THE REPUBIC OF THE GAMBIA

GAMBIA BUREAU OF STATISTICS

NATIONAL ACCOUNTS

Sources and Methods for Compiling GDP by Expenditure

—

2013 BENCHMARK YEAR

Foreword

The Gambia Bureau of Statistics (GBoS) through its National accounts unit has finalized the rebasing of the Gross Domestic Product to the 2013 base year using the Expenditure Approach (GDP (E)). This follows the release on the Production Approach from the successful conduct of an Economic Census, which covered the various economic activities in The Gambia. GBoS has therefore updated its National accounts benchmark year for both the Production and Expenditure sides of compiling GDP estimates. The time series data for 2004-2018 were revised and rebased using the new benchmark year 2013 for the estimates at both constant and current prices

The main data sources for the GDP (E) exercise were the Integrated Household Survey (IHS), the Government Finance Statistics, The import and export trade statistics and the Balance of Payments Statistics (BoP) The Bureau used the opportunity of this exercise to implement the new methodology in compiling the rebased GDP(E) estimates based on System of National Accounts 2008 (2008 SNA)

The National Accounts unit of GBoS is therefore pleased to share with its users the estimates of the rebased GDP by the expenditure side.

The results being presented in this report are the GDP estimates by the expenditure approach with 2013 benchmark year compared with the old estimates covering the five components of expenditures on the GDP for The Gambia

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Acknowledgement

The Gross Domestic Product by expenditure approach rebasing exercise has been made a success due to the combined efforts of several players. The cooperation and support of the various Government agencies providing the administrative data used in compiling the GDP(E) estimates are very much appreciated.

It is also my pleasure to extend appreciation to staff of the bureau from the Prices unit, the External trade unit and the Household survey units of the bureau who were amongst our data sources and have worked closely with the national accounts unit to ensure that the quality of the data provided is credible.

Furthermore, I would like to thank the International Monetary Fund (IMF) through its African Technical Assistance Center in Anglophone West African countries (AFRITAC West 2) for having provided comprehensive and valuable Technical Assistance on the rebasing of GDP and implementation of 2008 SNA.

Finally, I wish to extend special thanks to, Ms. Aminata Deen Principal Statistician and head of the National Accounts Unit, for tirelessly managing this exercise. I would also like to acknowledge the hard work and dedication of the National Accounts staff namely, Mama Jarju, Alimou Jallow, Muhammed Bittaye, Fatou Jobarteh, and Madi Mangan

Samba Barrow

Director of Economic Statistics

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BoP	Balance of Payment
CBG	Central Bank of The Gambia
CIF	Costs, insurance and freight
COICOP	Classification of Individual Consumption According to Purpose
CP	Current Prices
CPI	Consumer price index
FOB	Free on board
GBoS	Gambia Bureau of Statistics
GCF	Gross capital formation
GDP	Gross Domestic Product
GDP_E	Gross Domestic Product by expenditure approach
GDP_P	Gross Domestic Product by production approach
GFCF	Gross fixed capital formation
GGFCE	General government final consumption expenditure
GVA	Gross value added

HFCE	Household final consumption expenditure
ICP	International Comparison Programme
ISIC Rev. 4	International Standard Industrial Classification Revision 4
KP	Constant Prices
NPIs	Non-profit institutions
NPISHs	Non-profit institutions serving households
SGO	Statement of Government Operations
SNA	System of National Accounts
TiG	Trade in Goods
TiS	Trade in Services
UVI	Unit Value Index

Chapter 1 - Background and Introduction

1.1 Background

The compilation of GDP relies on three approaches:

a. the production approach

b. the income approach

c. the expenditure approach

Each of these methods requires a different set of data and the data comes from three different sources:

a. Administrative record

b. Statistical methods: data obtained by extrapolating survey results on the basis of a benchmark census/survey

c. Estimation methods used in the national accounts.

Usually, Countries start by estimating GDP as the sum of value added by the different kinds of economic activities. Value added is gross output minus intermediate consumption. This method of calculating GDP is generally referred to as the production approach and is denoted by as GDP (P). When confident with GDP(P) estimates, Countries then move on to estimating GDP as the sum of final expenditures –household and government consumption, gross fixed capital formation, changes in inventories, and exports less imports of goods and services. GDP estimated from the expenditure side is denoted by GDP (E)

The Gambia Bureau of Statistics (GBoS) has been compiling GDP(E) for some time now but has never disseminated the estimates except on demand from international bodies such as the ECOWAS and the AfDB which have established regional programmes such as the multilateral surveillance and the International Comparison Programme (ICP) for Africa.

1.2 Introduction

The National Accounts unit has completed the rebasing of the by GDP by expenditure for the period 2013-2018 together with the back series. For the first time, independent time series at current and constant 2013 prices were estimated for all components of GDP by expenditure except changes in inventories which is included and is part of the statistical discrepancy. The rebasing of GDP(E) was based on a mix of direct information on statistical and administrative data sources and indirect information including national accounts estimates on the production side. Micro and macro approached are used to back cast the components and GDP (E) where the benchmark estimates were extrapolated using relevant indicators. Besides the CPI for deriving volume estimates, unit value indices were also used for deflators in some cases.

Immediately after the release of the new series on GDP (P), data collection for the production of GDP by expenditure GDP (E) also commenced and compilation for the various components on the expenditure side of GDP was undertaken.

Chapter 2 - Data Compilation, Methods and Sources

2.1 Final consumption expenditure

Final consumption expenditure is the amount of expenditure on consumption goods and services. According to the System of National Accounts (SNA) 2008, final consumption expenditure consists of expenditure incurred by resident institutional units on goods or services that are used for the direct satisfaction of individual needs or wants or the collective needs of members of the community.

It is composed of three components: Household Final Consumption Expenditure (HFCE), General Government Final Consumption Expenditure (GGFCE) and Non-profit Institutions Serving Households (NPISHs).

2.1.1 Household Final Consumption Expenditure (HFCE)

2.1.1.1 *Preamble*

The household final consumption expenditure (HFCE) is one of the three components of the final consumption expenditure. The HFCE consists of the expenditure, including expenditure whose value must be estimated indirectly, incurred by resident households on individual consumption goods and services, including those sold at prices that are not economically significant and including consumption goods and services acquired abroad (SNA 2008). It excludes the final consumption expenditure of non-residents in the economic territory as well as the expenditure on fixed assets in the form of dwellings or on valuables.

2.1.1.2 *Data source*

Estimation of Final Consumption Expenditure of Households is based on different data sources such as Integrated Households Surveys, administrative sources, output estimations done from the Production Approach and extrapolations. Administrative sources include data of Electricity and Water supply, data for Sewerage, Transport vehicles, Payments for licenses and permits made by households.

2.1.1.3 *Compilation method*

The HFCE was estimated using the first 12 categories of Classification of Individual Consumption According to Purpose (COICOP) and this sums to total individual consumption expenditure of households. The 12 categories used are as follows:

1. Food and non-alcoholic beverages;
2. Alcoholic beverages, tobacco and narcotics;
3. Clothing and footwear;
4. Housing, water, electricity, gas and other fuels;
5. Furnishings, household equipment and routine household maintenance;
6. Health;
7. Transport;
8. Communication;
9. Recreation and culture;
10. Education;
11. Restaurants and hotels;
12. Miscellaneous goods and services

2.1.2 General Government Final Consumption Expenditure (GGFCE)

2.1.2.1 Preamble

General government final consumption expenditure (GGFCE) is the second component of the final consumption expenditure. It consists of expenditure, including expenditure whose value must be estimated indirectly, incurred by general government on both individual consumption goods and services and collective consumption services (SNA 2008).

2.1.2.2 Data source

- The main data source for the estimates of GGFCE was obtained from the Statement of Government Operations (SGO) provided by the Ministry of Finance and Economic Affairs.

2.1.2.3 *Compilation method*

The GGFCE was estimated by summing compensation of employees and intermediate consumption less sales of goods and services. The current price estimates were deflated using the deflators on services to derive the constant price.

2.1.3 Non-profit Institutions Serving Households (NPISHs)

2.1.3.1 *Preamble*

The Non-profit institutions serving households (NPISHs), the third component of the final consumption expenditure, consists of non-market non-profit institutions (NPIs) that are not controlled by government. The NPIs are legal or social entities created for the purpose of producing goods and services but whose status does not permit them to be a source of income, profit or other financial gain for the units that establish, control or finance them. Final consumption expenditure of NPISHs consists of the expenditure, including expenditure whose value must be estimated indirectly, incurred by resident NPISHs on individual consumption goods and services and possibly on collective consumption services (SNA 2008).

2.1.3.2 *Data source*

- Data for 2013 was obtained from the Business Establishment Survey (BES) 2015.

2.1.3.3 *Compilation method*

NPISH provides goods and services to activities of Education, Health, Housing, Arts and Entertainment & Recreation. For the 2013 NPISH expenditure value, it was mainly derived from the cost method of these activities and from 2014 onwards, extrapolation method were used to estimate NPISH at current price. The constant price estimate was derived using composite deflators of NPISH activities.

2.2 Gross Capital Formation (GCF)

According to the SNA 2008, gross capital formation (GCF) is measured by the total value of the gross fixed capital formation, changes in inventories and acquisitions less disposals of valuables.

2.2.1 Gross Fixed Capital Formation (GFCF)

Gross fixed capital formation (GFCF) is measured by the total value of a producer's acquisitions, less disposals, of fixed assets during the accounting period plus certain specified expenditure on services that adds to the value of non-produced assets (SNA 2008). In other words, it is the acquisitions less disposals of fixed assets plus certain additions to the value of non-produced assets, e.g. major improvements.

It includes new or existing fixed assets purchased/bartered/transferred, own account produced assets, major improvements and growth of natural assets used repeatedly in production. It excludes the following:

- Transactions included in intermediate consumption (purchases of small tools for production purposes, ordinary maintenance and repair and acquisition of fixed assets to be use under an operational leasing contract);

- Transactions recorded as changes in inventories (animals raised for slaughter and trees grown for timber);

- Machinery and equipment acquired by households for purposes of final consumption;

- Holding gains and losses (revaluation) and catastrophic losses.

Gross fixed capital formation estimates in Gambia consist of three types, such as: 1) construction (dwellings, other buildings and structure), 2) machinery and equipment; and 3) livestock.

2.2.2. Dwelling, other buildings and structures

According to International Standard Industrial Classification of All Economic Activities Revision 4 (ISIC Rev. 4), construction includes general construction and specialized construction activities for buildings and civil engineering works. General construction is the construction of entire dwellings, office buildings, stores and other public and utility buildings, farm buildings etc., or the construction of civil engineering works such as motorways, streets, bridges, tunnels, railways, airfields, harbors and other water projects, irrigation systems, sewerage systems, industrial facilities, pipelines and electric lines, sports facilities etc. It also includes new work, repair, additions and alterations, the erection of prefabricated buildings or structures on the site and construction of a temporary nature. Data on Economic survey and ASYCUDA are used to

derive the estimates on construction activity and gross fixed capital formation. Also, data for the same period (2013 – 2018) was collected from selected government institutions regarding the value of the public construction projects, major renovations/repairs, landscaping, etc. they have undertaking in each of those periods. Construction is divided into two components and they are as follows:

i.   Private Construction

ii.   Government Construction

2.2.1.1 Compilation method

i.   Estimates at Constant Prices

The benchmark year 2013 estimates of construction activities are based on the data of Economic Survey and Census for the construction companies. In order to compile the estimates for the years onward the volume data of imported construction materials were used. A Unit Value Index (UVI) is estimated for each of the selected construction materials. The CIF[1] value for each selected construction material at constant prices is obtained by deflating the CIF import values at current with the respective UVIs. Gross fixed capital formation estimates of constructions at constant prices are obtained by extrapolating from the base year using the volume index of imported construction materials.

ii.   Estimates at Current Prices

Gross fixed capital formation at current is obtained by inflating the estimates at constant using composite consumer price index (CPIs) weighted by imported construction material weights. Composite CPIs weighted by imported construction material weights equals CPI index for each selected construction material multiply by imported weights of the material in the base year. Imported weights equals the value of each selected material in the base year divided by total selected materials in the based year.

2.2.2. Machinery and equipment

Machinery and equipment's are classified into the following categories:

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[1] CIF means cost, insurance and freight

i. **Transport assets and equipment**: This refers to new and used car, trailers, trucks, ships, motor cycles, and other vehicles.

ii. **General and special machineries:** This include engines, turbine, agriculture and forestry machines and tools, machine for metallurgy, mining, machines for food, beverages, tobacco processing, etc.

iii. **Computers and peripherals:** This include PCs, laptops, servers, printers, monitors, projectors, etc.

iv. **Radio, TV and other ICT equipment:** This include radio, TV, phones, faxes, switchboards, TV cameras, fire and other alarm equipment.

v. **Other used in business:** This include furniture, office equipment, medical and optical equipment, musical instruments, fuel elements for nuclear reactors, and other fabricated products.

2.2.1.2 Data source

External trade statistics on imports (HS 8 digit) was used to estimate capital goods.

2.2.1.3 Compilation method

i. Current Prices

Current Price estimates for Capital goods were compiled using imports extracted from the ASYCUDA++ system. Classification by Broad Economic categories (BEC) was used to identify and assign codes to each of the different categories of capital goods, (Transport assets and equipment, General and special machineries, Computers and peripherals, Radio, TV and other ICT equipment and Other used in business)..

ii. Constant Prices

To derive the constant price values, current price values were deflated for each category using Paache type of UVI. Net Weights for each type of asset was also available and used to compile, detailed Unit Value Indices based on 2013 as base and link year.

2.2.3 Livestock

According to OECD glossary of statistical terms, cultivated assets are livestock for breeding (including fish and poultry), dairy, draught, etc. and vineyards, orchards and other plantations of trees yielding repeat products that are under the direct control, responsibility and management of institutional units.

The 2008 SNA defines it as animal resources yielding repeat products, and tree, crop and plant resources yielding repeat products and their natural growth and regeneration is under the direct control, responsibility and management of an institutional unit.

2.2.1.4 Data source

Data for estimation of Livestock Cultivated Assets is obtained from the 2011 Agricultural Census and the Livestock Census of 2016.

2.2.1.5 Compilation method

i. Current price

The estimation of the number livestock is based on changes in stocks (final stocks minus initial stocks), production and utilization (slaughtering, sales and loses) for the cattle, sheep and goats. The quantity is estimated using the technical coefficient derived from Censuses periods. The livestock at current prices is compiled based on the number of livestock's and prices for each category (Cattle, Sheep, Goat all up to 1 year old).

ii. Constant prices

The constant price estimates were compiled by applying the 2013 base year prices for each livestock type.

Net exports of goods and services

2.2.1.6 Preamble

Exports of goods and services consist of transactions in goods and services (sales, barters, gifts or grants) from residents to non-residents. Re-export are exports of foreign goods in the state they were previously imported and are usually included in a country's imports. Imports of goods

and services consist of transactions in goods and services (purchases, barters, gifts or grants) from non-residents to residents.

According to the SNA 2008, exports and imports of goods occur when economic ownership of goods changes between residents and non-residents. Changes in economic ownership in exports/imports of goods and services is referred to as Transaction. Coverage for exports and imports of goods and services in the case of The Gambia is highly disaggregated at product level to capture as much detail products as possible.

2.2.1.7 Data sources

The source of data for estimation of exports and imports of goods and services are from the Balance of Payment (BoP) data compiled by Central Bank of The Gambia (CBG) based on the Balance of Payment Manual, Fifth Edition (BPM 5). The data source for the estimation of UVI indices are from the external trade statistics detailed ASYCUDA ++ data at 8-digit level, provided the external trade unit of GBoS.

2.2.1.8 Compilation method

i. **Exports and Imports of goods (TiG)**: The compilation of TiG estimates at current prices (CP) and constant prices (KP), undergone thorough analysis on the detailed ASYCUDA++ data on the TIG values with their corresponding net weights, which was used to develop UVI for imports, exports and re-exports.

- *Current* **estimates** of exports, re-exports and imports were compiled by using ASYCUDA ++ detailed data and BoP data. The imports data were adjusted from cost, insurance and freight (CIF) basis to free on board (FOB) basis, using the CIF/FOB adjustments developed by the CBG. *Exports (incl. Re-exports) of Goods* were both valued at FOB.

- *Constant estimates* were derived by deflating the corresponding CP estimates using a Paasche-Type Indices based on UVI's for Imports. The Paasche- deflator was developed from detailed Unit Values by dividing the CP values of the corresponding Net Weights sourced from ASYCUDA++. Then, the Unit Value Indices were compiled based on 2013 as base and link year. Finally, the (Fixed-Based) Paasche-Type Index was complied, which was used to deflate CP imports of goods.

ii. **Exports and Imports of services (TiS)**: The compiling of TiS estimates at current prices (CP) and constant prices (KP), based on the BoP data of Central Bank of Gambia.

- TiS estimates at CP were extracted and compiled using the detailed BoP estimates on imports and exports by types of services.

- TiS estimates at KP, were derived by deflating imports and exports estimates at CP using implied deflators of best matching types of services from the GDP by production approach (GDP_P) estimates, such as: ISIC H (Transport and storage), ISIC J (Information and Communication), ISIC K (Financial and insurance activities) and Other Services (Other ISIC codes: G to S).

Chapter 3 - Challenges and Way Forward

3.1 Challenges

Data obtained for the production of GDP-E was were very challenging as each component had to be validated from the source and from other complimenting data sets. It is more difficult to estimate GDP(E) than GDP(P) because measuring household consumption expenditure, gross fixed capital formation and changes in inventories pose particular problems. The HFCE which is the largest component was the most difficult as consumption data has to be classified by COICOP classification and to be in line with the 2008 SNA concepts and definitions. The estimates for household consumption expenditure derived from the 2015/2016 IHS needed comprehensive analysis and close collaboration with the CPI team to ensure that consistency issues are resolved. Other elements addressing quality issues and the allocation of imputed estimates sourced from National Accounts models were also taken into consideration.

3.2 Way Forward and Recommendations

Cognizant of the challenges encountered, and lessons learnt during the production of the various component s of GDP-E, it is highly recommended that the National Accounts and Price team be involved in the design of the next IHS so that their needs are well captured. The IHS should be conducted on annual basis. It is also necessary for data received from other sources to be scrutinized to ascertain its quality. Conducting another economic census is also very crucial to improve on the estimates of NPISH and GFCF as it would form the new basis for extrapolation and validation of ongoing trends.