

## **Metadata on National Account**

### **Main approaches to calculate the GDP**

The estimates of GDP are produced using a system of statistical sources and administrative data which are based on the NA definitions or can at least be brought into line with them. The work is carried out at the greatest possible level of disaggregation, both to ensure good reliability of the estimates and to provide a sufficiently detailed breakdown to reflect trends in the various sectors.

The system is mainly based on the production approach, the demand-side is estimated. The demand-side estimates do not represent a complete and separate whole allowing GDP to be estimated by this approach: however, the figures for gross fixed capital formation, household consumption and change in inventories are analysed in conjunction with the supply-side data so that they are taken into account in the calculation. The agricultural accounts, general government accounts and netted balance-of-payments figures are incorporated into the overall system for estimating GDP.

The basic approach can be summarized as follow:

- a) The production-side estimates are mainly based on grossing up the per enterprise figures from the surveys using numbers enterprises. Estimation of labour input by combining sources from the labour demand side (businesses) and demographic sources play an essential part in producing the estimate of the non observed economy.
- b) Domestic demand is estimated by combining data on the supply of products with data on expenditure obtained from the household consumption surveys, special surveys and businesses' balance sheets.
- c) The aggregates for general government, financial institutions and some public corporations are estimated from budgets or balance sheets and from other administrative sources.
- d) The main approach to estimating output for agriculture is "price x quantity".
- e) The initial estimates of the resources and uses aggregates are balanced by branch of economic activity using an input – output scheme.
- f) A chain index system is used for valuations at constant prices.

## **1. CURRENT PRICE ESTIMATION**

### **1.1 Outline of production approach**

With the adoption of the new classification, the way in which the economic system is represented distinguishing activities according to their nature. For calculation purposes, it is important to identify the various players which may operate within each sector of economic activity. Within each branch, the following types of operator are therefore considered:

- market enterprises
- producers for own final use
- non market producers
- public and private NPIs

### **1.1.2. Main data sources**

The main data sources for the agricultural sector are the surveys conducted by Ministry of Agriculture and Food and Census of Agriculture conducted in 1999 by INSTAT.

The estimates of non-financial enterprises' figures of GDP are compiled in absolute terms. That requires an annual collection of business accounting data covering all non-financial corporations and unincorporated enterprises. Given the large number of individual entities concerned, this collection is made possible only by the availability of annual business accounting data attached to tax statements related to profits from economic activities. Non-financial enterprises not covered by tax authorities are in general the agricultural activity.

Two main sources are used:

- a) Data collected by the tax administration
- b) Surveys of enterprises conducted by the Albanian statistical office, INSTAT, or by statistical offices of ministries.

The main data collected relate to:

- Profit and Loss account (Incomes and expenditures), following the same structure as the standard current accounts attached to tax statements;
- Data on the investment by type;
- Specific data sub-sets according to the survey, e.g. on transport, construction, etc.

The data source use for the financial and banking activity are provided mainly by the Bank of Albania. The main data source for non market activity are provided by the Treasury Department of Ministry of Finance.

### **1.1.3. The extra-agriculture market non financial activities**

The estimate of the output in extra agriculture market non financial activities is mainly based on the following data sources:

1. Statistical Business register;
2. Annual structural statistics survey;
3. Balance sheets (loss and profit account);
4. VAT declaration (more in general fiscal register).

Each data source contain common data and, at the some time, they are characterized by specific figures. In order to maximize the available information a specific procedure has been implemented to integrate such data bases. The common parts make it possible to check the overall consistency of the whole. This is done on an individual basis for large and medium enterprises, given the relative concentration of the productive area.

The processing data includes two main phases. In the first stage, the various files coming from surveys and balance sheets are revamped. The purpose is to get a common format; it is also an opportunity for checking the internal coherence of balance data and survey data. For large and medium enterprises internal discrepancies are reduced on a case-by-

case basis. For smaller enterprises any internal discrepancies are eliminated by automatic adjustments. As a result it is possible to calculate the production, intermediate consumption and value added in the level of individual enterprises.

After all these controls and adjustments, the micro-database file is created.

In order to ensure a good coverage of the national accounts indicators, a grossing up is required for the missing units (units which did not fill in a balance sheets or have no information in the annual structural survey).

The following procedure was chosen for carrying out imputations :

1) The existent units, by industries, are broken down in three strata : small, medium and large by using the number of employees ( variable which also exists in the statistical register, the base of imputation).

2) The following variables are taken into account:

T1i= Turnover of enterprises for which we have data, in strata i

i= small or medium or large

N1i= Number of units for which we have data, in strata i

T= Total turnover of units for which we have data

N= Total number of units for which we have data

NOi = Total number of missing units in strata i

TOi= Estimated turnover for the missing units in strata i

Available data

	Strata small	Strata medium	Strata large	Total
Number of units	N1i			N
Turnover	T1i			T

Under these circumstances the turnover of missing units can be estimated by using the formula:

$$TOi = NOi / N1i * T1i$$

$$\text{Coefficient of extrapolation} = TOi / T1i$$

This coefficient could be used to extrapolate different indicators such as : production, intermediate consumption, wages and so on.

The overall for the computation of output and value added is summarized in Table 2.1.4.

The methodology discussed in this paragraph is referred to the first treatment (intermediate simple system), the second treatment will be presented in paragraph 2.

#### 1.1.4. Financial activities

The main data sources for estimating the production, intermediate consumption and value added for banking services are the balance sheets provided by the Bank of Albania, with which an agreement on exchange of data has been established. The data transmission includes: the centralized situation of the commercial banks and the balance sheet of Bank of Albania itself.

In the case of financial activities their output is equal with the sum of actual service charges and the value of financial intermediation services indirectly measured (FISIM).

In formal terms:

$$\text{Output of financial activities} = \text{FISIM} + \text{Actual services charges}$$

The service charges cover different kind of revenues as commissions and fees. The paid commissions are considered as intermediate consumption expenditures.

FISIM is calculated as the difference between the interests received and the interests paid. But the estimations must be improved later on in accordance with the SNA' 93 rules. The estimates include income of own capital. The data on own capital and its income are provided by the Albanian National Bank.

So far FISIM was not broken down by industries / institutional sectors but considered as intermediate consumption of a nominal sector with zero output and negative value added (equal but opposite in sign to intermediate consumption).

**Intermediate consumption** covers the expenses for water, energy, small repairs, travel and transports of the employees, different other kind of administrative expenses.

### 1.1.5. Insurance

**Output** of insurance activities covers both the direct insurance output plus reinsurance one. The output is calculated as difference between premiums received and claims paid. For the time being the estimates are made on a cash basis and not accrual ones. Output of reinsurance activity is estimated by using the balance of payments data.

**Intermediate consumption** is covering the same kind of expenses as explained above for banks.

The output of insurance companies is allocated to users : households (and so to the final consumption of households) and enterprises (intermediate consumption) by means of estimates based on the statistics available at insurance companies. The data on premium supplements were made available by the National Authority Commission of Insurance, with which an agreement on exchange of data has been established. Data include interests paid on investments.

The data sources are the balance sheets of the insurance companies and balance of payments for reinsurance activity.

These activities cover the actual rent and imputed rent as well. As in other countries in transition also in Albania the dwellings were very quickly included in the privatization process; they were rapidly bought by individuals and so they became private property. Therefore an estimation of the imputed rent was needed. The first estimates of **imputed rent** (rent considered as being paid by the owners of dwellings) are based on the **data of stock of dwellings and estimates of the rent paid per square meter**.

**Actual rent** covers the rent for publicly-owned dwellings and the rent paid to private owners who rent dwellings (there were used also some information coming from the CPI compilation).

### 1.1.6. Non market output

Main data sources: Macro economic Dept and Accounting Dept. of Ministry of Finance. Macro economic dept provides to INSTAT the budget data of the Public Administration at aggregate level and on the basis of economic classification;

Accounting Dept. provides detail data at geographical level and functional classification.

These kind of services are rendered by general government and NPISHs and cover the following activities:

- General government and defence

- Compulsory social security
- Health
- Education
- Research
- Activities of religious, political associations and other non-profit organizations.

The **output** of those activities is calculated as sum of their costs: material expenses, wages, net taxes, consumption of fixed capital.

### **1.1.7. Evaluation of production at basic price**

In accordance with the SNA'93 rules output is evaluated at basic prices, that means without taxes on products and import but with subsidies on products and import. Based on the information coming from the consolidated budget and GFS there was made a breakdown of subsidies by activities and so the output was estimated at basic prices.

Taking into account the legislation in place for the examined period and the SNA'93 methodology there were identified Taxes on products and imports – by using GFS data and those coming from the consolidated budget - taxes on products and imports. The most relevant of those taxes are: Value Added Tax; Excises; Customs duties.

**Transactions are recorded on cash basis.**

## **2 Overview of the allowance for exhaustiveness**

### **2.1. Methodology for reconciling NA aggregates and employment data**

A methodology to reconcile NA accounts aggregate with the total amount of input of labour as estimated by the LSMS has been developed.

For estimating the underground economy, the integration of Value Added (VA) aggregates taking into account missing enterprises is necessarily related to the available data and to the procedure currently used in the grossing up of the economic data, which is carried out using average economic values provided by the enterprises (see par. 2.1.3) . This approach is achieved through the basic data collected in different sources and can be summarized as follows:

1. The starting point consists in assuming (by branch and dimensional class) the number of enterprises underlying NA and those “observed”; in such a way we assume the difference between (a), a “population” of enterprises concerning both the observed enterprises (SBS + balance sheets) and (b), a number of hidden enterprises derived from the ones observed in the Business Register; the difference provides an estimation of the hidden enterprises;
2. The second step consists in grossing up the labour input referring both to the non observed (hidden) enterprises and to the hidden input of labour in the observed ones; this aggregate is calculated (by branch) as difference ( $\Delta I$ ) between the number of job positions estimated in the LSMS survey and the number of job positions declared by the enterprises; through this comparison we obtain an estimated amount of hidden labour (employed both by hidden and legal enterprises); it must be noted that we assumed without discussion the data from LSMS survey;
3. Now it is possible to calculate (by branch) the Total Value Added (TOT VA):

$$TOTVA = \frac{VAC}{Number\ of\ Observed\ Enterprises} \cdot Number\ of\ Enterprises\ underlying\ NA + \frac{VAC^L}{Observed\ Labour\ Input^L} \cdot \Delta I \quad [1]$$

Where:  $\frac{VAC^L}{Observed\ Labour\ Input^L}$  indicates the productivity of the less efficient enterprises

This procedure allows obtaining an estimate of VA taking into consideration a component of NOE, defined as Underground Economy.

## 2.2. A methodology for estimating Non Observed Economy

In order to estimate the Non Observed Economy the Italian methodology has been adapted to the Albanian situation. The work done can be summarized as follow:

- a) The NA target population expressed in terms of number of enterprise gives the starting point. This amount is obtained by deducting the number of enterprise “actually non active (EANA)” from the number of enterprises recorded in the Business register. The consists in considering as non active, for National Account purpose, only the number of enterprises recorded as closed through the survey on enterprise. It is important to stress that, using this methodology; the number of enterprises underling the NA account estimates is larger than the number of enterprises considered in the Structural Business Statistics (SBS, defined as Observed Enterprises EOBS). This difference provides an estimation of hidden enterprise.
- b) A methodology to gross up the input of labour declared by the enterprises has been implemented. This procedure is coherent to that used to gross up the economic aggregates (output and intermediate cost, see par. 2.1.3) and it consists in multiplying, by branch and dimensional class, the average number of employed people by the number of enterprise underling the Structural Business Statistics (EOBS). In this way we have obtained the “Observed input of labour in the observed enterprises” (OLOE).
- c) The later step consists in grossing up same average value of point b) to the number of enterprises considered as non-active by SBS and active in National Account (ENOB). In this way we have obtained the “Non observed input of labour in the non observed enterprises” (NOLNOE)<sup>1</sup>.
- d) In the next step we have made a comparison, by branch of economic activity, between the number of job position obtained in LSMS (ILLS) survey with the total of job position obtained in points b) e c) (OLOE+NOLNOE). As results of the comparison we have obtained that  $ILLS > (OLOE + NOLNOE)$ . We have assumed that the difference

<sup>1</sup> The decomposition of point b) and c) is theoretical. In practice we can obtain the same results grossing up the average value of input of labour using the total amount of enterprise underling the national account.

$$\Delta I = \text{ILLS} - (\text{OLOE} + \text{NOLNOE})$$

Is a further estimate of hidden labour (employed both by hidden and legal enterprises).

The procedure synthesized through the points a) – d) allows us to define a National Account target population both in terms of number of enterprises and in terms of employed persons. Therefore it is possible to estimate the corresponding value added (as well as output and intermediate cost), for each component of the observed and non-observed economy.

### **3 Outline of expenditure approach**

#### **3.1. Final consumption of households**

The following items are covered by the final consumption of households: Purchases of food products; Purchases of non-food products; Purchases of market services (transport, communication, housing services without imputed rent, private education and health, recreational services); Imputed rent; Residual sales of general government and NPISHs; Wages and salaries in kind; Adjustment for purchases abroad made by the Albanian resident and purchases in Albania made by the non-residents (territorial correction).

The final consumption of household are mainly estimated using the commodity flow approach. The starting point of the procedure used in the grossing up of the economic data relative to final household consumption is to assume the GDP (or Output) measure by production approach.

The equation that synthesizes the commodity flow approach can be expressed in the following way, considering the rows in the input-output table:

$$C = (X + M) - (N + I + G + E)$$

Where

C = Final consumption (Households, General Government and NPSHs)

X = Output,

M = Import,

N = Intermediate consumption,

I = Gross fixed capital formation,

G = Change in inventories,

E = Export.

The next step consists in obtaining the household final consumption (FC) from C:

$$FC = C - (GC + \text{NPSHs})$$

Where

GC = Consumption of General Government,

NPSHs = No Profit organizations.

With this procedure it is possible to obtain an estimate of FC and to compare this measure with the one obtained from LSMS.

The results obtained have been compared with the data on household derived from the LSMS. The latter are characterised by a degree of under-estimation, but can be used to further disaggregate the estimates calculated using the commodity flow approach

### **3.2. Final consumption of general government and non-profit institutions serving households (NPISHs)**

Final consumption of general government and NPISHs is valued at the sum of the costs incurred to produce those individual and collective services; it is equal with the difference between the output of general government and NPISHs and the value of the residual sales.

The data sources for estimating final consumption of general government and NPISHs are the consolidated budget, GFS data, a special questionnaire worked out for NPISHs.

### **3.3. Gross fixed capital formation**

Different data sources are used to estimate gross fixed capital formation: statistics available at ministries (Ministry of Agriculture and Food, Ministry of Public Work), balance sheets, foreign trade statistics, Census of Agriculture.

Due to the lack of information, there were not included the expenses for major repairs.

Given the relevance of the construction sector a methodology has been developed to construct a resource and use account.

Compilations were mainly based on the SBS and LSMS statistics. Compilations followed commodity flow approach and they were executed on a detailed level of source data.

Calculations were basically executed according to stratification and methods used in national accounting in INSTAT.

### **3.4. Changes in inventories**

At present, independent estimates on change in inventories are not available, but they are added in the resources and uses estimates of the item *change in inventories and statistical discrepancies, which are published*.

A first preliminary estimate was performed using data available from enterprises balance sheets.

### **3.5. Exports and imports of goods and services**

In accordance with the SNA'93 methodology the exports and imports of goods and services are valued at FOB prices. Main data source for estimating net export is the balance of payments from Bank of Albania.

## **4. CONSTANT PRICE ESTIMATION**

### **4.1 GDP by production approach**

Taking into account the availability of price / volume indices there were used different methods for deflation, but mainly the single extrapolation of value added with the volume index of output and not double deflation.

The single extrapolation of value added with the volume index of output was mainly applied to the industrial branches (branches from 3 to 14 in the classification presented in the annex 1). For construction and transport the deflation was done by using volume indices available.

But attention must be paid by analysing the results for the volume indices have a limited coverage: only the activities carried out in the public sector.

For trade activity first of all the turnover was deflated with CPI for goods and then the volume index for turnover was used to extrapolate output.

Real estate activity was deflated by using appropriate component of CPI.

General government and NPISHs activities were deflated by using the wage index as price index for gross value added and CPI to deflate intermediate consumption. Other market services were deflated by using appropriate components of CPI. For taxes and subsidies on products and import there were used the volume indices of output relevant transactions ( production, import) subject to tax/subsidy.

## 4.2 Taxes and subsidies

The following methodology has been proposed for estimating taxes and subsidies at previous year prices applying base-year-tax rates to the volume of transactions subject to a specific tax.

Given the existing following information:

$T_i$  = taxes on products and on production by kind;

$NA_{iL}$  = national accounts figures subject to a specific tax at current price;

$NA_{ik}$  = national accounts figures subject to a specific tax at the price of the previous year;

$t$  = base year;

We can obtain the implicit tax rates of the base year ( $IT_i$ ), adopting the following formula:

$$IT_{it} = \frac{T_{it}}{NA_{iLt}} \quad [1]$$

Applying the [1] to the corresponding National Account figures, expressed at the price of the previous year, we obtain the tax at constant price ( $T_{ikt+1}$ ). In formal terms

$$T_{ikt+1} = NA_{ikt+1} \cdot IT_{it} \quad [2]$$

The quality of the result obtained applying formulas [1] e [2] is mainly due both to the level of disaggregation used for taxes and to the existing relationship between taxes and the NA data used.

## 4.3 GDP by expenditure approach at constant prices

To estimate GDP by expenditure approach at constant prices the following indices were used: CPI (components of CPI) for the deflation of final consumption of households; wages index and CPI for the deflation of final consumption of general government and NPISHs; CPI for goods and respectively for services in order to deflate the exports and imports of good and services; indices used for production approach for the deflation of construction and other components of gross fixed capital formation.