

**NATIONAL BUREAU OF STATISTICS**



**REBASING OF NATIONAL ACCOUNTS STATISTICS**

**METHODOLOGY NOTES ON GROSS DOMESTIC PRODUCT (GDP)**

**REBASING EXERCISE**

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## **1. Introduction**

The National Bureau of Statistics is the Nigeria's national statistical agency statutorily responsible for the compilation of the national accounts statistics. The Nigerian System of National Accounts (SNA) statistics is a balance sheet of the most significant economic transactions among the major participants in the economy during a reference period. More specifically, the National Accounts are integrated system of macroeconomic accounts designed to describe the entire system of production in a nation during a reference period. A key attribute of the National Accounts series is that they provide reasonable level of details of the economy that help policymakers to assess, analyze, and monitor economic growth and sectoral developments on a regular basis.

These methodological notes provide an overview of the current efforts by the National Bureau of Statistics to update the National Accounts compilation process, including changing the base year (reference period), a process popularly referred to as *GDP rebasing*. In Nigeria, GDP rebasing exercise is nothing new, but rather builds upon a long history of continuous revisions and update of the nation's national accounts in light of prevailing realities.

## **2. Historical background to National Accounts revisions in Nigeria**

The earliest known work on National Income for Nigeria was carried out by John Mars, Margery Perham and A. J. Brown in the 1930s. In 1950, A.R. Prest and I.G. Stewart were appointed by the Colonial Office to estimate Nigeria's national income. The result of their pioneering work (which was based on actual data for the financial year 1950-51) was published in 1953. The estimates were extended to 1954 by a visiting World Bank Mission. In late 1950s to early 1960s, E. F. Jackson and P.N.C. Okigbo led a team which produced what became a benchmark for policy analysis in the first ten years of Nigeria's independence. Their estimates of national income were modified by the then Federal Office of Statistics (FOS) in 1963.

The Jackson-Okigbo estimates and their modification by FOS continued to be used for nearly one decade before a team led by Professor O. Aboyade was commissioned by the Federal Ministry of National Planning to design an integrated system of national accounts for the country. This became necessary in order to correct the deficiencies of previous estimates.

Their mandate included: to choose an appropriate base year, to make recommendations on methods of valuation as well as on an appropriate institutional arrangement for compiling, on a regular and continuous basis, an improved System of National Accounts (SNA) for Nigeria.

Their report, published in 1981, is one of the few comprehensive documents on Nigeria's SNA. It includes descriptions of the various surveys conducted, some of which were in collaboration with the then FOS. Aboyade's SNA was more disaggregated than its predecessors. The petroleum sector, for instance, was for the first time singled out for a detailed study. The SNA document contained a 25 x 25 Input-Output table in which manufacturing was disaggregated into nine sub-sectors. It also contained sectoral estimates for some value-added and final demand components.

In April 1985, Professor Adamu, at the invitation of the Federal Government, revised the Nigeria's SNA from 1977/78 to 1986 and made a number of recommendations on how to improve on the quality and timeliness of the series. Two World Bank consultants — Majumdar and Hodgekinson — also made a compilation of the SNA for the period 1981 to 1986.

The National Accounts for the period 1981 to 1993 compiled by the then FOS benefited from the revisions referred to above. Also the data sources were enriched by the increasing use of sample survey-based estimates. In contrast to the earlier published GDP series which consisted of two tables, the new series had 21 different tables with the GDP series covering 33 major sectors. The new outlook was achieved by re-classifying the 17 industries into 33 economic activities in accordance with International Standard Industrial Classification (ISIC) Rev.2 recommended by the 1993 SNA. The base year of the new National Accounts was set at 1990.

In 2011, the Minister for National Planning, (Dr.Shamsudeen Usman) directed his technical adviser (Dr.Yemi Kale) to assess the current National Account estimates being compiled. Dr. Kale recommended that the National Accounts framework be once again updated and revised in line with contemporary statistical developments both in Nigeria and around the world. This gave rise to the current GDP rebasing exercise which commenced when Dr Kale was appointed as Statistician General of the Federation. The most current international standard for compilation of national accounts is now SNA 2008, while the current international standard for industrial classification is ISIC Rev. 4. In addition, developments in the Nigerian economy since 1990 necessitate that such developments (such as robust activity in entertainment, telecommunications, etc) be reflected in the compilation of Nigeria's National

Accounts. The nation's economic structure is also expected to have witnessed changes over the years which also needed to be appropriately reflected in the national accounts framework. These methodology notes, therefore, provide an overview of the current efforts by the National Bureau of Statistics in this regard.

### **3. Gross Domestic Product Compilation in Nigeria**

The GDP measures the value of the output of goods and services produced by labour and capital in a country. This implies that it is a measure of overall economic activity and signals the direction of aggregate economic activity. Estimating the level of GDP is important because it is a key determinant in estimating how much a country can afford to consume, as well as employment levels. There are three procedures for estimating GDP:

- 1. The Production Approach:** This approach estimates the gross output of each industry within a country and subtracts the corresponding intermediate inputs from other industries to estimate each industry's residual value added. This residual is then summed up across industries in combination with the difference between indirect taxes and subsidies on products.
- 2. The Expenditure Approach:** This approach captures the final use or demand of the output compiled according to the production approach. GDP here is the sum of consumption expenditures (both government and final private), expenditures on investments (otherwise known as Gross Fixed Capital Formation), Changes in Stocks, and Net Exports
- 3. The Income Approach:** This approach measures the income earned by various factors of production. It is a sum of compensation to workers, gross operating surplus, gross mixed income, taxes on production (less subsidies), interest and miscellaneous payments and depreciation.

In theory, all the three approaches should yield the same GDP estimate. As the three measures of GDP are however, derived separately from various independent data sources, discrepancies among them often arise. Thus an objective of the rebasing exercise is to reconcile the three estimates of GDP on the basis of the updated 2010 Supply and Use tables,

in the process cross-validating the data sources and ensuring the coherence of the three separate measures of GDP.

GDP estimates are expressed at current and constant prices. Current prices are prices of the prevailing accounting period. This is also known as nominal GDP. Changes in nominal GDP over time arise from two effects: Price effects (inflation) and Volume effects (changes in quantity of goods and services). A proper assessment of economic growth requires removal of price effect. This is done by calculating GDP for each year at the prices of a particular year (often referred to as the base year). The base year provides the mathematical anchor, or the reference point to which future comparisons are made. It is also the year to which the weights relate in the construction of a volume or price index. GDP measures with the price effect removed are known as volume measures of GDP and changes in volume measures of GDP are referred to as real GDP growth.

Volume measures of GDP (real GDP) can be obtained through various methods:

**Deflation:** This involves dividing nominal values of the transaction (output, intermediate consumption, final consumption, etc) by an appropriate price index

**Quantity revaluation:** Multiplying base period prices by actual quantity data and

**Volume extrapolation:** Extrapolating base period values by appropriate quantity indicators.

NBS uses a combination of all the three methods when estimating volume GDP estimates.

#### **4. Rationale for the Rebasing Exercise**

Prices used to calculate real measures of GDP are updated frequently. Using the Production approach, GDP is typically calculated as a sum of the "value added" of the production of goods and services in all sectors of the economy. In order to compare one year's value added with another, and thus get an idea of whether the economy is expanding or contracting, for each quarter or each year depending on the time frame, a new set of numbers for all the sectors are computed. In order for these two amounts to be comparable, they are expressed in constant prices. A way of doing this is to generate a benchmark or "base year" estimates for which future level estimates will be compared to. Thus, the process of replacing the present price and quantity structure of the base year used to compile real measures of GDP with a new or more recent price structure is known as rebasing. This entails changing price and quantity base for individual price and quantity relatives, updating weights used in aggregating

individual quantity relatives into sub-indexes and aggregating these sub-indexes into more aggregated indexes

Changes often occur in an economy for a variety of reasons. There may be changes due to the alteration in the variety of products and services. Changes do occur due to technological innovations and developments as well as changes in consumption patterns. There are also structural changes in the acquisition of capital goods and in openness of the economy. These changes imply that there are changes in the relative prices of commodities. As consumption and production patterns change over time, the price structure of the economy also changes and the base year structure becomes less representative of the economy. As the price structure changes over time a substitution effect also occurs in which consumers move away from relatively more expensive products to buy goods with relatively cheaper prices. Thus, goods with higher real growth tend to have relatively weaker price increases.

It is therefore important to correct this substitution bias. The rebasing exercise improves the estimates of economic growth and enhances their relevance in measuring changes in the economy as a whole. It also reflects the underlying changes in relative prices. A by-product of the rebasing exercise is that it generally results in revisions to real GDP growth rates after the base year. The resultant improvements and changes to underlying concepts, methodologies and data sources could have a larger impact and result in revisions to GDP before the new base year.

## **5. Overview of Surveys conducted for the rebasing exercise**

This section provides an overview of the survey design and methodology for the field surveys and data gathering exercises undertaken since 2010 as part of the rebasing exercise. The objectives of GDP rebasing surveys are:

- i. Additional data collection to aid in rebasing of the GDP from the current base year of 1990 to a new base year of 2010.
- ii. To facilitate transition from ISIC Rev 3.1 to ISIC Rev 4.0 and CPC 1.1 to CPC 2.0.
- iii. To allow for easy adoption and implementation of SNA 2008.

Specifically, the surveys include:

- i. Harmonized Nigerian Living Standard Survey (HNLSS) conducted in 2010
- ii. Fourteen Sector surveys,
- iii. National Manpower and Employment Generation Survey 2010
- iv. Supplementary data gathering from Federal Inland Revenue Service (FIRS) Tax Offices conducted in 2013
- v. Administrative data from various MDAs and professional bodies.

The survey design for each activity is discussed in the following sections.

i. Harmonized Nigerian Living Standard Survey (HNLSS) conducted in 2010

**Objective:** The Harmonized Nigeria Living Standard Survey (HNLSS) 2009/2010 was an enlarged scope of previous National Consumer Surveys and also a follow-up of Nigeria Living Standard Survey (NLSS) 2003/2004. The scope of the NLSS 2009/2010 was enlarged to include: Demography; Health; and Fertility behaviour, Education and Skills/Training; Employment and Time-use; Housing and Housing Condition; Social Capital, Agriculture; Household Income and Consumption Expenditure. While it was essentially designed to provide an update on the poverty situation in Nigeria for the purposes of the national accounts, it provided data regarding household consumption expenditure patterns.

**Coverage:** The survey covered the entire 36 States of the federation and the Federal Capital Territory (FCT). It was designed to investigate both urban and rural areas of all the 774 Local Government Areas (LGAs) of the country. The welfare approach component was conducted on 77,400 households which is an average of one hundred households per Local Government area, while the consumption approach covered 50 households in each Local Government Area. Both the welfare approach and the consumption approach were linked together to produce the Nigeria Poverty Profile.

**Scope:** The overall concern of the study was to generate detailed, multi-sector and policy relevant data through welfare and expenditure approaches. In specific terms, the survey investigated the following areas of interest:

*Agriculture Assets: Land and Equipment; Agriculture Crop: Area Cultivated, Harvest of Crops, and Disposal of Crops, Seasonality of sales and purchases: Crops, Livestock and Fishing; Agriculture: Processing and consumption from own produce; Household Expenditure: Food Expense, Non-food Expense, Frequently purchased items and less frequently purchased items; Non-farm Enterprises: Basic Characteristics of Non-Farm Enterprises, Assets of Non-Farm Enterprises, Expenditures on Non-Farm Enterprises, Revenue from Non-Farm Enterprises, and Net income and Inventory of non-Farm*



*Enterprises; Credit and Savings; Income Transfers: Transfer payment made (out transfers), Transfer payment made (in- transfers), Miscellaneous income and Expenditures.*

**Sample Design:** The HNLSS had Local Government Area (LGA) as reporting domain. However, the sample design for the survey also facilitated the provision of estimates at national and sub-national levels (National, Zone and State). The sampling frame for all the 774 LGAs in the country used the Enumeration Areas (EAs) demarcated by the National Population Commission (NPopC) for the 2006 Housing and Population Census. The frame was constructed into replicates such that each LGA had 3 replicates and in each replicate there are 10 EAs serially numbered 01-10. A complete listing of housing units and households was carried out in each of the EAs just before the start of the main survey.

A two-stage sample design was adopted in the survey of which selection of Enumeration Areas (EAs) constituted the first stage/Primary Sampling Units (PSUs), while selection of Households (HHs) formed the second stage/Secondary or Ultimate Sampling Units (USUs).

A sample size of 10 EAs was selected per LGA for study, while 5 households were systematically selected in each EA where the HNLSS Household Consumption, Expenditure and Income Questionnaires were administered. This produced 50 households per LGA and 38,700 households nationally. The same households selected in *HNLSS Part A* (welfare component) were repeated in *Part B (Consumption/Expenditure component)* of the HNLSS. Therefore, the 38,700 households selected for *Part B*, are the subset of the 77,400 households selected for *Part A*, HNLSS.

ii. National Manpower and Employment Generation Survey 2010

**The main objective** of the study is to determine the employment situation in Nigeria.

The specific objectives relating to household and informal sector include:

- (i) Determining the economically active population by examining the employment, underemployment and unemployment characteristics distributed by demographic, socio-economic and geographic variables
- (ii) Assessing the stocks and requirements of human resources in informal sector (micro enterprises) in order to determine under-utilization and over-supply of these resources in the Nigerian labour market
- (iii) Analyzing the manpower stock and occupational profile of the labour force in Nigeria

- (iv) Identifying labour market related problems militating against effective development and utilization of manpower in the country
- (v) Computing labour market data for policy formulation on employment generation, career planning, employers of labour, job seekers, etc.
- (vi) Measuring the size of the informal sector.

### **Sample Design**

The household and informal sector survey was conducted using the National Bureau of Statistics (NBS) National Integrated Survey of Households (NISH) as the vehicle for reaching the respondents. The NISH contain master sample of enumeration areas (EAs) demarcated by the National Population Commission (NPopC) for the 2006 Housing and Population Census. For the house hold and informal sector, 10 EAs were selected per local government area (LGA) and 10 households (HHs) were covered per EA. This design yielded a sample size of 100 households and 100 microenterprises at the LGA level. This gave rise to a total of 77,400 households and microenterprises at the national level. A total number of 76,640 households and 75,925 microenterprises coverage were achieved at end of the survey, which translated to 99.0 percent and 98.0 percent for the household and microenterprise respectively. The sample sizes are large enough to give reliable and robust estimates at national and sub-national levels.

### **Survey Instruments**

Three basic instruments were designed for use during the survey. The Instruments were; the household questionnaire, microenterprise questionnaire and the manual of instructions. The questionnaires were used as the main data collection instruments. The Household questionnaire obtained information on demographic characteristics, activity status, working history, unemployment status of household members, while the Microenterprise Questionnaire obtained information on existing stock of personnel, their qualifications and remunerations, additional manpower requirements and constraints as well as enhancing factors to their operations. The field staff instructional manual served as instructional material during the training of field personnel and reference manual during the fieldwork. The manual contained the survey design, training and data collection techniques, the roles of enumerators and supervisors, how to complete the questionnaires, and concepts and definition of terms used in the household-based module.

### *iii. Sectoral Surveys:*

The rebasing exercise required conducting multiple surveys to be complemented by the use of existing administrative or other survey data in the country. To this end, the list of surveys conducted for the purpose of the rebasing are listed below:

1. Mining and Quarrying
2. Manufacturing
3. Construction
4. Wholesale & Retail Trade, Repair of motor vehicles & motor cycles
5. Transportation & Storage
6. Accommodation & Food service activities
7. Information & Communication
8. Real Estate activities
9. Professional ,Scientific & Technical activities
10. Administrative & Support Service activities
11. Education
12. Human Health and Social Work activities
13. Arts & Entertainment
14. Other Service activities

Additional supplemental data gathering was conducted from the FIRS and other MDAs which supplied data on: Electricity, Gas, Steam & Air conditioning Supply, Water Supply, Sewage, Waste Management and remediation activities and Oil marketing activities.

## **6. Survey Frames**

The ideal properties of a good frame are that it must be comprehensive, accurate and up-to-date. Most often, it is difficult to achieve the three properties together. However, NBS strived to achieve them by updating its existing frame in the country. This was done by merging it (the existing frame) with the list of establishments obtained from the Federal Inland Revenue Service (FIRS). At the end of merging, sorting and removal of duplicates, a total of eight hundred and fifty one thousand, six hundred and twenty eight(851,628) establishments were in the frame. The ensuing multiple frames were then used for the sampling and selection of study units.

<b>NBS Harmonized Frame</b>			
	<b>Sectors</b>	<b>NBS FRAME</b>	<b>NBS Old Frame</b>
1	AGRICULTURE, FORESTRY AND FISHING	1,116	671
2	MINING AND QUARRYING	971	261
3	MANUFACTURING	76,656	16,248
4	CONSTRUCTION	53,507	551
5	WHOLESALE AND RETAIL TRADE, REPAIR OF MOTOR VEHICLES AND MOTORCYCLES	502,085	16,583
6	TRANSPORTATION AND STORAGE	5,902	1,418
7	ACCOMMODATION AND FOOD SERVICE ACTIVITIES	13,109	5,774
8	INFORMATION AND COMMUNICATION	1,719	2,183
9	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES	125,482	4,593
10	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	2,048	1,096
11	EDUCATION	34,974	24,713
12	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	13,083	6,749
13	ARTS, ENTERTAINMENT AND RECREATION	805	281
14	OTHER SERVICE ACTIVITIES	8,450	2,002
15	Real Estate	11721	610
	<b>Total</b>	<b>851,628</b>	<b>83,733</b>

The merging of the FIRS and NBS frames has pointed out the need for a census of businesses and industries which NBS intends to conduct later this year.

## 7. Sample Size

A sample size of 18,001 establishments was selected across the 14 sectors of the economy.

Some of the criteria used to determine the samples taken per sector included:

- i. Probability proportional to the size (PPS) of the sector in the economy.
- ii. Contribution of the sector to Gross Domestic Product (GDP).
- iii. Contribution of key sub-sectors to GDP and
- iv. Turnover

The distribution of the sample by sector is as given in the table below:

**SAMPLE SIZE BY SECTOR**

S/No.	SECTOR	SAMPLE SIZE
1	ACCOMMODATION AND FOOD SERVICE ACTIVITIES	649
2	ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	226
3	AGRICULTURE, FORESTRY AND FISH	0
4	ARTS, ENTERTAINMENT AND RECREATION	147
5	CONSTRUCTION	207
6	EDUCATION	1,262
7	ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUYPPLY	0
8	HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	674
9	INFORMATION AND COMMUNICATION	336
10	MANUFACTURING	3219
11	MINING AND QUARRYING (Excluding Crude Petroleum and Natural Gas)	132
12	OTHER SERVICES ACTIVITIES	1,014
13	PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES	945
14	TRANSPORTATION AND STORAGE	399
15	WATER SUPPLY, SEWAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES	0
16	WHOLESALE AND RETAIL TRADE, REPAIR OF MTORE VEHICLE AND MOTORCYLES	1448
17	REAL ESTATE SERVICE ACTIVITIES	7343
	TOTAL	18,001

For activities where there was no sample size indicated above (for instance Agriculture, forestry and fishing), NBS had data on these activities from a previous survey or via administrative means. For all other activities where a sample size was listed, NBS conducted surveys to aid in the rebasing project.

## **8. Selection Procedures and Criteria**

Having determined the number of establishments to be covered in each sector, such number was further re-allocated to the activities within the sector before the actual selection of establishments began. At that stage, the establishments were stratified by turnover levels and selection made across various establishments with an a priori knowledge approach of the turnover levels for different sectors and sub-sectors.

Data from the resulting surveys and updated data sources has yielded a new classification of the Nigerian economy from 33 to 46 activities. In particular, coverage of the manufacturing sector has been increased from 3 to 13 activities: Cement; Food, Beverage and Tobacco; Textile, Apparel and Footwear; Wood and Wood Products; Pulp, Paper and Paper Products; Chemical, Chemical Products and Pharmaceutical Products; Non-Metallic Products; Plastic and Rubber products; Electrical and Electronics; Basic metal, Iron and Steel; Motor vehicles and assembly; and other Manufacturing.

Old Classification		New Classification	
Crop Production	Post and Courier Services	Crop Production	Construction
Livestock	Financial Institutions	Livestock	Trade
Forestry	Insurance	Forestry	Accommodation and food services
Fishing	Real Estate	Fishing	Road Transport
Coal Mining	Business Services	Coal Mining	Rail Transport & Pipelines
Crude Petroleum & Natural Gas	Public Administration	Crude Petroleum and Natural Gas	Water Transport
Metal Ores	Education	Metal Ores	Air Transport
Quarrying & Other Mining	Health	Quarrying and Other Minerals	Transport Services
Oil Refining	Private Non Profit Organisations	Oil Refining	Post and Courier Services
Cement	Other Services	Cement	Telecommunications
Other Manufacturing		Food, Beverage and Tobacco	Motion Pictures, Sound recording and Music production
Electricity		Textile, Apparel and Footwear	Publishing
Water		Wood and Wood Products	Broadcasting
Building & Construction		Pulp, Paper and Paper Products	Arts, Entertainment and Recreation
Wholesale and Retail Trade		Chemical, Chemical Products and Pharmaceutical Products	Financial Institutions
Hotel and Restaurants		Non-Metallic Products	Insurance
Road Transport		Plastic and Rubber products	Real Estate
Rail Transport & Pipelines		Electrical and Electronics	Administrative and Support Services
Water Transport		Basic metal , Iron and Steel	Professional, Scientific and technical services
Air Transport		Motor vehicles & assembly	Public Administration
Transport Services		Other Manufacturing	Education
Telecommunications		Electricity, Gas ,Steam& Air Conditioning Supply	Human Health and social services
Broadcasting		Water Supply,Sewerage, Waste Management& Remediation	Other Services

Other new activities to be covered under the new economic reporting system are Administrative and Support Services; Motion Pictures, Sound recording and Music production; Publishing; Arts, Entertainment and Recreation; and Professional Scientific and Technical services.

### 8b. Estimation Procedures:

Two steps approach was adopted to combine the Federal Inland Revenue Services (**FIRS**) and the National Bureau of Statistics (**NBS**) surveys frames for different sectors and different economic activities/products:

The first step involved a complete census for the large establishments that were sampled with certainty, and hence their probabilities of selection and corresponding design weights were equal to 1, since these establishments are self-representing. This occurred in cement, oil refining and tobacco.

However, due to paucity of funds and time constraints, some large establishments were unable to be visited for some sectors. An adjustment factor was used to estimate for the non-coverage in these instances.

For all others, a stratified three-stage sample design was used for selecting the establishments in the non-certainty strata. In this case, their probabilities of selection (sampling rate) is defined as follows;

Let  $N_{F_i}$  = FIRS Frame (Different sectors and different economic activities/products)

$i = 1 \dots n$

$N_{N_j}$  = NBS Frame (Different Sectors and different economic activities/products)

Combining FIRS and NBS frames after eliminating duplications, deleting dead ones and adding new ones (updating) gives;

$$N_{F_i} \cdot N_{N_j} = N_{C_k}, \quad k = 1 \dots n$$

Where  $N_{C_k}$  = Frame combined for different Sectors and different economic activities/products.

And,

$N_S$  = NBS Sectoral Frame

$N_{SS}$  = NBS Sectoral Selection Frame

$n_{R_k}$  = NBS Retrieved Records (Different Sectors and different economic activities/products)

Hence, the probabilities of selection at all the three (3) stages are as follows;

$$\begin{aligned} P_k &= \frac{N_S}{N_{C_k}} \times \frac{N_{SS}}{N_S} \times \frac{n_{R_k}}{N_{SS}} \\ &= \frac{n_{R_k}}{N_{C_k}} \end{aligned}$$

Where  $n_{R_k}$  is the  $k^{\text{th}}$  retrieved from different sectors and different economic activities/products,  $N_{C_k}$  is the  $k^{\text{th}}$  total establishments in different sectors and different

economic activities/products and  $P_k$  is the  $k^{th}$  probability of selection for different sectors and different economic activities/products.

Further, the raising factor/design weight is the inverse of the probabilities of selection.

$$\text{Hence, } W_k = \frac{N_{C_k}}{n_{R_k}}$$

Where,  $W_k$  is the  $K^{th}$  design weight for different sectors and different economic activities/products.

However, adjustment factors were introduced for the different sectors and different economic activities/products to complete the weighting processes given an a priori knowledge of the economic activities or products.

## **9. DATA SOURCES AND METHODS**

### **1. AGRICULTURE**

In the national accounts framework, this industry is made up of Section A, Division 01-03 activities in ISIC rev 4.

Agriculture includes all activities of growing of crops, raising of animals, harvesting of timber and other plants, animals or animal products from a farm or their habitats. In Nigeria, this is divided into four main activities:

- Crop Production
- Livestock
- Fishery
- Forestry

#### **1.1 CROP PRODUCTION**

The coverage of this activity include all field crops, fruits, nuts, seeds, vegetables, flowers, tea, coffee, cocoa, kolanuts, cocoanut and rubber. Crop production is classified into Major crops- millet, sorghum, maize, yam, cassava, cocoyam, groundnut, beans, cotton, rice, melon, beni-seed and soya-beans. These are further grouped into traditional holdings and modern holdings. Minor crops are mostly varieties of fruits and vegetables. Tree crops; include cocoa, coffee, rubber, tobacco, kolanut and palm produce.



**Data Source/Baseline Estimates:** The main data sources used for calculating agriculture in the Nigeria national accounts are the NBS-CBN 2010 Socioeconomic Survey and the Nigerian Exportable Crops Survey for 2010. Those surveys provide data on quantities, farm gate prices, and input costs of 69 major crops, selected on the basis of their high consumption patterns in the country. The Exportable Crops Survey provided data on 12 major crops while the balance came from the NBS-CBN 2010 Socioeconomic survey.

**Gross Output:** In the case of crops, Gross Output is obtained by multiplying quantities produced with the farm gate price less losses (wastages).

**Intermediate consumption:** This includes seeds, fertilizer, pesticides, hire of farm implements and simple farm tools that are used up in one farming season.

## 1.2 LIVESTOCK

This covers the rearing of livestock, production of milk as well as of other animal based products like hides and skin. It covers all livestock meant for domestic consumption such as cattle, goat, sheep, pigs and poultry. Gross output of livestock includes the value of livestock slaughtered by household, butcheries and the abattoir, plus value of livestock products like milk, eggs, hides and skin, and change in herds of livestock.

**Data Source/Baseline Estimates:** The major source of data is NBS-CBN Annual Socio-economic Survey which covered the prices, number of animals slaughtered by type of animal as well as changes in the herds of livestock. Also included are quantity of hides and skin derived from slaughtered animals as well as products like milk and eggs. Data was also supplemented by data from NBS's trade unit.

**Gross Output:** The gross output of livestock and livestock products was calculated using the following relationship:

Output of live animals and their produce + imports = animals slaughtered and their produce – animals which died of natural causes + exports + change in animal stock.

**Intermediate Consumption:** This constitutes the value of animal feeds as input in the production of livestock and livestock products (such as broiler starter concentrate, breeder concentrate, ground cake, guinea corn etc.)

### 1.3 FORESTRY

Forestry outputs consist of the timbers felled, prepared into logs and transported by logging establishments to the purchasers of timber. The gathering of wild fruits, seeds and thatching grass, charcoal, rough cutting of timber for firewood or building poles and hunting or trapping of wild animals and birds are also covered under forestry.

**Data Source/Baseline Estimates:**Data was sourced from the NBS-CBN Socio-economic survey for 2010.

**Gross Output:** The gross output covers the value and quantity of timbers of various types, firewood, charcoal, uncultivated materials gathered etc. While other forest products are obtained using expenditure approach, sawn-logs, and other wood products categories are obtained using the production method. In the case of the latter, the quantity of logs produced multiplied by the price per cubic of log yields the value of logs produced.

**Intermediate consumption:**This covers expenditure on seeds and sapling, fuel oils, lubricants, feed, hand tools and spare parts, payments for contract work and other services. However, due to lack of adequate data in this area, we used data from a comparable country (Sierra Leone) as estimate.

### 1.4 FISHING

Fishing activities cover catching fish, whales or seals, shrimps as well as gathering seaweeds, sponges, sea shell, pearls, oysters, and other shellfish from oceans, sea, lakes, rivers and fish farms.

**Data Source/Baseline Estimates:**Data was obtained from the NBS-CBN Annual Socio-economic Surveys and the Federal Ministry of Agriculture. Data supplied had information on fish by type and source over the 2010- 2012 period. In Nigeria for purpose of national accounts, fishing activities are of three major types.

- i. Commercial (trawler) fishing-coastal activities for fish and shrimps.
- ii. Fishing in coastal and brackish water, inland water (rivers and lakes) and
- iii. Fish farming.

**Gross Output:**Output is measured by multiplying quantity in kilogram by the average price to obtain the value of production.

**Intermediate consumption:** Intermediate consumption here is captured according to expenditure on fingerlings, nets, feeds and other operating expenses.

## **2. MINING AND QUARRYING**

Mining and quarrying comprises establishments classified in ISIC Rev 4.0, section B, Division 05-09. The activities include mining and agglomeration of hard coal and iron ores, extraction of crude petroleum and natural gas, quarrying of stone, sand and clay, and activities supplementary to mining and quarrying. In Nigeria Mining and Quarrying is divided into four (4) main economic activities:

- Crude Petroleum and Natural Gas
- Coal Mining
- Metal Ores
- Quarrying and Other Mining

### **2.1 CRUDE PETROLEUM AND NATURAL GAS**

Extraction and production of crude petroleum, oil and crude gaseous hydrocarbon (natural gas) includes the extraction and production of bituminous or oil shale and tar sand to obtain crude oils; and extraction of condensate by draining and separation of liquid hydrocarbon fractions, gas desulphurization and mining of hydrocarbon liquids.

**Data Source/Baseline Estimates:** The main source of data used in the estimation of Crude Petroleum and Natural Gas was obtained from Nigerian National Petroleum Corporation (NNPC) on production and the prices of Crude petroleum and Natural Gas,

**Gross Output:** Gross output of Crude petroleum and Natural Gas was obtained by multiplying quantity of crude petroleum produced (barrels) and Natural gas in million cubic feet (mcf) by the average price in domestic currency (equivalent of the price in dollar during the account period).

**Intermediate Consumption:** This includes purchase of consultancy services, Transportation, Electricity Bills, Water bills, Cost of Fuel used, Minor Repairs and Maintenance, Medical expense to staff, License & Registration fees, Travelling allowance, Staff Uniform, Rents on machinery & buildings, Spare Parts etc. Estimates for intermediate consumption were

derived from the annual reports of oil producing companies including Chevron, NNPC, Exxon Mobil Co, Japaul and Oando.

## 2.2 COAL MINING

Coal mining comprises two types of product, Hard coal and Lignite (brown coal). The mining activities include cleaning, sizing, grading, pulverizing and compressing to facilitate transport or storage or to improve quality and more.

**Data Source/Baseline Estimates:** Sources of data for estimation are from Ministry of Mines and Steels Development and the NBS GDP rebasing survey for 2010-2012. The informal sector component was from the National Manpower and Employment Generation Survey 2010.

**Gross output** of coal is derived by the quantity produced multiplied by the average price.

**Intermediate Consumption:** This includes cost of raw materials used; both imported and Local, purchase of consultancy services, transportation, electricity bills, water bills, cost of fuel used, minor repairs and maintenance, medical expense to staff, royalty, travelling allowance, special clothing use at work, rents on machinery & buildings, Spare Parts etc.

## 2.3 METAL ORES

The Metal Ore sector comprises of mining of iron ores, uranium and thorium ores, non – ferrous metal ores and ferrous metals.

**Data Source/Baseline Estimates:** Sources of data for estimation of metal ores are from Ministry of Mines and Steels Development and the NBS GDP rebasing survey for 2010-2012. The informal sector component was from the National Manpower and Employment Generation Survey 2010

**Gross output** of Metal Ores is derived by multiplying the quantity by the average price

**Intermediate Consumption:** This includes cost of raw materials used; both imported and Local, purchase of consultancy services, transportation, electricity bills, water bills, cost of fuel used, minor repairs and maintenance, medical expense to staff, royalty, travelling allowance, special clothing used at work, rents on machinery & buildings, Spare Parts etc.

## 2.4 QUARRYING AND OTHER MINING

Quarrying and Other Mining consists of crushing and breaking of limestone, gypsum and anhydrite, extraction and dredging of industrial sand, sand for construction, breaking and crushing of stone and gravel, quarrying of sand, phosphates, and magnesium etc.

**Data Source/Baseline Estimates:** Sources of data for estimation are from Ministry of Mines and Steels Development and the NBS GDP Rebasing survey for 2010-2012. The informal sector component was from the National Manpower and Employment Generation Survey 2010

**Gross output** is derived from the quantity produced multiplied by the average price.

**Intermediate Consumption:** This includes cost of raw materials used; both imported and local, purchase of consultancy services, transportation, electricity bills, water bills, cost of fuel used, minor repairs and maintenance, medical expense to staff, royalty, travelling allowance, special clothing used at work, rents on machinery & buildings, Spare Parts etc.

## 3. MANUFACTURING

Manufacturing includes establishment that are classified in ISIC Rev. 4.0, Section C, Division 10-33. In Nigeria, manufacturing sector is divided into thirteen (13) activities, the following are the categories:

- 3.1 Oil Refining
- 3.2 Cement
- 3.3 Food Beverage and Tobacco
- 3.4 Textile, Apparel and Footwear
- 3.5 Wood and Wood Products
- 3.6 Pulp, Paper and Paper Products
- 3.7 Chemical and Pharmaceutical products
- 3.8 Non-metallic Products
- 3.9 Plastics and Rubber Products

- 3.10 Electrical and Electronics
- 3.11 Basic metal, Iron and Steel
- 3.12 Motor Vehicle and Assembly
- 3.13 Other Manufacturing

**Data Source/Baseline Estimates:** Nigeria's manufacturing sector is made up of large, medium and small establishments.

Data on output and prices for Oil Refining was obtained from the annual report of the Nigeria National Petroleum Company (NNPC), while estimates for intermediate consumption were derived from the annual reports of the refining companies. The cement sub-activity was covered on census basis, using annual reports of companies such as Dangote Cement, Lafarge WAPCO, Ashaka Cement, Benue Cement etc.

Other activities in manufacturing sector were covered during the special surveys conducted for the rebasing of GDP. The National Manpower Survey for 2010 was used for data on the informal sector. Estimates for the informal sector for 2011-2013 were derived from Job Creation and Labour Force Surveys being undertaken since 2012.

**Gross output** is calculated as follows;

Gross output = Revenue from sales of goods

- + Revenue from sales of goods bought for resale (trade margin)
- + Revenue from rendering services to other
- + Closing stock of finished goods
- Opening stock of finished goods
- + Closing stock of work-in-progress
- Opening stock of work-in-progress

Intermediate consumption =

- Purchases of raw materials and supplies
- + Purchases of goods bought for resale
- + Purchases of packaging materials

- +Fuels and lubricants
- +Electricity
- +Water and Sewerage
- +Repair and Maintenance
- +Freight charges and transport
- +Closing stock of raw materials and supplies
- Opening stock of raw materials and supplies
- +Insurance premium
- +All other costs and expenses for goods and services

#### **4. ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY**

This sector can be found in the national accounts framework of the ISIC Rev. 4.0 in Section D, Division 35. It includes electric power generation, transmission and distribution, Manufacture of gas; distribution of gaseous fuels through mains and Steam and air conditioning supply.

**Data Source/Baseline Estimate:** The main sources of data for estimating electric power generation in Nigeria national accounts are through administrative data from the Nigerian Electricity Regulatory Commission (NERC), Transmission Company of Nigeria (TCN) and the Nigerian National Petroleum Corporation for the distribution of gaseous fuels.

**Gross Output:** The value of output is the amount of gas and electricity paid for. Hence value added is the output less intermediate consumption.

**Gross output** = Electricity generated + other costs

**Intermediate Consumption** = other cost of sales + Indirect expenses

## **5. WATER SUPPLY, SEWERAGE, WASTE MANAGEMENT AND REMEDIATION**

This is found in Section E, Division 36 of ISIC Rev. 4. It includes water collection, treatment and supply, sewerage, waste collection, treatment and disposal, materials recovery and remediation activities.

**Data Source/Baseline Estimate:** The main sources of data for this sector are the Federal, 36 States and FCT Water Boards estimated from the Accountants-General reports at both federal and state levels. The informal sector component for Water supply, sewage and waste management is not included in this estimate due to lack of adequate data.

Data on waste management for the formal sector was obtained from the NBS Rebasing Surveys.

**Gross output** = Water revenue+Sewage revenue+New connections

**Intermediate Consumption**=other cost of sales+Indirect expenses

## **6. TRADE**

Trade comes under the wholesale and retail trade; repair of motor vehicles and motorcycles as iterated in 46 economic activities of Nigerian economy. It includes all establishments classified in ISIC Rev. 4.0 Section G, Divisions 45 to 47. It covers units that buy new and used goods and resell them without transformation. This also includes establishments supplying services such as sales, maintenance and repairs of motor vehicles and motorcycles.

The section is divided into three main divisions:

- 45- Wholesale and retail trade and repair of motor vehicles and motorcycles.
- 46-Wholesale trade, except of motor vehicles and motorcycles
- 47-Retail trade, except of motor vehicles and motorcycles.

**Data Source/Baseline Estimates:** This was one of the surveys conducted by NBS for the rebasing exercise. Please refer to section 8b above for a discussion on the survey methodology. Data from the informal sector was retrieved from the National Manpower and Employment Generation Survey of 2010.



**Gross Output:** The Gross output of wholesale and retail trade is equal to the trade margin, i.e. the difference between the revenue of goods sold and the value of the goods purchased for resale.

The value of output =

- + Value of sales,
- +Value of goods withdrawn for own consumption,
- Value of goods purchased for resale,
- +Value of changes in inventories

**Intermediate Consumption:** Intermediate consumption consists only of goods and services needed to run the trading establishment, such as packaging materials, electricity, office supplies, and rentals.

## 7. CONSTRUCTION

Construction comprises establishments classified in ISIC Rev. 4.0, Division 41 to 43. It comprises construction of buildings (residential and non-residential building), civil engineering (construction of road, railways, utility projects; and waterways, harbour, dredging of water ways and dams) and specialized construction activities (demolition and preparation of site, plumbing, electrical installation activities and finishing)

**Data Source/Baseline Estimates:** This was one of the surveys conducted by NBS for the rebasing exercise. Also, data on the informal sector was obtained from the National Manpower and Employment Generation Survey of 2010

**Gross Output:** The Gross output in construction is the value of work done and other incomes.

**Intermediate Consumption:** This comprises cement, blocks, metals/iron bars, sand, stone, wood, gravel, other construction inputs, and cost of fuel used by generator, water bills and expenses on internet services/telephone/postage bills during the construction period.

## 8. ACCOMMODATION AND FOOD SERVICES

Section I, Division 55 to 56 of ISIC Rev. 4.0 defines this to include short term accommodation

activities, camping grounds, recreational vehicle parks and trailer parks, restaurants and mobile food service activities, event catering and other food service activities, and beverage serving activities.

**Data Source/Baseline Estimate:** This was one of the surveys conducted by NBS for the rebasing exercise. The Manpower Survey was used to estimate for the informal sector.

**Gross Output:** Output is derived from the income generated from the following:

- Accommodation
- Catering
- Restaurants
- Beverage Service activities
- Other income

**Intermediate Consumption** includes expenses incurred in running the businesses.

## **9. TRANSPORTATION AND STORAGE**

This industry broadly categorized under ISIC Rev. 4, Section H, division 49-53. The sector is divided into 6 sub-economic activities according to Nigerian classification of economic activities. The divisions include;

- Road transport
- Rail transport and Pipelines
- Water transport
- Air transport
- Warehousing and Transport services
- Post and Courier Services

### **9.1 ROAD TRANSPORT**

**Data Source/Baseline Estimates:** This was one of the surveys conducted by NBS for the rebasing exercise. In Nigeria, road transport covers passengers and freight transport by vehicles such as trailers, semi-trailers, Lorries, buses and taxis. The National Manpower Stock and Employment Generation Surveys were used for data on the informal sector.

**Gross Output:** The output of road transport is the revenue generated for the year under consideration.

**Intermediate Consumption:** Intermediate consumption consists of fuels and lubricants used, electricity bills, water bills, office supplies, and rentals.

## **9.2 RAIL TRANSPORT AND PIPELINES**

**Data Source/Baseline Estimates:** Data was obtained from the Federal Ministry of Transport. For Pipelines, the Pipeline Product Marketing Company (PPMC) is the statutory agency with the sole right of managing Pipeline transportation.

**Gross Output:** The main sources of income of Railway Corporation are receipts from passengers, goods traffic and subventions from Federal Government. The Petroleum Pipeline Product income is from the transportation of the petroleum products and crude oil to designated depots and refineries in Nigeria.

**Intermediate Consumption:** Intermediate consumption consists of fuels and lubricants used, electricity bills, water bills, office supplies, and rentals.

## **9.3 WATER TRANSPORT**

**Data Source/Baseline Estimates:** This sector covers sea and coastal water, and Inland water Transport of passengers and goods. This was one of the surveys conducted by NBS for the rebasing exercise. The Manpower Stock and Employment Generation Survey provided data on the informal sector.

**Gross Output:** The main sources of income of water transport are receipts from passengers and goods traffic.

**Intermediate Consumption:** Intermediate consumption consists of fuels and lubricants used, electricity bills, water bills, office supplies, and rentals.

## **9.4 AIR TRANSPORT**

Air transport sector is made up of schedule flights within and outside the shores of Nigeria. The sources of information for this activity are establishment census by NBS backed by annual financial statements of the operators.

**Gross Output:** The main sources of income of Airways transport are receipts from passengers and Cargoes (goods traffic).

**Intermediate Consumption:** Intermediate consumption consists of fuels and lubricants used, electricity bills, water bills, office supplies, and rentals, Spare parts, Consultancy, Audit fees

etc..

## 9.5 TRANSPORT SERVICES

**Data Source/Baseline Estimates:** This sector covers the activities of Warehousing and storage providing temporary housing for goods in transit and provision of storage facilities for customers. It also includes service activities incidental to land transportation, water transportation, air transportation, cargo handling and other transportation support activities. This was one of the surveys conducted by NBS for the rebasing exercise.

**Gross Output:** The main sources of income are receipts from services for storage and transportation activities.

**Intermediate Consumption:** Intermediate consumption consists of fuels and lubricants used, transportation cost, electricity bills, water bills, office supplies, and rentals.

## 9.6 POST AND COURIER SERVICES

**Data Source/Baseline Estimates:** This sector comprises operational facilities rendering communication services to the public through mail and courier. This sector has both public and private sector participants. The Nigerian Postal Services (NIPOST) is an agency under the Ministry of Communication that has the statutory right to engage in providing Post and Courier services. It is also the government agency mandated to issue licenses and regulate private establishment in the same line of business. The sources of information are from the Administrative data from Nigeria Postal Service (NIPOST) and NBS Rebasing Surveys for the Courier component.

**Gross Output:** The main sources of income are receipts from services rendered on number of mails and parcels handled.

**Intermediate Consumption:** Intermediate consumption consists of fuels and lubricants used, transportation cost, electricity bills, water bills, office supplies, and rentals.

## 10. INFORMATION AND COMMUNICATION

This industry is broadly categorized under ISIC Rev. 4, Section J, Division 58-63. The sector is divided into 4 economic activities according to the Nigerian classification of economic activities. The divisions include;

1. Telecommunications & Information Services
2. Publishing
3. Motion Picture, Sound and Musical Production
4. Broadcasting

## **10.1 TELECOMMUNICATION AND INFORMATION SERVICES**

This category under Section J (Information and Communications) comprises division 61 to 63 of ISIC rev.4.0 classification. The industry has undergone significant reform since 1990, with multiple telecommunications service providers currently active in the market in the form of mobile phone operators, satellite, and internet service providers. The industry has witnessed tremendous growth and dynamism since the 1990 base year estimates and continues to do so in terms of the range of products and services, and in terms of coverage and their use.

**Data Sources/Baseline Estimates:** The baseline estimates for 2010 are based on the annual financial statements of operators supplied by FIRS and the Nigerian Communications Commission (NCC), as well as additional data on information services obtained from the NBS Rebasing Survey on Establishments.

**Gross Output:** The Gross turnover is made up of revenue from telephone, telex, Facsimile, telegraph, and other income from satellite and internet services.

**Intermediate consumption:** Details of the cost structure including transit fees, operational expenditure, minor repairs and maintenance are extracted from the annual accounts of the operators in the industry.

## **10.2 PUBLISHING**

The activity of publishing as a sector comprises book publishing, publishing of directories and mailing lists, publishing of newspapers, journals and periodicals, other publishing activities and software publishing. Publishing companies are becoming prominent in the Nigerian economy, in which companies like University Press Plc, Longman Nigeria Plc and Learn Africa among others are quoted in the Nigeria Stock Exchange.

**Data Sources/Baseline Estimates:** Data on publishing was obtained administratively from

the Nigerian copyrights Commission.

**Gross Output:** The Gross turnover is made up of revenue from publishing services.

**Intermediate consumption:** This includes details of the cost structure including transportation fees, operational expenditure, minor repairs etc.

### 10.3 MOTION PICTURE AND SOUND RECORDING

This activity falls under Section J –Information and Communication with Division 59 of ISIC rev 4. This comprises motion picture, video and television programme and sound recording activities.

**Data Source/Baseline Estimates:** Data is provided administratively through (Performing Musicians Association of Nigeria (PMAN), Music Label Owners and Recording Industries Association of Nigeria (MORAN), Nigerian Film and Video Censors Board (NFVCB), Copyright Society of Nigeria (COSON) and administrative data from NEXIM bank.

**Gross Output<sup>1</sup>:** This is based on revenue generated/total sales from the number of movies and sound recordings produced. This also includes revenue generated from TV rights, royalties and fees.

**Intermediate consumption:** This is the detail on the cost structure of operating firms including transportation fees, operational expenditure, minor repairs and maintenance, extracted from their annual accounts.

### 10.4 BROADCASTING

The sector comprises radio broadcasting, television programming and broadcasting activities. The activities of the sector which was formerly carried out by public corporation or limited liability companies owned by government, has observed a tremendous development, due to up surge of many private and public radio and television establishments.

**Data Source/Baseline Estimates:** Data on private sector broadcasting market participants were obtained administratively with the help of the Nigerian Communications Commission,

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<sup>1</sup>As a result of piracy, a portion of revenues here was reapportioned from Wholesale and Retail trade

while data on public sector broadcasting was obtained from the Accountant-General's Reports of the states and the federation.

**Gross Output:** Data on public corporation was derived on the basis of expenditure incurred from Accountants General's reports; while the private component relies on revenue generated from services rendered e.g. advertisement. Therefore, the output of broadcasting is the addition of the private establishments and public corporations.

**Intermediate consumption:** These are details of the cost structure of market participants which include transportation fees, operational expenditure, minor repairs and maintenance etc.

## **11. ARTS ENTERTAINMENT AND RECREATION**

This sector is contained in ISIC Rev. 4, Section R, division 90-93, and comprises four different activities with different sources of data pulled together to make a sector. The activities are;

- a. Creative, arts and entertainment,
- b. Libraries, archives, museums and other cultural activities,
- c. Gambling and betting activities and
- d. Sports activities and amusement and recreation activities

**Data Source/Baseline Estimates:** Data is provided through the establishment survey (Performing Musicians Association of Nigeria (PMAN), Music Label Owners and Recording Industries Association of Nigeria (MORAN), Nigerian Film and Video Censors Board (NFVCB), Copyright Society of Nigeria (COSON, performing arts and promoters, for creative art and entertainment). For Libraries, archives, museums and other cultural activities, their sources of data came from the annual report of Accountants General of federal and state governments, because the activities are mostly managed by federal and state governments. Also data on Gambling and betting activities was obtained from NBS Rebasing Survey on betting and gambling houses, recreational facilities and amusement parks, sport recreation and amusement. The informal sector component was covered by the National Manpower Survey.

**Gross Output:** Data on revenue generated was estimated in two categories: one as a market output and the second as non-market output (public establishments)

**Intermediate consumption:** Details of the cost structure were obtained from the annual reports of firms.

## **12. FINANCE AND INSURANCE SERVICES**

This industry is categorized under ISIC rev.4, Section k, Division 64-66 – Financial service activities, Insurance, reinsurance and pension funding, and activities auxiliary to financial service and insurance activities. In the classification of economic sectors, the financial institution is divided into two (2) sectors, these are;

1. Financial Institutions
2. Insurance

### **12.1 FINANCIAL INSTITUTIONS**

In the framework of the industry, financial institutions are categorized under the following; Deposit and other Banks, Finance Companies, Discount houses and Central Bank of Nigeria (CBN), Bureau de change, Micro finance banks, Mortgage banks and money lenders, Nigeria Stock Exchange and financial brokers.

**Data Sources/Baseline Estimates:** Audited annual accounts of financial institutions and the Central Bank, Nigerian Deposit Insurance Corporation, and Securities and Exchange Commission. Information on informal activities in this sector, such as the activities of financial intermediation (money lenders) was not covered due to lack of reliable data.

**Gross Output:** Banks and similar financial institutions get most of their income by charging a higher interest rate on loans than they pay to their depositors. Only a minor part of their income is generated by charges made for services rendered.

In the System of National Accounts, the gross output for financial services are measured by Financial Services Indirectly Measured (FISIM), described as “an indirect measure of the value of financial intermediation services provided but for which financial institutions do not charge explicitly”.

In this rebasing exercise, Nigeria has implemented the recommendations of SNA 2008 and Balance of Payment and International Investment Position Manual, Sixth Edition (BPM6) on the concept and methodology of compilation of output of financial institutions (FISIM).



The 2008 SNA and Balance of Payment and International Investment Position Manual, Sixth Edition (BPM6) FISIM comprises financial service output for which producers do not explicitly charge. Instead, they levy an implicit charge in the spread between interest rates receivable on loans and interest rates payable on deposit. The 2008 SNA and BPM6 recognise FISIM produced only by financial corporations and only on their loan assets and deposit liabilities. Therefore;

Gross Output = Implicit service charges (FISIM) +Explicit service charges.

The calculation of FISIM according to the 2008 SNA is as follows:

The 2008 SNA calculates the output of FISIM on loans (VL) and deposits (Vd) only, using a reference rate (rr).

ASSUMING that these loans and deposits attract interest rates of  $r_L$  and  $r_d$  respectively, the output of FISIM should be calculated according to the formula:

- $(r_L - rr) VL + (rr - r_d) V_d$ .
- Whereas  $r_L$  = Interest rates on loans (average)
- $rr$  = Reference rate
- $VL$  = Stock of loans
- $r_d$  = Interest rates on deposits (average)
- $V_d$  = Stock of deposits

Output = Explicit service charges + implicit service charges (FISIM)

Implicit service charges (FISIM) = (Interest rates on loans – reference rate) x Stock of loans  
+ (Reference rate - Interest rates paid on deposits) x  
Stock of deposits.

The reference rate (rr) was provided by Central bank of Nigeria.

Explicit Service Charges; Actual Services Charges, Investment Income,

Realised gain on Foreign exchange, fees related to letter of credit, application and commitment fees.

**Intermediate Consumption:** Details of the cost structure are extracted from the data supplied such as; Currency Issue Expenses, Administrative Expenses, Repairs and Maintenance, Consultancy Fees, Bank Charges, Audit fees, Directors related expenses

## 12.2. INSURANCE

This sector comprises Life Insurance and Reinsurance, General Insurance and Reinsurance (e.g. fire and other casualties), Social security contribution and Auxiliary activities incidental to insurance. There are forty two 42 general insurance companies, two (2) general reinsurance companies, twenty six (26) Life Insurance Company, two (2) life reinsurance companies, five hundred and twenty four (524) insurance brokers and 24 pensions fund administrators.

**Data sources/Baseline Estimates:** The baseline estimates are made up of consolidated financial accounts of Insurance Companies provided by the National Insurance Corporation of Nigeria (NAICOM). NAICOM prepares consolidated accounts of the insurance industry which was very helpful in the estimation process.

**Gross Output:** The gross output of the activities are insurance, pension and auxiliary activities to insurance, with the specification given in SNA 2008, except output of Pension which was only the total contribution available during the exercise. As such, the outputs were estimated using the following identities.

Output of life insurance services is measured as follows:

$$\begin{aligned} \text{Output} = & \text{Actual premiums earned} + \text{Plus Premium supplements} - \text{Benefits due} \\ & - \text{Minus Increases (plus decreases) in life insurance technical reserves} \end{aligned}$$

Output of non-life (General) insurance services is measured as follows:

$$\text{Output} = \text{Actual premiums earned} + \text{Premium supplements} - \text{Adjusted claims incurred}$$

Output of funded pension fund services is measured as follows:

$$\begin{aligned} \text{Output} = & \text{Actual pension contributions} + \text{Supplementary contributions} - \text{Benefits due} \\ & + \text{Plus Change in the actuarial reserves} + \text{Property income} \end{aligned}$$

The **intermediate consumption** consists of the cost structure (operating expenses) from the annual reports of institutions.

## 13. REAL ESTATE

Real estate consists of two components, Real estate activities with own or leased property, and Real estate activities on a fee or contract basis. These components were further

broken into subcomponents such as, rental or leasing of residential property, non-residential property, trade services of building, property management services on a fee or contract etc.

**Data Source/Baseline Estimates:** Data on real estate activities was obtained from one of the surveys conducted by the NBS specifically for the rebasing exercise. Data on the informal sector on owner imputed rents was obtained from the HNLSS and extrapolated forward using data on population growth rates obtained from the NPoPC.

**Gross Output:** Output of Real estate is the sum of fees and commissions receivable for the services rendered.

**Intermediate consumption:** Details of the cost structure including transportation fees, operational expenditure, minor repairs and maintenance etc.

#### **14. PROFESSIONAL SCIENTIFIC AND TECHNICAL SERVICES**

This economic sector is contained in ISIC Rev. 4, section M, Division 69-75. It covers accounting, auditing, advertisement, architectural services and engineering etc.

**Data Source/Baseline Estimates:** Data was obtained from NBS Rebasing survey of Establishments

**Gross Output:** Output of Professional, Scientific and technical services is the sum of revenues receivable for the services rendered.

**Intermediate consumption:** Details of the cost structure including transportation fees, operational expenditure, minor repairs and maintenance etc.

#### **15. ADMINISTRATIVE AND SUPPORT SERVICES**

This economic sector is contained in ISIC Rev. 4, section N, Division 77-82. It covers Rental and leasing activities of household goods, motor vehicle, machinery and equipment, Employment activities, Travel agency, tour operator, reservation service and related activities, Security and investigation activities, Services to buildings and landscape activities, Office administrative and office support and other business support activities.

**Data Source/Baseline Estimates:** Data was obtained from the NBS Rebasing Surveys.

**Gross Output:** Output of Administrative and Support Services is the sum of revenues receivable for the services rendered.

**Intermediate consumption:** Detail of the cost structure including transportation fees, operational expenditure, minor repairs and maintenance etc.

## **16. PUBLIC ADMINISTRATION**

This industry comes under section O of ISIC Rev. 4, Division 48. - Public Administration and Defence; Compulsory Social Security. This section includes activities of a governmental nature, normally carried out by the public administration. This includes the enactment and judicial interpretation of laws and their pursuant regulation, as well as the administration of programmes based on them, legislative activities, taxation, national defence, public order and safety, immigration services, foreign affairs and the administration of government programmes. This section also includes compulsory social security activities, administration of the school system (i.e. regulations, checks, curricula) falls under this section, but teaching itself does not (classified under education), and a prison or military hospital is classified to health. Similarly, some activities described in this section may be carried out by non-government units.

**Data sources/Baseline Estimates:** Annual Audited Accountant-Generals reports of Federal, States and Local governments are used to compile the estimates, classified according to the classification of functions of government (COFOG)

**Economic classification of federal, state and local government expenditure:** The Audited Accountant-Generals' reports provided details for the calculation of market output from sales of services and non-market output measured as the sum of total intermediate costs, compensation of employees' and imputed costs of fixed capital. The information on wages and salaries (personnel) and other expenditures (overheads) on teachers and their supervisors from the Ministry of Education's expenditure are separated. The same applies to health.

**Gross Output:** Output of Public administration and defence; compulsory social security is non-market services, it is assumed that operating surplus is zero and the output is equal to the

sum of:

Gross output Basic=Intermediate consumption (Less commodity sales and fees)

+Compensation of employees+Consumption of fixed capital

+Other taxes less subsidies on production.

## 17. EDUCATION

This sector is categorized under section P, of ISIC Rev. 4.0, division 85 –Education comprises Public and private education and it includes; Pre-primary and primary education, Secondary education, Technical and vocational secondary education, Higher education, Sports and recreation education, Cultural education and Educational support activities.

**Data Source/Baseline Estimates:** The activities of education carried out by the government have their main source of data from audited Accountant Generals’ reports, and for private education, data are obtained from the NBS Rebasing survey of establishments.

**Current Price;** The Current Price estimates are made up of two components, government production and private production. Since the government production of education is a non-market service, offered without a charge or at prices which are not economically significant, the gross value added of the component is made up of;

Gross output Basic=+Intermediate consumption (Less commodity sales and fees)

+Compensation of employees+Consumption of fixed capital

+Other taxes less subsidies on production.

While the value of private production is calculated as a market output, as follows;

Gross output Basic=Total output-Intermediate consumption + other taxes less subsidies on production.

**Intermediate consumption:** This includes details of the cost structure including transportation fees, operational expenditure, minor repairs and maintenance etc.

## 18. HUMAN HEALTH AND SOCIAL SERVICES

This industry is in ISIC Rev. 4.0 and contained in section Q, Division 86-88, Human health

and social work activities. Health comprises Human health, Residential care and Social work activities.

**Data Source/Baseline Estimates:** The activities of Health carried out by the government have their main source of data from Audited Accountant Generals' report of federal and state and for private health, data are obtained from NBS Rebasing survey of establishment

**Gross Output:** The Current Price estimates are made up of two components, government production and private production. The government production of health is a non-market service, thus, the gross value added of the component is made up of;

Gross output Basic=Intermediate consumption (Less commodity sales and fees)

+Compensation of employees+Consumption of fixed capital

+Other taxes less subsidies on production.

While the value of private production is calculated as a market output, as follows;

Gross output Basic=Total output-Intermediate consumption+ other taxes less subsidies on production.

**Intermediate consumption:** These are details of the cost structure of operators including transportation fees, operational expenditure, minor repairs and maintenance etc.

## **19. OTHER SERVICE ACTIVITIES**

This is found in Section S Division 94 to 96 of ISIC Rev.4. It includes activities of business, employers and professional membership organizations, trade unions, religious organizations, political organizations, repairs of computers and communication equipment, repairs of computers and peripheral equipment, repairs of communication equipment, repairs of personal and household goods, repairs of consumer electronics, repairs of household appliances and home and garden equipment, repairs of footwear and leather goods, repairs of furniture and home furnishings, repairs of other personal and household goods, washing and (dry-) cleaning of textile and fur products, hairdressing and other beauty treatment, and funeral and related activities.

**Data Source/Baseline Estimate:** The main source of data for this sector is therebasing survey for the formal sector and the National Manpower Survey for the informal sector.

**Gross Output:** The output is the income generated from the various services rendered.

## **Conclusion**

Nigeria's System of National Accounts has evolved in the last five decades from a simple system of two tables on GDP at current and constant factor costs to a structure consisting of 46 economic activities. Compiling the SNA for the sectors was quite challenging, having lasted over two full years, due to the high demand for disaggregated data, and the constraints of technical and financial resources. Without doubt, the current exercise has provided an opportunity to establish the necessary infrastructure to ensure that future revisions are more comprehensive and the data output provided in a more timely manner.

Data Sources			
S/N	New Classification	Production	Intermediate Consumption
1	Crop Production	NBS- CBN Annual Socio-economic Survey of 2010	NBS- CBN Annual Socio-economic Survey of 2010
2	Livestock	NBS- CBN Annual Socio-economic Survey of 2010	NBS- CBN Annual Socio-economic Survey of 2010
3	Forestry	NBS- CBN Annual Socio-economic Survey of 2010	Output to IC ratio
4	Fishing	NBS-CBN Annual Socio-economic Survey of 2010 and the Federal Ministry of Agriculture	NBS-CBN Annual Socio-economic Survey of 2010 and the Federal Ministry of Agriculture
5	Coal Mining	Ministry of Solid Minerals and NBS Rebasing Survey	Ministry of Solid Minerals and NBS Rebasing Survey
6	Crude Petroleum and Natural Gas	NNPC	estimates from annual reports of oil companies
7	Metal Ores	Ministry of Solid Minerals and NBS Rebasing Survey	Ministry of Solid Minerals and NBS Rebasing Survey
8	Quarrying and Other Minerals	Ministry of Solid Minerals and NBS Rebasing Survey	Ministry of Solid Minerals and NBS Rebasing Survey
9	Oil Refining	NNPC	estimates from annual reports of oil companies
10	Cement	Company Annual Reports	Company Annual Reports
11	Food, Beverage and Tobacco	NBS Rebasing Surveys	NBS Rebasing Surveys
12	Textile, Apparel and Footwear	NBS Rebasing Surveys	NBS Rebasing Surveys
13	Wood and Wood Products	NBS Rebasing Surveys	NBS Rebasing Surveys
14	Pulp, Paper and Paper Products	NBS Rebasing Surveys	NBS Rebasing Surveys
15	Chemical, Chemical Products and Pharmaceutical Products	NBS Rebasing Surveys	NBS Rebasing Surveys
16	Non-Metalic Products	NBS Rebasing Surveys	NBS Rebasing Surveys
17	Plastic and Rubber products	NBS Rebasing Surveys	NBS Rebasing Surveys
18	Electrical and Electronics	NBS Rebasing Surveys	NBS Rebasing Surveys
19	Basic metal , Iron and Steel	NBS Rebasing Surveys	NBS Rebasing Surveys
20	Motor vehicles & assembly	NBS Rebasing Surveys	NBS Rebasing Surveys
21	Other Manufacturing	NBS Rebasing Surveys	NBS Rebasing Surveys
22	Electricity/Gas and Steam	Nigerian Electricity Regulatory Commission/ Transmission Company of Nigeria	Nigerian Electricity Regulatory Commission/ Transmission Company of Nigeria
23	Water Supply and Waste Management	Federal and State Water Board Expenditures from Accountants General's Reports	Federal and State Water Corporation from Accountants General's Reports
24	Construction	NBS Rebasing Surveys	NBS Rebasing Surveys
25	Trade	NBS Rebasing Surveys	NBS Rebasing Surveys
26	Accommodation and food services	NBS Rebasing Surveys	NBS Rebasing Surveys
27	Road Transport	NBS Rebasing Surveys	NBS Rebasing Surveys
28	Rail Transport & Pipelines	Ministry of Transport	Ministry of Transport
29	Water Transport	NBS Rebasing Surveys	NBS Rebasing Surveys
30	Air Transport	Administrative Data	Administrative Data
31	Transport Services	NBS Rebasing Surveys	NBS Rebasing Surveys



32	Telecommunications	FIRS and Administrative data	FIRS and Administrative data
33	Motion Pictures, Sound recording and Music production	Administrative Data	Administrative Data
34	Publishing	Administrative Data	Administrative Data
35	Post & Courier Services	NIPOST& NBS Rebasing Survey	NIPOST& NBS Rebasing Survey
36	Broadcasting	Administrative Data/ Accountant General Reports	Administrative Data/ Accountant General Reports
37	Arts, Entertainment and Recreation	NBS Rebasing Surveys	NBS Rebasing Surveys
38	Financial Institutions	CBN/	CBN/
39	Insurance	NICOM	NICOM
40	Real Estate	NBS Rebasing Surveys	NBS Rebasing Surveys
41	Administrative and Support Service	NBS Rebasing Surveys	NBS Rebasing Surveys
42	Professional, Scientific and technical services	NBS Rebasing Surveys	NBS Rebasing Surveys
43	Public Administration	Government Accounts	Government Accounts
44	Education	NBS Rebasing Surveys, Accountant General's Reports	NBS Rebasing Surveys, Accountant General's Reports
45	Human Health and social services	NBS Rebasing Surveys, Accountant General's Reports	NBS Rebasing Surveys, Accountant General's Reports
46	Other Services	NBS Rebasing Surveys	NBS Rebasing Surveys