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Description of Sources and Methods
Part D, SUT Compilation
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IPA 2019, Part D:

Supply and Use Tables compilation,

Description of sources and methods

Albania

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ABBREVIATIONS AND ACRONYMS

BEC	Broad Economic Categories
BoA	Bank of Albania
BoP	Balance of Payments
BR	Business Register
BS	Balance sheet
CCI	Construction Cost Index
CFM	Commodity Flow Method
CIF	Cost Insurance and Freight
CN	Combined Nomenclature
COFOG	Classification of Functions of Government
COICOP	Classification of Individual Consumption by Purpose
CPA	Central Product Classification
CPC	Central Product Classification
CPI	Consumer Price Index
ESA	European System of Accounts
EUROSTAT	Statistical Office of the European Communities
FIFO	First In First Out
FOB	Free On Board
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GNI	Gross National Income
GVA	Gross Value Added
HBS	Household Budget Survey
HFCE	Household Final Consumption Expenditure
HS	Harmonized Commodity Description and Coding System
IC	Intermediate Consumption
INSTAT	Institute of Statistics of Albania
IOT	Input Output Table
IPA	Instrument for Pre-Accession Assistance
IPI	Import Price Index
ISIC	International Standard Industrial Classification of all Economic Activities
LIFO	Last In First Out
MoF	Ministry of Finance
NA	National Accounts
NACE	Nomenclature statistique des Activités économiques dans la Communauté Européenne (Statistical Classification of Economic Activities)
NAD	National Account Directorate

NOE	Non-Observed Economy
NPISH	Non Profit Institutions Serving Households
MPI	Industrial import price index
PPI	Producer Price Index
PRODCOM	Community Production Classification
SBS	Structural Business Statistics
SIOT	Symmetric Input-Output Table
SITC	Standard International Trade Classification
SNA	System of National Accounts
SUT	Supply and Use Tables
VA	Value Added
VAT	Value Added Tax
VBA	Visual Basic for Applications

INTRODUCTION

This document provides a description of data sources and compilation methods used for Supply and Use tables (SUT) and Input – Output tables (IOT) in Albania. This frame for the description of sources and methods has led us to concentrate on the methodology used in SUT compilation, harmonized with EUROSTAT requirements and regulations. For Albania this is the revised version with the improvements realized during IPAMB 2019, (PP.1.7), of SUT description of sources and methods within the IPA 2015 Multi Beneficiary statistical cooperation programme.

The structure of this description follows the common structure as "Guidelines for the drafting of SUT inventories".

The System of National Accounts contains a wide range of macroeconomic indicators. One of the most important indicators is Gross Domestic Product (GDP) which is estimated by different approaches. Each method is based on a different view of the economic system, using different indicators and offering in this way an overview of logical relationships within the national system. Supply and use tables are an effective statistical tool serving primarily as a balancing framework that reconciles the GDP estimation and find the most accurate result, checking consistency and completeness of statistical data. In theory, the different approaches should produce the same result, however in reality they may generate different results. A definitive GDP estimation can be accomplished after a process of balancing and adjustments.

For the first time the elaboration of a SUT is done in the framework of the IPA 2007 Multi-beneficiary Statistical Cooperation Programme, Project 5 "National Accounts". Under this project, a balanced SUT at current prices for years 2008 - 2009 and an unbalanced SUT at constant prices for year 2009 has been achieved in an experimental way. In February 2015, INSTAT has published for the annual supply-use table (SUT) at current prices for years 2009 - 2011 and derived an input-output table (IOT) for the year 2011. On 2016, a supply and use table (SUT) and a derived input-output table (IOT) have been published for the reference year 2012 and in October 2016, the tables for year 2013.

During 2018, supply and use table and derived input – output table for 2015 have been published. For the first time the SUT and IOT (product*product), are compiled and transmitted to Eurostat, in 64*64 level of aggregation. This was one of the improvements achieved during the IPA 2015 MB project.

During 2020, supply and use tables for 2017 have been published under IPA 2017 SP 1.7. With the assistance of the expert, the tables have been reclassified from Nace Rev. 1 to Nace Rev 2. The method used by expert consists on reclassification matrix A = CoefT.A.Coef then S2010_riclasified, (S2010N) = Matrix A*S2010 (A.S2010) and similarly for U2010_riclasified (U2010N) = Matrix A*U2010 (A.U2010); S2011N = A.S2011 and U2011N = A.U2011.

The next stage will be the involvement of the SUT as a key tool of the GDP compilation will be a major improvement, providing a solid foundation for both existing approaches production and expenditure and development of income approach.

The structure of this document starts with an overview of the organization and institutional arrangements of the Albanian national accounts (Chapter 1). This is followed by Chapter 2 which explains the publication of SUT and Chapter 3 which describes an overall compilation approach. The next three chapters (Chapters 4, 5 and 6) describe the compilation in current prices of the SUT. Chapter 4 describes the supply table in basic prices, Chapter 5 shows in detail the valuation layers; trade and transport matrices and taxes and subsidies on products and Chapter 6 describes the compilation of the use table in purchaser's prices. Chapter 7 describes the compilation of SUT in prices of the previous year. Chapter 8 explains the method used for the conversion of the SUT into symmetric IO tables. In the last Chapter, main data sources are presented. It is intended that the Supply and Use Tables compilation, description of sources and methods will be regularly updated with the aim to involve all methodological changes that will be implemented in the future.

1. CHAPTER 1 THE ORGANIZATION OF THE SUT COMPILATION

1.1. Organization and institutional arrangements

INSTAT is the most important agency for the collection of Albanian macro-economic statistics. INSTAT undertakes most of data collection and compilation, with the main exception that the Balance of Payments (BoP-data) and banking sector data are the responsibility of the Bank of Albania (BoA), and government data are collected by the Ministry of Finances and Economy (MFE).

INSTAT has at its disposal the following instruments to plan, direct and monitor statistical activities in the country:

- Law on Official Statistics
- Five-year Programme of Statistics
- Five-year Strategic Plan of INSTAT
- One-year operational Plan of INSTAT
- One-year Budget Plan of INSTAT
- Quarterly progress reports on implementation of the Programme of Statistics
- Memorandums of Understanding between INSTAT and main counterparts

The Law on Official Statistics No.17/2018 represents the foundation of the statistical system in the country. The scope of the Law is to establish the legal framework for the collection, organization, production and dissemination of official statistics in Albania. The Law on Official Statistics defines the status of the Programme of Official Statistics, the role and tasks of central statistical bodies in the country. It is quite comprehensive, modern and lays a strong foundation for the operation of INSTAT.

According to the Law on Official Statistics, INSTAT is responsible to draft and ensure the implementation of the **Programme of Official Statistics**. Article 7 of the Law states as follows:

"The program shall determine the strategy for the development of official statistics and the National Statistical System for a five year period, aiming to meet user requirements for qualitative statistics".

Official Statistics Programme for the period (2022 -2026) is the revised document of its kind after the entry into force of Law no.17/2018, "On Official Statistics".

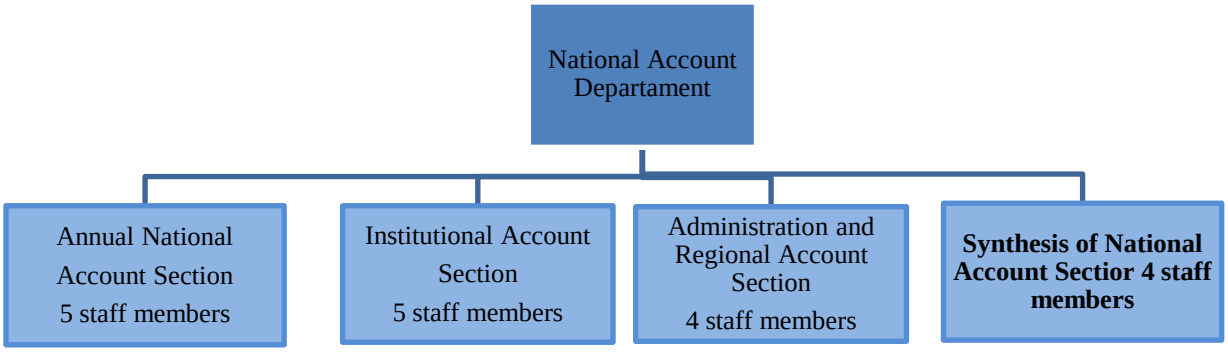
INSTAT is responsible for presenting the draft program to the Statistical Council and Council of Minister, which shall forwarded by the latter for proposal to the Parliament.

The Programme includes central information on the development and production of Official Statistics in Albania, e.g:

- description of the development objectives of official statistics;
- description of the main statistical activities for each field according to Annex 1 of the Law on Official Statistics, frequency and level of compliance with international standards;
- the institutions responsible for providing administrative data, as well as the institutions responsible for the production and dissemination of official statistics;
- analysis of financial and human resources needed to carry out the activities.
- risk analysis and expected problems.The organizational structure of INSTAT shall be approved by a decision of the Albanian Parliament, in accordance with the definitions of the legislation into force on independent institutions.

INSTAT employees, specialists and heads shall enjoy the status of civil servant, while to other employees the provisions of the Labor Code are applied. The recruitment of INSTAT staff shall be performed in compliance with the rules set forth under Law No.152/2013, “On Civil Servant”, as amended.
National Account Directory (NAD) is responsible for the compilation and co-ordination of all aspects of the national accounts. NA Directory consists of four separate sections (Figure 1).

Figure 1: ***National Account Department organizational chart, July 2023***



The Synthesis of National Account (SNA) Section has 4 staff members, the head of the section who reports to the Director of National Account Department and 3 specialists who report to the head of the section. The section compiles supply and use tables at current and prices of the previous year (under preparation), and compiles symmetrical input-output tables. This section, in cooperation with the other NA sectors, is responsible for data source processing and participates in designing annual statistical surveys.
Annual National Account Section produces the estimation of the annual Gross Value Added (GVA) and Gross Domestic Product (GDP) by production approach in current and previous year prices. This section is responsible for estimates of output, intermediate consumption and gross

value added by industries and the exhaustiveness adjustments of GDP. Monitoring the developments in national accounts system and further improvements of the quality and implementation of 2010 ESA/ 2008 SNA methodology are part of the work of this section. This section has 5 staff member, the head of the section and 4 specialists where each of them is responsible for the estimation of economic indicators for the GVA estimation of one or more industries at national level.

Institutional Account Section has two main objectives:

1. compiling institutional sector accounts,
2. estimation of GDP according to the expenditure approach in current prices and prices of the previous year, at the national level, in line with ESA 2010 / SNA 2008 concepts.

It is composed by 4 staff member, head of the section and 3 specialists. Work is organized in such a way that 2 of the staff member are dealing with the first objective (expenditure method of GDP) and the other 2 are working with the second objective (institutional sector accounts).

Administration and Regional Account Section has 4 staff members, the head of the section who reports to the Director of National Account Department and 3 specialists who report to the head of the section. This sector has two main objectives:

1. Estimation of National Accounts indicators for General Government quarterly and annually,
2. Estimation of the indicators of GVA and GDP for Regional Accounts in Albania.

This section provides information for other sectors which are part of the National Account Directory and also information for the estimates of different NA indicators for General Government required by the EUROSTAT Transmission Procedure.

1.2. Publication timetable, revisions policy and dissemination

Supply and use tables (SUTs) are disseminated 34 months (t+34 months) after the reporting period, according to the Nomenclature of the Economic Activities (NACE Rev.2) and the Nomenclature of Products by Activity (CPA 2008). The compilation of the SUT is based on the Manual of Supply, Use and Input-Output Tables and harmonized with concepts and definitions of European System of Accounts (ESA 2010). The set of tables is available in electronic form at the INSTAT website in an Albanian and an English version:

http://www.instat.gov.al/al/temat/ekonomi-dhe-financë/tabelat-e-burim-përdorimeve-dhe-input-output/

http://www.instat.gov.al/en/themes/economy-and-finance/supply-use-and-input-output-tables/

The Publication format includes the explanations, press releases and the set of tables in Excel.

After the full integration of GDP estimates according to the production and expenditure approach in the SUT, the final GDP estimates, thus based on a balanced SUT, will be released about 2 years after the reporting period (t+24 months).

The preliminary (t+1 year) and semi-final GDP estimates (t+2 years) are based on GDP estimates by production and expenditure approach and the final estimates are based on balanced SUT estimates. The final estimate will bring together all available information incorporated as part of the SUTs balancing process, for deriving a consistent set of estimates. This is in line with the revision policy.

In describing the process for incorporating revisions we need to distinguish between those which arise from the inclusion of new data from regular surveys, and the occasional revisions which arise from methodological changes or data re-assessments. The revisions arising from new data for the year t-3 also have affects for the preliminary and semi-final data, estimated by the production and expenditure approach.
Major revisions are linked with international methodology revisions, introduced by ESA 2010, changes in definitions, methods and classifications.

1.3. SUT compilation approach

The compilation of supply and use tables (SUT) includes the components of the production and expenditure approaches to estimate GDP. Until now GDP estimates are prepared by traditional approaches and SUT compilation is based on a combined production approach GDP (O) and expenditure approach GDP (E). However, during the balancing the column totals for output and intermediate consumption (IC) have not been changed, so as to leave GVA and hence GDP (O) unaffected. Also, imports, exports and government consumption have been left unchanged, statistical discrepancies generated are allocated to FHCE, GFCF and changes in inventories.

NA policy is to set up an independent estimation of the SUT, as final platform for the reconciliation of all data sources, out of which the final estimate for GDP will follow. The compilation of supply and use tables, up to now, does not allow an independent estimation of supply and use tables because the figures should remain in line with published results of the data according to the production and expenditure approach.

Chapter 3 describes in detail the compilation stages to setting up a yearly cycle of SUT compilation, in current and constant values.

1.4. Balancing, benchmarking and other reconciliation procedures

The balancing procedure for each commodity is such that the supply data on production and imports are confronted with the corresponding data on intermediate and final use. The initial large statistical discrepancies are removed in a manual balancing process.

For the balancing of supply and uses, it is very important to evaluate the quality of data sources. The cells with almost strong information are excluded from the stage of automatic balancing and they are not adjusted. Administrative data and published data are analyzed for their reliability but in general are considered as strong information.

The second stage is an automatic balancing process when the credible (plausible) economic pictures have been defined for all economic components. An algorithm is used for final balancing discrepancies of less than 5 %. In the end a balanced, consistent SUT is obtained for all industries (columns) and commodities (rows).

SUT estimates are made directly every year on the basis of current data sources but for industries that were no data available are based on weights, derived from the previous year or a benchmark year. National Accounts Directory will elaborate a policy for data collection and then to plan a

benchmark compilation, once every five years and structures can remain fixed for the years between such detailed surveys.

1.5. Volume estimates

In the frame of IPA 2014 PP1, National Accounts Methodology in the second mission was developed for the Albanian CP SUT tables, based on the compilation of a SUT for year T in prices of year T-1. The framework therefore contains three SUTs at the same time for years T-1 and T in current values and the one for T in prices of T-1. The framework was tested for T=2013, using the current values of the SUTs for 2012 and 2013.
Although work done by INSTAT on SUT CP 2013, at the end of the second mission the conclusion was that the currently balanced SUT CP 2013 is not yet sufficiently well established to warrant publication. Also, it has been recommended to compile SUT CP for at least two years to get the balancing procedures in optimal form. The work is ongoing for a simultaneously compilation and transmition of SUT CP yearly from T=2013..

1.6. Additional information

Supply and Use and Input-Output figures in current prices, for Albania can be found at:
http://www.instat.gov.al/en/themes/national-accounts.aspx

Exploratory material on supply and use tables can be downloaded from:
http://www.instat.gov.al/en/themes/economy-and-finance/supply-use-and-input-output-tables/publication/2018/supply-use-and-input-output-tables-2015/
http://www.instat.gov.al/en/themes/economy-and-finance/supply-use-and-input-output-tables/publication/2017/supply-and-use-tables-2014/
http://www.instat.gov.al/en/themes/economy-and-finance/supply-use-and-input-output-tables/publication/2016/supply-use-and-input-output-tables-in-albania-2013/
http://www.instat.gov.al/en/themes/economy-and-finance/supply-use-and-input-output-tables/publication/2016/supply-use-and-input-output-tables-in-albania-2012/
http://www.instat.gov.al/en/themes/economy-and-finance/supply-use-and-input-output-tables/publication/2015/supply-use-and-input-output-tables-in-albania-2009-2011

2. CHAPTER 2 PUBLICATION OF THE SUT

2.1. Release policy

The publication timetable is determined by the Statistical Calendar for a particular year. An official release calendar is available on the INSTAT website before the beginning of the respective year.
The calendar for 2023 releases can be found at:
http://www.instat.gov.al/en/publications/calendar/
External users can find the SUT publication in electronic format on the INSTAT web-site (http://www.instat.gov.al/en/publications.aspx) in form of an exploratory material, press release and the set of tables.

2.2. Contents published

The compilation of the SUT for Albania is done according to the Nomenclature of the Economic Activities (NACE Rev. 2) for industries and the Nomenclature of Products by Activity (CPA 2008) for products at 2-digit level 89 industries * 90 products and aggregated for dissemination purposes into 35*35 level, which enables the consistency with other publications of national accounts. The classification used in Albania for Economic Activity is the same as the original version of NACE classification of Eurostat. However, the economic activities according the NACE Rev. 2 are regrouped at the level of 35 main activities in line with other national account figures, fulfilling statistical confidentiality rules.

Breakdowns in the SUT framework are available by expenditure category, economic activity and products.

GDP by the Production Approach

The breakdown by economic activity comprises data on output, intermediate consumption, gross value added and taxes on products. The estimation by production GDP approach is based on 89 main economic activities according NACE Rev. 2 and 90 products. Table 1 shows the correspondence between NACE Rev.2 and the aggregated level in 35 main economic activities for dissemination.

GDP by the Expenditure Approach

The breakdown by major expenditure category includes consumption expenditure by households, government and NPISH, gross fixed capital formation, changes in inventories and exports and imports of goods and services. Furthermore, the expenditure categories are broken down by groups of products according to CPA 2008 nomenclature to the most detailed level possible, as will be shown in the following chapters.

Table 1: ***Correspondence between NACE Rev.2 and aggregated level 35 main activities***

Code	Nace Rev. 2	Descriptions
A01_03	1-3	Agriculture, forestry and fishing
B	5-9	Mining and quarrying
C10_C12	10-12	Manufacture of food products, beverages and tobacco products
C13_C15	13-15	Manufacture of textiles, wearing apparel and leather products
C16_C18	16-18	Manufacture of wood and paper products, and printing
C19	19	Manufacture of coke and refined petroleum products
C20_C21	20, 21	Manufacture of chemical and pharmaceutical products
C22_C23	22, 23	Manufacture of rubber and plastic products and other non-metallic mineral products
C24_C25	24, 25	Manufacture of basic metals and fabricated metal products, except machinery and equipment
C26_C230	26-30	Manufacture of machinery and transport equipment
C31_C33	31-33	Manufacture of furniture; other manufacturing; repair and installation of machinery and equipment
D35	35	Electricity, gas, steam and air-conditioning supply
E36	36	Water supply
E37_E39	37-39	Sewerage, waste management and remediation activities
F	41-43	Construction
G45	45	Wholesale and retail trade and repair of motor vehicles and motorcycles
G46	46	Wholesale trade, except of motor vehicles and motorcycles
G47	47	Retail trade, except of motor vehicles and motorcycles
H49	49	Land transport and transport via pipelines
H50_H52	50-52	Water and air transport; warehousing
H53	53	Postal and courier activities
I	55, 56	Accommodation and food service activities
J58_J60	58-60	Publishing, audiovisual and broadcasting activities
J61	61	Telecommunications
J62_J63	62-63	Computer programming, consultancy and related activities; information service activities
K64_K66	64-66	Financial and insurance activities
L68	68	Real estate activities
M69_M71	69-71	Legal and accounting activities; management consultancy activities; architectural and engineering activities
M72_M75	72-75	Scientific research and development; other professional, scientific and technical activities
N77_N82	77-82	Administrative and support service activities
O84	84	Public administration and defense; compulsory social security
P85	85	Education
Q86_Q88	86-88	Human health activities
R90_R93	90-93	Arts, entertainment and recreation
S94_98	94-98	Other services and activities of households

The ESA 2010 transmission program requires the compilation of at least basic tables shown below in order to achieve a good data situation.

- Inclusion of the components of GDP by income approach.
- Add remaining components to the framework to conform to the EU transmission programme requirements such as distinction of output into market, non – market, own final use; Cif/Fob adjustment; transactions for non-residents in Albania and transactions for residents abroad.
- Compile the IOT using the product technology assumption.
- Add remaining parts to IOT framework, such as final demand, to conform to the EU transmission programme requirements.

Under IPA MB 2019, component PP.1.7, INSTAT has achieved improvements on framework of compiling the SUT and IOT. Despite the achievements and improvements further elaboration of data sources is required, especially on:

- Analysis and assessment of available SBS data on cost structures Inclusion of "third quadrant" variables into the Use table in current values: .
  third quadrant variables related to the income approach to GDP are missing:

I. Compensation of employees
II. Wages and salaries
III. Other taxes less subsidies on production
IV. Consumption of fixed capital
V. Operating surplus, net
VI. Operating surplus, gross
VII. Mixed income, gross

- Preparing 5-yearly tables 2010, 2015, 2020.

The following SUT tables of the official transmission programme (ESA 2010) are transmitted:

- Table 1500 - Supply table at basic prices, including a transformation into purchasers' prices, 2009-2020 (SUP pp);
- Table 1600 - Use table at purchasers' prices, 2009-2020, (USE pp);
- Table 1700 - Input-output table at basic prices, 2015, 2020 (IOT total, 64*64 level of aggregation, product*product);
- Table 1750 - Input-output table at basic prices, 2015, 2020 (IOT total, 64*64 level of aggregation, industry*industry).
- Table 1610 - Use table in basic prices,2010,2015, 2020 Table 1611 - Domestic use table in basic prices, 2010, 2015, 2020
- Table 1612 - Imports table, 2010, 2015, 2020
- Table 1620 - Margins table, 2010, 2015, 2020
- Table 1800 - Product table domestic economy, 2010, 2015, 2020
- Table 1900 - Imports table in product by product format, 2010, 2015, 2020
- Table 1630 - Taxes less subsidies on products 2010, 2015, 2020
- Table 1631 - Taxes less subsidies on products - excluding VAT 2010, 2015, 2020
- Table 1632 - Value Added Tax, 2010, 2015, 2020
- Table 1633 - Taxes on products 2010, 2015, 2020
- Table 1633A - Taxes on imports on products 2010, 2015, 2020
- Table 1633B – Other tax on products 2010, 2015, 2020

- Table 1634 – Subsidies on products 2010, 2015, 2020

2.3. Special transmissions

The first transmission of 2014 SUT data is done on 2017. The second transmission is done on December 2018, in SDMX format, with the data of 2015, and with "confidentiality" status. The transmission of the tables below was one of the objectives of the project PP.1.7. Under IPA 2019 INSTAT will prepare and transmit the missing taxes and subsidies tables (1631, 1632, 1633, 1633A, 1633B, 1634) for 2015. Additionally, these tables will also be prepared and transmitted for 2020, together with the special tables 1610, 1611, 1612, 1620, 1630, 1700, 1800, 1900.

2.4. Policy for metadata

For this point, the Databases and Metadata Sector has implemented the Meta + program for structural Metadata. For referential Metadata, ESMS/ ESQRS standards are implemented and for each statistical product that INSTAT produces priority labels are set:

- Priority 1 for flows published at the INSTAT website and data transmitted to EUROSTAT;
- Priority 2 for flows published at the INSTAT website but no data transmitted to EUROSTAT;
- Priority 3 for flows produced but not published at the INSTAT website (mainly data transmitted to EUROSTAT).

The ESA10_NQREQ_A_AL_2021_0000 for the reference year 2018 and 2019 is provided in Metadata handler and the work on fulfill the required information is ongoing. INSTAT located the report for 2019 in the Metadata Handler and inspected its contents

3. CHAPTER 3 OVERALL SUT COMPILATION APPROACH IN CURRENT PRICES AND PRICES OF THE PREVIOUS YEAR

3.1. General architecture of the SUT system

In framework of IPA 2007 Multi-beneficiary Statistical Cooperation Programme, Project 5 National Accounts project has started the work for the SUT compilation. In the following years, the work was focused mostly on the analysis of multiple data sources in order to improve the evaluation of these tables and achieving a satisfactory quality level for publication.

The compilation of the SUT in Albania, in addition to the level of valuation at 90 products * 89 industries (NACE Rev. 2, 2-digit level), is done at aggregated levels as 64 * 64 and 35 * 35. These levels have been developed to enable the consistency with other publications of national accounts in Albania. All classifications and nomenclatures used are consistent with those of Eurostat, enabling a comparable view of these tables in the international arena. A very important point, related with SUT system in Albania, is even the experimental estimation in constant prices. The advantage of this process is the deflation of each product with corresponding prices at the most detailed level. Referring again to the more detailed level of products treated, the determination of price indexes is much more precise than the more aggregated prices used for the relevant industry.

The SUT framework consists of 5 basic tables. The first two tables, supply and use, are compiled annually and the input-output tables are compiled on a five-year basis.

a. Supply table at basic prices, including a transformation into purchasers' prices (SUP)
b. Use table at purchasers' prices (USEpp)
c. Input-output table at basic prices (IOTtotal)
d. Input-output table of domestic output (IOTdom)
e. Input-Output table of imports (IOTimp)

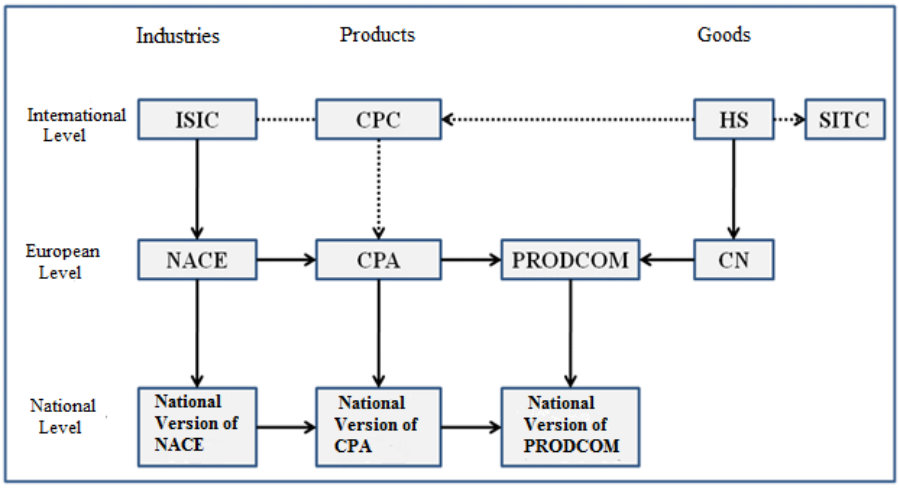
The SUT framework contains other matrixes too, which significantly enhance the quality of their evaluation. Among these matrices can be mentioned:

f. Use table of imports at basic prices (USE impbp)
g. Trade and transport margins (TTM)
h. Taxes less subsidies on products (TLS)

Compilation of these additional tables enables a full analysis of the product flow and at the same time, it defines the components of an aggregate in a detailed way. These matrices are important to evaluate the use table at basic prices, which is a transformation of use table at purchaser's prices.

Nomenclature System

Figure 2[1] shows a schematic representation of nomenclatures used internationally for the transition at European level but also the correspondences with the nomenclatures used by each country. Often these nomenclatures do not have a direct correspondence with each other because of the level of aggregation and their primary goal. However, many studies at a detailed level were developed to enable their relationship. Figure 2: *Nomenclatures relationship*



Regarding the international nomenclatures ISIC represents the classification for productive activities while CPC for goods and services products. HS nomenclature is the most detailed international nomenclature and is the reference nomenclature for CPC and SITC. At European level, NACE is the most aggregated level which is derived from ISIC and has the same categories. At the same time, NACE serves to derive CPA which is the nomenclature of products at European level. In case of European nomenclatures CPA and CN, which is a derivation of HS, the most

[1]Eurostat,"Nace Rev. 2, Statistical classification of economic activities in the European Community", Methodologies and working paper, pg 13

detailed level of goods is PRODCOM which is a nomenclature only for goods and has a level of aggregation of 8 digits, from 6 digits for CPA.

Each country at the same time develops national nomenclatures in coherence with those mentioned above but representing the most important products and activities for the country. In case of Albania they are a derivation from the European nomenclatures.

Supply and use framework

The SUT framework provides a detailed description of production process but also the commodity flows in economy. While the commodity flow approaches and product balances are applied at individual product (or group of products) level, the SUTs integrate the product balances of all individual products (or group of products) in matrix framework to present a coherent picture of supply and uses of both the individual products and the whole economy. The whole system of compilation and balancing supply and use tables consists of 6 phases: (1) Preparation of data for aggregates, (2) Balancing SUT at purchasers' prices, (3) Compilation of valuation sets (layers) and calculation of use tables at basic prices, (4) Analysis of time series and ratios, (5) Transformation of supply and use tables into prices of the previous year, and (6) Adjustment of data at current prices based on comparisons of changes in volume indicators and alternate indicators.

The Supply Table

A supply table shows the supply of goods and services by type of product of in economy for a given period of time. It consists on the production matrix which in itself is divided into two main parts; by the domestic production and imports of goods and services, the matrix of transport and trade margins and the matrix of net taxes (taxes less subsidies on products).

The values of the domestically produced products and import in the supply table are shown initially at basic prices while they are transformed to purchasers' prices in the final columns, where for each product, the net taxes on products (taxes less subsidies on products), trade and transport margins are added. This transformation of supply from basic prices to purchasers' prices is done in order to have balanced supply and use at the same valuation system, at purchasers` prices. The transformation process beside the economic importance it is a mandatory of ESA 1995 and 2010 which requires the supply table at basic prices including a transformation into purchasers' prices. The supply table contains three main matrices:

Production matrix

The output matrix broken down by commodity and by industry classification is compiled by institutional sector and by market and non-market output. The fundamental data source is the Structural Business Statistics (SBS) survey, where selected companies with 5 employees or greater report sales by commodity groups (CPA 3). This survey is conducted annually and covers most of industries. For industrial industries, we use data from the statistical survey PRODCOM, which surveys commodity structure too. Commodity structure of other non-market output of general government and non-profit institutions serving households is obtained as diagonal matrix where diagonal elements correspond to the output vector broken down by industry assuming homogeneous industries (NACE code = relevant CPA code). These structures are used to allocate source data and

extrapolations. Conceptual and exhaustiveness adjustments are allocated to the output matrix individually to the product which they related to

Import matrix

Imports include imports of goods and imports of services. Imports of goods within supply and use tables include inverse (negative) merchanting, re-exports and imports of other goods. Commodities are surveyed by Harmonised System (HS) and transformed by Conversion Bridge to product classification (CPA). Imports of services is divided into import of processing services, purchases by residents abroad and imports of other services. Purchases of residents abroad are taken over from the balance of payments (BoP) in less detailed breakdown and other estimates are employed to distribute the data by CPA. Imports of processing services and other services are surveyed directly in the CPA classification

Taxes matrix

Net taxes on products (taxes less subsidies). Net taxes on products are divided into value added tax (VAT), custom duties and other taxes on products excluding custom duties and VAT and subsidies on products. VAT by commodity group is obtained by multiplying the tax rate by the relevant assessment base. The base consists of those components of use to which no VAT deduction can be applied. The base consists of HFCE (excluding non-taxable items e.g. own-account production and imputed rental), intermediate consumption and GFCF of non-payers of taxes and a part of exports (purchases by non-residents in the Albania). The tax thus calculated is then reconciled with actual VAT collected. Other net taxes on products relate to selected products and services and are easily classifiable into commodity groups (e.g. excise tax on fuel, alcoholic beverages and tobacco products, resort and recreation fees, real estate acquisition/transfer tax etc.).

Trade Margins

Estimates of trade margins are mainly based on supply side data (data on trade margins in each particular industry). This data are combined with data on revenues by type of service in a detailed breakdown. Trade margins by commodity groups are then related to those parts of total use vectors that are distributed through trade services. This gives coefficients that express the relative margins in each group of commodities. During further work on supply and use tables, then, overall trade margins are used (both wholesale and retail together). Trade margins are compared in a time series and any extreme values are adjusted.

Transport margins

Transport margins. Statistical questionnaires are used to obtain data on revenues of selected types of carriers separately, broken down by type of transport (land road, railway, water and air). These data are combined with information on the goods transported which are reported by the carriers or are estimated by experts. Transport margins are estimated by commodity groups. Subsequently, rates of transport margin are calculated in the same way as trade margin. The value of transport margins is low in comparison to the value of trade margins because the transport fee is usually accounted in the business accounts of both the carrier and the customer separately from the price of the goods.

The matrices have a structure in rows by category of products, allowing the horizontal aggregation of all elements by the total output of industries at basic prices, to the total supply at purchaser prices. Firstly, domestic product at basic prices and imports in CIF value are aggregated to the total

supply at basic prices. In the second step of the evaluation vectors of trade and transport margins and net taxes on products are added to the total supply at basic prices in order to obtain the total supply at purchaser prices. The output of an industry at basic prices (in the column) corresponds to the total output of an industry at the supply table.

Table2. Supply table

Industries (NACE) / Products (CPA)	Production of industries (NACE)							Imports		Valuation		
	1	2	…..	…..	m-1	m	**Total**	Imports CIF	**Total supply at basic prices**	Trade and transport margins	Taxes less subsidies on products	**Total supply at purchasers' prices**
1	Production Matrix						Domestic output	Import matrix	Total supply at basic prices	Valuation matrix		**Total supply at purchasers' prices**
2												
…												
…												
…												
…												
n-1												
n												
Total	Total output of industries at basic prices							Imports CIF				
CIF/FOB adjustments on imports												
Direct purchases abroad by residents												
Total	Total output of industries at basic prices							Imports FOB		Total		
Market output												
Output for own final- use												
Other non-market output												

The Use Table

A use table shows the use of goods and services by product and by type of use for intermediate consumption by industry, final consumption expenditure, gross capital formation or exports.

The use table also shows the components of gross value added by industry for compensation of employees, net operating surplus, other taxes less subsidies on production, and consumption of fixed capital. This table has two main objectives, firstly, it reveals by column the input structure of each industry and secondly, it describes in the rows the use of different products and primary inputs (labor and capital).

The use table is valued at purchasers' prices, while the supply is valued at basic prices. For balancing purposes, the use table may also be valued at basic prices.

In order to enable this transformation, it is necessary to deduct trade and transport margins and net taxes from the use table. At the Table 3, the use table is presented by its main components where it can be noticed that the intermediate consumption matrix is equivalent to the production matrix while final demand components are vector matrices with the same number of products as well as other matrices.

Table 3.Use table

Industries (NACE) / Products (CPA)	Input of industries (NACE)							Final uses						Total use at purchasers' prices
	1	2	…	…	m-1	m	**Total**	Export	Final consumption by households	Final consumption by government	Final consumption by non-profit organizations	Gross fixed capital formation	Changes in inventories	
1	Intermediate consumption at purchasers' prices						Total intermediate consumption of products	Final demand at purchasers prices						
2														
…														
…														
…														
…														
n-1														
n														
Total	Total intermediate consumption of industries													
Cif/ fob adjustments								Adjustment						
Direct purchases abroad by residents														
Domestic purchases by non-residents														
Total														
Compensation of employees	Gross value added at basic prices													
Other net taxes on production														
Consumption of fixed capital														
Operating surplus, net														
Gross Value added at basic prices														
Output at basic prices														

3.2. SUT compilation and balancing procedure

INSTAT has elaborated a standard procedure of compilation and balancing of the annual national accounts. This procedure has been used for final GDP estimation by production and expenditure approach (t+36 month after the last year which they refer). The main balancing tool for the independently produced GDP estimates are annual supply and use tables at current prices and at constant prices. However, the compilation of supply and use tables after the compilation of production and expenditure approach does not provide a full freedom of balancing, because it is based on the reliability of data sources. Analyzing the data quality and compilation methodology for expenditure approach GDP (E) that is not fully independent from production approach GDP (O) is decided that production approach is the leading estimation.

The standard procedure for compilation and balancing supply and use tables in current and constant prices tables can be shown in 4 main steps described in the following sections.

Step1 – Data sources preparation

The first step is one of the most important that has a direct effect on the quality of the SUT and on consecutive steps. The compilation of supply and use tables aggregates requires the most detailed

data sources information and various types of adjustment are made in order to meet the SUT framework format and classification.

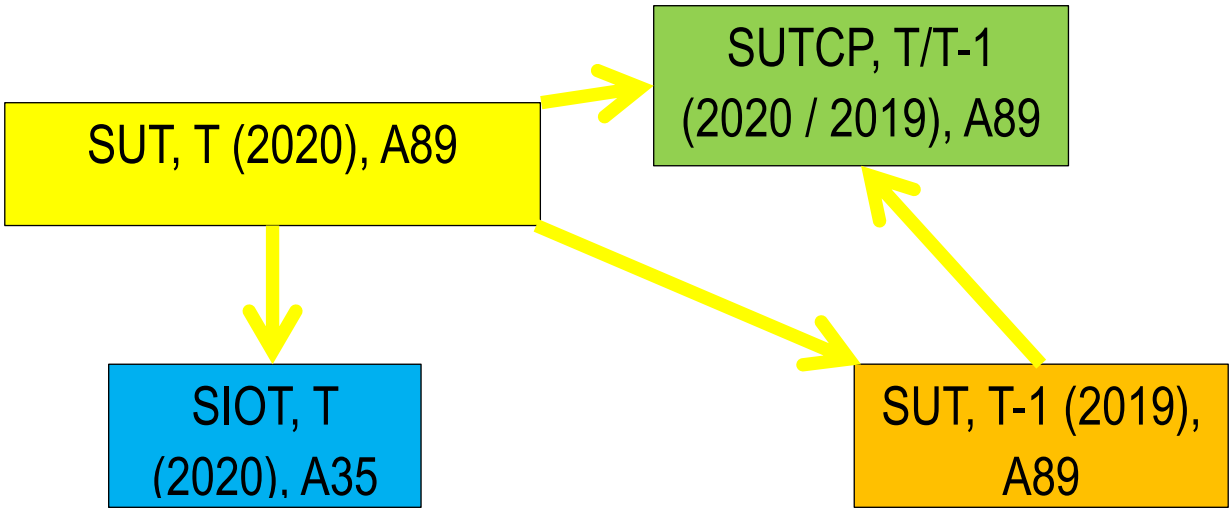
In figure 3 is illustrated the relationship and the relative importance of each framework part of SUT system, showing schematically the way of compilation

Following the ESA methodology on SUT compilation, the proposed SUT structure will consist of the following transactions in tabular format, with a breakdown by activity (horizontal) and by products (vertical):

a. Total supply in purchaser prices, by activity and by product:
   - output (activity x product table)
   - imports (product column)
   - net taxes (product column)
   - trade and transport margins (product columns)

b. Total use in purchaser prices, by activity and by product:
   - intermediate consumption (activity x product table)
   - exports (product column)
   - household consumption (product column)
   - government consumption (product column)
   - NPISH consumption (product column)
   - Changes in inventories (product column).
   - gross fixed capital formation (product column)

Figure 3: SUT framework design (rectangle size indicates relative importance)



Output

Output consists of the products created during the accounting period. Basically it is the sales of own products and services. Three types of output are distinguished in the ESA 2010:

Market output (P.11) consists of output that is disposed of on the market or intended to be disposed of on the market, **output produced for own final use (P.12)** which consists of goods or services that are retained either for final consumption or for gross fixed capital formation by the

same institutional unit and other **non-market output (P.13)** that covers output that is provided for free, or at prices that are not economically significant to other units.
The output is also divided based on relation to individual institutional units: **market producers** (the major part of their output is market output), **producers for own final use** (the major part of output is for own final use within the same institutional unit) and **other non-market producers** (the major part of the output is provided for free or at not economically significant prices).
All output has to be valued at basic prices. It is the price receivable by the producers from the purchaser for a unit of a good or service produced as output, minus any tax payable on that unit as a consequence of its production or sale (i.e. taxes on products), plus any subsidy receivable on that unit as a consequence of its production or sale (i.e. subsidies on products). It excludes any transport charges invoiced separately by the producer.

The output matrix in the commodity and industry breakdown is compiled using a top-down method. Total output of industries at 2-digit NACE level is taken by production approach estimation. For each of the industries, covered by SBS, the breakdown of product output is treated by the structure of turnover at enterprise level. The initial information is taken for each enterprise and is treated at a detailed level for each industry corresponding to the 2-digit NACE Rev. 2 classification. In addition to handling at 4-digit level for industrial products, more detailed information at 6-digit level from the SBS is also used, corresponding to the CPA nomenclature, which is related to commodities produced by a resident enterprise. The determination of the share of products is the next step for enterprises to be classified at the same 2-digit level industry. This structure is then used to distribute the total output of industries by corresponding products. The same logic is used for other industries, which are not covered by this survey, according to the level of detail that is available from alternative sources.

Imports
Total imports are composed by two main groups; imports of goods and services. The source of information for imports of goods is foreign trade data, classified at 8-digit level of the Combined Nomenclature (CN) enabling a comprehensive and detailed treatment. By using correspondences CN-CPA, this information is transformed to the desired level of aggregation, which has the same level of aggregation as for the output.
Information to estimate imports of services is taken from the Balance of Payments (BoP), valuated by Bank of Albania (BoA). The services categories are classified according CPA 2008 nomenclature.
Since this table is designed to show the total supply by type of products, the valuation of imports should be compatible with that of production. Imports by products, therefore, are valued at CIF prices, comparable with basic prices. Adding both components, production and imports, gives the total supply at basic prices.
Import data contain a number of adjustment rows and columns whose complementary objectives are twofold: to homogenize the valuation of imports by products (CIF) with the one recommended by ESA 2010 for total imports (FOB), and to eliminate the possible duplication of economic resources, since a part of transport and insurance services in the country is included in the CIF valuation of imported goods. Therefore, an extra row for CIF/FOB adjustments on imports is added on supply table, which is used to reconcile the different valuations of imports with a global negative CIF/FOB adjustment in the import column. In addition an extra row is added for direct purchases abroad by

residents. A detailed description of method used for the cif/fob adjustment, purchases of residents abroad and purchases of nonresidents in domestic territory are given in Chapter 4.

Trade margins

The value of trade margins represents the output of wholesalers and retailers. Since the traders are treated as supplying services, their output is measured by the total value of the trade margins realized for resale.

Trade margins evaluation is a difficult task and this is due to the wide range of products, different product margin ratios in trading establishments as well as different product distributive channels. Thus plausible assumptions should be made in order to achieve a realistic view and also by using different data sources in order to evaluate trade margins. Using the annual reports from enterprises through balance sheets (BS) and SBS, we can evaluate the output of the enterprises that are classified as wholesale or retail trade (NACE 45, 46, 47) and adding the trade output of enterprises that have trade as secondary activity.

The estimation of trade margins is based on the trade of homogeneous products (CPA 45, 46, 47) which is equal to total output of enterprises classified as trade establishments (NACE 45, 46, 47) and output of enterprises that have trade as secondary activity. Total output of trade is then allocated to products based on margin ratios and distributive channels.

A detailed description of method used for the allocation of trade margins on products is given in Chapter 4.

Transport margins

Transport margins include transportation costs paid separately by the purchaser and are included in the use of products at purchasers' prices but not in the basic prices of a manufacturers' output or in the trade margins of wholesale or retail traders.

Basis for transport margin estimation are the data for enterprise transport expenses from the annual reports, the SBS and also Imports-Exports database from the General Directory of Customs

The first step is the evaluation of foreign transport margins, as available in the Imports-Exports database. In the customs declaration, enterprises are obliged to declare transport cost paid separately. Imported products on CIF basis and transport cost for each product are declared at a detailed level CN 8-digit, and because of this it is possible to obtain the trade margin percentage for each imported product.

The second step is the evaluation of domestic transport margins from transport expenses that enterprises report in the SBS and balance sheets. Data for 1,933 enterprises which also were related with Imports database have been analyzed. From the total transport expenses reported by SBS and balance sheets are foreign transport expenses subtracted and the residual has been treated as domestic transport expense.

By this way, transport margins are calculated separately for individual groups. The rates calculated for 2017 are used also for other years.

Net taxes on products (excluding non-deductible VAT)

Net taxes (taxes less subsidies) on products are involved in the transition matrix (valuation matrix) part of the supply table and include:

- VAT on domestic products;
- VAT on imported products;
- Excise duties on domestic products;
- Excise duties on imported products;

- Other taxes on domestic products;
- Customs duties on imported products;
- Subsides on products.

Data sources for the evaluation of net taxes on products are the Ministry of Finance (MoF), the General Directory of Taxation for domestic production and traded commodities and the General Directory of Customs for imported products. Evaluation of net taxes on products for imported products is done at the most detailed level, at transaction level for commodities by CN 8-digit using the customs extended procedure and then this data are transformed at 2-digit CPA. Whereas for domestic production and traded commodities data on taxes are much more aggregated, VAT and subsides have a 4-digit breakdown level according to the NACE classification and other taxes have a 2-digit level breakdown according to CPA classification.

Intermediate consumption

The matrix of intermediate consumption is compiled similarly as the output matrix. Total intermediate consumption of industries at 2-digit NACE level is taken from the Annual National Accounts Section which is responsible for the production approach. The main data source for intermediate consumption by products is SBS. Specific information is obtained from the cost structure table in SBS at 2-digit level CPA breakdown. Also, to enable more complete information for each enterprise, the type of expenses in the income statement (statement of revenue & expenses) reported in SBS and balance sheets are checked.

The industries covered by other sources are:

- Agriculture, hunting and forestry industries – Data for output and inputs in agricultural production are taken at product level from Agriculture and Environment Statistics Directory INSTAT.
- Financial activities – For financial activities: the information regards second level banks' balance sheets. The second level banks represent the main part of this activity and the cost structure of these banks is used for all financial activities.
- Public Administration, Health and Education – Data are taken from Ministry of Finance for each institution at a detailed level of intermediate consumption. Each category of expense is classified at a corresponding CPA code.

There are also some intermediate products for which there is reliable information on their values, such as electricity consumption or financial expenses. For these products, it is possible to determine the exact value for intermediate consumption of each industry, government or intermediate or final consumption expenditure of households.

Household final consumption expenditure

Household final consumption expenditure (HFCE) covers expenditures incurred by households to acquire consumption goods and services. Household final consumption expenditure can be subdivided into three large components:

- purchases of goods and services;
- goods and services produced as outputs of unincorporated enterprises owned by households that are retained for consumption by the members of the households (own-consumption of goods and services);
- Remuneration in kind.

The primary estimation of household consumption in National Account Directory is performed by Institutional Sectors Accounts. Sources for the distribution of household final consumption expenditure by products are the Households Budget Survey (HBS) and also the application of the commodity flow method. Data on household consumption expenditure are collected according to Classification of individual consumption by purpose (COICOP) where products are grouped according to the purpose of use and the SUT framework is according CPA classification. For this reason, COICOP-CPA bridges should be derived. Since there is not a complete correspondence between these nomenclatures, a bridge matrix is constructed using weights to enable the relationship at 6 and 4-digit level according to CPA 2008.

Exports

As for imports, data for exports goods are taken from the Foreign Trade Sector and data for exported services are taken from the Balance of Payment. Exports of goods and services are evaluated at 'free on board' (FOB) prices. Their integration in SUT framework is based on the same classification and level of breakdown as in the case of imports. For exported goods the CN 8-digit classification is used, and the data are aggregated at 2-digit level of CPA. Total exports of goods estimated from foreign trade statistics is adjusted with ESA 2010 methodology for goods sent (received from) abroad for processing and are registered in net value. Data for exported services are taken from Balance of Payment and then classified at product level.

Gross fixed capital formation

Gross fixed capital formation (GFCF) includes domestic and imported products for capital formation as tangible assets (buildings, machinery, transport equipment, etc.) and intangible assets (subsoil assets, software assets, entertainment, literary and artistic originals), as well as improvements to non-produced assets (land). The primary information for this component is taken from GDP by expenditure approach then is done analysis on product level to enable a complete estimation.

Government final consumption expenditure and NPISH

Government final consumption expenditures include all final expenditures on goods and services performed by institutions involved in the government sector. Government final consumption expenditures are composed by expenditures for individual and collective consumption. Collective government expenditures include public administration expenditures, defense and improvements in general medicine, etc. Individual government expenditures include health and education, in kind contribution, etc.

Same concepts used for institutional sectors are used even for NPISH, because their production is a non-market output. Because NPISH serve households by definition, they only have individual expenditures. Information used for their integration in the SUT framework is taken from the Ministry of Finance at institutional level and classified by 2-digit level products of CPA, considering expenditures purposes.

Changes in Inventories

The Total change in inventory relate to: (a) Raw materials and supplies, (b) Work in progress, (c) Finished goods, (d) Goods for Resale.

The estimates regarding changes in inventories contain the outcome of simplified inventory valuation method. The data sources used are SBS and Financial Statements of enterprises. To improve the data quality for a given year (year t), the information is taken three consecutive years from the previous year (t-1) and the following year (t+1) for each of data sources. For each enterprise is taken the value of opening and closing stock for the consecutive years and analyzed the values of opening stock for year (t) with closing stock from year (t-1) also the closing stock for year (t) is compared with opening stock for year (t+1).

After the evaluation of all components for changes in inventories for the total economy an alternative method is used for their distribution in products.

- In order to distribute the share of raw materials by services is used the total structure of intermediate consumption. While the share of raw materials by manufacture industries are used the structures of intermediate consumption of the respective industry.
- For the distribution of work in progress at product breakdown the structure of output from the product list is used, only for those enterprises that have declared work in progress and have fulfilled the product list.
- Finished products are distributed by the total structure of output.
- Goods for resale are distributed by the total trade margins structure.

Step 2 – Compilation of initial estimates

In Step 2 the data for all aggregates at the desired commodity and industry breakdown prepared in Step 1 are transferred into framework. The objective of this stage is to compile first an unbalanced SUT in current prices and to give a general overview of the sources that are prepared. For each commodity, the discrepancies between supply and use are studied, and discrepancies larger than 10% are analyzed with a feedback to the primary data sources. In collaboration with the Annual Accounts Sections responsible for the compilation of the production and expenditure approach, various analyses are done about the quality of these estimates. After the data analysis, several adjustments are done for cells that are considered as weak data and for classification mismatches in order to achieve the maximum of 10% discrepancies between supply and use.

Step 3 – Balancing procedures for SUT tables in current prices

Data analyzed in second step, now enter in the stage of balancing process. Discrepancies between 5% and 10% will be ***manually analyzed and balanced***. Supply and use at the most detailed level of approximately 1500 products at 4 and 6 digits CPA groups are analyzed, using the commodity flow approach. For a correct balancing of supply and use, it is very important to check the quality of data sources. The cells with strong information are excluded from the stage of automatic balancing by making them yellow and are not adjusted. Administrative data for example, import-export data from the Customs, taxes from Ministry of finance and Government expenditure are considered strong data. The manual balancing process is of course simplified when cells cannot contain any value by definition (for example services do not have trade and transport margins and these cells are equal to zero).

The next stage is an ***automatic balancing process*** when the plausible economic pictures have been defined for all the economic components, an algorithm is used for final balancing of products with a discrepancy between supply and use of less than 5 %. The SUT framework is a build Excel application that has several linked sheets that is programmed to perform particular calculations

using a written macro in VBA Excel. The framework file only contains the calculations, the data, taken from the SUT sources and the start macro that inserts the data in the correct location of the SUT.
Using a mathematical regression, build in a VBA macro, for the automatic balancing founds an optimum distribution with a minimum of squared discrepancies (between supply and use by rows). The balancing macro starts an automatic process that will do both horizontal and vertical pro-ratings automatically, and iteratively, for a number of iterations specified in framework. Cells marked by yellow will not be changed in the balancing process.
The replacement factors are changed appropriately after iteration and this process is repeated until the balance between supply and use is achieved.

Step 4 – Deflation of SUT to previous year`s price (constant prices)
The estimation of SUT at constant prices starts after balancing the SUT in current prices. When compiling a SUT in constant prices, the compilation of a SUT for year T in prices of year T-1 needs to be tested. The framework therefore contains three SUTs at the same time: the ones for years T-1 and T in current values and the one for T in prices of T-1. The results of first compilation for SUT at previous year prices were not yet sufficiently well established for publication. The work is ongoing for simultaneously compilation of SUT and SUT CP for the year 2020.
These tables are based on the principle that a change in the value of a homogeneous product is due to a change in volume or price. Based on this principle, the final tables must be a balanced system at constant prices where changes in all their constituent components are due to a real change in the volume or change in the price of the respective product.
The methodology for the estimation of SUT at constant prices is based on European standards of evaluations at constant prices (see the Handbook on Price and Volume Measures in National Accounts). For each component were taken specific indices at the most detailed level of aggregation. Used indices are:

- Producer Price Index (PPI),
- Consumer Price Index (CPI),
- Construction Cost Index (CCI),
- Import Price Index (IPI),
- Average wage index,
- Indices of agricultural and fishery products.

Step 5 – Conversion of Input-Output tables
The balanced supply and use tables serve as basis for the conversion into the symmetric table. The symmetric input-output table (SIOT) – that consists of homogeneous units in respect of both output and input – can be derived from the supply and use tables via a mathematical transformation and by the use of complementary information.
The data base for the conversion of symmetric input-output tables from supply and use tables comprises the following tables:

- Supply tables at basic prices
- Use table at basic prices
- Use tables for domestic output at basic prices
- Use tables for imports at basic prices

The derivation of SIOT is based on a M4 model that will be explained in detail in Chapter 8. The industry-by-industry table will be compiled from an industry perspective by moving secondary output up or down obtaining homogenous industries (the assumption of fixed products sales - each product has its own specific sales structure, irrespective of the industry where it is produced). The term "sales structure" indicates the shares of output of a product being sold to respective intermediate and final users. This approach does not require assumptions what is actually known about the economy from observed data and use only SUT data.

3.3. Volume estimates (if applicable)

Not yet applicable. Until now INSTAT has compiled only experimental SUT`s at previous year prices. These estimates are not yet sufficiently well established to warrant publication.

3.4. Chain-linking and benchmarking

INSTAT has built a supply and use table's framework from scratch, and the entire framework is under development. Until now the estimates are made directly every year on the basis of current data sources and are not based on weights derived from the previous year or a benchmark year.
Now it is important to develop further the SUT framework, firstly with better quality of the source data and to attempt including the income approach and finally to plan a benchmark revision, once every five years.

4. CHAPTER 4 COMPILATION OF THE SUPPLY TABLE IN BASIC PRICES (CURRENT PRICES)

4.1. Introduction

The Supply Table shows the supply of goods and services by product and by type of supplier, distinguishing supply by domestic industries and imports of goods and services. The domestic output contains information on the supply of products by the different industries. The column for the imports of goods and services contain information on the total imports by products. The matrices for domestic output and imports of goods and services have the same row structure defined by categories of products.
The Supply Table at basic prices is then transformed to the Supply Table at purchasers 'prices, through the addition of valuation adjustments represented by valuation matrices containing trade margins, transport margins, taxes on products and subsidies on products. The transformation process, beside the economic importance, is mandatory according to ESA 2010. The supply table contains three main matrices:

- Production matrix;
- Import matrix;
- Adjustment matrix.

The compilation of supply table goes through two steps:
The first step in the compilation of an initial version of the Supply Table involves therefore the compilation of data for total domestic output at basic prices and imports valued at CIF prices aggregated to total supply at basic prices.
The second step involves the compilation of trade and transport margins, taxes on products less subsidies on products which are used to convert total supply of products at basic prices to total supply of products at purchasers' prices.

Valuation sets

Current Prices		Previous years prices
	Purchasers prices	=
-	Vat	+
-	trade margins	+
-	transport margins	+
-	subsidies on product	+
-	taxes on product	+
=	basic prices	

4.2. Output, including industry and product breakdowns

The first element of the supply table is the production matrix which reflects the production activity of industries in economy. The basis for compilation of the production matrix is the annual estimate of industry output from the production approach.
In accordance with the basic accounting principle, data in annual accounting statements, which are used for the estimation of output and intermediate consumption components, are on accrual basis. Administrative sources, which are used, are generally on a cash basis. Therefore, several adjustments are necessary to transfer the cash based data to accrual based data.
In principle output is valued at basic prices and this includes taxes and subsidies on production. Changes in inventories are adjusted for holding gains at industry level and by type of inventory. All products included on intermediate consumption are valued at purchasers' prices.

Transition of data sources to national accounting concepts according ESA 2010

The transition process is an important part of national accounts compilation and particularly of GDP by the production approach. The estimation of GDP by production approach mostly depends on accounting statements' data (profit and loss accounts) as well as on the annual structural survey, the budget database from Ministry of Finances and other data sources. The questionnaires of SBS are gradually improved following national accounts' definitions (with detailed information on incomes and expenditures, intermediate costs, etc.). As well in the annual account statements, statistical annexes that contain detailed description of revenues and expenditures for some items in bookkeeping data are added in order to transform the business accounting standards to the concepts and definitions of national accounts.

Transition from private accounting to ESA 2010 national accounting concepts

The initial calculations are additionally adjusted for other conceptual differences between business accounting and national accounts definitions – adjustments for own account production, not recorded in business accounts; holding gains and losses, recording of business travel expenses; FISIM allocation.
Except of the FISIM allocation, all other adjustments are made directly in the first estimates of output and intermediate consumption from enterprises data. Business data provide information on items, production of fixed assets, travel expenses, and financial expenses. The values are grossed up to the total population of enterprises during the compilation process and it is impossible to provide a

separate value of each conceptual adjustments. It means that the value of output and intermediate consumption, in the "Basis for NA Figures", includes implicitly conceptual adjustments in the ESA 2010 process table. Production and allocation of FISIM is a separate item for conceptual adjustments in the ESA 2010 process tables.

Exhaustiveness adjustments for tips are made on GDP by production approach and they are treated as N7, statistical deficiencies in data. Exhaustiveness adjustments are done from production accounts and in the following step are shown the transition from accounting data to the final value of output and intermediate consumption in national accounts concepts.

1. Sales of goods and services on domestic market and export
2. Sales of trade goods on domestic market and export
Total turnover (1 + 2)
3. Less: purchase value of sold goods for resale
4. Additions to less withdrawal from inventories
5. Value of goods for own final use
6. Current transfers from general government, subsidies
Output at basic prices according to data sources (1+2+3+4+5+6)
7. Exhaustiveness adjustments
Output at basic prices in national accounts

Intermediate consumption

Intermediate costs are shown in accounting data sources of companies:

- materials and supplies;
- services and other business costs, such as travel and accommodation on business trip and reimbursement of the other business costs of employees;
- other operating costs

Intermediate consumption, components and adjustments
1. Materials
2. Supplies and services
3. Other operating cost
Intermediate consumption according to data sources (1+2+3)
4. Conceptual adjustments, FISIM
5. Exhaustiveness adjustments
Intermediate consumption in national accounts

Transitions from public accounting to ESA 2010 national accounting concepts

Data on governments' budget coming from accounting system of the Ministry of Finance are used for the estimation of the General Government sector. By analyzing the expenditure data from government budget coming from the Ministry of Finances in more detail, an enormous effect of data redundancy can be seen for some of the fields. Data redundancy is the effect of repetition of data in database. IT processes are involved to reconstruct the databases in a more dynamic and workable, effective way. For the National Account purpose, a relatively analytic database is established for further improvement and implementation of the data source. In order to identify the

transactions according to ESA 2010 and to estimate output according to NACE Rev 2 classification, three bridge tables were applied to the data.

The first bridge table is used for the classification of the units. First a structure of the all spending units is built. More than one spending units might be part of one single Institutional Unit but this more detailed level of data allows us to have even more quality in the estimation of the separate parameters. During this step the information of each spending unit is analyzed to estimate the institutional sector, they belong to. This classification is made at the level of spending units. For some units that might represent some market output worth mentioning, we used the 50% criteria to be more secure of the actual classification used. During the analyses of the budgetary units there were no cases of changes of classification due to the 50% criteria. After that, an estimate of the main activity for each separate unit was performed according to NACE Rev. 2 classification.

The second Bridge Table is used for secondary activities classification. Some institutions may have more than one main activity NACE code and for this reason the institutions are grouped in three institutional groups.

- only one activity;
- two or more activities;
- semi-budgetary units

The institution into the first group follows only one activity and the future classification using NACE is from the data of the NACE group. For example: “Mother Theresa" University Hospital Centre has as its main activity health care (Section O of NACE Rev 2). All expenditures made by this institution are targeted at the improvement of the health care process. This institution doesn’t have any other second activity (not a relevant one) and its output is mainly non-market oriented. The general government institutions are good cases of this group, because they have only one main activity and they firmly stick to it.

The second group is made by institutions with different main activities. All these institutions have a general government activity, but going into expenditure detail, they appeared to have more than one activity. This section is comprised mainly of local units that operate in more than one activity. The activities range from water distribution to recreation activities. For these units we have built a new bridge table. This bridge table is based on the COFOG classification. For this classification the COFOG classification was transformed into ISIC and then adapted into the Albanian classification of COFOG in order to transform it into NACE Rev 2. (The Albanian COFOG classification has the same structure at 3 digit levels as the international classification, but at 6 digit level, the data are arranged according to the Albanian Ministry of Finance Needs). This classification allows having a better estimate of secondary activities and an estimate of the pure economic branches.

The Third Bridge Table is used for the transition from public accounts to ESA concepts. The full set of economic accounts of the Ministry of Finance was analyzed and a bridge table was built in order to pass to ESA2010 requirements. The nature of the individual transaction were analyzed and classified according to ESA2010 classification. To get more detailed information on ESA codes, we used a seven digit level of accounts. This information helps us to identify a good level of adoption of ESA 2010 codes.

This information is used to separately estimate the elements of Value Added and to identify the marked and non-market output and to enable estimating all non-financial accounts of General Government.

Output of industry

Output consists of the products created during the accounting period. Three types of output are distinguished in the ESA 2010:

- Market output
- Output produced for own final use
- Other non-market output

Market output consists of: output that is disposed of on the market or intended to be disposed of on the market. For market producers, production is composed of market production and production for own final use. Thus, production equals the value of produced goods and services in the period. Total output of industries is taken from production approach at 2-digit level according NACE Rev. 2 nomenclature and then is used the top-down method to distribute in products.

A more detailed explanation for industry output estimation can be found in Chapter 3 of GNI inventory.

Output produced for own final use consists of goods or services that are retained either for final consumption by the same institutional unit or for gross fixed capital formation by the same institutional unit. Products retained for own final consumption can only be produced by the household sector. Typical examples are: agricultural products retained by farmers; housing services produced by owner-occupiers; household services produced by employing paid staff. Products used for own gross fixed capital formation can be produced by any sector. Examples are: special machine tools produced by engineering enterprises; dwellings, or extensions to dwellings, produced by households; own-account construction, including communal construction undertaken by groups of households.

Other non-market output covers output that is provided free, or at prices that are not economically significant, to other units. Output is sold at economically significant prices when more than 50% of the production costs are covered by sales.

4.3. Output of products

The total output for each industry at NACE 2-digit level is taken from the GDP estimation by production approach and distributed in products. For each of the industries covered by SBS, the structure of turnover is treated at enterprise level. The initial information is taken for each enterprise and is treated at a detailed level for each industry corresponding to 4-digit NACE Rev. 2 classifications as presented in table 3.

Table 2: Breakdown of Turnover

No.	Industry	NACE 4-digit	Total Turnover (Thousand ALL)	Average Number of Employees
1				
2				
3				

In addition to handling at 4-digit level for industrial products, more detailed information at 6-digit level from SBS is also used, corresponding to CPA 2008 nomenclature, which is related to products produced by a resident enterprise. This information is available at enterprise level and it is shown in table 4.

Table 3: List of industrial products

No.	PRODCOM code	Product description	Unit of measure	Quantity			Sales excluding VAT (in thousand all)
				Production	Sale	Balance in the end	
1							
2							
.....							
....							
n							

Before distributing the output value by products for each industry, controls are previously done at enterprise level to enable the equalization of corresponding values.

$$T_{P_i} = \sum T_{P_{ij}} \text{ dhe } T_{P_{ij}} = \sum T_{P_{ijk}} \qquad \text{(eq. 1)}$$

Where:

T_{Pi} – Total value of output for each enterprise classified at industry "i".
T_{Pij} – Output value for each 4-digit level industry "j" with primary activity at i.
T_{Pijk} – Output value for each 6-digit level product "k" with primary activity at "i" and secondary activity at "j".

In this way for each enterprise, declared values on manufactured products are examined to be equal to the activity to which they belong and the sum of all activities needs to be equal with the total sales declared by the enterprise. Next step for enterprises classified at the same 2-digit level industry is the determination of the share of products. This structure is then used to distribute the total output of industries by corresponding products.

$$V_{P_{ijk}} = \frac{T_{P_{ijk}}}{\sum T_{P_{ijk}}} * T_{P_D} \qquad \text{(eq. 2)}$$

Where:

V_{Pijk} – Total value of output for product "k" by industry "i".
T_{PD} – Total value of output for industry "i".

Based on these evaluations carried out at enterprise level, it is possible to uniform the information for each industry and to estimate the total domestic output of products regardless of the main activity of the enterprise that has produced this product.

The method described above is used for all industries where SBS is the primary source of information. For other industries which are not covered by this survey the same logic is used but

according to the detailed level of information that is available from alternative sources. Also, it should be noted that besides the basic information used for output distribution of enterprises, as presented in Table 2 and 3, even information from imports and exports database at enterprise level is used. This information is used to improve the distribution of output by products since there are cases when a manufacture enterprise has declared its total turnover value but not the turnover of the separate products. Given the information declared at the exports database, it becomes possible to distribute the output of enterprises over the products. A summary of data sources used for the output distribution of products by each industry is given in table 5.

From this table is noticed that some of the industries are not covered by SBS. From these industries, we can mention:

- Agriculture activity – Data are taken from the agriculture sector at product level and then classified according to products nomenclature (CPA), whose structure is used to distribute the total value of output for this sector;
- Financial Activity – For financial activities information is collected from financial statements of second level banks and is treated at enterprise level (banks in this case). This structure is used for all financial activities since second level banks constitute the main component of this activity;
- For public administration, health and education, data are taken from the Ministry of Finance at institution level. Non-public health and education, since there is a kind of market output, is treated as other activities for market output. Information is taken from the SBS and financial statements of enterprises.

Table 4: Data sources used for output distribution by industries

Description	NACE Rev2. 2digit	Data source
Agriculture	01, 02	Agriculture and Environment Statistics Directory, INSTAT
Fishing	03	Agriculture and Environment Statistics Directory, INSTAT
Industry	05-33	SBS
Energy	35	SBS
Construction	41-43	SBS
Trade, hotels and restaurants	45-47;55-56	SBS
Transport	49-52	SBS
Financial Activity	64-66	Financial Statements of Banks.
Imputed Rent and other business activities	68	Output of NACE 68 industry consists of imputed rent and other business activities. The value of imputed rent is placed diagonally because it's a homogeneous product, while the rest output of industry 68 is distributed by the structure coming

		from SBS.
Rental and operational leasing of equipment and research and development	77-73	SBS
Other professional activities	74	SBS, Financial Statements and researches from alternative data sources.
Public Administration, Health and Education	84-88	Ministry of Finance, SBS and Financial Statements
Services	90-99	Financial Statements and researches from alternative data sources.

4.4. Imports

The other component of the supply table is the imports matrix, which is a vector matrix. Total imports are composed by two main groups: imports of goods and services. Import of a good occurs when there is a change of ownership from a non-resident to a resident; this does not necessarily imply that the good in question physically crosses the frontier. While import of a service consist of all services rendered by non-residents to residents.

Source of information for **import of goods** are foreign trade data classified at 8-digit level of Combined Nomenclature (CN). The correspondences CN-CPA will be used to transform this information to the desired level of aggregation, which has the same level of aggregation as output.

Given that the import of goods data is at the most detailed level by using correspondences between different nomenclatures, the information can be used for analyses and studies on other components of the SUT. An example is the use of CN-BEC classification (table 11) to establish the final goal of imported goods. By using the identification number of the importing enterprise, the share of imported goods for intermediate consumption, household final consumption and gross fixed capital formation can be analyzed. Given that imports are at CIF values, it is important to make the transformation at FOB values.

Customs statistics estimate the imports of goods at CIF values, which mean that the price of shipping and insurance is charged at the border of the importing country. To evaluate the import of goods at FOB values, the value of insurance and transport service between border of the exporting country and the importer must be deducted. In order to see the possibility of a better CIF/FOB adjustment and at a more detailed product level, administrative data on import of goods from the General Directory of Customs were used.

The CIF/FOB adjustment is added as a row to ensure that total imports are valued FOB (“free on board”, i.e. not including cost, insurance and freight), the equivalent valuation to basic prices for domestic output.

Purchases of residents abroad are treated as both imports and household final expenditure by the SNA, assuming that these purchases are mostly by household residents. Thus a value is entered in the import column of the supply table and also entered in the column of household final expenditure in the use table.

Information to estimate **import of services** is taken from the Balance of Payments (BoP), valuated by Bank of Albania. BoP information is taken by categories as in table 15 (Chapter 9) and based on

conceptual the relation that exists between ESA and BoP. Some structures are used to derive specific products by categories as presented in the second column of table 15.

For the treatment of imports with no change of ownership (goods sent (received from) abroad for processing), the methodology of ESA 2010 is implemented and the values are registered at net value.

The foreign trade statistics are the starting point for the estimation of net imports, by deducting imports and exports for processing and adding goods floated in the domestic market and net exports of processing services on physical inputs owned by others in order to derive adjusted data for trade in goods at a national accounts basis. The foreign trade statistics (customs data) use 4 digit codes (extended procedure) where the first two digits show the on-going procedure and last two digits, the previous procedure. For inward and outward processing is favourable tariff treatment used, where:

These are extended procedure code used:

1. Inward processing:
   - Goods received (imported) from abroad for processing (under processing suspension system codes 5100,5171, 5178 and under drawback system codes 4100, 4171, 4178)
   - Goods re-exported after processing (under processing suspension system code 3151 and under drawback system code 3141)
   - Goods floated in the domestic market (under drawback system code 4051 and under drawback system 4041
   - Procedure closure (residue codes 9341, 9351, 9941, 9951
2. Outward Processing:
   - Goods sent abroad (exported) for processing (temporary export without previous procedure code 2100 and export for outward processing code 2151)
   - Goods re-imported after outward processing code 6121
   - Goods sold abroad after processing code 1051

5. CHAPTER 5 THE VALUATION LAYERS; TRADE AND TRANSPORT MATRICES AND TAXES AND SUBSIDIES ON PRODUCTS (CURRENT PRICES)

5.1. Trade margins

The trade margins represent one of the components to derive the supply table at basic prices into the table in purchasers' prices and to derive the use table from purchasers' prices into basic prices. The value of trade margins represents the output of wholesalers and retailers. Since the traders are treated as supplying services, their output is measured by the total value of the trade margins realized for resale. European system of accounts (ESA 2010) defines trade margin as the difference between the actual or imputed sale price realized on a good purchased for resale, and the price that would have to be paid by the distributor to replace the good at the time it is sold or otherwise disposed of.

Trade margins valuation is a difficult task and this is due to the wide range of products, different product margin ratio's in trading establishments as well as different distributive channels. Thus, plausible assumptions should be made in order to achieve a realistic view and also creating connections to use different data source in order to establish trade margins. Using the reported data

from enterprises through balance sheets and SBS, the trade output which is equal to the amount of output of the enterprises that are classified as trade establishment wholesale or retail (NACE 45, 46, 47) can be evaluated and adding the trade output of enterprise that have trade as secondary activity. The equation to evaluate the margin trade is the following:

$$M_t = \sum_i Ts_i - Pr_i + \Delta I_i \qquad \text{(eq.3)}$$

Where:

i = 1, … ,n, represents the n products that a commercial firm sells
M_t– trade margins (= output)
Ts– represents the value of sales (that is a part of the total turnover)
Pr– is the value of goods purchased for resale
ΔI– is the value of changes in inventories of goods for resale (final inventories minus initial inventories).

To assess the percentage of trade margins, the output of commercial enterprises is calculated (is equal to total margin of *n* products that enterprise sells) divided by total turnover.

$$\%\,\mathrm{Mt} = \frac{\mathrm{Mt}}{\mathrm{Ts}} \qquad \text{(eq.4)}$$

The starting point of this method for trade margin estimation by product for the entire economy is the trade margin of commercial enterprises. The used method is explained below in four main steps. The first step is the assessment of a trade margin percentage for commercial enterprise. Enterprises involved in the study are classified in three divisions: NACE 45 (sale, maintenance and repair of motor vehicles and motorcycles, and retail sale of automotive fuel), NACE 46 (wholesale industries) and NACE 47 (retail industries). From annual commercial enterprise data (SBS and balance sheets) the trade margin ratio was defined, the interval studied and it has been concluded that most of enterprises were in between 3% and 50. And these enterprises have been taken as a proxy for the trade margins.
The second step consists of the trade margins allocation by group of products CPA 2-digit, for each product that commercial enterprises have for resale. Commercial enterprises are studied at a detailed level of NACE 4-digit, which guaranties that the same group of products belong to this level. From the import database, we have taken all imported products for resale by commercial enterprise and defined the ratio for each group of products, traded in a specific trading class. The next step is the transformation of the output and turnover matrix, by multiplying the ratio for each group of products in a specific trading class with output and turnover of this class. Allocation of output and turnover by the weight of a group of products in a specific class of trade, leads to different impacts for the trade margin ratio's as a result of product and division weight.

The last step is the determination of distributive channels of products in which a commercial enterprise sells. This if one of most difficult tasks together with determining the ratio for each group of products, traded in a specific trading class. Distributive channels are clearly the unknown component of the required information for constructing the trade margin matrix. Usually, buyers are not interested and do not know whether a product has been sold through retailers or wholesalers. We have studied the most frequent type of distributive channels for a product to its final destination.

11 distributive channels are distinguished for products, which have a significant impact on the trade margins. Considering the product circulation, we distinguished four different situations:

- a product cannot circulate through commercial enterprise and in this case, we did not add a trade margin (channels 1, 2 and 11)
- can circulate through one commercial channel (channels 3,8 and 9)
- can circulate through two commercial channels (channels 5,6 and 7)
- can circulate through three commercial channels (channels 4 and 11)

Table 5: Products distributive channels

No.	Channel	
1	Imports	Imports→ Consumer
2	Production	Producer → Consumer
3	Production	Producer→ Retailer→ Consumer
4	Production	Producer→ Wholesaler→ Wholesaler → Retailer→ Consumer
5	Production	Producer→ Wholesaler→ Wholesaler → Consumer
6	Imports	Wholesaler→ Retailer→ Consumer
7	Production	Producer→ Wholesaler→ Retailer→ Consumer
8	Imports	Wholesaler→ Consumer
9	Production	Producer→ Wholesaler→ Consumer
10	Imports	Wholesaler→ Wholesaler → Retailer→ Consumer
11	Production	Producer→ Exports

From the distributive channels through which the product circulates to the final consumers which can be households, enterprises, central or local government progressively accumulate the trade margins in the purchaser's price. For all distributive channels of products below present formulas for calculation of trade margins for retail and wholesale trade.

Table 6: Trade margin determination for each distributive channel

Channels	% trade margins ($r + w$)	Retail	Wholesale
1	*0*	*0*	*0*
2	*0*	*0*	*0*
3	*ri*	*ri*	*0*
4	*ri+wi (1- ri)(2- wi)*	*ri*	*wi (1- ri)(2- wi)*
5	*wi (2- wi)*	*0*	*wi i(2- wi)*
6	*ri+ wi - ri wi*	*ri*	*wi – ri wi*
7	*ri+ wi - ri wi*	*ri*	*wi – ri wi*
8	*wi*	*0*	*wi*
9	*wi*	*0*	*wi*
10	*ri+ wi (1- ri)(2- wi)*	*ri*	*wi (1- ri)(2- wi)*
11	0	0	*0*

From SBS data, the table that detail sales by main customers is used and from this data, product distributive channels which have a significant impact in the total product price are defined. Another data source for the definition of product distributive channels is the sales books that show the enterprise trade linkages. The total output and import is distributed according to the ratios of the distributive channels for each group of products. By multiplying the trade margin ratio for a product in a specific distributive channel with total output and import of this channel, the trade margin for each distributive channel will be obtained. The total trade margin of distributive channels through which a product circulate is equal to total trade margin for this product.

5.2. Transport margins

Transport margins include transportation costs paid separately by the purchaser and included in the use of products at purchasers' prices but not in the basic prices of a manufacturers' output or in the trade margins of wholesale or retail traders. Such transport margins include in particular:

- transport of goods from where they are manufactured to where the purchaser takes delivery of them, in the event that the manufacturer pays a third party for the transport and provided that this amount is invoiced separately to the purchaser;
- transport of goods arranged by the manufacturer or by the wholesale or retail trader in such a way that the purchaser has to pay separately for the transport costs even when the transport is carried out by the manufacturer or the wholesale or retail trader themselves;
- All other costs of transporting goods are not recorded as transport margins.

As a base for transport margin estimation, data for enterprise transport expense are taken from balance sheets and SBS and also the Imports-Exports database from General Directory of Customs.

The first step is the evaluation of the foreign transport margin from Imports-Exports database. In the customs declaration, enterprises are obliged to declare transport cost. So, the declaration provides information on imported products by enterprises at a detailed level CN 8-digit and transport cost for each product. By dividing transport cost with the CIF product value, the trade margin percentage for each product can be obtained.

For products at a detailed level CN 8-digit, the distribution of transport margins and outlier elimination is analyzed. Based on the relationship that exists between CPA and CN, data were derived at a CPA 2-digit level, for which we defined the transport margin ratio by dividing transport cost by product CIF value for each product.

The second step is the evaluation of the domestic transport margin regarding the transport expenses which enterprises report in the SBS and balance sheets. From the total transport expenses reported by the SBS and balance sheets, foreign transport expense have been subtracted and the residual has been treated as domestic transport expense. The enterprises in the analysis were grouped at 2-digit NACE level by summing output and transport expense. By dividing the transport expense for each group with the output of the group we have got the domestic transport margin ratio for each 2-digit NACE group.

The last step is the evaluation of the total transport margin which is equal to the amount of foreign and domestic transport margin. The foreign transport margin is evaluated by multiplying

corresponding margin ratio with the imports of this product and for the domestic transport margin, the domestic margin ratio has been multiplied with the sum of output and import of this product, however deducting the transport costs that enterprises use for intermediate consumption. The amount of foreign and domestic margin gives the total transport margins.

5.3. Taxes on products (excluding non-deductible VAT)

The transition process of SUT framework from basic prices at purchasers' prices requires not only the trade and transport margin distribution but also integration of taxes and subsides on products. Net taxes (taxes less subsidies) on products part of supply table and includes:

- VAT on domestic products
- VAT on imported products
- Excise duties on domestic products
- Excise duties on imported products
- Other taxes on domestic products
- Customs duties on imported products
- Subsidies on products

Data sources for evaluation of net taxes on products are: Ministry of Finance, General Directory of Taxation for domestic production and traded commodities and General Directory of Customs for imported products.
External taxes on products are taken from the external trade database as a sum of excise, custom duties and VAT for each of the products. Net taxes are calculated by adding together domestic taxes on products and taxes from imports minus subsidies on products. Evaluation of net taxes on products for imported products is done at the most detailed level, at transaction level for commodities by CN 8-digit using the customs extended procedure and then these data are transformed at 2-digit CPA as in supply table. Whereas for domestic production and traded commodities data on taxes are much more aggregated, VAT and subsides have a 4-digit breakdown level according to the NACE classification and other taxes have a 2-digit level breakdown according to CPA classification.

5.4. Subsidies on products

Subsidies on products are non - reverse payments to the resident market made by public general government units to the companies in the form of a certain amount of money per unit to support production of goods or services. They are more typical in agriculture production (water for irrigation), drinkable water, student treatment enterprises, passengers' transport and transport of goods (railway) and schoolbooks. Subsidies on imports (energy) consist of subsidies on goods or payable services when the product surpasses the border of the economic territory or if the services were made to resident institutional units. The data source for subsides on products is information provided by the Ministry of Finances on the expenditure side. These subsidies are provided by the Central government to offset losses of state enterprises or cover the price difference arising from the state regulation of prices for the socially vulnerable groups.

Subsidies are treated as separate codes of the Accounting System of the Government and we can easily extract that kind of data. We can even use the annual accounts that every enterprise is obliged to deliver by the end of the first quarter of consecutive year.
The data are well detailed and are related to the specific institute that holds the subsidies. Most of the subsidies are given to public corporations and therefore it could be easily allocated to a particular NACE category.
We have taken into account this specific type of subventions that is more likely directly connected to the products. The Ministry of Finances uses a wider range of data also representing data about subsidies that might not be connected directly to products. All of the above-mentioned subsidies are directly connected to the products.

6. CHAPTER 6 COMPILATION OF THE USE TABLE IN PURCHASER'S PRICES (CURRENT PRICES)

6.1. Introduction

The use table shows the use of products by domestic industry and by the final demand, i.e. consumption by households, general government and non-profit organizations serving households (NPISH), capital formation (GFCF) by enterprises, general government and households, changes in inventories and exports. The use table has two main objectives, firstly, it reveals by column the input structure of each industry and secondly, it describes in the rows the use of different products and services.
The use table also shows gross value added (GVA) by industry and the components of GVA for compensation of employees, net operating surplus, other taxes less subsidies on production, and consumption of fixed capital. The use table is valued at purchasers' prices otherwise the supply which is valued at basic prices. For this reason, the use table can also be compiled at basic prices. In order to enable this transformation, it is necessary to deduct the trade and transport margins and net taxes in the use table in such a way that the use table in basic prices match with the supply table in basic prices.

Similarly, as in the supply table, in compiling the use table, a range of sources is used which coincides with the production approach (intermediate consumption) and the expenditure approach (final demand components) and the last part of the table contains the GVA by industry as balancing item.

6.2. Intermediate consumption, including industry and product breakdown

Intermediate consumption is next to output a key component of the use table. The main problem consists of distributing intermediate consumption of industries by products. For each enterprise, we should have detailed information on raw materials that it uses in the production process at product level. Also, detailed information needs to be available on operating expenses such as electricity, rent, transportation, telecommunication, and other services. The evaluation of intermediate consumption matrix requires that enterprises report a detailed report of their costs, which are relevant for the estimation of intermediate consumption.

The main data source for intermediate consumption distribution by products is SBS. Specific information is obtained from the cost structure table in SBS at a 2-digit level CPA breakdown.

Also, to enable more complete information for each enterprise, the types of expenses in the income statement (statement of revenue and expenses) reported in SBS and balance sheets are checked. Another controlling analysis is done with the imports database by checking the commodities that enterprises have imported for intermediate consumption and not stated in the cost structure table in SBS. For the activities not covered by SBS as in the case of output matrix, alternative data source according to relevant industries are used. Table 9 provides an overview of the used sources.

Table 7: Used source for intermediate consumption distribution

Description	NACE 2-digit	Data Source
Agriculture, hunting and forestry	01, 02	Agriculture and Environment Statistics Directory INSTAT
Fishing	03	Agriculture and Environment Statistics Directory INSTAT
Manufacture industries	05-33	SBS & Balance Sheets
Energy and water supply	35, 36	SBS & Balance Sheets
Construction	41-43	SBS & Balance Sheets
Trade, hotel and restaurants	45-47; 55-56	SBS & Balance Sheets
Transport	49-52	SBS & Balance Sheets
Financial activities	64-66	Balance Sheets
Imputed rent and other business activities	68-82	SBS and study from alternative source
Public administration, health and education	84-88	Ministry of Finance and Balance Sheets for non-public health and education
Other services	90-99	SBS and study from alternative source

The cost structure distributions for industries not covered by SBS other sources are used were we can mention:

- Agriculture, hunting and forestry industries – Data for output and used inputs in agricultural production are taken at product level from Agriculture and Environment Statistics Directory INSTAT. Based on the nature of a product, the product is classified at corresponding CPA code.
- Financial activities – For financial activities the information form of second level banks' balance sheets is used. Given that second level banks represent the main part of this activity, the structure of derived cost is used for all financial activities.
- Public Administration, Health and Education – Data are taken from Ministry of Finance for each institution at a detailed level on conducted government expenses for

intermediate consumption. Each category of expense is classified at a corresponding CPA code to enable the integration of this information in the SUT framework.

There are also some products for which there is reliable information on their values, such as electricity consumption or financial expense, for these products it is possible to determine the exact values that are consumed by industries, government or households. In this situation, the treatment is done independently, for these data are collected from the Balance of Electric Power or from the Bank of Albania financial data.

6.3. Final expenditures (Exports of goods and services, Final consumption expenditure of households, Final consumption expenditure of general government and NPISH, GFCF and Changes in inventories)

Exports of goods and services

Exports are a column matrix in the use table. As for imports, data for exports are taken from the Foreign Trade Sector, for exported goods, and from the Balance of Payments for exported services. Exports of goods and services are valued at 'free on board' (FOB) prices. Their integration in SUT framework is based on the same classification and level of breakdown as in the case of imports. For exported goods is used CN 8-digit classification and then by using the CN-CPA relationship, data are aggregated at 2-digit level of CPA, which is used in SUT framework. Data for exported services are taken from Balance of Payments and then classified at product level.

In context treatment for exports with no change of ownership (goods sent (received from) abroad for processing) is implemented the methodology of ESA 2010 and the value are registered in net value. The difference between imports for processing subtracting re-exported value is recorded as net exports of processing service on physical inputs owned by others.

As in methodology for estimation of imports at net basis the foreign trade statistics (customs data) are the base for the estimation of inward and outward processing where:

1. Inward processing:
   - Goods received (imported) from abroad for processing (under processing suspension system codes 5100,5171, 5178 and under drawback system codes 4100, 4171, 4178)
   - Goods re-exported after processing (under processing suspension system code 3151 and under drawback system code 3141)
   - Goods floated in the domestic market (under drawback system code 4051 and under drawback system 4041
   - Procedure closure (residue codes 9341, 9351, 9941, 9951
2. Outward Processing:
   - Goods sent abroad (exported) for processing (temporary export without previous procedure code 2100 and export for outward processing code 2151)
   - Goods re-imported after outward processing code 6121
   - Goods sold abroad after processing code 1051

Household final consumption expenditure

Household final consumption expenditure covers expenditures incurred by households to acquire consumption goods and services. Household final consumption expenditure can be subdivided into three large components:

- purchases of goods and services;
- goods and services produced as outputs of unincorporated enterprises owned by households that are retained for consumption by the members of the households (own-consumption of goods and services);
- remuneration in kind.

The primary estimation of household consumption in the National Account Directory is performed by Institutional Sectors Accounts. Source for the distribution of household final consumption expenditure by products is the Households Budget Survey (HBS) and also an estimation of household consumption is done using commodity flow method which is explained below. Data on household consumption are collected according to Classification of individual consumption by purpose COICOP where products are grouped according to the purpose of use and SUT framework is according CPA classification, for this reason COICOP-CPA bridges should be derived. Since there is not a complete correspondence between these nomenclatures, a bridge matrix is constructed using weights to enable the relationship at 6 and 4-digit level according to CPA 2008 classification.

The estimation for this component at GDP by expenditure approach, is followed by the assessment and analysis made after applying Commodity Flow Approach. The basic idea of this method is that the amount of a product for use in an economy should be supplied either by domestic production or imports, and the same amount that is supplied in an accounting period should be used as intermediate consumption, final consumption, capital formation (including changes on inventories) or as exports. The summary equation for Commodity Flow Approach is:

$$HFCE = (O + I) - (IC + G + GFCF + CI + E) \qquad \text{(eq.5)}$$

Where:

HFCE - Households final consumption expenditure,
O - Output,
I - Imports,
IC – Intermediate Consumption,
G – Government and NPISH,
GFCF- Gross fixed capital formation,
CI - Changes on inventories,
E - Export.

This analysis provides a more accurate estimation of household consumption especially for some commodities for which information is very difficult to be collected through surveys.

Gross fixed capital formation

This component includes domestic and imported products for capital formation as tangible assets (buildings, machinery, transport equipment, etc.) and intangible assets (subsoil assets, software assets, entertainment, literary and artistic originals), as well as improvements to non-produced assets (land). The primary information for this component is taken from GDP by expenditure approach then an analysis has been done at product level to enable a complete estimation. The initial information is divided in several groups as presented in table 10.

For each item in the table, detailed analysis has been done in order to get a distribution at product level. Construction, which is the main component of GFCF, is mostly domestic production. Machinery and equipment and Transport means are mainly imported, the distribution is done using external trade data according to CN 8-digit level.

Table 8: GFCF classification

Description
1. Agriculture
1.1. Livestock
1.2. Orchards & Vineyards
1.3. Forestry
2. Geological Prospecting
3. Construction
3.1. Dwellings
3.2. Non-residential buildings
3.3. Civil engineering works
4. Machinery and equipment
5. Transport means
6. Software & Databases

Using the existing correspondence between CN-BEC, it is possible to know the final purpose of the imported goods. According to the BEC classification (see table 11), imported products are divided into 4 main groups. From the external trade database using the BEC classification, type 3, we can find imported commodities for the purpose of capital formation. These BEC type 3 data are then aggregated according CPA 2-digit. In some cases, it is important to make studies at product level to determine more precisely the purpose of its use. This is due to the fact that some products may have more than one purpose of use. In such cases, it is important to determine the weight of each product according BEC.

Table 9: Imported goods according BEC nomenclature

BEC	BEC type	BEC description
111	2	Intermediate consumption (+taxes)
112	1	Consumption goods (+taxes)
121	2	Intermediate consumption (+taxes)
122	1	Consumption goods (+taxes)

210	2	Intermediate consumption (+taxes)
220	2	Intermediate consumption (+taxes)
310	2	Intermediate consumption (+taxes)
321	4	Unclassified
322	2	Intermediate consumption (+taxes)
410	3	Capital
420	2	Intermediate consumption (+taxes)
510	4	Unclassified
521	3	Capital
522	1	Consumption goods(+taxes)
530	2	Intermediate consumption (+taxes)
610	1	Consumption goods(+taxes)
620	1	Consumption goods(+taxes)
630	1	Consumption goods(+taxes)
700	4	Unclassified

Machinery and equipment are distributed by this structure and attached to the other components of gross fixed capital formation. For unclassified product groups according to BEC, a distribution is made into one of the three main categories by studying for each product which is the importing industry. This study enables a complete distribution of imported products by categories.

Total estimation of GFCF is done by incorporating all information from different data sources as SBS, financial statements of enterprises, agriculture sector and foreign trade data.

Government final consumption expenditure and NPISH

Government final consumption expenditures include all final expenditures on goods and services performed by institutions involved in the government sector. Government final consumption expenditures are composed by expenditures for individual and collective consumption.
Collective government expenditures include public administration expenditures, defense, security, improvements in general medicine, etc.
Individual government expenditures include health and education, in kind contribution, etc.
For public administration, health and education, the data are taken from the ministry of finance. For each of the institutions the purpose of the expenditure is determined, and using the COFOG-ISIC-CPA relation distributed to the total output for these activities. This is done separately for institutions classified in Nace Rev. 2 groups 84 (Public administration and services, compulsory social security services), 85 (Education services), 86 (Human health services), 87 (Residential care services) and 88 (Social work services without accommodation).
For transition of data source from the accounting system of the Ministry of Finance and we applied 3 bridge tables to estimate the final value of the Output that we explained in Chapter 4 for the transition of public accounting to ESA 2010 national accounting concepts.
Final consumption expenditure by NPISH, are recorded in the supply and use tables separately. Consumption expenditure consists of other non-market output of general government (P.132) and purchased market output (D.632). Part of final consumption expenditure, corresponding to other non-market output, is divided into commodity groups in the same way as other non-market

production. This item is balanced by definition. The commodity structure of market output purchased by NPISHs is estimated by experts taking into account the activities of these organisations. The total, however, is very small

Table 10: Bridge Table

Economic Accounts	Description	ESA2010 codes	GFCF classification
2312101	Spending in order to increase Fixed Capital - administrative building	P.5111	AN.1121
2312108	Spending in order to increase Fixed Capital- construction of ports	P.5111	AN.1122
2315120	Spending in order to increase Fixed Capital - Cars	P.5111	AN.1131
2314250	Spending in order to increase Fixed Capital - equipment for protection against fire	P.5111	AN.1139
6001001	Basic Salary	D.11K	
6010100	The social insurance contributions	D.121	
6011100	Contributions for health insurance	D.121	
6022001	Electricity	P.21	
6022002	Water	P.21	
6030004	Subsidies for the price difference for the urban bus transport	D.319	
6032001	Subsidies to cover losses for the water supply for irrigation	D.39	
7030100	VAT on goods and services within the country	D.211	
7030200	VAT on imported goods	D.211	
7031500	Imported fuel excise	D.2122C	
7111001	Income from kindergartens	P.131	
7111002	Income from nests	P.131	
7111007	Income from parking lot	P.111	

Same concepts as used for government are used for NPISH, because their production is a non-market output. NPISH are serving to household they have only individual expenditures. Information used for their integration at the SUT framework is taken from Ministry of Finance at institutional level and classified by 2-digit level products of CPA, considering expenditures purposes.

Changes in Inventories

In the SUT framework one of use side components are changes in inventories. This is one of the most problematic components to handle because the information is collected at aggregated level. The SUT framework requires changes in inventories by products, that implies even the information

collected must be at the same level of detail of output. In case of Albania this information is not available, for this reason is used an alternative method of estimation. The main problem is the evaluation of the total changes in inventories in the economy. For this evaluation, we base this on data from SBS and Financial Statements of enterprises.

To improve the information of a given year (example year t), the information has been taken from the previous year (t-1) and the following year (t+1) for each of the data sources. For each enterprise, the value of stock at the beginning and end of period has been taken. The information is aggregated as shown in table 12.

Table 11: Changes in Inventories classification

	Opening stock						**Closing stock**					
	Raw materials	Work in progress	Finished goods	Goods for Resale	Prepayments for supplies	**Total**	Raw materials	Work in progress	Finished goods	Goods for Resale	Prepayments for supplies	**Total**
NACE 2 digits												

Evaluation of the total value for different categories of changes in inventories is done only in situations when we had information in two consecutive years (previous and following). Only four components of inventories are included in the calculations (raw materials, work in progress, finished goods and goods for resale), while prepayments for supplies are excluded because they are not related to the physical state of products. Primary information is based on Financial Statements for those enterprises that have fulfilled statements, for the rest of enterprises information from SBS is used. Existing information in the above-mentioned data sources are collected as shown in table 13.

Table 12: Inventory category

Inventory		**Fiscal year t**	
		Opening stock	**Closing stock**
1	Raw materials		
2	Work in progress		
3	Finished goods		
4	Goods for Resale		
5	Prepayments for supplies		
6	**Total**		

It is important to emphasize that beside the information shown in table 13, there is also information used to check if the enterprise has or hasn't had changes in inventories, which is located at income statements and consists in:

- Changes in inventories of finished products and work in progress (+/-) which corresponds to the sum of items 2 and 3 in the inventory table.
- Changes in the stock of materials which must be equal to the sum of raw materials and work in progress from the inventory table.
- Changes in the stock of commodities (+/-) which must equal to work in progress plus goods for resale.

Even in this case as well as SBS, information taken from income statements of enterprises can be used as a comparison, imputation or analysis purposes. The only difference is that at the income statements the distinction may not always be well specified. There are cases when changes in finished products are included as a separate item, but there may be cases when it is included even the work in progress. In this case, a detailed analysis is done on the information, declared by the enterprise to determine the nature of changes in inventories in a better way.

For the evaluation of changes in inventories beside the valuation of their absolute value, it is important to do the adjustments with respective prices. This is necessary because changes in inventories are calculated as difference of two different period values which are not valued at the same price level. For this reason, several methods are used, where we can mention:

- Last in – first out (LIFO): the cost of sold or consumed commodities during a given period is evaluated by assuming that prices remain the same as if they were sold or consumed at the time of their purchase;
- Average method: the cost of a commodity is evaluated by applying a weighted average of costs of all goods available for sale during a period of time;
- First in – first out (FIFO): the cost of commodities during a given period is evaluated by assuming that prices remain the same as if they were sold or consumed at the time of their most recent purchase;

In case of Albania the average method is used where for each category of changes in inventories are taken respective price indices.

As we mentioned earlier one of the main problems remains the breakdown level of information which makes it difficult the involvement of this component in the SUT framework. For this reason, an indirect method is used based on some basic assumptions. After the evaluation of all components for changes in inventories for the total economy, an alternative method is used for their distribution by inventory categories:

- In order to distribute the share of raw materials by services, the total structure of intermediate consumption is used. While for the share of raw materials by manufacture industries, the structures of intermediate consumption of the respective industries are used.
- For the distribution of work in progress at product breakdown, the structure of output from the product list is used, though only for those enterprises that have declared work in progress and have fulfilled the product list.
- Finished products are distributed by the total structure of output.

- Goods for resale are distributed by the total trade margins structure.

These assumptions are based on a set of analyses, done for the nature of each of categories of changes in inventories enabling a better distribution at the product breakdown. Also for products destined only for exportation, checks are made with foreign trade data to compare evaluations between structural distribution and the real values for these products.

6.4. GVA and primary distribution of GVA by industry

Gross value-added (GVA) is the difference between output and intermediate consumption for any given sector/industry. That is the difference between the value of goods and services produced and the cost of raw materials and other inputs which are used up in production.

GVA by industry can be derived as a difference between output (supply table) and intermediate consumption (use table) by industry. GVA estimated from the production approach it is identical to the sum of primary distribution of income (compensation of employees, consumption of fixed capital, net operating surplus/mixed income and other taxes les subsides on production). INSTAT does not yet attempt the income approach to GDP, but during IPA 2015 project PP.1.7 has developed a non-independent approach, where operating surplus and mixed income are calculated as a balancing item between value-added derived by production approach and other income components of primary distribution.

In addition, in the framework of supply and use table is included a section containing the breakdown by industry of the balancing item of the production account (gross value added and GDP), and the breakdown by industry of the generation of income account items (categories of gross value added). Thus, this section shows the cost of each industry in terms of factor costs, for example wages and salaries paid to employees, gross (or net) operating surplus and other taxes (minus other subsidies) on production. These amounts of taxes and subsidies include production taxes paid by industry or subsidies received by industry excluding ‘product specific’ taxes used to derive the total supply of products in the supply matrix. This part is crucial because it can be used to obtain one of the most important balancing items in the system: value added (or the gross value added generated by any unit engaged in a production activity) and the crucial aggregate gross domestic product (GDP). Value added in the use table reflects the interdependency of value added chains in production. Value added may be calculated before or after consumption of fixed capital, i.e. gross or net. Given that output is valued at basic prices and intermediate consumption at purchasers’ prices, value added does not include taxes less subsidies on products.

7. CHAPTER 7 THE SUT IN PRICES OF THE PREVIOUS YEAR

7.1. Introduction

Compilation at constant prices enables an evaluation of the economic growth. The SUT is usually compiled at a detailed level of aggregation, which enables the application of specific price indices by products being closer to homogeneous products and their prices. In order to compile these tables, it is necessary to evaluate and balance a SUT at current prices for two successive years. These tables are based on the principal that a change in value of a homogeneous product comes due to a change in volume (Laspeyres volume indices) and price (Paasche price indices). Based on this principal, the final supply and use tables for year T and T-1 must be a balanced system at constant prices for year T-1 where changes in all their constituent components are due to a real changes in the volume of the respective products.

7.2. Compiling supply and use tables at prices of the previous year

In the frame of IPA 2014 PP1, the National Accounts Methodology in the second mission was developed for the Albanian CP SUT tables, based on the compilation of a SUT for year T in prices of year T-1. The framework therefore contains three SUTs at the same time: the ones for years T-1 and T in current prices and the SUT for T in prices of T-1. The framework was tested for T=2013, using the current values SUTs for 2012 and 2013.
Although the work on SUT CP 2013 has been finished by INSTAT, at the end of the mission the conclusion was that the currently balanced SUT CP 2013 is not yet sufficiently well established to warrant publication. Also, it seems better to compile SUT CP for at least two years before the moment of first publication to get the balancing procedures in optimal form. The work is ongoing for simultaneously compilation of SUT and SUT CP for the year 2014. Important is to make the compilation of SUT at current prices more solid, and then to integrate the compilation of the SUT and the annual GDP compilation according to the production and expenditure approach in an interactive way, in order to estimate final integrated GDP figures from SUT framework.

The methodology for estimation of the SUT at constant prices is based on European standards of evaluations at constant prices (see Handbook on Price and Volume Measures in National Accounts). For each component were taken specific indices at the most detailed level of aggregation. Used indices are:

- Producer Price Index (PPI),
- Consumer Price Index (CPI),
- Construction Cost Index (CCI),
- Import Price Index (IPI),
- Average wage index,
- Indices of agricultural and fishery products.

The constant price supply and use figures are calculated by deflating current values by the price indices at the product level. The initial deflation is undertaken at basic prices, including separate deflation for imported and domestic market production components at the use side. The deflation is done at the most detailed product level possible, output is deflated at 4 and 6 digit CPA groups, and imports are deflated at 8-digit CN using IPI. Taxes less subsidies on products, trade and transport

margins at constant prices are calculated, at the final stage, by applying the base year rates to the product flows on the uses at constant basic prices.

The plan for the future is to start a cycle approach compilation, updating the year T on the basis of a year T-1 ("T-1/ T compilation"), to integrate Annual Accounts compilation with SUT compilation within the restrictions on timeliness commonly followed.
To enable the easy use of the proper deflation methods and to avoid discontinuities in compilation it is proposed to compile a SUT for a certain year using the previous year estimate as basis. So, we compile SUTs in pairs. The last one is the basis for the next and so on. Further, two or three pairs can be placed in a consecutive order defining the regular Annual compilation cycle going from final to provisional estimate, as explained earlier. This guarantees that even for the provisional estimate a clear link is established with the most recent detailed final estimate. Let us assume that the final estimate for a year comes available 3 years after the calendar year. The compilation cycle approach to be completed in the year T can be illustrated as follows:

- The final estimate (T-3) will have to come available early in T using the final estimate for year (T-4) as base year;
- The semi-final estimate for year (T-2) will be compiled using the final estimate for year (T-3) as base year;
- The provisional estimate for year (T-1) will be compiled using the semi-final estimate for year (T-2) as basis.

7.3. Deflation of supply and use tables components

SUT CP framework carries out compilation at most detailed level (90 products, 89 activities) and aggregates the tables to publication level (35x35) and each SUT component is deflated independently at most disaggregated level possible.

Figure 4: Specifying deflators for each SUT component

Nr	Components	Goods	Services
1	Output	P01-03→ Agriculture, fishery price index;	P45-82→ Consumer price indices (CPI)
		P05-38→ Producer price indices (PPI)	P84-88→ Average wage indices
		P41-43→ Construction cost index (CCI)	P90-99→ Consumer price indices (CPI)
2	IC	P01-03→ Agriculture, fishery price index;	P45-46→ Weighted CPI of COICOP groups (04.5;07.1;07.2)
			P49-59; P61→ Consumer price indices (CPI)
			P45-46→ Weighted CPI of COICOP groups (04.5;07.1;07.2)
		P05-38→ Producer price indices (PPI)	P60;P62-63→ Adjusted CPI for COICOP groups (04;07.3;08;09;10;11;12)
			P64-68→ Consumer price indices (CPI)
			P69-82→ Adjusted CPI for COICOP groups (04;07.3;08;09;10;11;12)
		P41-43→ Construction cost index (CCI)	P84-88→ Average wage indices
			P90-93→ Adjusted CPI for COICOP groups (09;11.2;12.1)
			P94-99→ Consumer price indices (CPI)
3	Imports	P01-38→ Import Price IndexesIPI)	P39-99→ Harmonized Index of Consumer Prices (HICP)
4	Exports	P01-38→ Producer price indices-exports (PPI)	P39-99→ Consumer price indices (CPI)

5	HFCE	P01-38→ Consumer price indices (CPI)	P39-99→ Consumer price indices (CPI)
6	Government expenditure	P01-38→Output price indexes	P45-99→ Output price indexes
7	GFCF	P22-28;P30-32→ Import Price Indexes(IPI)	P41-43→ Construction cost index (CCI)
		P(other)→Output price indexes	P45-99→ Output price indexes
8	Ch. Inventory	It is used an implicit deflator (mainly PPI) by comparing the current years' and previous years' estimates by categories: (raw materials, work-in-progress, finished goods and goods for resale)	
9	Taxes on products	Taxes in volume terms are achieved by multiplying the product value at constant price of year t with the tax ratio of respective product at current prices of year t-1.	
10	Margins	It is used the same logic as for taxes deflation in volume terms	

Producer Price Index (PPI) – measures the change in the prices of products at the first point of sale after production. Producer prices of industrial products are calculated according to CPA at 6-digit level and are composed by two sub-indices:

- PPI for domestic suppliers which measures the level of changes on the production prices of industrial products, produced and sold by producers in the domestic market;
- PPI at external market (Export Price Index) which measures the level of changes on the production prices of industrial products sold from producers at foreign market;

Producer price index is a combination of producer price index for domestic suppliers and export price index. The main source of information is SBS and weights are renovated every year.

PPI is used for many products and components at the SUT framework. This index is used for different analysis at 6-digit level according to CPA. The correspondence between products and prices is quite strong which ensures a better quality. In the absence of such a level of detail, the least aggregated product level at 4 or 2-digits of the respective group is used. The method of deflation also varies by SUT component. So, for deflation of produced products, that means domestic products, PPI is used for domestic suppliers, while exports deflation PPI for exports is used. In this way, the consistency between products and prices is significantly increased.

Consumer Price Index (CPI) – measures the change of the prices of a fixed basket of goods and services from base period to the current period. CPI is classified according to the international classification of consumption goods and services, COICOP. This index is used to deflate household final consumption expenditures at the most detailed level of COICOP. CPI is used even for services deflation on both sides, the supply and use, because the lack of a services producer price index in Albania.

Construction Cost Index (CCI) – measures the price development of the production factors: raw materials, labor and other capital costs that are used in building projects. The expenditure classification is based on classification of EUROSTAT for the Construction Cost Index. The new CCI has six main expenditure groups:

- Construction materials;
- Salaries expenditure;
- Machinery expenditure;
- Transport expenditure;

- Energy expenditure;
- Other costs;

The CCI in the SUT framework is used to deflate construction products on the supply as well as the use side.

Import Price Index (IPI) (IPI) – measure changes in the prices of imports. Import is every product that was not produced in Albania but imported from a third country or supplied from another.

Coverage

Sector coverage of index:

- Section B Mining and quarrying
- Section C Manufacturing
- Section D Electricity, gas and steam supply
- Section E Water supply, sewerage and waste.

Classification system

The classification used for these statistics is the Statistical Classification of Economic Activities (NACE Rev.2). The data are produced at national level, broken-down by activity grouped in two digits level of this nomenclature.

Statistical unit

Observation units are enterprises according to their principal activity belong to the Standard Classification of Activities (CPA 2008), which supply or import products from foreign markets. The survey covers all the enterprises engaged in production activity, and also those engaged in trade activity. One of the conditions that must be fulfilled in order for an enterprise to be included in the survey is that it supplies the products on the Albanian market. The sources for selecting enterprises are the Annual Survey on Industrial Production and Custom Data.

Data collection

Data collection is carried out through the "Import Price Survey". The prices are collected from a sample of statistical units. Completion of the information is relayed by direct interview by the interviewer with the contact person of the enterprise who is charged to declare the data.

Questionnaire

The questionnaire of Import Price Survey includes:

- The identification part, which provides information on the name of the enterprise, name of the president, address, fiscal code, legal form, etc.
- The technical part in which information is obtained on monthly prices and product specifications.

Method of calculations

The method used for calculation of index is “chain-index” so new weights are assigned each year. For calculation of products ‘weights of Import Price Index are used data coming from Foreign Trade statistics.

The weighting are done on the unchained data. Either on price relatives or on index numbers (price relatives multiplied by 100). The index formula used is of the Laspeyres type (sometimes referred to as Lowe since the weights actually corresponds to Y-2 and not Y-1).

The weighting formula:

$$\frac{\sum p_1 q_0}{\sum p_0 q_0} = \frac{\sum p_1 q_0 \frac{p_0}{p_0}}{\sum p_0 q_0} = \frac{\sum p_0 q_0 \frac{p_1}{p_0}}{\sum p_0 q_0} = \frac{\sum v_0 \frac{p_1}{p_0}}{\sum v_0}$$

n this chain-index each transaction will be compared with its previous year December price. These price relatives will be weighted together to give index numbers for each product group, and so on to give index numbers for the total IPI. Hence, we will end up with monthly indices having December previous year as a base. These indices will then be chained to the previous indices for each year all the way back to the base. Note that all chaining will be done after weighting together the index numbers.

Price ratio

Is calculated automatically whenever price is entered, adjusted or imputed. The price ratio is also 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.

Weighting

Arithmetically weighted averages of individual observations form the index numbers. The index (short-term-link) for a 6-digit NACE is calculated by multiplying all weights by their corresponding index numbers (price ratio) then divided by the sum of the weights.

Imputation

The imputation is done by multiplying the previous reported price by the average monthly price movement of the closest higher level of aggregation (6-digit or 2-digit).

Index calculation

For calculation of index is used Laspeyres type and is calculated as following:

$$I_{2020}^{y,m} = \frac{100}{\frac{1}{12}\sum^{Dec} I_{Y-1,Dec}^{Y,M}} + \prod_{Y=2020}^{y-1} I_{Y-1,Dec}^{Y,M} * I_{y-1,Dec}^{y,m}$$

The first part before the equal sign is stating the price level of December 2011 in percent of the average price level during 2012, hence adjusting the average of 2020 to 100.

The second term is the chained index movement from December 2011 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.

Measures of index

The annual change measures the price change between the current quarter and the same quarter of previous year. This measures is responsive to recent changes in price levels but can be influenced by one – off effects in either quarter.

- It is not a pure price index since the changes in average value may be due to price and quantity changes. The UVI is used to deflate imports of goods in the absence of an import price index which measures the rate of change over time in the prices of imported goods and services but it is very important to cover most of the products at a detailed level. Many countries use a mixed approach for deflating imports, which means a combination of UVI and MPI especially for goods that are not regular, or that are impacted from seasonal effects. UVI is estimated at 8-digit level of products according to CN nomenclature and is based on imports data. Information used from import data is listed below:
  - date of imports (year and month);
  - identification of importer;
  - product classification at 8-digit CN;
  - supplementary unit and net mass;
  - value of imports (cif);
  - custom duties, excise duties and value added taxes;

As Albania is a small country and there are not too many transactions, the country of origin or mode of transaction are not taken into consideration in this study. UVI's have been estimated through several steps.

Firstly, there could be problems with the units of measure and weights in different years. For instance, a product of a specific year t has been chosen by the unit that has the majority of the transactions for the product. For comparability reasons the successive year t-1 the same unit of measure is used as in year t.

Second step of this method is the outlier elimination. Only those products with a transaction number greater ≥30 (normal distribution) were included in the study. The weight of the remaining products, after applying the outlier elimination, is about 85% of the total import of goods. The same methods are applied for the previous year, but only for those products which are related to the current year, enabling consistency between two years.

In the third step for each product was created the unit value for both years for the whole list of linked products. The equation is presented as follows:

$$UV^{t}_{CN8_i} = \frac{\sum V^{t}_{CN8_i}}{\sum u^{t}_{CN8_i}} \quad \text{dhe} \quad UV^{t-1}_{CN8_i} = \frac{\sum V^{t-1}_{CN8_i}}{\sum u^{t-1}_{CN8_i}} \qquad \text{(eq.6)}$$

Where:

i Î {1, 2,.....,n}

t ® year

v ® value

u ® unit

After this control is decided which one must be used between net mass and supplementary unit. UVI by product is calculated following the formula below:

$$UVI_{t/t-1} = UV^{t}_{CN8_i} \Big/ UV^{t-1}_{CN8_i} \qquad \text{(eq.7)}$$

For deflation of products excluded from the study, as they have a relatively low weight, total UVI is used according to the above method. This method has the advantage that we change the base every year which means that the product list is more representative for the current period.

Indices of agricultural and fishery products – for the estimation of agriculture and fishing products at constant prices price indices were used from the respective sector. In general, data on output and intermediate consumption in quantities and prices are available for each year at product level. Output and intermediate consumption estimations at previous prices are obtained by multiplying quantity at period t with prices of year t-1. Estimations are done at product level enabling a full consistency between prices and products.

Wage index for non-trading activities – For non-trading activities such as public administration, education and health were used respective average wage indices, reflecting changes in labour prices which are the main production factor for these sectors. For health and education activities a distinction is made between market and non-market production enabling in this way the use of specific indices for each case.

Taxes estimation at volume terms – for some of the SUT components it is not possible to deflate these by a specific price index. The same situation exists for taxes and subsidies on products. They are directly related to the quantity or the value of a good or service that is subject of a specific transaction. Tax revenues of specific product are dependent on the quantities of products included in the transaction, the product prices and the tax rate as %. So, the estimation of taxes in volume

terms is achieved by multiplying the product value at constant price of year t with the tax ratio of respective product at current prices of year t-1. In mathematical form, it is expressed as:

$$T^{t}_{i_{kons}} = \frac{T^{t-1}_{i_{kore}}}{P^{t-1}_{i_{kore}}}, \; P^{t}_{i_{kons}} \qquad \text{(eq.8)}$$

Where:

$T^{t}_{i_{kons}}$ → taxes at constant prices of product i for year t

$P^{t}_{i_{kons}}$ → product at constant prices for year t

$T^{t-1}_{i_{kore}}$ → taxes at current prices of product i for year t-1

$P^{t-1}_{i_{kore}}$ → product i at current prices for year t-1

For taxes on products this method is applied for the corresponding values of the products on which it is applied. In case of VAT, this VAT rate is applied on the value of household consumption expenditures because consumers are those who carry the total value of VAT. For import taxes, respective values of imported products are applied, and so on for other tax categories. A change of the tax rate in the current year would reflect a change in price and not in volume.

Second category, taxes on domestic product is estimated in volume terms by applying product growth rate in current year to the previous year tax rates, at 2-digit of CPA. This is due to the low level of detail of taxes on domestic products. The method will be improved by applying the GDP growth rate of industries according to NACE classification.

Estimation of trade and transport margins in volume terms –the same logic is used as for tax deflation in volume terms. As these margins are applied to the total supply, output and imports, the method mentioned above is applied to their amount. So, the ratio of margins to the total output plus imports for period t-1, is multiplied by the total output plus imports at constant prices of period t.

After estimation of all SUT components at constant prices, the next step is the balancing process. SUT tables at constant prices are based on balanced SUT at current prices, therefore it is expected to have low discrepancies at product level on these derived tables. In case of presence of these differences, it is important to look at the price indices used for a better specification.

Approximation by the volume-index of the commodity flow

A proxy for the estimation of the volume index of the trade margin on a product is based on the assumption that the volume change in trade margins equals the volume change of the commodity flow. An alternative way to formulate this is to say that the percentage of trade margins at constant prices equals the percentage of the current prices of t-1. Trade margin percentages are here defined as the ratio of margins and the relevant commodity flow valued at purchasers' prices. The proxy can be refined if the volume change in trade margins is usually related to the volume change in the tur There would be no difference if the degree to which trade is involved in the commodity flow does

not change from one year to another. In that case the volume change in the turnover of trade is equal to the volume change of the commodity flow. However, the position in the market of wholesale trade can change, for instance, if producers decide to deliver directly to the buyer. The position of the trader in the market can be reflected in the "involvement rate" which can be defined as the ratio between turnover of trade and the relevant commodity flow.

The relation of the flow and the turnover of trade can be written as:

$VI_{trt} = F \ast VI_{flow}$

where

VI_{trt} = volume index of turnover of trade

F = change in the involvement rate of traders in the total flow of a product group

VI_{flow} = volume index of the corresponding commodity flow

If F = 1 then the involvement rate of trade in the commodity flow has not been changed from t-1 to t and the volume index of the flow equals the volume index of the turnover of trade. In case $F \neq 1$ the assumption is not valid and it would be helpful to collect data on involvement rates by product.

Trade margins at constant prices can be written as:

$TR_{t/t-1} = TR_{t-1/t-1} \ast VI_{trt}$

where

$TR_{t/t-1}$ = trade margins of t in prices of t-1

$TR_{t-1/t-1}$ = trade margins of t-1 in prices of t-1

Improvement by taking into account shifts between types of outlet

The method described above provides better results when applied at a detailed product level as used in a supply and use table. A further improvement can be reached by a breakdown of trade margins on a product by type of outlet, assuming that different outlets provide different qualities of services. In this way quality changes due to turnover shifts between outlets is accounted for.

The modified formula for the calculation of the volume index for trade margins is:

$$TR_{t/t-1} = \Sigma\Sigma \frac{TR(i,j)_{t-1/t-1} \ast VI(i,j)_{trt,i,i}}{TR(i,j)_{t-1/t-1}}$$

$i\ j$

in which:

$TR(i,j)_{t-1/t-1}$ = trade margins for product i and outlet j of t-1 in prices of t-1

$VI(i,j)_{trt}$ = volume index for the turnover of trade of product i and outlet j

7.4. Calculating GDP at prices of the previous year

Constant price estimates are compiled for both the production and expenditure sides of GDP within the detailed SUT framework. Supply and use tables provide a tool for compiling constant price GDP estimates in consistent way. This means in practice that "same" figures in different parts of the SUT accounts for each product are deflated consistently. The main areas are:

- Consistency between figures of domestic market production within output in the supply table, and their inclusion as components of intermediate consumption, HFCE, GFCF and stocks in the use table;
- Consistency between export sales which appear in output in the production estimates and in exports in the expenditure side of the account;
- Consistency between the components of the changes in inventories in the use tables, and the corresponding figures in output (changes in finished goods and work in progress);
- Consistency between figures of imports in the supply table, and their inclusion as components of intermediate consumption, HFC, GFCF, stocks and re-exports in the use table;
- Consistency between components of government non-market output and government final consumption (similarly for NPISH);
- Consistency between figures of taxes less subsidies on products in the use table, and the corresponding figures in the supply table;
- Consistency between supply and use side trade and transport margins.

As a result, the constant price supply and use data of each product are balanced at basic and purchasers' prices. Furthermore, the production and expenditure estimates of GDP at constant prices are automatically balanced at the detailed product level.

Estimates of production-based GDP are derived by the double deflation method (deflation of output and deflation of intermediate consumption) for market activities and by the input method for non-market activities of general government and NPISH sectors. The value added at constant prices is obtained as the difference between output and intermediate consumption valued at constant prices. GDP from production side at constant prices is calculated by adding taxes less subsidies on products to gross value added.

8. CHAPTER 8 METHOD USED FOR THE COMPILATION OF SYMMETRIC I/O-TABLES

8.1. Introduction

The conversion of SUT into IOT consists on removing secondary output from the output matrix and respective inputs from the intermediate consumption matrix. There are 4 possibilities depending on whether the secondary output moves to a different industry (left/right) or to a different product (up/down) and whether the input structure is used from the point of origin or from the point of destination. These possibilities lead to the following 4 approaches:

a. PRODUCT x PRODUCT

- Industry technology assumption (Each industry has its own specific way of production, irrespective of its product mix)
- Product technology assumption (Each product is produced in its own specific way, irrespective of the industry where it is produced)

b. INDUSTRY x INDUSTRY

- Assumption of fixed product sales structures (Each product has its own specific sales structure, irrespective of the industry where it is produced)
- Assumption of fixed industry sales structures (Each industry has its own specific sales structure, irrespective of its product mix)

The data base for the transformation of symmetric input-output tables from supply and use tables comprises the following tables:

- Supply tables at basic prices
- Use table at basic prices
- Use tables for domestic output at basic prices
- Use tables for imports at basic prices

In a supply system at basic prices, the columns for trade and transport margins and net taxes on products become irrelevant in the supply table as the valuation matrices were deducted from the use table at purchasers' prices. However, non-deductible taxes less subsidies on products form an additional row in the use tables, as total uses continue to be valued at purchasers' prices.

The following will explain in detail four basic models of compiling symmetric input-output tables. These include two models that are based on the assumption of a technology which generates input-output tables product-by-product. In this case, the input-output tables are composed of homogeneous products by rows and homogeneous units of production (industries) by columns.

Two other models are based on the assumption of a fixed sales structure from where industry-to-industry IOT are derived. The results of these models are input-output tables with industries by rows and industries by columns. These two types of symmetric input-output tables are called product-to-product and industry-to-industry input-output tables.

The four basic transformation models used for compiling product-to-product or industry-to-industry IOT are based on the following assumptions:

a. Product technology assumption (Model 1). Each product is produced in its own specific way, irrespective of the industry where it is produced. So, technology used to produce a specific product is the same for all industries.

b. Industry technology assumption (Mode 2). Each industry has its own specific way of production, irrespective of its product mix. In this model, the economic activity does not change regardless the structure of the product that is producing.

c. Fixed industry sales structure assumption (Model 3). Each industry has its own specific sales structure, irrespective of its product mix.

d. Fixed product sales structure assumption (Model 4). Each product has its own specific sales structure, irrespective of the industry where it is produced.

There are two other transformation models that will be discussed:

a. The hybrid technology assumption. The hybrid technology assumption combines the product technology assumption and the industry technology assumption to avoid negatives in product-by-product input-output tables.
b. The Almon procedure. The Almon procedure is a mathematical algorithm designed for compiling product-by-product input-output tables which are based in essence on the product technology assumption but avoids step-by-step procedure negatives in the derived input-output tables.

A product-to-product table describes the technological relations between products and homogenous units of productions (industries). The intermediate consumption part describes, for each product, the amounts of products that were used to produce this product, irrespective of the producing industry.

The final use part describes the uses of products in the economy without emphasizing if these are imported or domestic products. The quadrant of income distribution describes the components of value added are distributed over the production processes of the products in which the value added is actually generated.

8.2. The symmetric industry by industry input-output table

The balanced supply and use tables serve as basis for the compilation of the symmetric table. The symmetric input-output table (SIOT) – that consists of the same homogeneous units in respect of both output and input – can be derived from the supply and use tables via mathematical transformation and by use of complementary information. An important question is which of the four possible IOTs to use in the future. Given that the current SUT is still compiled from activity data, product tables clearly make little sense, this rules out M1 and M2. And then we analyzed the M3 and M4 models and the advantage of M4 over M3 is that the IO coefficients cannot be negative.

Analyzing the sources and current SUT situation, INSTAT has compiled input-output tables based on Model 4 compiling the industry table (assumption of fixed products sales - each product has its own specific sales structure, irrespective of the industry where it is produced. The term "sales structure" indicates the proportions of the output of a product in which it is sold to the respective intermediate and final users). This approach does not require assumptions that are at odds with what is actually known about the economy from observed data and use only SUT data.

In case of Albania the IOT framework, likewise the entire SUT framework, needs to be further developed in order to include the components of GDP by income approach, to distribute the intermediate consumption in two sub-groups, domestic and from imports and to enable to compile product-by-product tables.
The basis for conversion of symmetric input-output table (SIOT) from supply and use tables (SUT) comprises the following tables:

- Supply tables at basic prices
- Use table at basic prices
- Use tables for domestic output at basic prices

- Use tables for imports at basic prices

The first step for SIOT compilation is the conversion of SUT at basic prices. The supply table is valued in basic prices, i,e, without taxes (on products) and trade and transport margins. The use table is valued in purchaser prices, i,e, including taxes (on products) and trade and transport margins, To make supply and use directly comparable (e,g, for conversion into IOT) it is necessary to convert the use table into basic prices as well. After the balancing stage where the adjustment matrix is balanced, net taxes on products and trade and transport margins are subtracted from use table in order to compile use table at basic price.

This amounts to:

- Subtraction of net taxes on products from each cell of the intermediate and final demand tables, the column total of these taxes should equal the net taxes from the supply table (so as not to upset the product balances). Whatever amount of taxes is subtracted from the use table needs to be added to intermediate demand again in order to get the correct activity balances back;
- Subtraction of the trade margins from each cell of the intermediate and final demand tables, the column total of these margins should equal the trade margins from the supply table (so as not to upset the product balances), whatever amount of trade margins is subtracted from the use table needs to be added to product row for the trade sector in the use table in order to get the correct activity balances back;
- Subtraction of the transport margins from each cell of the intermediate and final demand tables, the column total of these margins should equal the transport margins from the supply table (so as not to upset the product balances), whatever amount of transport margins is subtracted from the use table needs to be added to product row for the transport sector in the use table in order to get the correct activity balances back.

IOT are compiled for total economy for domestic use and imported use as well, for the imported part a use table is developed for imported goods at basic prices and a valuation matrix to convert to purchases price, then the imported table is subtracted from total use.

The use table of imports contains the flow of both goods and services import from supply table to use side matrix. Analyzing foreign trade statistics data (FTS), for the imports of goods and Balance of Payment data for the import of services we have created an approach for the distribution of import in intermediate consumption also final uses.

Data source used for the compilation of import flows is taken from the foreign trade statistics (FTS). The database contains data for the importing enterprises; CN 8-digits code for the products also the value of imports. The CN-8 digit code is converted to CPA 6 digit and the aggregated to 4 digit and 2 digit level.

From FTS there is analyzed the National Procedures that explain specific cases as goods sent abroad for processing that is the most important specific issues in case of Albania.

FTS statistics is linked with annual national account database and from this database are taken the NACE codes used in NA also the information for the enterprise.

For the identification of imports to intermediate uses we have used Broad Economic Classifications (BEC) for each of importing category as follow:

- Imports directly by Household;

- Imports by Processing Enterprises;
- Imports by Producing Enterprises;
- Imports by Trade enterprises.

For **imports directly by households**, the import data that don't have an enterprise behind are extracted from FTS database. The import database gives this information because of the existence of a specific code showing that is a household import. For this kind of import the BEC categories are analyzed and the weights are adjusted for allocation of imports to consumer goods and capital goods.

Imports by processing enterprises are the value of imports for processing in Albanian territory and then exported after the processing. There is a variable called "National Custom Procedure (Tar Prc Nat)" that allow to identify this kind of imports. According to the methodology of ESA 2010 this imports are excluded from the use table for import.

Imports by Producing enterprises are the value of imports by all enterprises classified in NACE activities (NACE 01 to 99) that are not part of "imports by trade enterprise (NACE 45 - 47)" and "imports by processing enterprise". Using the BEC classification for the imported products the imports value of this category is analyzed and allocated into categories of: intermediate goods, consumer goods and capital goods. The NACE code of importing company and CPA products give the matrix for the use table for this group.

Imports by Trade enterprises are the value of imports by enterprises that have NACE code in the 45-47 groups. The BEC codes for imports value of this group of enterprises are analyzed and adjusted. The allocation of import for intermediation consumption is done by prorating the import of trade enterprise by total use side structure.
The distribution of imports of services, there are used the BOP data provided by Bank of Albania, at aggregated level. The allocation to final uses is done indirectly by applying the so-called import proportionality or comparability assumption. This assumes that imports are used in the same proportion across all industries as the weight of total uses.

Use table at basic prices
The use table at basic prices is compiled mechanically prorating the column with taxes, subsidies, trade margins, transport margins over the table with intermediate and final demand and so obtain the separate matrices.
The automated conversion of SIOT from SUT at basic prices is developed on the *NA Builder,* an application implemented under the assistance of IPA 2012 MB, IPA 2014 and IPA 2015, PP.1.7. Until now only the industry*industry table for the total economy is released. The product*product table in 64 level of aggregation is compiled and transmitted to Eurostat with confidentiality status.

Sup	Supply table at 90x89 detail
UseTot	Use table in basic prices at 90x89 detail
SupA	Supply table at 64x64 detail
UseTotA	Use table in basic prices at 64x64 detail
UseImp	Import matrix at 90x89 detail

UseImpA	Import matrix at 64x64 detail
UseDom	Domestic use table at 90x89 detail
UseDomA	Domestic use table at 64x64 detail
M1	Product table, Product technology assumption, total economy
M1_Dom	Product table, Product technology assumption, domestic use
M1_Imp	Product table, Product technology assumption, imports
M2	Product table, Industry technology assumption, total economy
M2_Dom	Product table, Industry technology assumption, domestic use
M2_Imp	Product table, Industry technology assumption, imports
M3	Industry table, Assumption of fixed industry sales structures, total economy
M3_Dom	Industry table, Assumption of fixed industry sales structures, domestic use
M3_Imp	Industry table, Assumption of fixed industry sales structures, imports
M4	Industry table, Assumption of fixed product sales structures, total economy
M4_Dom	Industry table, Assumption of fixed product sales structures, domestic use
M4_Imp	Industry table, Assumption of fixed product sales structures, imports

8.3. The product by product input-output table

Under IPA 2015, PP 1.7 is compiled for the first time the product by product table 2015, ("M2" or model B: industry technology assumption, i.e. each industry has its own specific way of production, irrespective of its product mix). The IOT template is adjusted on 65 x 65 level of breakdown and all columns of final demand are provided according to the transmission programme.

9. CHAPTER 9 MAIN DATA SOURCES USED

INSTAT collects a wide range of data to make any adjustments necessary for the transition from private accounting concepts to ESA 2010 national accounts concepts, ensuring a correct treatment within the accounts. This chapter reveals the used information, obtained from surveys and administrative records, to ensure the compilation of the National Accounts.
Compilation of the system of national accounts by production and expenditure approaches involve the use of all available statistical data sources, administrative registers and also indirect adjustments performed to ensure a fully covered economy.

Primary statistical information from the respondent legal persons (enterprises and organizations) and natural persons (population and households) is obtained by regular (annual, quarterly, monthly) and occasional surveys. Such surveys include all members of the target population or, more often, a sample.
Statistical information from the enterprises and households is obtained mainly with the help of statistical questionnaires using personal interviews. Censuses such as Population Census and Agricultural Census are prepared and executed at specified periods of time.

Main data sources used for the compilation of GDP by different approaches are listed below with an extended description. This is provided in the following sections of this chapter and depends on where this source is considered as main data sources.

I. Administrative data

1. Annual accounting statements of enterprises

Annual accounting statements of enterprises are collected by the General Directorate of Taxation. Balance sheets are collected for statistical purposes and for the purpose of public disclosure of accounting statements. Reporting is obligatory according to the National Statistics Law.

Name of data source: ***Annual accounting statements of enterprises***
Organization collecting the data, and purposes for which it is collected: General Directorate of Taxation
Reporting units: Annual accounting statements of enterprises are submitted by different kinds of corporations, irrespective of their activity or their size.
Periodicity: Annual Data refer to the calendar year.
Variables collected: All variables from the profit and loss account are collected from the balance sheet.

Variables collected from the profit and loss account of the balance sheets for the purpose of GDP calculation the following variables are used:

- inventories of raw material at the beginning and at the end of year;
- inventories of unfinished products at the beginning and at the end of year;
- inventories of finished products at the beginning and at the end of e year;
- inventories of goods for resale at the beginning and at the end of year;
- sales of goods and services on domestic market;
- sales of goods and services abroad (for export);
- sales of goods for resale on domestic market;
- own-account production;
- subsidies on products;
- other operating revenues;
- value of sold goods purchased for resale;
- costs of material (acquisition of materials, increase or decrease of inventory);
- costs of services;
- labour costs (wages and salaries, social security contributions, costs of other insurance, other labour costs);
- depreciation;
- other operating costs;
- operating result (profit or loss);
- number of employees;
- investments (purchases and sales) by type (land, new buildings, existing buildings, transport equipment, other machinery and equipment, other tangible fixed assets, intangible fixed assets)

Balance sheets data are used in order to evaluate domestic transport margin from transport expense that enterprises report.

2. VAT declarations

VAT declarations are collected by the General Directorate of Taxation for administrative purposes. Declarations are submitted to the General Directorate of Taxation by the VAT units with different frequencies; the large majority of units submit the declarations on monthly basis, others on quarterly basis. Data are available for INSTAT each quarter approximately 60 days after the end of the quarter. The database received by INSTAT contains data from all individual declarations, including the identification number (NIPT).

Name of data source: ***VAT declarations***
Organization collecting the data, and purposes for which it is collected: General Directorate of Taxation
Reporting units: Reporting units are all business entities, liable to VAT.
Periodicity: The data refer to month, quarter or year.
Variables collected: Individual data of monthly value added tax reports of VAT units.

3. Purchase and Sales forms

Purchase and Sales declarations are collected by the General Directorate of Taxation for administrative purposes. The large majority of units submit the declarations on monthly basis, others on quarterly basis. Data are available to INSTAT each quarter approximately 60 days after the end of the quarter. The database received by INSTAT contains data from all individual declarations, including the tax number.

Name of data source: ***Purchase and Sales forms***
Organization collecting the data, and purposes for which it is collected: General Directorate of Taxation
Reporting units: Reporting units are all business entities, liable to VAT.
Periodicity: Annual

Purchases and sales forms are collected from the General Directory of Taxation on annual basis. The application forms are fulfilled online. Variables collected are as shown in the table 14.

Table 14: Purchase and Sales forms

Receipt			Seller			Total Purchases (including VAT)	Purchase			
No Receipt	Serial No	Date	Business name	District	NIPT / Farmer Code		Excluded from VAT,	Import VAT 20%	Import VAT 10%	From domestic suppliers' VAT

							Non-deductible VAT	Taxable Value	VAT	Taxable Value	VAT	Taxable Value	VAT
a	b	c	d	e	f	g=(h+i+j+k+l+m+	h	i	j	k	l	m	n
Total value													
Correspondence with VAT declaration form							(15)	(16)	(17)	(18)	(19)	(24)	(25)

4. Balance of Payments

The balance of payments of a country is a statistical table that presents transactions in goods, services and financial assets and liabilities for a certain period of time. The balance of payments of Albania is compiled according to a methodology which is based on the "Balance of Payments and International Investment Position Manual, IMF, Sixth edition" (available in English, pdf format). For the compilation of the balance of payments statistics, the Bank of Albania contacts a number of institutions, which regularly report to the Balance of Payments and Survey Sector. A considerable amount of information is obtained from the General Customs Directory, the Ministry of Finance and the Ministry of Economy. At the same time, other units report through specific forms such as the ones for commercial banks, for insurance companies, for telecommunication companies, and recently for embassies and non-governmental institutions.

In addition, for the compilation of a number of statistics, the Bank of Albania, often in collaboration with INSTAT, organizes household or enterprise surveys which yield information on travel revenues and expenditures, on the cost of transportation and insurance for imports and exports and on the flow and stock of foreign direct investments in the country.

Data for SUT compilations we use Goods and Services Account data on import and export of services. BoP information is taken at quarterly and annual basis, by categories as in table 15 and then relying on conceptual relationship that exists between ESA and BoP; some structures are used to derive at specific products by categories as presented in the second column of table 15.

Table 15: Level of aggregation for import and export of services

Group	Production Code (CPA)
I. Transport services	
1. Water transport services	50
2. Air transport services	51
3. Road transport services	49
4. Rail transport services	49
5. Postal and courier services	53
II. Travel services	
1. Business travel	

1.1 Acquisition of goods and services by border, seasonal,	47, 52, 49, 55, 56
1.2 Other business travel	61, 79, 91, 93, 96
2. Personal travel	
2.1 Health-related expenditure	86
2.2 Education-related expenditure	85
2.3 Other services	47, 49, 50, 51, 52, 55, 56,
III. Construction services	43
IV. Insurance and pension services	65
V. Financial services	64
VI. Charges for the use of intellectual property n.i.e.	73
VII. Telecommunications, computer, and information services	61, 63
VIII. Other business services	
1. Research and development services	72
2. Professional and management consulting services	70
3. Professional and management consulting services	45, 46, 74
IX. Personal, cultural, and recreational services	
1. Audiovisual and related services	79
2. Other personal, cultural, and recreational services	90, 91, 96, 97
X. Government goods and services n.i.e.	84

II. Statistical data sources

1. Annual Structure Business Survey (SBS)

The main aim of structural business statistics is to show the structure of the business sector with regard to economic data. Data for the total business sector, by branch and by size groups are present. Structural business statistics are regulated by Council Regulation (EC, EURATOM) No.58/97, 20 December 1996.

Name of data source: ***Annual Structure Business Survey (SBS)***
Organization collecting the data: INSTAT
Reporting units: Population consist of all enterprises that according to statistical register were active in December of the reference year.
Periodicity: Annual
Results' availability: Results are available 11 months after the end of the reference year.
Variables collected: The survey includes data on economic activities, employment, incomes and expenditures, investments, and specific variables for volume of construction, road transport, trade, hotel and bar café & restaurants.
Further adjustments made to the data: Data on cost structure are analyzed for each unit and then classified according to CPA classification

This survey has included all variables from the profit and loss account, identification part, investments, etc. For the purpose of GDP calculation, the following variables are used:

- sales of goods and services in domestic market;
- sales of goods and services abroad (for export);

- sales of goods for resale in domestic market;
- own-account production;
- subsidies on products;
- other operating revenues;
- value of sold goods purchased for resale;
- costs of material (acquisition of materials, increase or decrease of inventory);
- costs of services;
- labour costs (wages and salaries, social security contributions, costs of other insurance, other labour costs);
- depreciation;
- other operating costs;
- operating result (profit or loss)
- number of employees;
- tangible assets by type
- intangible assets;

For SUT compilation purposes, the cost structure table at the SBS survey is included as it is described in table 16. The level of aggregation is according to CPA 2008, 2-3 digit level. In the absence of a specific survey for intermediate consumption estimation by industries and by type of products, it is managed to collect data on the cost structure for a certain group of industries at annual basis, starting from 2014. By applying this procedure, we have a more detailed level of data and frequent updates on the cost structure.

Table 16: Cost structure of the enterprise

CPA 2008	Cost purchases identified, grouped by type	The value of purchases ('000/ ALL) (3) = (4)+(5)	Domestic Production (4)	Imported (5)
01.1-01.3	Industrial cereals and crops			
01.4	Live animals and animal products			
02.1-02.3	Forest trees and nursery services			
03.0	Fish and other fishing products; aquaculture products; support services to fishing			
05.1-05.2	Hard coal			
06.1-06.2	Crude petroleum			
07.1	Iron ores			
07.2	Non-ferrous metal ores			
08.1	Stone, sand and clay			
08.91	Chemical and fertilizer minerals			
08.93, 10.8	Salt			
10.1-10.2	Preserved meat and fish products			
10.3	Processed and preserved fruit and vegetables			
10.4	Vegetable and animal oils and fats			
10.5	Dairy products			
10.6-10.7	Grain mill products, starches and starch products			
10.8	Other food products			
11.0	Beverages			
12.0	Tobacco products			

13.1	Textile yarn and thread			
14.1-14.3	Wearing apparel, except fur apparel			
15.1-15.2	Tanned and dressed leather; luggage, handbags, saddlery and harness; dressed and dyed fur			
16.1-16.2	Wood, sawn and planed			
17.1-18.1	Pulp, paper and paperboard			
19.1-19.2	Coke oven products			
20.1, 20.3, 20.5	Basic chemicals, fertilizers and nitrogen compounds, plastics and synthetic rubber in primary forms			
21.1-21.2	Pharmaceutical preparations			
20.6	Man-made fibers			
22.1-22.2	Rubber products			
23.1	Glass and glass products			
23.2-23.3	Refractory products			
23.5	Cement, lime and plaster			
23.6-23.7	Articles of concrete, cement and plaster			
23.9	Other non-metallic mineral products			
24.1-24.5	Basic iron and steel and ferro-alloys			
25.1	Structural metal products			
25.5-25.9	Forging, pressing, stamping and roll-forming services of metal; powder metallurgy			
28.1	Machinery for the production and use of mechanical power, except aircraft, vehicle and cycle engines			
26.1, 27.9	Electronic components and boards			
27.3	Wiring and wiring devices			
27.2	Batteries and accumulators			
27.4-27.5	Electric lighting equipment			
27.9	Other electrical equipment			
32.9	Manufactured goods n.e.c.			
38.3	Metal and not metal secondary raw materials			
35.1-35.2	Electricity as raw materials			
35.3	Water as raw materials			
	Other row materials not specified above			
	48.1_____			

2. Short Term Survey (STS)

The purpose of quarterly survey is to introduce the trend of main economic indicators of economic enterprises at a quarterly basis. Short term indicators are tools for compiling and monitoring of economic and monetary policies of a country and of the European Community in general. These indicators are very important in economic analysis by the Bank of Albania, Government, companies etc. Short term indicators facilitate the monitoring and decision taking and are used in conformity with other economic data, in order to calculate the quarterly GDP.

Name of data source: ***Short Term Survey (STS)***
Organization collecting the data: INSTAT
Reporting units: Companies, enterprises and other organizations.
Periodicity: Quarterly
Results' availability: Results are available 90 days after the end of the reference quarter.

Variables collected: Main variables covered each quarter are turnover on domestic market; labour costs; number of employees; etc.

3. Retail Trade Survey

The purpose of the retail trade survey is to show the development of the enterprise market for goods as well as other indicators such as employment, wages on quarterly base. The object of this survey is retail trade enterprises and trade and repair of motor vehicles. The retail trade survey covers statistical data necessary for monitoring the economic situation in Albania, while respecting the right of citizens for information.

Name of data source: ***Retail Trade Survey***
Organization collecting the data: INSTAT
Reporting units: Companies, enterprises and other organizations.
Periodicity: Quarterly
Variables collected: Main variables covered each quarter are turnover on domestic market; labour costs; number of employees; etc.

Main activities included in the survey are:

- Retail trade activity, group 47 NACE-Rev. 2
- Sale and repair of motor vehicles, group 45 NACE Rev. 2

4. Household Budget Survey (HBS)

Household Budget Survey (HBS) contains information on all kind of household expenditures in money terms (separately for own consumption and for gifts), consumption of own produced goods, gifts and transfers as well as income in kind. In a separate section, all outputs and inputs of the household's farming activities are also shown. Household Budget Survey provides information conceptually consistent with the national accounting requirements.

Final consumption of households, represent the value of products and services used to meet the individual needs of these households. Most frequent expenditure of households for their needs, are recorded in a diary. Besides the names of the items/services purchased, the unit of measure, weight and value were registered in the dairy. It should be noted that the work carried out by the household for extraordinary maintenance and repairs as well as the purchase of an apartment are considered as capital investments made by households and not as consumption expenditures.

Name of data source: **Household Budget Survey (HBS)**
Organization collecting the data: INSTAT
Reporting units: Households
Periodicity: Monthly

Variables collected: Total private household expenditures, classified according to COICOP and in more detailed groups of goods and services (349), and divided into consumption expenditures in cash and in kind, and private households' income (different kinds).

The Data collection was based on two different ways of getting information:

- Completeness of a diary of purchases (and a self-consumption booklet whenever households claim to consume items/services produced by their own) by the household for 14 consecutive days.
- Direct interview (face to face) through an interviewer.

The tables present data on all consumption expenditures for households to purchase products and services with the exception of purchases for long-term equipments, capital investments and imputation rent.

Data on household consumption are collected according to Classification of individual consumption by purpose COICOP where products are grouped according to the purpose of use and SUT framework is according CPA classification, for this reason COICOP-CPA bridges should be derived. Since there is not a complete correspondence between these nomenclatures, is constructed a bridge matrix using weights to enable the relationship at 6 and 4-digit level according to CPA 2008 classification.

III. Data within the Institution

1. Directory of Agriculture and environment statistics

The statistics on the continuance and overcome of agriculture in years are obtained through surveys performed by the Ministry of Agriculture. In the annual estimates despite the results obtained through the General Register of Agriculture-Economic Units and statistics published by the Ministry of Agriculture and Food, some assessments are made referring the number and living-stock productions from cattle and small stock. Evaluation performed by INSTAT on the number of living stock is based on the General Register of this category and changes faced by stock and mutton and goat. The assessment of the cow milk production is performed based on the average annual number resulting from the changes in this sector and average output of the milk/cow calculated by the Ministry of Agriculture and Food. The same logic is followed for milk production from sheep and goat, at the difference that according to methodology, the number of stock is referred to the situation at the beginning of the year. The evaluation for the meat product for each category is based on the preparations performed for the changes of living stock, thus the number of stock eliminated and average weight on the stock slaughtered.

Data Sources

Results of the General Agricultural Census
Ministry of Agriculture, Food and Consumer Protection
Ministry of Environment, Forestry and Water Administration
INSTAT assessments

Variables collected

Output and ***Intermediate Consumption*** **-** Data are taken from the agriculture sector at product level and then classified according to products nomenclature (CPA), whose structure is used to distribute the total value of output for this sector;

2. Annual National Accounts Section – National Accounts Directory

Name of data source: **Sector of Annual National Accounts**
Periodicity: Annual, Semifinal t+17 month, Final t+29 month
Variables used for SUT: Output; Intermediate consumption; Gross Operating Surplus and gross mixed income; Compensation of employees; Value Added; Expenditures for the financial sector; FISIM;

The Sector of Annual National Account is responsible for the calculation of GDP by production approach and their main data sources are: Annual Structural Business Survey (SBS - for non-financial and non-agriculture enterprises), that cover the largest part of economic activities (Industry, Construction, Trade and Hotels, Transports, Telecommunications and one part of Services); Quarterly surveys on enterprises (Industry, Construction, Retail Trade, partial services) carried out by INSTAT. Other surveys cover the activities of agriculture, forestry and fishing carried out by Ministry of Agriculture.

Administrative data sources are annual accounting statements of enterprises, which are collected by the General Directorate of Taxation; governmental data coming from Ministry of Finances, where data are related to the revenues and expenditures for all budgetary institutions.

Other data sources are: financial statements of monetary institutions that are collected by the Bank of Albania; financial statements of insurance undertakings collected by the Financial Supervision Authority; file of sales, collected by Tax Administration for the purpose of value added tax (VAT).

Level of aggregation for SUT purposes is at 90 group's level of NACE Rev. 2 classification.

Expenditures of Financial Sectors as described in table below, are analyzed, classified according to CPA 2008 and then used as a structure for intermediate consumption of this sector.

Table 17: Expenditures of financial sector

No	Description	No	Description
1	Book printing services	36	Rent
2	Expenditures for energy	37	Office rent UG
3	Expenditures for water	38	Vehicles
4	Fuel	39	Maintenance IT
5	Expenditures for transport equipment's	40	Microsoft software maintenance services
6	Travel expenses and per diem within the country	41	Training expenditures

7	Transport expenditures	42	Audit & Consultancy services
8	Communication services	43	Advertising and promotions
9	Internet services	44	Marketing expenditures
10	Postal services	45	Professional Services
11	Reuters	46	Storage and insurance costs
12	Internet maintenance services	47	Other external services (including external auditing)
13	ATM expenses	48	Representation expenses
14	Deposit insurance and other expenses	49	Expenses for employees in cases of celebrations
15	Technical assistance from parent company	50	Electrical network maintenance services
16	Transportation services for monetary values	51	Sponsorship services
17	V card services 10%	52	Expenditures of board of directors
18	SWIFT expenditures	53	Membership expenditures
19	Reuters expenditures	54	The physical security of buildings
20	Expenses for Visa card	55	Expenses for conferences, cocktails etc.
21	Other insurance policies	56	Legal and consultancy services
22	Expenses for cards	57	Cost management
23	Insurance	58	Legal expenses
24	Insurance premiums	59	The Board of Directors and Audit Committee
25	Security expenditures	60	Expenses for reception, monitoring and evaluation
26	Expenditures for external services	61	Adjustments in the income statement according to international accounting standards
27	External services from third parties	62	Notary services
28	Office equipment's	63	Other administrative expenses
29	Other activity expenditures	64	Cleaning materials
30	Office tools	65	Administrative expenditures
31	Materials for consumption	66	Maintenance and repair services
32	Works & Services	67	Personnel costs for the reception escort
33	Office expenses	68	Personnel expenditures, per diem, insurance etc.
34	Provisions for financial leasing	69	Travel Money Services
35	Banking services	70	Payable operating lease expenditures

3. Institutional National Accounts Section – National Accounts Directory

Sector of Institutional National Accounts is responsible for the calculation of GDP by expenditure approach and their main data sources are:

- Household Budget Survey and Retail Trade Survey for estimation of the household's final consumption expenditure (HFCE).
- Administrative data from the Ministry of Finances to estimate final consumption expenditure of general government.
- SBS, customs statement, data from annual accounting statements of enterprises, data from Ministries to estimate gross fixed capital formation.
- Changes in inventories are estimated by using annual accounting statements of enterprises.
- Exports and imports of goods and services are estimated using the balance of payments compiled by Bank of Albania and statistics of foreign trade.