).

$$RCPI^{t}_{i,0} = \sum_{i} r_{ij} * PR^{t}_{0,ij}$$

To calculate the national CPI the relative prices are aggregated geographically to form product indices on items for the entire Albania:

$$I^{t}_{0,i} = \sum_{j} r_{ij} * PR^{t}_{0,ij} \qquad \text{where} \qquad \sum_{j} r_{ij} = 1 \quad : \quad \forall_i \text{ (for all cases)}$$

Aggregation over items then gives the national CPI of Albania:

$$CPI^{t}_{0} = \sum_{i} w_{i.} * I^{t}_{0,i} \qquad \text{where} \qquad \sum_{i} w_{i.} = 1$$

Where:

P	price
PR	relative price
I	index
CPI	Consumers' Price Index
RCPI	Regional Consumers' Price Index
t	time period t
t=0	base period

r geographical weights
w item weights
j numbering of regions
i numbering of items

2.2.6.2.Calculation of the weights

We have three types of weights. The weights are product weights for each region, geographic weights and national product weights. The regional product weights are used for calculation of the index at regional level. The geographic weights and national product weights are used to calculate the index at national level. Weights are the proportions of the item expenditure to the sum of the expenditure.

$$W_i = \frac{CE_i}{\sum CE_i}$$

Where:

W weight of the product
CE consumers' expenditure

2.2.6.3.Imputation of prices

For the seasonal items which disappear from the market place during one or more months of the year the relative price is imputed with the relative price of the group where this item is included. The same methodology can also be used for non-seasonal items that disappear from the market place on a temporary basis.

2.2.7. Base price period

The index reference period is year 2007=100

2.2.8. Publication

The Consumers' Price Index is published on 8th of each month for the previous month.

The following publications include CPI and are regularly published.

- Monthly publication "Consumers' Price Index
- Quarterly bulletin "Statistics"
- Monthly bulletin "Conjuncture"
- Yearly publication "Albania in Figures"

- "Statistical Yearbook"

CPI is also published in the website of INSTAT, www.instat.gov.al, at the 8th of each month.

The overall CPI and detailed CPIs (for 12 main COICOP groups) will be available and first released as a special publication called 'First Release'. The data on CPI will also be published in the Statistical Yearbook, Albania in fingers; Quarterly bulletin.

Table 2-2: Consumer Price Index

Name of survey:	Consumer Price Index
Periodicity:	Quarterly
Time of availability of results:	8 days after the end of the survey period
Main variables used in ANA:	Consumer price indices -COICOP-six-digit

2.3. Construction Cost Index (CCI)

2.3.1. Theoretical view about Construction Cost Index (CCI)

Construction Cost Index (CCI) measures the price development of the production factors raw materials, labour, machinery, transports, energy and other costs that are used in building projects. All data are index data and percentage changes (quarterly and yearly). The first official CCI in Albania was calculated in 1993. The situation in the country during 1997 caused problems in collecting the necessary information for the calculation of CCI, and as a result, there was a gap of information for CCI.

Next improvement of the sample size of enterprises, a basket of items and reference period was performed in 1999, and now CCI is calculated by considering the fourth quarter of 1999 as a base period. The CCI for the first quarter of 2011 is calculated with a new basket of materials and expenditures. The new weights are calculated based on the projections for multi-dwelling buildings taken by construction companies.

2.3.2. Classification system

The classification used for these statistics is the Statistical Classification of Economic Activities (NACE Rev 2). The data are produced in national level, broken-down by activity grouped in two digits level of this nomenclature. The expenditure classification is based on classification of EUROSTAT for Construction Cost Index. The CCI have six expenditure groups:

- ✓ Material Expenditures
- ✓ Salary Expenditures
- ✓ Machinery Expenditures
- ✓ Transport Expenditures
- ✓ Energy Expenditures
- ✓ Other costs.

2.3.3. Legal Basis

This statistical survey is carried out on the basis of the Council Regulation (EC) No 1165/98 of 19 May 1998 concerning short-term statistics, and of the Regulation (EC) No. 1158/05 of the European Parliament and of the Council of 6 July 2005 amending Council Regulation (EC) No. 1165/98 concerning short-term statistics.

Law No. 9180 date 5.2.2004 "On Official Statistics", "Official Journal" Nr.12, pg 489.

All statistics collected and published by the Statistical Institute of Albania (INSTAT) are governed by the Albanian Official Statistics Act No.55.

2.3.4. Observation Units

The prices for construction materials are collected from 138 distributors and retailers of construction materials. The data for salaries, machineries and transport collected in the 50 biggest construction companies concentrated mostly in Tirana. The selection of companies is based on the volume of construction companies realized over a period of one year. The results of Short-term statistics and Annual Structural Survey are used to select the sample size.

2.3.5. Data collection

The prices are collected on a quarterly basis. The data for CCI survey are collected directly in the enterprise based in face to face interview with the responsible person who has access on economic data of enterprise, and who is in charged for the declared data such as president of enterprise, general director, general manager or economist. The information collected by interviewers based on training and instructions received earlier in INSTAT.

2.3.6. Calculation

For calculation of Construction Cost Index we use the Laspeyres index model:

$$I_{0t}^{L} = \frac{\sum_{i=1}^{n}\left(\frac{p_t^i}{p_0^i} \times w_0^i\right)}{\sum_{i=1}^{n} w_0^i} \times 100$$

Where:

I_{ot} = Index number at a point in time t

p_t^i = Price per unit at point in time t (current period)

p_0^i = Price per unit at point in time 0 (base period)

w_0^i = Weight of product *i* at the base period

Excel file is used for calculation of the CCI

2.3.7. Statistical concepts and definitions

The Construction Cost Index (for Dwellings) (CCI) measures the price development of: construction materials, labour cost, machinery, transport, energy and other costs that are used in the construction of a typical dwelling (8-10 floors).

The Material costs index measures the price development of the main construction materials. This group consists of three subgroups; construction materials, electric and communication materials and hydro-sanitary materials.

The Labour costs index measures the salary for engineers, techniques and workers.

2.3.8. Base price period

The first quarter 2011 is the base period for calculating the index (First quarter 2011=100).

2.3.9. Publication

The final data are normally released at T+65.

The following publications include CCI and are regularly published.

- Quarterly publication “Construction Cost Index”
- “Statistical Yearbook”

All data are published in the Official website of INSTAT according to regulation and legislation

CCI database is available on: http://www.instat.gov.al/al/figures/statistical-databases.aspx

Table 2-3: Construction cost Index

Name of survey:	Construction Cost Index
Periodicity:	Quarterly
Time of availability of results:	65 days after the end of the survey period (construction work after 45 days)
Main variables used in ANA:	Construction cost indices

2.4. Unit Value index (UVI)

2.4.1. Composition of Unit Value index (UVI) and their purpose

External trade unit value indices measure the dynamics of the prices of imported and exported goods. The unit value is the average value (not the price of a determined product) per quantity in supplementary unit of all products classified under the same eight-digit code of the Combined Nomenclature.

2.4.2. Classification system

The classification used for indices is Combined Nomenclature (CN).

2.4.3. Observation Units

The calculation of external trade unit value indices includes all customs statements covered by external trade statistics according to the special trade system. Exports and imports of goods for which the variability of unit values in the base year, measured with the coefficient of variation, exceeded the predefined limit, are excluded from the covered current and base period.

2.4.4. Data collection

The only source of data for external trade unit value index calculation is data from customs statements of General Directorate of Customs.

INSTAT receives the data from the customs statements on a monthly basis from the Customs Administration.

For external trade unit value index calculation only data on the statistical value of exported and imported goods in ALL, data on quantity in a supplementary unit at the most disaggregated level of the Combined Nomenclature are used.

2.4.5. The compilation method and Calculation

In the calculation of external trade unit value indices statistical values of goods in ALL are taken into account. The statistical value of goods is the value of goods on the Albanian border (insurance and freight costs are added to or subtracted from the transaction value depending on delivery terms). External trade unit value indices are calculated as chain indices by the Paasche (I_P) formulas.

The formula for calculation is:

$$I_P = \frac{\sum V_1}{\sum \frac{P_0}{P_1} \cdot V_1} \quad :$$

P_1 - unit value at the eight-digit commodity level of the Combined Nomenclature in the current year

P_0 - unit value at the eight-digit commodity level of the Combined Nomenclature in the base year

V_1 – statistical value in ALL at the eight-digit commodity level of the Combined Nomenclature in the current year

V_0 – statistical value in ALL at the eight-digit commodity level of the Combined Nomenclature in the base year

Those individual items from customs statements of the current and base year:

- in which the data on quantity or statistical value are missing;
- the products of CN where frequency (the number of quarters with value positive) <=4 and the cumulative percent>=0.5
- the products of CN with 2/3>coefficient of variation>3/2 are eliminated from the calculation.

The selection of appropriate quantity (quantity in a supplementary unit) used in the calculation of the unit value of the individual product depends on the coefficients of variation (the coefficient of variation for the unit value calculated by using data on quantity in supplementary unit) and the number of quarters with positive value of this product for the base year. In cases when not only one product but more products of various kinds or various quality are classified under the same eight-digit code of the Combined Nomenclature, the relative change of the unit value can reflect the change of price as well as the change of composition or quality of goods. Nevertheless, the aggregated external trade unit value indices, calculated for larger groups of goods, are approximate for monitoring price developments in external trade and as deflators.

Aggregated indices for publication are calculated at the 21 sections of the Combined Nomenclature.

2.4.6. Publication

Quarterly/Yearly:

- First Release (not for public, but a restricted number of users)

Table 2-4: Unit Value Index

Name of data source:	External Trade
Periodicity:	Quarterly and yearly
Time of availability of results:	60 days after the end of the reference period
Main variables used in ANA:	Export and Import of goods, Period, products (CN code), net mass/supplementary quantity, value (ALL)

CHAPTER 3 METHODOLOGIES BY PRODUCT

In the Albanian system of National Accounts the compilation of GDP 2012 at previous year prices is done mainly by a single indicator method and in specific cases by double deflation.

The GDP by production approach at prices of the previous year is measured as the gross value added by industry, i.e., the total sum of value added of all the economic activities at prices of the previous year plus net indirect taxes on products at prices of the previous year.

GDP at prices of the previous year from the expenditure approach is equal to the sum of all aggregates of Household consumption expenditure, government and Non-Profit Institutions Serving Household consumption expenditure, Gross fixed capital formation, Net exports and Changes in inventories at prices of the previous year.

This chapter provides a detailed description of methods used for measuring the annual national accounts aggregates of both GDP approaches according to EUROSTAT's "Handbook on Price and Volume Measures in National Accounts".

3.1. Method used for Output and Intermediate consumption by industries

GDP by production approach at previous year prices (PYP) is done mainly by industries and not by products, except agriculture, extraction of crude petroleum and electricity.

Output at previous year prices is estimated separately for 88 economic activities according to NACE Rev 2 classification. Taking into account the availability of price and volume indices, for the majority of activities, volume estimates of output are obtained by deflating current price value by price indices.

By branch of economic activity, at two digit level of NACE Rev2 (i), and for a period of time (t) is obtained the value of Output at prices of previous year, using a respective price index (i.e. PPI, CCI, CPI), adopting the following formula:

$$O^{t}_{p-1} = \left(\frac{O^{t}_{p}}{O^{t-1}_{p-1}} / P_{index}\right) * O^{t-1}_{p-1}$$

Where:

O^{t}_{p-1} Output of year t at previous year prices (p-1)

O^{t}_{p} Output of year t at current prices (p)

O^{t-1}_{p-1} Output of year t-1 at current prices (p-1)

P_{index} Price index P_t/P_{t-1}

For a limited number of industries output at previous year prices is estimated by using volume indicators

$$O_{p-1}^{t} = O_{p-1}^{t-1} * (\frac{Q^{t}}{Q^{t-1}})$$

Where:

O_{p-1}^{t} Output of year t at previous year prices (p-1)

O_{p-1}^{t-1} Output of year t-1 at current prices (p-1)

$(\frac{Q^{t}}{Q^{t-1}})$ Volume index

Intermediate consumption at previous year prices is estimated at the level of aggregation of output, i.e., at two digit level of NACE Rev 2 classifications. Volume estimates are mostly obtained by using the same price indices as for output.

There are economic activities where different price indexes are used for output and intermediate consumption, and value added is obtained as a difference between output at previous year prices and intermediate consumption at previous year prices.

For general government, public education and health, average wage index is used to deflate value added and CPI for intermediate consumption. Output at PYP is equal to the sum of value added and intermediate consumption at PYP.

Methods for obtaining the estimates by activities are described in the following subsections where the methods for output volume estimates are presented including the breakdown of output and methods for compiling the estimates. This is followed by the similar description of volume estimates for intermediate consumption.

3.1.1. Agriculture, forestry and fishing (NACE Rev.2 Section A)

In general, the agricultural and fishing accounts are characterized by valuation of the quantities produced at average prices (quantity x price method). Volume is determined at a high level of detail from the quantity of the reporting year and average prices of the previous year. The output at prices of previous year is obtained by multiplying the quantity at time t with prices of time t-1. Intermediate consumption has a different compiling procedure based on structure of cost. For the costs of products used as inputs, which is the majority part of the intermediate consumption, volume estimates are performed by multiplying the quantity at time t with prices of time t-1. While for other cost i.e. services from the third part and other services are used the fixed ratio of those items on output of previous year.

Table 3-1: Agriculture, forestry and fishing, volume estimates

Section	NACE Division	Description	Index	Method
A	01	Agriculture	Agricultural volume and prices per products	B
	02	Forestry and logging	Volume estimates are equal to the value of current estimate	
	03	Fishing and aquaculture	Fishing volume x prices	B

3.1.2. Mining and quarrying (NACE Rev. 2 Section B)

In the industries of section B, for NACE division 06 Extraction of crude petroleum and natural gas direct extrapolation with industrial production volume index is used for obtaining indicators in previous year prices. Detailed data over the volume of crude petroleum and natural gas extracted in Albania is available through National Resources Agency which provides the time series in periodic base. The volume of natural gas is insignificant compared to crude petroleum and for this reason extrapolation is applied to 2 digits NACE level. The method used is an A Method.

For the other activities of Section B like Mining of coal and lignite (05), Mining of metal ores (07), other mining and quarrying (08) and Mining support service activities (09), respective Producer price index at two digit level of CPA 2008 is used as deflator. PPI at this CPA level correspond to economic activity classification at division level NACE Rev 2. The same PPI is used to deflate output and intermediate consumption as well, due to lack of information on deflators for the later component. The method used is a C Method.

Table 3-2: Mining and quarrying, volume estimates

Section	NACE Division	Description	Index	Method
B	05	Mining of coal and lignite	PPI	C
	06	Extraction of crude petroleum, natural gas	Volume index of product	A
	07	Mining of metal ores	PPI	C
	08	Other mining and quarrying	PPI	C
	09	Mining support service activities	PPI	C

3.1.3. Manufacturing[1] (NACE Rev. 2 Section C)

The same method and formula as described above is applied to the divisions of Section C-Manufacturing. The respective producer price index is used for the compilation of volume estimates. PPI is used to deflate output and intermediate consumption as well, due to lack of information on deflators for the later component. The method used is a C Method.

[1] Economic activities of divisions 29 and 30 of NACE Rev do not exist in Albania

Table 3-3: Manufacturing, volume estimates

Section	NACE Division	Description	Index	Method
C	10	Manufacture of food products	PPI	C
	11	Manufacture of beverages	PPI	C
	12	Manufacture of tobacco products	PPI	C
	13	Manufacture of textiles	PPI	C
	14	Manufacture of wearing apparel	PPI	C
	15	Manufacture of leather and related products	PPI	C
	16	Manufacture of wood, except furniture	PPI	C
	17	Manufacture of paper and paper products	PPI	C
	18	Printing and reproduction of recorded media	PPI	C
	19	Manufacture of coke and refined petroleum products	PPI	C
	20	Manufacture of chemicals and chemical products	PPI	C
	21	Manufacture of basic pharmaceutical products	PPI	C
	22	Manufacture of rubber and plastic products	PPI	C
	23	Manufacture of other non-metallic mineral products	PPI	C
	24	Manufacture of basic metals	PPI	C
	25	Manufacture of fabricated metal products, except machinery and equipment	PPI	C
	26	Manufacture of computer, electronic and optical products	PPI	C
	27	Manufacture of electrical equipment	PPI	C
	28	Manufacture of machinery and equipment n.e.c.	PPI	C
	29	Manufacture of motor vehicles, trailers and semi-trailers	n.a	n.a
	30	Manufacture of other transport equipment	n.a	n.a
	31	Manufacture of furniture	PPI	C
	32	Other manufacturing	PPI	C
	33	Repair and installation of machinery and equipment	PPI	C

3.1.4. Electricity, gas, steam and air conditioning supply (NACE Rev. 2 Section D)

Prior to 2001, the Albanian Power Corporation (KESH) was government owned vertically integrated enterprise engaged in production, transmission, distribution, and trade (of imported) of electricity (the whole group 35.1 NACE, Rev. 2). In 2001, the KESH undertook structural changes which resulted in the creation of three divisions: the production division, the transmission division, and the distribution division. In 2004, the transmission division detached from KESH and established Transmission System Operator (TSO) - a new state owned company. In 2008, the distribution division was transformed into a new company called OSSH. In 2009, the CEZ Group entered the Albanian market by acquiring 76% of the local distribution company OSSH and creating CEZ Shpërndarje, the power distribution operator. The remaining 24% equity stake is held by the Government of Albania.

In 2012, there are four major players engaged in electric power activity: generation and wholesale (100 % government-owned KESH), transmission (government-owned TSO), and distribution (from 2009 – 2013, foreign direct investor *CEZ Shpërndarje).*

For production, the data exist for electricity at sufficient product detail and homogenous quality, and are used to construct volume indices. EUROSTAT considers single extrapolation with volume indices as an A method, providing the quantity data is sufficiently detailed (EUROSTAT's *Handbook on Price and Volume Measures in National Accounts*, paragraph 4.4). Thus, extrapolation with volume index (based on KW/hour of produced electricity) was recommended for deriving production at previous year prices.

For transmission: Other services provided by KESH constitute the ancillary services to TSO; therefore the volume index for transmission was used to calculate constant price estimates. Single extrapolation was applied using the volume index of electricity transmitted.

For distribution, the net recording was selected; the constant price calculation is the same as calculating the distributive services (trade) margins at constant prices (EU Handbook, Section 4.6.1). EU recognizes that the only method that can properly account for quality changes in distributive services - in theory - is deflating sales and purchases separately with appropriate price indices. However, a suitable B method for distribution recorded net is to assume that the volume of the service follows the quantity of the electricity distributed. Thus, the margin of previous year was extrapolated using volume index of distributed electricity.

Table 3-4: Electricity, gas, steam and air conditioning supply, volume estimates

Section	NACE Division	Description	Index	Method
D	35	Electricity, gas, steam and air conditioning supply	Volume of energy produced, transmitted and distributed	A

3.1.5. Water supply; sewerage, waste management and remediation activities (NACE Rev. 2 Section E)

Producer price index at respective CPA division level is used as deflator for section E- Water supply; sewerage, waste management and remediation activities.

The same PPI for output and intermediate consumption, therefore C Method is applied.

Table 3-5: Water supply; sewerage, waste management and remediation activities, volume estimates

Section	NACE Division	Description	Index	Method
E	36	Water collection, treatment and supply	PPI	C
	37	Sewerage	PPI	C
	38	Waste collection, treatment and disposal activities; materials recovery	PPI	C
	39	Remediation activities and other waste management services	PPI	C

3.1.6. Construction (NACE Rev. 2 Section F)

The volume estimates are compiled at the two-digit level of the NACE Rev.2 within construction activity. Output at previous year prices for construction is obtained by deflating the current values with the total of construction cost index (CCI). The formula is the same as in the deflation process of the industry sector, but using CCI as the same deflator for both output and intermediate consumption.

Table 3-6: Construction, volume estimates

Section	NACE Division	Description	Index	Method
F	41	Construction of buildings	CCI	C
	42	Civil engineering	CCI	C
	43	Specialized construction activities	CCI	C

3.1.7. Wholesale and retail trade; repair of motor vehicles and motorcycles (NACE Rev. 2 Section G)

As regards internal trade activity, the output and intermediate consumption were deflated with overall Consumer Price Index:

Table 3-7: Wholesale and retail trade; repair of motor vehicles and motorcycles, volume estimates

Section	NACE Division	Description	Index	Method
G	45	Wholesale and retail trade and repair of motor vehicles and motorcycles	CPI	C
	46	Wholesale trade, except of motor vehicles	CPI	C
	47	Retail trade, except of motor vehicles	CPI	C

3.1.8. Transportation and storage (NACE Rev. 2 Section H)

No Services price index or suitable quantity indicators are available to be used for volume estimates of services. Therefore overall CPI or at 3 digit level of COICOP are used for deflation of services activities. Use of CPI is considered as C method.

Transportation activities, divisions 49-52 are mainly deflated by using CPI at COICOP level, group 07. Postal and courier activities (53) are deflated with CPI COICOP group 08.1.1.

Table 3-8: Transportation and storage, volume estimates

Section	NACE Division	Description	Index	Method
H	49	Land transport and transport via pipelines	CPI	C
	50	Water transport	CPI	C
	51	Air transport	CPI	C
	52	Warehousing and support activities for transportation	CPI	C
	53	Postal and courier activities	CPI	C

3.1.9. Accommodation and food service activities (NACE Rev. 2 Section I)

Consumer prices Index of COICOP group 11.2 is used to deflated output and intermediate consumption of section I.

Table 3-9: Accommodation and food service activities, volume estimates

Section	NACE Division	Description	Index	Method
I	55	Accommodation	CPI	C
	56	Food and beverage service activities	CPI	C

3.1.10. Information and communication (NACE Rev. 2 Section J)

Economic activities of Publishing and Motion picture, video and television programme production are deflated with CPI COICOP group 09.5.

Telecommunication volume estimates are derived by using CPI COICOP group 08. All the rest of Section J is deflated with overall CPI.

Table 3-10: Information and communication, volume estimates

Section	NACE Division	Description	Index	Method
J	58	Publishing activities	CPI	C
	59	Motion picture, video and television programme production	CPI	C
	60	Programming and broadcasting activities	CPI	C
	61	Telecommunications	CPI	C
	62	Computer programming, consultancy and related activities	CPI	C
	63	Information service activities	CPI	C

3.1.11. Financial and insurance activities (NACE Rev. 2 Section K)

The methods for **constant price estimates for financial sector** were improved. Before, the constant price estimates for financial sector were derived by deflating value added by relevant consumer price index (CPI) and FISIM with net interest margin. New method is applied separately for the following components of output of monetary intermediation:

- Output of Central Bank;
- FISIM;
- other financial services;
- Services paid with explicit fees and commissions.

Output of the central bank, other output of financial services activities and insurance at previous year prices are estimated by the deflated with overall CPI index. FISIM at constant (previous year) prices is estimated by applying base year interest margin to the deflated stocks of loans and deposits.

Table 3-11: Financial and insurance activities, volume estimates

Section	NACE Division	Description	Index	Method
K		Central Bank	Input method	
	64	FISIM	Base year to deflated stocks	B
		Financial service activities	CPI	
	65	Insurance, reinsurance and pension funding, except compulsory social security	CPI	C
	66	Activities auxiliary to financial and insurance services	CPI	C

3.1.12. Real estate activities (NACE Rev. 2 Section L)

The outputs of Real estate activities where Services of owner occupied dwellings are included as well are deflated with CPI at COICOP group 04.1. For intermediate consumption overall CPI is used as deflator.

Table 3-12: Real estate activities, volume estimates

Section	NACE Division	Description	Index	Method
L	68	Real estate activities	CPI	C
	68.1	Imputed Rent	CPI	C

3.1.13. Professional, scientific and technical activities (NACE Rev. 2 Section M)

Overall CPI is used for volume estimates of professional, scientific and technical activities.

Table 3-13: Professional, scientific and technical activities, volume estimates

Section	NACE Division	Description	Index	Method
M	69	Legal and accounting activities	CPI	C
	70	Activities of head offices; management consultancy activities	CPI	C
	71	Architectural and engineering activities; technical testing	CPI	C
	72	Scientific research and development	CPI	C
	73	Advertising and market research	CPI	C
	74	Other professional, scientific and technical activities	CPI	C
	75	Veterinary activities	CPI	C

3.1.14. Administrative and support service activities (NACE Rev. 2 Section N)

Overall CPI is used as deflator of Section N. C method is applied.

Table 3-14: Administrative and support service activities, volume estimates

Section	NACE Division	Description	Index	Method
N	77	Rental and leasing activities	CPI	C
	78	Employment activities	CPI	C
	79	Travel agency, tour operator reservation service and related activities	CPI	C
	80	Security and investigation activities	CPI	C
	81	Services to buildings and landscape activities	CPI	C
	82	Office administrative, office support and other business support activities	CPI	C

3.1.15. Public administration and defence; compulsory social security (NACE Rev. 2 Section O)

Output of Public administration is considered as non-market output equal to the sum of costs. Hence, average wage index is used to deflate value added components and overall CPI for intermediate consumption. Output at previous year prices is estimated as sum of value added and intermediate consumption at previous year prices. The method C is performed.

Table 3-15: Public administration and defence; compulsory social security, volume estimates

Section	NACE Division	Description	Index	Method
O	84	Public administration and defence; compulsory social security	Wage index and overall CPI	C

3.1.16. Education (NACE Rev. 2 Section P)

Volume estimates of Public education as non-market output has the same compilation procedure of volume estimates as general government activities by using average wage index and overall CPI for value added and other costs.

For Private education CPI group 10 is used to deflate output and overall CPI for intermediate consumption.

Table 3-16: Education, volume estimates

Section	NACE Division	Description	Index	Method
P	85	Public Education	Wage index, CPI	C
	85.1	Private Education	CPI.	C

3.1.17. Human health and social work activities (NACE Rev. 2 Section Q)

Non market producer of section Q has been used the same method as in Public administration. CPI COICOP group 06 is used for deflation of output and overall CPI for intermediate consumption of market producer.

Table 3-17: Human health and social work activities, volume estimates

Section	NACE Division	Description	Index	Method
Q	86	Public health	Wage index	C
	86.1	Private health	CPI	C
	87	Residential care activities	CPI	C
	88	Social work activities without accommodation	CPI	C

3.1.18. Arts, entertainment and recreation (NACE Rev. 2 Section R)

Output of those activities is deflated by CPI COICOP group 09, and intermediate consumption with overall CPI.

Table 3-18: Arts, entertainment and recreation, volume estimates

Section	NACE Division	Description	Index	Method
R	90	Creative, arts and entertainment activities	CPI	C
	91	Libraries, archives, museums and other cultural activities	CPI	C
	92	Gambling and betting activities	CPI	C
	93	Sports activities and amusement and recreation activities	CPI	C

3.1.19. Other service activities (NACE Rev. 2 Section S)

Overall CPI is used as deflator for both output and intermediate consumption. C method is applied.

Table 3-19: Other service activities, volume estimates

Section	NACE Division	Description	Index	Method
S	94	Activities of membership organizations	CPI	C
	95	Repair of computers and personal and household goods	CPI	C
	96	Other personal service activities	CPI	C

3.1.20. Activities of households as employers; undifferentiated goods- and services- producing activities of households for own use (NACE Rev. 2 section T)

Overall CPI is used as deflator and the same compilation process as in Section S.

Table 3-20: Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use, volume estimates

Section	NACE Division	Description	Index	Method
T	97	Activities of households as employers of domestic personnel	CPI	C
	98	Goods- and services-producing activities of private households for own use	CPI	C

3.2. Method used for elements of GDP by expenditure approach

GDP by the expenditure approach is measured as the sum of domestic expenditure on goods and services for final consumption and gross capital formation by units of the national economy plus exports less imports of goods and services. Final consumption is the sum of expenditure on goods and services by households, NPISH and general government. Gross capital formation is measured as the sum of expenditure on gross fixed capital formation and changes in inventories. This subsection presents methods for the compilation of GDP expenditure components at previous year prices. For each component, the breakdown and methods for obtaining volume estimates are shown.

3.2.1. Final consumption of Households

Household final consumption expenditure amounts ALL 1,032,478 million or 77.5 % of GDP at current prices in 2012. It is shown according to the national concept and is calculated as household final consumption expenditure by the domestic concept less direct purchases of non-resident households on the domestic territory plus direct purchases of resident households abroad. Household final consumption expenditure by the domestic concept consists of all

expenditure of households on durable, semi-durable and non-durable goods, and on services. The compilation at constant prices is performed at the four-digit level of the Classification of Individual Consumption by Purpose (COICOP). For the large majority of expenditure, volume estimates are obtained by deflating current price values by the consumer price index (CPI). Expenditure on financial intermediation services indirectly measured (FISIM) at constant prices is estimated in the same way as for other sectors, i.e. by the application of base year interest margin on loans and deposits to the stock of loans and deposits re-valued to base year prices by the implicit deflator for domestic final consumption. The stratification of products and methods used are shown in Table 3-21.

The deflation of household final consumption expenditure by the consumer price index classifies as an A method. The price index is an index of the price that consumers pay for observed groups of products; it takes into account quality changes and is valued at purchasers' prices including VAT. Expenditure of Albanian residents abroad in constant prices is estimated using Service producer price indices in Europe. A composite index is created using Service producer price indices in Europe for tourism expenditures, such as expenditures for transport, travel, insurance and other services, weighted by the share of these expenditures taken from the Albanian balance of payments and adjusted by the variation of exchange rate Euro/ALL. Previous year is taken as a base year.

Table 3-21: Household final consumption expenditure, volume estimates

COICOP	Description	Method
0111	Bread and cereals	Deflated by CPI
0112	Meat	Deflated by CPI
0113	Fish	Deflated by CPI
0114	Milk cheese and eggs	Deflated by CPI
0115	Oils and fats	Deflated by CPI
0116	Fruit	Deflated by CPI
0117	Vegetables	Deflated by CPI
0118	Sugar, jam, honey, chocolate and confectionary	Deflated by CPI
0119	Food products n.e.c	Deflated by CPI
0121	Coffee, tea and cocoa	Deflated by CPI
0122	Mineral water, soft drinks, fruit and vegetables juices	Deflated by CPI
0211	Spirits	Deflated by CPI
0212	Wine	Deflated by CPI
0213	Beer	Deflated by CPI
0221	Tobacco	Deflated by CPI
0311	Clothing materials	Deflated by CPI
0312	Garments	Deflated by CPI
0313	Other articles of clothing and clothing accessories	Deflated by CPI
0314	Cleaning, repair and hire of clothing	Deflated by CPI
0315	Other expenditures of garments and footwear	Deflated by CPI
0321	Shoes and other footwear	Deflated by CPI

COICOP	Description	Method
0322	Repair and hire of footwear	Deflated by CPI
0411	Actual rentals paid by tenants	Deflated by CPI
0421	Imputed rentals of owner-occupiers	Deflated by CPI
0412	Other actual rentals	Deflated by CPI
0422	Other imputed rentals	Deflated by CPI
0431	Materials for the maintenance and repair of the dwelling	Deflated by CPI
0432	Services for the maintenance and repair of the dwelling	Deflated by CPI
0441	Water supply	Deflated by CPI
0442	Refuse collection	Deflated by CPI
0443	Sewerage collection	Deflated by CPI
0444	Other services relating to the dwelling n.e.c	Deflated by CPI
0451	Electricity	Deflated by CPI
0452	Gas	Deflated by CPI
0453	Liquid fuels	Deflated by CPI
0454	Solid fuel	Deflated by CPI
0455	Heat energy	Deflated by CPI
0491	Other common expenditure on dwelling	Deflated by CPI
0511	Furniture and furnishings	Deflated by CPI
0512	Carpets and other floor coverings	Deflated by CPI
0513	Repair of furniture, furnishings and floor coverings	Deflated by CPI
0521	Household textiles	Deflated by CPI
0531	Major household appliances whether or not electrical	Deflated by CPI
0532	Small electrical household appliances	Deflated by CPI
0533	Repair of household appliance	Deflated by CPI
0541	Glassware, tableware and household utensils	Deflated by CPI
0551	Major tools and equipment	Deflated by CPI
0552	Small tools and miscellaneous accessories	Deflated by CPI
0561	Non-durable household goods	Deflated by CPI
0562	Domestic services and household services	Deflated by CPI
0611	Pharmaceutical products	Deflated by CPI
0612	Other medical product	Deflated by CPI
0613	Therapeutic appliances and equipment	Deflated by CPI
0621	Medical Services	Deflated by CPI
0622	Dental services	Deflated by CPI
0623	Paramedical services	Deflated by CPI
0631	Hospital services	Deflated by CPI
0711	Motor-cars	Deflated by CPI
0712	Motor-cycle	Deflated by CPI
0713	Bicycles	Deflated by CPI
0714	Animal-drawn vehicles	Deflated by CPI
0721	Spare parts and accessories	Deflated by CPI
0722	Fuels and lubricants	Deflated by CPI
0723	Maintenance and repair of personal transport equipment	Deflated by CPI
0724	Other services in respect of personal transport equipment	Deflated by CPI

COICOP	Description	Method
0731	Passenger transport by railway	Deflated by CPI
0732	Passenger transport by road	Deflated by CPI
0733	Passenger transport by air	Deflated by CPI
0734	Passenger transport by sea and inland waterway	Deflated by CPI
0736	Other purchased transport services	Deflated by CPI
0811	Postal services	Deflated by CPI
0821	Telephone and telefax equipment	Deflated by CPI
0831	Telephone and telefax services	Deflated by CPI
0911	Equipment for the reception, recording and reproduction of sound and pictures	Deflated by CPI
0912	Photographic and cinematographic equipment and optical instruments	Deflated by CPI
0913	Information processing equipment	Deflated by CPI
0915	Repair of audio-visual, photographic and information processing equipment	Deflated by CPI
0921	Major durables for outdoor recreation	Deflated by CPI
0922	Musical instruments and majors durables for indoor recreation	Deflated by CPI
0923	Maintenance and repair of other major durables for recreation and culture	Deflated by CPI
0931	Games, toys and hobbies	Deflated by CPI
0932	Equipment for sport, camping and open-air recreation	Deflated by CPI
0933	Gardens, plants and flowers	Deflated by CPI
0934	Pets and related products	Deflated by CPI
0935	Veterinary and other services for pets	Deflated by CPI
0941	Recreational and sporting services	Deflated by CPI
0942	Cultural services	Deflated by CPI
0943	Games of chance	Deflated by CPI
0951	Books	Deflated by CPI
0952	Newspapers and periodical	Deflated by CPI
0953	Miscellaneous printed matter	Deflated by CPI
0961	Package holidays	Deflated by CPI
1011	Pre-primary and primary education	Deflated by CPI
1021	Secondary education	Deflated by CPI
1031	Post-secondary non-tertiary education	Deflated by CPI
1041	Tertiary education	Deflated by CPI
1051	Education not definable by level	Deflated by CPI
1111	Restaurants, cafés and the like	Deflated by CPI
1112	Canteens	Deflated by CPI
1121	Accommodation services	Deflated by CPI
1211	Hairdressing salons and personal grooming establishments	Deflated by CPI
1212	Electrical appliances for personal care	Deflated by CPI
1213	Other appliances, articles and products for personal care	Deflated by CPI
1231	Jewellery, clocks and watches	Deflated by CPI
1232	Other personal effects	Deflated by CPI
1241	Social protection services	Deflated by CPI
1252	Insurance connected with the dwelling	Deflated by CPI
1253	Insurance connected with health	Deflated by CPI
1254	Insurance connected with transport	Deflated by CPI

COICOP	Description	Method
1262	Financial services n.e.c.	Base year to deflated stocks
1271	Other services n.e.c	Deflated by CPI

3.2.2. Final consumption expenditure by government and NPISHs

a) Final consumption expenditure by Government

General government final consumption expenditure at current prices amounts to ALL 144,541 million, which is 10.8% of GDP. It is composed of two components: individual consumption expenditure (ALL 70,533 million or 48.8% of the total) and collective consumption expenditure (ALL 74,008 million or 51.2% of the total).

Government consumption expenditures at constant prices are equal to output at constant prices derived by production approach minus market output at constant prices. No data are available on own account investment and data on social transfers in kind are not relevant. The output in constant prices is the sum of value added at constant prices and intermediate consumption at constant prices. Value added is deflated with average wages' index and intermediate consumption with CPI. Expenditure on financial intermediation services indirectly measured (FISIM) at constant prices is estimated the same way as in the production approach, i.e. by applying the base year interest margin at the deflated stock of loans and deposits. The market output is deflated by using the overall CPI. Data on own account investment are not available and data on social transfers in kind are not relevant.

b) Final consumption expenditure by NIPSHs

NPISH final consumption expenditure at current prices amounts ALL 2,175 million or 0.2% of GDP. It equals output compiled by the input approach less any market and similar revenue (sales).

Final consumption expenditure of Non-Profit Institutions Serving Households (NPISHs) is deflated by price indices of government output.

3.2.3. Gross fixed capital formation

Gross fixed capital formation at previous year prices is calculated as a sum of all its components at previous year prices. Gross fixed capital formation at constant prices is estimated by deflating current price value of individual components by price indices. Components of buildings and structures are mostly deflated by the construction cost index (CCI), and components of machinery and equipment by the producer price index of

manufactured goods (PPI). Gross fixed capital formation in machinery and equipment and transport means is deflated by the UVI for imported ones and PPI for domestic production.

Table 3-22: The components of GFCF and the indices with which they are deflated are as follows:

Description	Index
Livestock	Volume Index
Orchards and vineyard	Volume Index
Forestry	Volume Index
Construction	Construction Cost Index
Geology	Volume Index and PPI
Machinery and Equipment	UVI and PPI for domestic production
Software	Producer Price Index (PPI)

Changes in inventories

The method for obtaining volume estimates of changes in inventories is the deflation by price index. Changes in inventories are first broken down into four types of inventories, finished goods, work-in-progress, raw material and supplies, trade goods and by industries, NACE rev 2. Each individual component is then separately deflated. The types of changes in inventories and methods used to obtain volume estimates are shown in the following table. The method used can be classified as a C method. To obtain volume estimates by activities, the same deflator is used for a particular type of inventories for all activities.

Table 3-23: Changes in inventories, volume estimates

Description	Index	Method
Finished goods	PPI	C
Work in progress	CCI	C
Raw material and supplies	PPI	C
Trade goods	CPI	C

3.2.4. Import and Export on goods and services

Exports of goods and services in current prices amounts to ALL 444,514 million or 33.4% of GDP, meanwhile Imports of goods and services in current prices amounts to ALL 692,887 million or 52.0% of GDP in 2012. The prevailing method for the estimation of imports and exports of goods and services at constant prices is the deflation by price index. Imports and

exports of exports of all other services are deflated by the harmonized consumer price index of the EU.

Imports of goods are deflated using unit-value indices, meanwhile exports of goods are deflated with Export price indices (EPI).

They are presented as follows:

Table 3-24: Import and Exports, volume estimates

Description	Index	Method
Import of goods and services		
Imports of Goods	UVI	B
Imports of Services	HICP-EU	B
Export of goods and services		
Exports of Goods	EPI	A
Exports of Services	HICP-EU	B

CHAPTER 4 METHODS FOR OTHER PARTS OF SYSTEM

4.1. GDP by production approach

The measurement of value added at constant prices by industry is an important part of national economic accounting. Information on value added at constant prices by industry is necessary to research on national economic growth and changes of industrial structure.

The value added at previous year prices is mainly defined as the difference between output (at basic prices) and intermediate consumption (at purchasers' prices), both at prices of previous year.

$$GVA^{t}_{p-1} = O^{t}_{p-1} - IC^{t}_{p-1}$$

Where:

O^{t}_{p-1} Output of year t at previous year prices (p-1)

IC^{t}_{p-1} Intermediate consumption of year t-1 at current prices (p-1)

For NACE division 06 and section E, Value added at previous year prices is extrapolated with volume index of output.

$$GVA^{t}_{p-1} = GVA^{t-1}_{p-1} * \textbf{Ivol}\left(\frac{Q_t}{Q_{t-1}}\right)$$

The value added at previous year prices is estimated at A88 level of NACE Rev.2, but the publication of data is made at A35. Albeit the aggregation of industries in A35, some industries performs volatile figures due to small number of enterprises engaged in. Furthermore some types of services activities have been growing faster lately. The figures of growth rates reflect different forms of production and emerging industries.

The GDP at prices of the previous year is measured from production side as the GVA by industry, i.e., the total sum of value added of all the economic activities at prices of the previous year plus net indirect taxes on products at prices of the previous year.

The **GDP growth rate** is calculation with the following chained Laspeyres volume index**:**

$$LV_{t/t-1} = \frac{\sum P_{t-1}Q_t}{\sum P_{t-1}Q_{t-1}}$$

4.2. Taxes and subsidies

4.2.1. Taxes

Taxes on products are levied on goods and services in proportion to value or quantity and are paid when these are produced, imported or purchased by consumers. The present system of taxes on products includes value added tax (VAT), excise, customs duties on imports and other taxes. VAT on products composes 65% of overall taxes on products, excise around 20%, import duties 15% and other taxes 1%.

Taxes on products at constant prices are compiled in different ways, depending on the type of tax and by origin of products in domestic and imported taxes. Nevertheless the main method is performed by applying base (or previous) year rate to the underlying transaction at base (previous year) prices. The following methodology has been applied for estimation of taxes on product, at prices of previous year.

Value added tax (VAT)

VAT on products is calculated by applying the previous year (t-1) tax rates on the relevant items of final consumption expenditure by households at previous year prices (COICOP level, four digits) in which a VAT is included.

Taxes on imports, Excise and duties, excluding value added tax (VAT)

Volume change of other taxes on products is estimated by applying the previous year (t-1) tax rates on the volume change of imports products (CN, level 8 digits) in which these taxes are levied.

Other taxes

Volume change of other taxes on products is estimated on the basis of the volume change of Gross domestic products.

Table 4-1: Taxes on products, volume estimates

Description	Index	Method
Value added tax VAT	Base year tax rate on household expenditure on value added taxable items	B
Taxes on imports, Excise and duties	Base year tax rate on volume estimates of imported products	B
Other domestic taxes	Extrapolation by the volume index of GDP	C

4.2.2. Subsidies

Subsidies are given mostly to the sectors of water supply, railway transports, trade and accommodation.

Applying the hypothesis for the same branches, the changes of volume of subsidies follow the same changes in the volume of value added of the economic activities which have subsidies, and the existing information is given as follows

For each branch, it is calculated the value of subsidies at prices of previous year, by the respective volume index.

The formula used is as follows:

$$SUB^{p-1}_{i,t} = [(SUB^{p}_{i,t} / SUB^{p-1}_{i,t-1}) / IVOL_{i,t}] * SUB^{p}_{i,t-1}$$

S = Subsidies on products;
$_{i}$ = branches;
$_{t}$ = current year;
$_{t-1}$ = previous year;
IVOL = volume index of value added of economic activity.
$_{p}$ = current prices;
$_{p-1}$ = prices of previous year;