THE BELIZE SUPPLY AND USE TABLE

Reference Year 2014

Belize
Chetumal
Chetumal Bay
MEXICO
Banco Chinchorro
Corozal
MEXICO
Rio Hondo
Orange Walk
Lamanai
Ambergris Caye
San Pedro
Blue Creek Village
Altun Ha
Caye Caulker
Barrier Reef
Northern
New River
Booth's
Crooked Tree
Gallon Jug
Bermudian Landing
GUATEMALA
Belize District
Belize City
Turneffe Islands
Lighthouse Reef
Belize
Barrier Reef
San Ignacio
Belmopan
Benque Viejo del Carmen
Xunantunich
Sibun
Cayo
Dangriga
Glover's Reef
Tobacco Caye
Rio Mopan
Macal
Stann Creek
Caracol
Placencia
Dolores
Caribbean Sea
Big Creek
Toledo
Monkey
Lubaantun
San Antonio
Big Falls
Barrier Reef
30 km
30 miles
Moho
Punta Gorda
Gulf of Honduras
Gulf of Amatique
Modesto Mendez
Sarstoon
Puerto Cortez
Tela
GUATEMALA
Puerto Barrios
HONDURAS

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Acronyms

Organizations
SIB – Statistical Institute of Belize
BOP – Balance of payments
PRASC – Project for the Regional Advancement of Statistics in the Caribbean
StatCan – Statistics Canada
SNA – System of national accounts

Classifications
COICOP – Classification of Individual Consumption by Purpose
ISIC – International Standard Industry Classification
HS – Harmonized system (customs trade classification)
CPC – Central Products Classification

Data Sources
BES – Business Establishment Survey
HES – Household Expenditure Survey
LFS – Labour force survey
ICP – International Comparison Program

SNA Specific
VAT – Value added tax
FISIM – Financial intermediation services indirectly measured
OOD – Owner-occupied dwellings

Measures
GDP – Gross domestic product
GDP-P – Production approach to GDP
GDP-E – Expenditure approach to GDP
COE – Compensation of employees
IC – Intermediate consumption
VA – Value added
HFCE – Household final consumption expenditure
GFCF - Gross fixed capital formation
NPISH – Non-profit institutions serving households

Supply and Use Tables

Supply and use tables are macroeconomic statistics depicting the structure of an economy by adding a product dimension to traditional macroeconomic aggregates such as international exports or market output. The tables show where products originate from in terms of domestic production or international imports, and the ultimate destination of these goods or services as intermediate consumption by industry or by final users of the good or service.

The tables are "a powerful tool with which to compare and contrast data from various sources and improve the coherence of the economic information system. They permit an analysis of markets and industries and allow productivity to be studied at this level of disaggregation."[1]

A stylized version of a supply and use table (SUT) is shown below. Product supply and use are shown across the rows, industry and final uses are shown reading down columns.

The Supply Table

	Industry A	**Industry B**	**Industry C**	**International imports**	**Margins**	**Total supply at purchasers prices**
Product A	10			300	50	**360**
Product B		100	10	200	50	**360**
Product C			200	200	100	**500**
Total Products	**10**	**100**	**210**	**700**	**200**	**1220**

The Use Table

	Industry A	**Industry B**	**Industry C**	**Household final consumption expenditure**	**Gross fixed capital formation**	**International exports**	**Total use at purchasers prices**
Product A	2	10	20	323		5	**360**
Product B	2	50	20	100	88	100	**360**
Product C	2	20	100	378			**500**
Total Products	**6**	**80**	**140**	**801**	**88**	**105**	**1220**
Value Added	**4**	**20**	**70**				**94**
Compensation of employees	3	5	50				**58**
Gross operating surplus	1	15	20				**36**

[1] SNA 2008 p271

Note how the total supply for a product is equal to its total use – this is one of the key identities guiding the compilation of the tables. For example, the total supply of Product A is 360, and the total use is also 360.

Totals across products (i.e. the sum of the columns) for ***industries*** represent outputs (reading the supply table) and intermediate consumption (reading the use table). These concepts are of critical importance in understanding the methodologies involved in constructing the industry estimates. The difference between total outputs and total intermediate consumption is industry value added, or gross domestic product at basic prices.

Supply and use tables dramatically expand the type of analysis researchers can undertake. For example, we now have estimates for the ratio of Product A to total output, or the fact that Industry C has multiple products, or what is the ratio of exports to total supply for Product B, or what are the primary goods and services used to produce the output in Industry B or what is the ratio of labour inputs to outputs in Industry A, and so on. In short, a wealth of critical macroeconomic relationships can now be seen by researchers and policy makers alike.

Of equal importance is the rigor that these relationships enforce on the global macroeconomic estimates. By comparing all this information, a national accountant can be assured of the quality and accuracy of the macroeconomic aggregate. In other words, the coherence and accuracy of the statistical system is improved through the compilation of the SUT.

Prices

A brief note on the various "prices" used in national accounting will be useful in understanding the various statistics mentioned throughout. There are three key prices mentioned throughout this document:

- **Basic price**: refers to the value of a good or service at the factory gate, earned by the producer of the good or service, excluding any margins or VAT associated with the final purchase of the good or service. This term is associated with a measure of GDP, as in "Basic Price GDP", and is also the pricing associated with both "Output" and "International imports" categories in the SUT.

- **Market price**: refers to the measure of GDP which sums basic price GDP with taxes less subsidies on products.

- **Purchaser's price**: refers to the valuation of all elements of the "Use" table in the SUTs. This represents the price paid by a final consumer of a good or service after including all margins and VAT associated with the transaction involved in acquiring the product.

More information can be found in the SNA 2008 manual, Chapter 3, section 3.146-3.148.

Classifications

Ultimately the structure of the SUT is guided by adherence to international standard classifications. Industry classifications are guided by the International Standard Industry Classification (ISIC). The product dimension is guided by the Central Product Classification (CPC). However, the nature of an economy and the availability of source data determine the level of aggregation used for a given country's SUT.

Both international classifications are hierarchical in nature. Thus, details are additive.

Concordances between the SUT industries and the ISIC classification are available upon request.

Industry

The Belize SUT industry dimension was constructed with several principles in mind:

- It must mirror the GDP-P compilation level: This facilitates data entry into the SUT (both at present and in future iterations), as well as a true evaluation of the GDP-P estimates
- There can be no splits of ISIC L1 or L2 which will facilitate inter-CARICOM comparisons
    - In other words, if several L2 codes need to be aggregated, ***all subISICs for this L2 must be included in the rollup***
- Complete coverage of ISIC: In some cases, there may not be an estimate in the SUT – this will imply that no activity is present in the economy

The industry code is designed to provide the user with an easy self-reference to the ISIC system. Take for example the Belize SUT Industry Code, "C110X – Manufacture of beverages". The letter designation refers to the "Section" level of industries according to ISIC. Thus "C" designates "Manufacturing".

The following four digits inform the user at which level the underlying ISIC detail is aggregated in the SUT. The ISIC system has three levels using four digits: the Division (first two digits), Group (first three digits) and the Class (all four digits). In our example, an "X" at the fourth digit implies that this Belize industry is a roll-up of several ISIC classes (level 4). Read another way, the Belize industry is equivalent to the specification of the ISIC level 3 classification. Here is a table showing the classification structure for 110 in ISIC:

ISIC Class Mapping for C110X – Manufacture of beverages
1101 - Distilling, rectifying and blending of spirits
1102 - Manufacture of wines
1103 - Manufacture of malt liquors and malt
1104 - Manufacture of soft drinks; production of mineral waters and other bottled waters

So, the Belize C110X industry involves activities related to distilling, wine making, malt liquor brewing, and the production of soft drinks and water.

This linkage with the international classification enables the user to reference these highly detailed documents when attempting to understand what is captured in the Belize SUT.

Product

The Belize SUT product classification was developed with several principles in mind:

- Every industry must have one major product
- Major imports or exports should have their own product
- Imputed products should be separate from the core product

Ultimately, outside of the imputed products, the SUT product code has a direct relationship with the Central Production Classification (CPC). Similar to the industry code, the product code is designed to facilitate easy identification of the implied concordance.

The code begins with a letter which represents the primary ISIC class that produces the product. The exception is the preface of "X", which indicates the product represents a conceptual imputation required in building the SUT. The letter is then followed by the relevant CPC. Again, where an "X" is present, this indicates an aggregation of several sub-products.

Final Demand

The final demand classification must at a minimum account for the elements of expenditure GDP, this: household final consumption, government final consumption, NPISH final consumption, gross fixed capital formation, net inventory accumulation, international exports and international imports.

For the Belize SUT, several other sub categories were deemed useful for both balancing and accounting purposes, as well as for further research and extension of the tables, for example, extending into a Tourism Satellite Account.

Household final consumption is separated between domestic purchases and purchases made abroad – travel expenditures. There are also estimates embedded in the product classification for own account "expenditures". While not estimated via a column in the SUT, they represent a further characterization of household expenditures.

Belize SUT Final Household Consumption Categories
HFCE_xTRAV - Household Final Consumption Expenditure - excluding Expenditures by Belizeans Abroad
HFCE_TRAV - Household Final Consumption Expenditure - Expenditures by Belizeans Abroad

NPISH and government final consumption remain as a single entry in the table and represent the sum of costs of the services provided to households via these entities.

Belize SUT Non-Market Final Demand Categories
NPISH - Non-profit institutions serving households final consumption expenditure
GFCE - Government final consumption expenditure

Gross fixed capital formation has the most sub-detail in the SUT. Broadly speaking, GFCF is split between investments in construction, machinery and equipment, intellectual property and changes in inventory. These expenditures are further broken out by sector, such that one can

determine the investment by the corporate sector or the government sector. Finally, additional subcategories are added to account for particularly important types of investment: e.g. investment in housing.

Belize SUT Capital Formation Categories
GFCF_COH - Gross Fixed Capital Formation - Construction - Residential
GFCF_COB - Gross Fixed Capital Formation- Construction - Non-residential - corporate sector
GFCF_COG - Gross Fixed Capital Formation - Construction - Non-residential - government sector
GFCF_MEB - Gross Fixed Capital Formation - M&E-corporate sector
GFCF_MEG - Gross Fixed Capital Formation - M&E-government sector
GFCF_IPG - Gross Fixed Capital Formation - Intellectual Property Products - software - government sector
GFCF_IPG_RD - Gross Fixed Capital Formation - Intellectual Property Products - R&D - government sector
GFCF_IPB - Gross Fixed Capital Formation - Intellectual Property Products - exploration - corporate sector
GFCF_INV - Changes in inventories

International trade contains the three major categories: imports, exports and reexports. Reexports represent goods entering the economy (imports) which do not undergo any transformation within the economy before they are exported back out again. Finally, trade with non-residents who are travelling are shown separately as this is of critical importance for a Tourism Satellite Account and for policy making.

Belize SUT International Trade Categories
INTEX_xTRAV - International Exports - excluding Expenditures by non-residents in Belize
INTEX_TRAV - International Exports - Expenditures by non-residents in Belize
INTRX - International Re-Exports
INTIM - International Imports

Compilation Process

The SUT compilation process involves several major steps:

1. Data acquisition
2. Initial estimation
3. Research and data evaluation
4. Product balancing
5. Feedback to the statistical system

National account compilers begin by assembling data. Data can come from the statistical system, information provided online or by other data providers, or from site visits to key companies. Many types of data exist, for example: administrative data (e.g. tax data, social security data, government finance information, customs based trade data), data from surveys (such as the Household Expenditure Survey or the Business Establishment Survey), or external information (such as a company's annual report, information provided by a company website, data gathered from visiting a company).

With this data, the compilers begin estimating the "production account"[2]. In this step, total outputs, intermediate consumption and value added must be estimated for collections of businesses, as determined by the classification system for the SUT. Broadly speaking, outputs are akin to company operating revenues whereas intermediate consumption are the operating expenses (less wages and benefits paid to or on behalf of workers).

The distinction here of "operating" is extremely important. The production account controls must exclude items that are not transacted in the economy, such as depreciation, or that belong in other accounts, such as asset purchases (which affects the balance sheet).

Beyond the production account, the compilers must also estimate the elements of expenditure GDP. The SUT brings together these two approaches to measuring GDP: the production and the expenditure approach. Thus, estimates for household expenditures, capital formation and international trade must be determined.

Once these two steps are completed, an "initial" version of table is complete. As one might imagine, the independent estimation of all these elements of an economy, from a variety of data sources, is likely to contain many discrepancies and layers of incoherence. The SUT forces two constraints on this information:

1) Supply must equal use
2) Industry outputs must equal intermediate consumption plus value added

When these two constraints can be satisfied ***at the same time***, the production measure of GDP will equal the expenditure measure of GDP.

In achieving this equivalence, the compiler must invoke "balancing adjustments". This process involves changing a variety of initial estimates in order to satisfy the constraints. Often this begins

[2] See SNA 2008, Chapter for more information

with the product dimension (since at this point the industry estimates are balanced via the production approach to GDP).
The adjustments were informed by many factors, including but not limited to judging the weaknesses of competing data points, spreading differences to maintain patterns while minimizing the impact on source information, as well as changing controls where inconsistencies in the methods are made evident from the additional comparative data.

Once completed, the SUT provides a wealth of information for the improvement of the national statistical system. This final step, providing feedback to data providers and statistical processes completes a lengthy and complex effort to define the economy in more detail that was ever available before.

Business Establishment Survey

The BES was conducted by the SIB in 2016 for reference year 2014. Collection teams and national accounts compilers collected data on 4,000 business establishments. The survey design and collection procedures were assisted by PRASC participants.

Most advanced statistical institutes undertake a business survey. This data is of critical use for the compiler in understanding the unique nature of the numerous industries that are active in an economy. The financial and characteristic information is of prime importance for the SUT.

The BES was divided into 2 components: 1) a business register component, where data was collected on variables nessecary for building a buisness register, and 2) the financial data component. This section collected information on revenues, expenditures, inventory changes, and capital expenditures.

Survey Modules

All data from the BES is useful for national accounting. What follows are the three key modules in the survey needed to build industry estimates of output, intermediate consumption and value added: the Revenue module, the Expense module and the Inventory module. The three modules are recreated below:

Revenue Module

BES Revenue Module	
BR1.	Sales of produced goods and services
BR2.	Sales of goods purchased for resale
BR3.	Subsidies
BR4.	Royalties, licensing and franchise fees
BR5.	Dividends
BR6.	Interests
BR7.	Other
BR8.	**TOTAL REVENUE (SUM BR1 TO BR7)**

Expense Module

BES Expense Module	
BE1.	Wages and Salaries and social benefits
BE2.	Purchase of raw materials and components
BE3.	Goods Purchased for Resale
BE4.	Office and Administrative related expenses
BE5.	Utilities (Water, Electricity, telephone, internet)
BE6.	Freight (if not elsewhere specified)
BE7.	Vehicle Expenses (including fuel and repair)
BE8.	Other repair and maintenance (exclude auto)
BE9.	Rent and leasing (Land, Building, Equipment, Machinery)
BE10.	Business and professional services(Legal, Accounting, Management, Advertising,SubContractors,etc)
BE11.	Insurance
BE12.	Interest expenses
BE13.	Depreciation and amortization
BE14.	All other costs and expenses
BE15.	**TOTAL EXPENSES (SUM BE1 to BE14)**

Inventory Module

BES Inventory Module			
	INVENTORIES	**OPENING VALUE $**	**CLOSING VALUE $**
ICE1.	Goods purchased for resale (in same condition as purchased)		
ICE2.	Raw materials, purchased, component and Supplies		
ICE3.	Goods/Work in progress		
ICE4.	Finished products		
ICE5.	**TOTAL INVENTORIES (Sum ICE1 to ICE4)**		

Building Controls from the BES

Industry controls were calculated for all industries captured by the BES. These estimates were confronted with other information in arriving at total value-added estimates by industry. The nuances for each industry will be explained in detail in this document.

Output

Industry controls (column totals in the SUT) can be built using the BES. The construction of output requires all three modules. In general, output encompasses the revenue earned from ***production*** occurring in the current period. The concept of production is important: macroeconomic statistics distinguish production from sales. For example, sales could occur from inventory produced in other periods, this must be removed from source data to arrive at output.

An additional concept is "margin" output. This was calculated as the difference between revenues and costs associated with the sale of goods purchased for resale, or goods that undergo no transformation by the economic unit.

Taking into account these concepts, we can calculate output as:

Output = Sales of produced goods and services + Net revenue from goods purchased for resale + Royalties, licensing and franchise fees + Other revenue (provided it is operating revenue) + Net inventory of goods purchased for resale + Net inventory of work in progress + Net inventory of finished products

Using cell identifiers from the survey:

Formula 1:

Output = BR1 + (BR2 – BE3) + BR4 + BR7* + ICE1closing – ICE1opening + ICE3closing – ICE3opening + ICE4closing-ICE4opening

Intermediate Consumption

Conceptually, intermediate consumption includes payments made to other economic agents in the economy. Payments made to the factors of production employed by the economic unit in question, for example wage payments made to labour.

Similar to output, intermediate consumption represents costs associated with production, and thus must be corrected for net changes to inventory. It may be that inputs ***used*** in the production process in the current period were acquired in the previous period: these uses must be added to the current control.

Lastly, there are two unique adjustments that should occur to survey data to account for the nature of financial services in the macroeconomic context: an insurance claims adjustment and a FISIM adjustment.

The former is not undertaken in the Belize SUT, however given the construction of industry controls and the balancing of the insurance products, value added by industry is assumed to be correct (i.e. the insurance industry output is allocated to industries and final demand). This adjustment would be a net negative to inputs as the claims received by businesses have not been accounted for in output.

The FISIM adjustment will be expanded on in the following section. Note that this will be a net positive to intermediate consumption (reducing value added) as businesses generally pay more in interest than they receive.

Thus, intermediate consumption will be equal to:

Intermediate consumption = Purchases of raw materials and components + Office and Administrative related expenses + Utilities + Freight + Vehicle expenses + Other repair and maintenance + Rent and leasing + Business and professional services + Insurance + All other costs and expenses - Net inventory change for raw materials + Insurance claims adjustments + FISIM

Note that only operating costs included in all other costs should be included in intermediate inputs. Compilers must be careful in understanding how business accounting methods may impact national accounts statistics.

Using cells from the survey, intermediate consumption was calculated as:

Formula 2:

Intermediate consumption = BE2 + BE4 + BE5 + BE6 + BE7 + BE8 + BE9 + BE10 + BE11 + BE14* - ICE2closing – ICE2opening + Insurance claims adjustment + FISIM[3]

Financial Intermediation Services Indirectly Measured (FISIM)

The SNA has a unique treatment for the output of the banking industry. Output is defined broadly as interest revenue less interest payments in relation to a reference rate. More detail can be found in SNA 2008, Chapter 6 and paragraph 6.163 to 6.165.

This unique treatment of output has consequences for how output and intermediate consumption is constructed for all other industries. Specifically, source data on interest payments and earnings by all other industries is excluded when constructing the initial controls and instead the output of the banking sector must be reallocated to all other industries. This is what will be referred to throughout as the FISIM adjustment.

This adjustment is required to arrive at basic price value added by industry. In historical publications produced by the Belize National Accounts, this FISIM adjustment was handled as a global adjustment – that is, not assigned by industry. In effect, this increases basic price value added by industry, though preserving the correct total for the economy.

An effort was made in constructing the SUT to allocate this by industry using loan and deposit information provided by the financial regulator. Data does not exist by SUT industry.
Thus, some level of imputation across these had to be done.

Financial intermediation services indirectly measured (FISIM) is a SNA conceptual adjustment which allocates the output of the banking industry to all other producing industries in the economy. It is loosely equivalent to a given industries net interest payments, that is: interest paid to a bank for outstanding loans, less interest receipts on any applicable investments.

Formula 3:

FISIM = Interest revenues – Reference rate – Interest payments – Reference rate

[3] FISIM will be discussed in the next section

Value Added

If the controls for output and intermediate consumption are calculated correctly, value added is simply outputs less intermediate consumption.

Formula 4:

Value Added = Output – intermediate consumption

Conceptually, value added thus contains what the SNA characterizes as the generation of income account[4]. These elements include things like the wages and salaries earned by labour, employers' social contributions like social welfare, industry profits and depreciation from their economic activity.

Products

The rows of the SUT represent the product dimension of the tables. Here we are able to see the flow of goods and services throughout the economy, originating in production or imports and ending up as final use as intermediate consumption by industry in the process of producing something else or by final consumers, such as households or other countries.

This dimension is by far the harder of the two dimensions to estimate at any level of detail. It is also the dimension which requires more adjustments to source information as measurement issues, valuation differences and timing problems all lead to differing estimates whether we are talking about international trade or domestic production.

This dimension is guided by the identity where:
Supply = Use

So, the sum of the elements of the row for the supply table must equal the sum of the elements of the use table. The tables are constructed to account for any relevant theoretical conceptual aspect of these two concepts (supply and use). Thus, any differences that arise are purely measurement errors and must be dealt with.

The adjustment process, the commodity flow approach, ensures the coherence of the statistical system. It is recommended in the SNA as a method for improving other macroeconomic statistics.

[4] SNA 2008, p

Initial Composition

In constructing the SUTs, the compilers begin with whatever source information exists for the various product and "column" dimension they are trying to estimate. So, for example, Ministry of Agriculture data on crop volumes and prices will give us the output of various crop products for certain industries.

The initial compositions are starting points after which the compilers must satisfy various constraints to arrive at coherent measures of GDP and product flows.

Outputs

For the most part, data on the types of products produced in each industry is very strong. In fact, the classification structure of the SUT was generated with this in mind. For example, data on specific volumes and prices exists for many agricultural products. This forms the basis of the output control for the industry, but compilers are also able to use this to assign revenues to the individual products.

For other industries, like the services, there is a direct correlation between the industry and the product. The initial patterns were mostly adhered to when balancing the SUT.

Inputs and Final Uses

Intermediate inputs have the least amount of information available to inform their initialization. As such, the first patterning of IC was developed using the 2014 Canadian SUTs, the Costa Rican SUT and the Guatemalan SUT. Additional information gathered from site visits to major producers was also used.

Despite the clear differences in the nature of these economies, there are reasons why this is justified for ***initial estimates***. Take corn farming for example: the production function is likely not dramatically different from one country to the other – water, electricity, fuel, fertilizer, pesticides, labour, machinery – are all products required to produce the crop regardless of where it is produced. The proportions may be different, i.e. the ratio of fertilizer per acre sown is likely different, but these nuances will be informed in the product balancing step of the SUT compilation process.

Final Demand

Household final consumption product distributions were built from the Household Expenditure Survey data. A mapping between the HES codes and the Belize SUT product codes was built to facilitate this.

International trade product patterns were initialized using an HS to CPC to Belize SUT concordance. This data is considered very strong and was little changed in balancing.

Gross fixed capital formation aligns very closely by product, so investment in machinery and equipment map to the equipment products, while construction and research and development map directly on a product.

Balancing

As one might imagine, when all the initial estimates are gathered in the format of an SUT, the core identity:

Supply = Use

Is most likely not satisfied for all products. The national accounts compilers use the "commodity flow" approach to assess the strengths and weaknesses of various data points in order to adjust the initial data. More information on these techniques can be found in SNA 2008, Chapter 14.

In general, the composition of output and international trade by product are deemed stronger data points than intermediate consumption or household final consumption. Output composition is highly aligned with the available financial data used in the construction of industry control totals. As such, it was rarely adjusted in the balancing process. This is not always the case, especially in determining industry secondary outputs which are usually informed by generic financial data such as "other revenue".

International trade composition is deemed very strong as it is constructed using a much more detailed product classification, the Harmonized System (HS) of coding, used throughout the world to track goods moving across countries. Furthermore, there are administrative reasons why this data must be as accurate as possible as different countries have different duty and excise tax regimes that are applied at the HS level.

The strength of intermediate inputs and household final consumption is not nearly as strong as these data points. Thus, most adjustments to satisfy the equivalence of supply and use were applied to these areas of the table. The compiler validates the end result with a priori expectations of industry production functions or household expenditure patterns. All of these adjustments are intended to inform other areas of the national accounting system and should be used to improve those estimates and data acquisition techniques.

Given the matrix design of the SUT, product balancing adjustments must also adhere to a second constraint:

Outputs = Intermediate consumption + Value added

Thus, if a compiler changes an industry's intermediate consumption of a given product, they must decide whether the IC total must change (in turn affecting value added, or GDP), or whether this adjustment should be offset in another product. This is the ultimate power of this technique to improve the accuracy of the macroeconomic statistics.

Agriculture, forestry and fishing (ISIC A)

This industrial sector includes the exploitation of vegetal and animal natural resources, comprising the activities of growing of crops, raising and breeding of animals, harvesting of timber and other plants, animals or animal products from a farm or their natural habitats.

A01X - Crop and animal production, hunting and related service activities

The Belize SUT estimates 9 different agriculture industries as follows:

Belize SUT Industry
A0113 - Growing of vegetables and melons, roots and tubers
A0114 - Growing of sugar cane
A011X - Growing of other non-perennial crops
A0122X - Growing of banana
A0122Y - Growing of other tropical and subtropical fruits
A012X - Growing of all other perennial crops
A0146 - Raising of poultry
A014X - All other animal production
A01X0 - All other agricultural related activities

Source data for the agriculture industries is very strong with both production volume and price information available at a high degree of detail. Cost per unit production data also exists.

The SUT industries go into more detail than ISIC for ISIC 0122 (Growing of tropical and sub-tropical fruits) due to the importance of banana to the local economy here, as well as the availability of information to estimate at this level of detail.

A0113 – Growing of vegetables and melons, roots and tubers

There are no dominant players or crops in this industry, instead output is fairly evenly distributed. Production occurs all over the country.

Output was calculated as the sum of two components:

Total Output = Produced output + own consumption

Produced output is a calculation of volume production multiplied by a yearly average price for all products associated with this industry. In this case, Belize has data on watermelon, tomato, onion, carrot, cabbage, lettuce, cucumber, other vegetables, potatoes, hot peppers, sweet peppers, and cocoa. Data was received from the Ministry of Agriculture for both volumes and prices.

Own consumption is added to produced output to reflect the fact that these vegetables are often produced throughout the country and consumed by resident households without going through retail channels. The value for own account is added directly to HFCE final demand.

In both cases, inventory calculations (book value, inventory valuation adjustment, or value of physical change) are not made.

Adjustments are not made for undercoverage of market bound output as the official statistics on agriculture are deemed precise enough for macroeconomic statistics.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Product Revenues	21,821	Volume and price info from the Ministry of Agriculture
Own consumption	5,455	All volumes above are multiplied by 25%
Total Output	**27,275**	
Intermediate Consumption	**8,511**	Fixed ratio of 31% of total output
FISIM allocation	**1354**	SUT calculation
Value Added	**17,409**	Total output less IC
Compensation of Employees	**4,348**	Fixed ratio of 23% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio itself was derived from source information on the relevant costs associated with producing the various crops. The Ministry of Agriculture tracks production costs for several crops. A simple average was calculated from the various crops to arrive at the 31% ratio used in the SUTs.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added. In this case 23% of 27,275-8,511. Data from the Ministry of Agriculture was used to inform this ratio.

A0114 - Growing of sugar cane

There are several thousand farmers of sugarcane in Belize. All farmed sugarcane heads to the three major plants in the country. Farming occurs mostly in the northern and western parts of the country.

Output is simply the sum of produced output: volume production multiplied by a yearly average price. Data was received from the Ministry of Agriculture for both volumes and prices.

Own consumption is not added to produced output for this industry as this activity it is deemed extremely rare to non-existent in the economy.

Inventory calculations (book value, inventory valuation adjustment, or value of physical change) are not made.

Adjustments are not made for undercoverage of market bound output as the official statistics on agriculture are deemed precise enough for macroeconomic statistics.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Total Output	**81,978**	Volume and price info from the Ministry of Agriculture
Intermediate Consumption	**51,373**	Fixed ratio of 63% of total output
FISIM allocation	**1,732**	SUT calculation
Value Added	**28,872**	Total output less IC
Compensation of Employees	**26,106**	Fixed ratio of 96% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio itself was derived from source information on the relevant costs associated with producing sugar. The Sugar Industry Control Board and the Sugar Farming Association produced a study on the costs of production costs which included cultivation and transport costs. This information yielded the 63% ratio used in the SUTs.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added. In this case 96% of 81,978-51,373. Data from the Sugar Industry Control Board and the Sugar Farming Association was used to inform this ratio.

A011X – Growing of other non-perennial crops

This industry is dominated by the production of yellow corn, paddy rice and sorghum, although there are no dominant players in the industry. Production occurs all over the country.

Output was calculated as the sum of two components:

Total Output = Produced output + own consumption

Produced output is a calculation of volume production multiplied by a yearly average price for all products associated with this industry. In this case, Belize has data on paddy rice, yellow corn, white corn, red kidney beans, black beans, other beans, cowpeas, soybeans, sorghum, and peanuts. Data was received from the Ministry of Agriculture for both volumes and prices.

Own consumption is added to produced output to reflect the fact that these crops are often produced throughout the country and consumed by resident households without going through retail channels. The markup was informed by historical information. 25% was used for corn, beans and other grains, while 10% was used for soybeans. No own consumption was assumed for rice. The value for own account is added directly to HFCE final demand.

Inventory calculations (book value, inventory valuation adjustment, or value of physical change) are not made.

Adjustments are not made for undercoverage of market bound output as the official statistics on agriculture are deemed precise enough for macroeconomic statistics.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Product Revenues	103,348	Volume and price info from the Ministry of Agriculture
Own consumption	21,318	All volumes above are multiplied by 25%
Total Output	**124,667**	
Intermediate Consumption	**43,345**	Fixed ratio of 35% of total output
FISIM allocation	**5,765**	SUT calculation
Value Added	**75,556**	Total output less IC
Compensation of Employees	**25,706**	Fixed ratio of 32% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio itself was derived from source information on the relevant costs associated with producing the various crops. The Ministry of Agriculture tracks production costs for several crops. A simple average was calculated from the various crops to arrive at the 35% ratio used in the SUTs.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added. In this case 32% of 103,348-43,345. Data from the Ministry of Agriculture was used to inform this ratio.

A0122X - Growing of banana

Given the importance of this crop to the Belizean economy, it was decided to delineate the macroeconomic statistics beyond the international standard ISIC. Production occurs mostly in the south of the country.

Output was calculated as the sum of two components:

Total Output = Produced output + own consumption

Produced output is a calculation of volume production multiplied by a yearly average price for all products associated with this industry. Data was received from the Ministry of Agriculture for both volumes and prices.

Own consumption is added to produced output to reflect the fact that these crops are often produced throughout the country and consumed by resident households without going through retail channels. The markup was informed by historical information. 15% was used. The value for own account is added directly to HFCE final demand.

Inventory calculations (book value, inventory valuation adjustment, or value of physical change) are not made.

Adjustments are not made for undercoverage of market bound output as the official statistics on agriculture are deemed precise enough for macroeconomic statistics.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Product Revenues	96,874	Volume and price info from the Ministry of Agriculture
Own consumption	14,531	All volumes above are multiplied by 15%
Total Output	**111,405**	
Intermediate Consumption	**31,193**	Fixed ratio of 28% of total output
FISIM allocation	**3,524**	SUT calculation
Value Added	**76,688**	Total output less IC
Compensation of Employees	**24,566**	Fixed ratio of 31% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio itself was derived from an AgroDev report and is unchanged from that used in the current GDP-P compilation system.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added. In this case 31% of 111,405-31,193. Data from the 2016 Business Establishment Survey was used to inform this ratio.

A0122Y – Growing of other tropical and sub-tropical fruits

This industry is dominated by the production and export of papaya. Production occurs all over the country.

Output was calculated as the sum of two components:

Total Output = Produced output + own consumption

Produced output is a calculation of volume production multiplied by a yearly average price for all products associated with this industry. In this case, Belize has data on papaya, mango, pineapple, plantains and other fruits. Data was received from the Ministry of Agriculture for both volumes and prices.

Own consumption is added to produced output to reflect the fact that these crops are often produced throughout the country and consumed by resident households without going through retail channels. The markup was informed by historical information. 25% was used for all fruits. The value for own account is added directly to HFCE final demand.

Inventory calculations (book value, inventory valuation adjustment, or value of physical change) are not made.

Adjustments are not made for undercoverage of market bound output as the official statistics on agriculture are deemed precise enough for macroeconomic statistics.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Product Revenues	25,759	Volume and price info from the Ministry of Agriculture
Own consumption	6,440	All volumes above are multiplied by 25%
Total Output	**32,198**	
Intermediate Consumption	**10,867**	Fixed ratio of 34% of total output
FISIM allocation	**1,690**	SUT calculation
Value Added	**19,641**	Total output less IC
Compensation of Employees	**8,159**	Fixed ratio of 38% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio itself was derived from the AgroDev report.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added. In this case 31% of 32,198-10,867. Data from the Ministry of Agriculture was used to inform this ratio.

A012X – Growing of all other perennial crops

This industry is dominated by the production and export of oranges. Production occurs all over the country.

Output was calculated as the sum of two components:

Total Output = Produced output + own consumption

Produced output is a calculation of volume production multiplied by a yearly average price for all products associated with this industry. In this case, Belize has data on grapefruit, oranges and limes. Data was received from the Ministry of Agriculture for both volumes and prices.

Own consumption is added to produced output to reflect the fact that these crops are often produced throughout the country and consumed by resident households without going through retail channels. The markup was informed by historical information. 15% was used for all fruits. The value for own account is added directly to HFCE final demand.

Inventory calculations (book value, inventory valuation adjustment, or value of physical change) are not made.

Adjustments are not made for undercoverage of market bound output as the official statistics on agriculture are deemed precise enough for macroeconomic statistics.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Product Revenues	55,397	Volume and price info from the Ministry of Agriculture
Own consumption	8,310	All volumes above are multiplied by 15%
Total Output	**63,706**	
Intermediate Consumption	**24,527**	Fixed ratio of 39% of total output
FISIM allocation	**2,322**	SUT calculation
Value Added	**36,857**	Total output less IC
Compensation of Employees	**26,759**	Fixed ratio of 68% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio itself was derived from financial statements of the large producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added. In this case 68% of 63,706-24,527. Data from financial statements of the large producers was used to inform this ratio.

A0146 – Raising of poultry

This industry is dominated by the production of poultry. Production occurs all over the country.

Output was calculated as the sum of two components:

Total Output = Produced output + own consumption

Produced output is a calculation of volume production multiplied by a yearly average price for all products associated with this industry. In this case, Belize has data on poultry, turkey, eggs, broiler chicks, breeder pullets, other pullets and spent hens. Unique for this industry, volumes for poultry and turkey are adjusted to reflect the fact that source information is assumed to be final processed weight, and not "live" weight. Data was received from the Ministry of Agriculture for both volumes and prices. Supplementary information comes from the Belize Poultry Association. In summary:

Produced output = (Ministry of Agriculture Volumes + Volume Conversion Adjustment + Secondary source volume adjustment) * associated prices

Own consumption is added to produced output to reflect the fact that these animals and products are often produced throughout the country and consumed by resident households without going through retail channels. The markup was informed by historical information. 7% was used for all poultry products. The value for own account is added directly to HFCE final demand.

A ratio of purchase of birds (by the processor) to total meat sales (of the processor) is assumed to be at 0.7. Therefore, the value from the reported value for poultry from the source we deduce that 70% is the output of Agriculture, and that the original value should be carried to the manufacture.

Additionally, adjustments were done to the source (MOA) as there was missing information on the poultry industry with regards to the raising of layers, broiler chicks and hatchery information. From a report obtained from the Belize Poultry Association the missing components of poultry are estimated. As indicated, we needed the volume and the price to obtain an estimated value for the output.

Inventory calculations (book value, inventory valuation adjustment, or value of physical change) are not made.

Adjustments are not made for undercoverage of market bound output as the official statistics on agriculture are deemed precise enough for macroeconomic statistics.

SUT Elements	**Value BLZ thousands**	**Data Sources and Methods**
Product Revenues	101,233	Volume and price info from the Ministry of Agriculture
Own consumption	7,086	All volumes above are multiplied by 7%
Total Output	**108,319**	

Intermediate Consumption	**54,538**	Fixed ratio of 50% of total output
FISIM allocation	**2,832**	SUT calculation
Value Added	**50,949**	Total output less IC
Compensation of Employees	**21,276**	Fixed ratio of 40% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio itself was derived from data from the Ministry of Agriculture.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added. In this case 40% of 108,319-54,538. Data from the Ministry of Agriculture was used to inform this ratio.

A014X – All other animal production

This industry comprises the farming of all other livestock. Production occurs all over the country.

Output was calculated as the sum of two components:

Total Output = Produced output + own consumption

Produced output is a calculation of volume production multiplied by a yearly average price for all products associated with this industry. In this case, Belize has data on beef, pigs, sheep, milk and honey.

Volumes are calculated using animal counts, assumed weights per animal, adjustments from secondary sources, and then converted from processed weight to raw weight. This last adjustment is necessary given research that determined source data is processed weight and not raw weight.

Volumes = ((animal counts * average weight) + source adjustments) * conversion factor

Data was received from the Ministry of Agriculture for both volumes and prices. Supplementary information comes from the Belize Livestock Producing Association and the Belize Pork Council.

Own consumption is added to produced output to reflect the fact that these animals and products are often produced throughout the country and consumed by resident households without going through retail channels. The markup was informed by historical information. 7% was used for all animal products. The value for own account is added directly to HFCE final demand.

A ratio was computed to have the value that should be considered for the producers only and what should be added to the Manufacturing industry. For cattle, 0.7 of total output remains as animal production, for pigs 0.8 of total output remains as animal production. The export of cattle and sheep production is included in the computation also of the total output.

Inventory calculations (book value, inventory valuation adjustment, or value of physical change) are not made.

Adjustments are not made for undercoverage of market bound output as the official statistics on agriculture are deemed precise enough for macroeconomic statistics.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Product Revenues	73,558	Volume and price info from the Ministry of Agriculture
Own consumption	5,149	All volumes above are multiplied by 7%
Total Output	**78,707**	
Intermediate Consumption	**25,796**	Fixed ratio which varies by animal type
FISIM allocation	**3,285**	SUT calculation
Value Added	**49,625**	Total output less IC
Compensation of Employees	**8,718**	Fixed ratio of 40% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio itself was derived from data from the Ministry of Agriculture.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added. In this case 40% of 78,707-25,796. Data from the Ministry of Agriculture was used to inform this ratio.

A020 - Forestry and Logging

Belize has several operating sawmills which export nearly 20% of their output. Trees and logs are harvested from across the country. Data was received from the Forestry Department which has information on volumes by species.

Output was calculated as the sum of two components:

Total Output = Output destined for the sawmills + Horticulture output

Output destined for sawmills is a calculation of volume production multiplied by a cubic feet adjustment factor multiplied by an average price per board foot multiplied by an adjustment factor to get to the logger price:

Output for Sawmills = Cubic feet volume * cubic feet to board feet adjustment factor * average price per board foot * sawmill to logger adjustment factor

The output associated with horticulture activities relies on data from the Household Expenditure Survey 2011 inflated by price and population to arrive at a value for 2014.

Both components of output are then multiplied by an undercoverage adjustment which assumes that both data sources do not perfectly capture all the economic activity.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Log output for sawmills	12,925	Forestry Department, species level volumes
Output for horticulture	1,394	Household Expenditure Survey
Undercoverage	714	
Total Output	**15,033**	
IC	**5,653**	Fixed ratio of 38% from Tax data and Business Survey
FISIM	**272**	SUT estimate
VA	**9,108**	
Compensation of employees	6048	Fixed ratio of 64% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio itself was derived from financial reports of companies involved in Logging, which were acquired from the Income Tax Authority or the Business Establishment Survey.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added. In this case 64% of 15,033-5,653. Data from the financial statements of loggers was used to inform this ratio.

A030 - Fishing and Aquaculture

Shrimp aquaculture is an important part of the Belizean economy, employing many people. Production occurs throughout the reef and sustainability and environmental concerns are very important.

Output was calculated as the sum of two components:

Total Output = Produced output + own consumption

Produced output is a calculation of volume production multiplied by a yearly average price and then adjusted to arrive at the farm value (as opposed to the processor value) for all products associated with this industry. In this case, Belize has data on shrimp, lobsters and a variety of fish. Data was received from the Ministry of Agriculture for both volumes and prices.

Own consumption is added to produced output to reflect the fact that these products are often produced throughout the
country and consumed by resident households without going through retail channels. The value for own account is added directly to HFCE final demand. Shrimp are not adjusted for own consumption.

In both cases, inventory calculations (book value, inventory valuation adjustment, or value of physical change) are not made.

Adjustments are not made for undercoverage of market bound output as the official statistics on agriculture are deemed precise enough for macroeconomic statistics.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Product Revenues	110,111	Volume and price info from the Ministry of Agriculture
Own consumption	2,653	All volumes above are multiplied by 25%
Total Output	**113,764**	
Intermediate Consumption	**35,848**	Fixed ratio ranging from 27-34% depending on the product
FISIM allocation	**7,297**	SUT calculation
Value Added	**70,619**	Total output less IC
Compensation of Employees	**36,058**	Fixed ratio of non-FISIM value added depending on the product

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio was derived from information from the Cooperatives Department or Ministry of Investment depending on the relevant costs associated with producing the various types of fish.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added.

Mining and quarrying (ISIC B)

This section includes the extraction of minerals occurring naturally as solids, liquids or gases. Extraction can be achieved by different methods such as underground or surface mining, well operation and seabed mining, etc.

B06X0 - Extraction of crude petroleum and natural gas

Crude oil extraction has historically been a major driver of the Belizean economy. Recently, as reserves decline, it contributes less and less to overall GDP.

With this revision to the national accounts, output now includes exploration activities related to crude oil. Thus, the output control is the sum of two components: extracted crude plus exploration. This treatment is consistent with SNA 2008 recommendations to capitalize exploration costs and with the Canadian methodology of routing the balancing via the extraction industry. Data from the Petroleum Department and the primary operator was used in the estimates.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Extracted crude	120,047	Geology and Petroleum Department
Exploration	84,460	Sum of costs reported by participating companies
Total Output	**204,508**	
Extraction costs	39,135	Fixed ratio of 33% of extraction output
Exploration	84,460	Equivalent to the output adjustment
Total IC	**123,596**	
FISIM	**3,160**	SUT estimate
VA	**77,751**	

Intermediate consumption is a fixed ratio of the calculated output control. The IC ratio was derived from information from financial statements of the companies involved in the activities. These reports were obtained at the Income Tax Department or the Petroleum department.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added using information from financial statements of some of the companies involved in the activities.

B0X00 - All other mining and mining support activities

Mining for minerals is not a very large activity in Belize. Data is available for the mining of white mal, sand and gravel, stone, and limestone. Data was received from the Ministry of Natural Resources.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	38,698	Volumes and prices from the Ministry of Natural Resources
Intermediate Consumption	16,323	Fixed ratio of 42% of output; informed via the financial statements of the largest producers
FISIM allocation	1,126	SUT estimate
Value Added	21,249	Total output less IC
Compensation of Employees	6,544	Fixed ratio of 29% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived from the financial statements of the major producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the financial statements of major producers.

Manufacturing (ISIC C)

Establishments involved in manufacturing transform the physical or chemical nature of materials, substances, or components into new products. Units engaged in manufacturing are often described as plants, factories or mills and characteristically use power-driven machines and materials-handling equipment.

Units that transform materials or substances into new products, whether by hand or in the worker's home, and those engaged in selling to the general public, products made on the same premises from which they are sold, such as bakeries and custom tailors, are also included in this section.

The following industries were deemed of national interest and have been estimated in the SUT[5].

Belize SUT Industry	**ISIC equivalent[6]**
C1010 - Processing and preserving of meat	1010
C1020 - Processing and preserving of fish, crustaceans and molluscs	1020
C1050 - Manufacture of dairy products	1050
C106X - Manufacture of grain mill products, starches and starch products	106*
C1072 - Manufacture of sugar	1072
C107X - Manufacture of other food products	107*
C1080 - Manufacture of prepared animal feeds	1080
C110X - Manufacture of beverages	110*
C16X0 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	16*
C17X0 - Manufacture of paper and paper products	17*
C18X0 - Printing and reproduction of recorded media	18*
C20X0 - Manufacture of chemicals and chemical products	20*
C23X0 - Manufacture of other non-metallic mineral products	23*
C25X0 - Manufacture of Fabricated Metal Products	25*
C3100 - Manufacture of Furniture	3100
CX000 - All other Manufacturing industries	All other ISIC

[5] A complete ISIC level 4 to Belize SUT Industry concordance is available upon request

[6] An asterisk implies an aggregation of all ISIC categories covered by the preceding digits

C1010 – Processing and preserving of meat

Meat processing is a very important activity in the Belizean economy. Chicken is a staple element of the diet and several large companies are involved in all aspects of meat production from farming to transport to retail and even prepared meals.

Outputs were calculated using data from the Ministry of Agriculture. Effectively the same data that was used to calculate the two agriculture industries (A0146 – Poultry and A014X – All other animal production) was used in the calculations of this industry. The source data from the Ministry of Agriculture measures the weight and valuation of the meat ***after processing***. Volume and price information exist for poultry, turkey and other forms of meat.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	140,555	Volumes and prices for meat from the Ministry of Agriculture
Intermediate Consumption	103,770	Ratio of output depending on the type of meat – 78% poultry, 64% other meat; informed via financial statements of the largest producer
FISIM allocation	1,711	SUT estimate
Value Added	35,098	Total output less IC
Compensation of Employees	18,953	Ratio of non-FISIM value added depending on the type of meat – 59% poultry, 41% other meat; Fixed ratio 23% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control depending on the type of meat being processed. The IC ratio was derived from the financial statements of the major producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the financial statements of major producers.

C1020 – Processing and preserving of fish, crustaceans and mollusks

Outputs were calculated using data from the Ministry of Agriculture. Effectively the same data used to calculate A03X0 – Fishing was used to calculate the controls of this industry. The fishing source data measures the weight and valuation ***after processing*** (similar to the meat data). Volume and price information exist for lobster, conch and a variety of saltwater fish.

No adjustment was made for under coverage, inventory changes or own consumption.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	24,706	Volumes and prices for fish from the Ministry of Agriculture
Intermediate Consumption	20,586	Fixed ratio of 83% of output; informed via the financial statements of the largest producers
FISIM allocation	281	SUT estimate
Value Added	3,839	Total output less IC
Compensation of Employees	2,487	Fixed ratio of 60% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived from the financial statements of the major producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the financial statements of major producers.

C1050 – Manufacture of dairy products

Outputs were calculated using financial data from the processors, which accounts for most of the milk produced. The Household Expenditure Survey was used to calculate a value for small-scale producers of milk, cheese, and ice cream and for own-account milk production.

No inventory adjustments were made.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Processed milk	9,899	Financial statements of major processors
Own-account adjustment	3,154	Estimated using data from the HES (codes 0114101, 0114102)
Total Output	13,054	
Intermediate Consumption	7,955	Fixed ratio of 61% of output; informed via the financial statements of the major processors
FISIM allocation	169	SUT estimate
	4,930	Total output less IC
Compensation of Employees	1,493	Fixed ratio of 11% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived from the financial statements of the major producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the financial statements of major producers.

C106X – Manufacture of grain mill products, starches and starch products

There is one large miller of flour in Belize. All the raw material processed is imported as wheat is not grown in Belize. There are three large processors of rice included in the SUT estimates. All of the paddy rice grown in Belize is handled by these processors.

Outputs are calculated using financial data from producers. A combination of BES and tax information was used depending on the company. The "other" category includes things like masa and minsa which would not be captured in the other information and so must be derived by other means.

No inventory adjustments were made.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Flour	28,583	Sales data from financial statement of producer
Rice	39,300	Sales data from major processors

Other	1,188	Expenditure information from the HES (codes: 0111202, 0111606; inflated to 2014)
Total Output	**69,071**	
IC - Flour	21,810	Ratio of 76% of output; derived from financial statements of the producer
IC – Rice	21,615	Ratio of 55% of output; informed via discussions with major produce
IC - Other	654	Ratio of 55% of output; informed via the rice estimate
Total intermediate consumption	**44,079**	
FISIM allocation	**844**	SUT estimate
Value Added	**24,148**	Total output less IC
Compensation of Employees	**6,299**	Varies by category; 22% for flour, 25% rice, 75% other; ratio of non-FISIM value added

Intermediate consumption was calculated separately for flour, rice and "other". For flour, the control was derived from the financial statements of the major producer. For rice, cost of production information was also acquired in discussions with a major producer. This data generated a ratio of 55%, which was applied to the output estimate. This ratio was used for "other" as well.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, depending on the category or output being measured. Again, a variety of sources was used to inform these ratios. Flour was deemed to be less labour intensive, with a COE ratio of 22%, whereas "other", primarily representing activities of households logically employs much more labour.

C1072 – Manufacture of sugar

Substantially all sugar grown in Belize is processed before being shipped to final consumers and substantially all sugar processed is exported internationally. There are three primary mills which process sugar.

Since the majority of sugar processed is exported, compilers use export data from customs-based trade data to measure majority of **output**. An estimate of local sales is added based on a ratio of export sales based on historical information.

Total Output = Export Sales + Local Sales

SUT Elements	Value BLZ thousands	Data Sources and Methods
Export Sales	115,190	Export values based on IMTS
Local Sales	25,396	22% of export sales
Total Output	**140,586**	
Intermediate Consumption	**104,133**	Fixed ratio of 74% of output; informed via the financial statements of the largest producers
FISIM allocation	**1,689**	SUT estimate
Value Added	**34,764**	Total output less IC
Compensation of Employees	**20,563**	Fixed ratio of 56% of non-FISIM value added

Intermediate consumption was calculated from the financial statements of the major producer. This data generated a ratio of 74%, which was applied to the output estimate.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, based on financial information from the major producer.

C107X – Manufacture of other food products

This industry comprises several sub-ISIC industries as follows:

ISIC Class Mapping for C107X – Manufacture of other food products
1071 - Manufacture of bakery products
1073 - Manufacture of cocoa, chocolate and sugar confectionery
1074 - Manufacture of macaroni, noodles, couscous and similar farinaceous products
1075 - Manufacture of prepared meals and dishes
1079 - Manufacture of other food products n.e.c.

Since this industry represents a variety of activities, a variety of source data was used to estimate several sub-categories. Output for this industry is the sum of:

Total Output = Bakery Output + Concentrate Output + Condiment Output

Bakery production includes tortilla production in addition to other baked goods. Given the large amount of perceived undercoverage here, the ratio of imputed to reported levels are particularly high.

Undercoverage is based on data from the HES (inflated to arrive at a 2014 valuation) with an additional 7% added to boost the valuation.

Bakery output = Reported Sales + Undercoverage

Variable	Value BLZ thousands	Data Sources and Methods
Reported sales	10,971	Revenues from tax data for bakeries and tortilla factories
Under coverage	12,487	17% of sub-total based on population growth between 2011 census and 2014
Total Tax Output	**72,856**	

Concentrate production is dominated by a major producer. Their sales report was used to estimate output.

Condiment output was derived from several sources covering different types of condiments. For pepper sauce and jams, financial statements of the large producer were used. For all other condiments HES data and customs exports data was used to model the output.

SUT Element	Value BLZ thousands

Bakery and tortilla	23,459
Concentrates	95,159
Citrus	12,820
Pepper	7,765
Jams	2,487
Other condiments	15,351
Total output	**146,788**
Intermediate consumption	87,209
FISIM	3,378
Value Added	**56,201**
Compensation of employees	20,568

Intermediate consumption was calculated as a fixed ratio of output. The ratio varies depending on the type of service (39% for bakeries, 64%% for concentrates, and 58% for other condiments). Ratios were informed using financial data from major producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the financial statements of major producers.

C1080 – Manufacture of prepared animal feeds

This industry is highly concentrated and has less than ten establishments covered in the SUT estimates.

Outputs were calculated using administrative data. Tax data was available for most companies, for the remainder, customs trade data was used as a proxy for their sales. HS codes related to animal feed were used to identify the appropriate companies (e.g. 2309909000: Other preparations of a kind used in animal feeding).

SUT Elements	Value BLZ thousands	Data Sources and Methods
Tax sales	46,683	Tax data of identified companies
Export data	15,932	Customs export data of companies not identified through Tax
Total Output	62,615	
Intermediate Consumption	49,299	Fixed ratio of 79% of output; informed via the financial statements of the largest producers
FISIM allocation	1,126	SUT estimate
Value Added	12,190	Total output less IC
Compensation of Employees	3,738	Fixed ratio of 28% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived from the financial statements of the major producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the financial statements of major producers.

C110X – Manufacture of beverages

This industry comprises several sub-ISIC industries as follows:

ISIC Class Mapping for C110X – Manufacture of beverages
1101 - Distilling, rectifying and blending of spirits
1102 - Manufacture of wines
1103 - Manufacture of malt liquors and malt
1104 - Manufacture of soft drinks; production of mineral waters and other bottled waters

There are several large players in this industry, especially in the rum, beer, and soft drink bottling activities.

Since this industry represents a variety of activities, a variety of source data was used to estimate several sub-categories. Output for this industry is the sum of:

Total Output = Rum + Beer + Bottled Water + Soft Drinks + Other Drinks

Rum production uses administrative data to calculate the output.

Beer production references data on volume of beer produced and applies an average price to this volume. Data was sourced from the Excise Department.

Water production relies on several data sources: census data was used to estimate a local consumption of bottled water, while tourism data was used to estimate sales to non-residents.

Soft drink production uses data on volume production and average prices.

Other drinks are primarily fruit juices, and these are estimated from sales reports of the major companies, tax data and HES information to account for undercoverage.

SUT Element	Value BLZ thousands

Rum	9,092
Beer	73,571
Water	16,238
Soft drinks	55,851
Juices	19,434
Total output	**174,187**
Intermediate consumption	84,532
FISIM	4,504
Value Added	**85,151**
Compensation of employees	28,805

Intermediate consumption was calculated as a fixed ratio of output. The ratio varies depending on the type of product being produced but only varies from 48% to 50%. Ratios were informed using financial statements of major producers and industry reports.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using financial statements of major producers and industry reports.

C16X0 – Manufacture of wood and of products of wood (except furniture)

There are several sawmills operating throughout the country, though there are a few large players which dominate the industry. The mills primarily process pine (33%), Santa Maria (16%) and mahogany (11%).

Output for sawmills was calculated based on data from the Forest Department. Data on board feet production volumes is converted to cubic feet and then multiplied by a price per cubic feet:

Output = cubic feet of production * cubic feet to board feet conversion * price per board foot

SUT Elements	Value BLZ thousands	Data Sources and Methods
Total Output	25,845	Data from Forest Department; method per above
Intermediate Consumption	15,507	Fixed ratio of 60% of output; informed from the BES data
FISIM allocation	338	SUT estimate
Value Added	10,000	Total output less IC
Compensation of Employees	3,651	Fixed ratio of 35% of non-FISIM value added

Intermediate consumption was taken from respondents to the BES coded to this industry.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, based on financial information from the major producer.

C17X0 – Manufacture of paper and paper products

Effectively there are two main producers in this industry making consumer rolls from imported uncut rolls.

Output for the paper manufacturing industry relies on tax data for estimation. A small adjustment for undercoverage is added to the result.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Sales	9,988	Tax data for identified companies
Undercoverage	12	
Total Output	10,000	
Intermediate Consumption	8,237	Fixed ratio of 82% of output; informed via the financial statement of a large producer
FISIM allocation	113	SUT estimate
Value Added	1,650	Total output less IC
Compensation of Employees	1,407	Fixed ratio of 80% of non-FISIM value added

Intermediate consumption was calculated from financial data from the major producer. This data generated a ratio of 82%, which was applied to the output estimate.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, based on financial information from the major producer.

C18X0 – Printing and reproduction of recorded media

Output for the printing industry is a combination of two data sources: government financial data on payments made for printing services (effectively a measure for undercoverage), and tax data for companies identified as belonging to the printing industry.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Government purchases	1,060	From the Recurrent Expenditure of Government, line item 34023: Printing Services
Sales	2,180	Tax data for identified companies
Undercoverage	389	The above items inflated by 12%
Total Output	**3,628**	
Intermediate Consumption	**2,139**	Fixed ratio of 59% of output; informed via the financial statement of a large producer
FISIM allocation	**45**	SUT estimate
Value Added	**1,444**	Total output less IC
Compensation of Employees	**1,109**	Fixed ratio of 74% of non-FISIM value added

Intermediate consumption was calculated from the financial statements of the major producer. This data generated a ratio of 59%, which was applied to the output estimate.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, based on financial information from the major producer.

C20X0 – Manufacture of chemicals and chemical products

This industry is highly concentrated in the production of fertilizer with two dominant players.

Outputs were calculated using administrative data for companies belonging to this industry. No adjustments were made for undercoverage, inventory changes or own consumption.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	35,963	Tax data of identified companies
Intermediate Consumption	29,030	Fixed ratio of 81% of output; informed via the financial statements of the largest producers
FISIM allocation	375	SUT estimate
Value Added	6,558	Total output less IC
Compensation of Employees	2,883	Fixed ratio of 42% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived from the financial statements of the major producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the financial statements of major producers.

C23X0 - Manufacture of other non-metallic mineral products

Outputs for this industry were modelled using data from the Household Expenditure Survey. Data from the BES and administrative files were deemed not of sufficient quality to produce the industry estimates, as such, a proxy was required. The following codes and their values were extracted from the HES data and inflated to account for price changes and population growth between the collection year (2011) and the SUT reference year (2014). Two-thirds of this estimate was added to account for undercoverage.

HES Code	HES Code Description
0431112	Cement Blocks
0431114	White Lime
0432115	General Masonry & Plastering (Material Cost)
0432118	Other repairs and Maintenance (Material Cost)

SUT Elements	Value BLZ thousands	Data Sources and Methods
HES Output	6,239	Modelled using HES data
Undercoverage	4,159	66% of the HES estimate
Total Output	10,398	
Intermediate Consumption	7387	Fixed ratio of 71% of output; informed via BES data
FISIM allocation	113	SUT estimate
Value Added	2,898	Total output less IC
Compensation of Employees	2,716	Fixed ratio of 90% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived from BES data for representative producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the BES and an industry report[7].

C25X0 – Manufacture of fabricated metal products

This industry involves two main activities: welding and prefabricated house construction. Output was calculated separately for each activity.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Sales - metallurgy	18,407	Tax data
Undercoverage – metallurgy	2,000	
Sales - prefab	8,266	Tax data
Undercoverage - prefab	1,734	Based on conversation with major producer
Total Output	**30,407**	
IC	**22,958**	Separate ratios for metallurgy and prefab house construction; Fixed ratio of 78% and 71% respectively from conversations with major producers
FISIM	**225**	SUT estimate
VA	**7,224**	
Compensation of Employees	**3,549**	Fixed ratio of 56% and 36% of non-FISIM value added

[7] Citation needed

Intermediate consumption is a fixed ratio of the calculated output control depending on the type of activity being measured. Both ratios were informed from discussions with major producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from major producers.

C3100 – Manufacture of furniture

Outputs were modelled using data from the Household Expenditure Survey. Data from the BES and tax data were deemed to be not of sufficient quality to produce the industry estimates, as such, a proxy was required. The following codes and their values were extracted from the HES data and inflated to account for price changes and population growth between the collection year (2011) and the SUT reference year (2014).

HES Code	HES Code Description
0511101	Bed
0511102	Sofa
0511103	Couch
0511104	Table
0511105	Chair
0511106	Dining Room Set
0511107	Cupboard
0511108	Chest of Drawers
0511109	Bookshelves
0511110	Door Frame
0511111	Door
0511117	Clothes Closets
0511118	Wardrobes
0511122	Night Chair/Rocking Chair
0511406	Baby high chair
0511992	Other (Living Room)
0511993	Other (Dining Room)
0511994	Other (Bedroom)

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	25,673	Modelled using HES data

Intermediate Consumption	10,936	Fixed ratio of 43% of output; informed via BES data
FISIM allocation	676	SUT estimate
Value Added	14,061	Total output less IC
Compensation of Employees	6,914	Fixed ratio of 47% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived from BES data for representative producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the BES and an industry report[8].

CX000 – All other manufacturing industries

This industry represents a broad collection of industries that are not of core importance to the analysis of the Belizean economy and sufficient data does not exist to estimate them separately. The following table describes the ISIC divisions captured by this industry; a complete mapping file is available upon request.

ISIC Divisions Represented in CX000 - All other manufacturing industries
10 - Manufacture of food products
12 - Manufacture of tobacco products
13 - Manufacture of textiles
14 - Manufacture of wearing apparel
15 - Manufacture of leather and related products
19 - Manufacture of coke and refined petroleum products
21 - Manufacture of basic pharmaceutical products and pharmaceutical preparations
22 - Manufacture of rubber and plastics products
24 - Manufacture of basic metals
26 - Manufacture of computer, electronic and optical products
27 - Manufacture of electrical equipment
28 - Manufacture of machinery and equipment n.e.c.
30 - Manufacture of other transport equipment
32 - Other manufacturing
33 - Repair and installation of machinery and equipment

[8] Citation needed

Despite the wide variety of industries covered, there exist very few establishments engaged in all these activities in the economy as it relates to the business register information available at the time of compilation. As such, the industry primarily models the production activities related to textiles and wearing apparel.

Outputs were modelled using data from the Household Expenditure Survey. Data from the BES and tax data were deemed to be not of sufficient quality to produce the industry estimates, as such, a proxy was required. The following codes and their values were extracted from the HES data and inflated to account for price changes and population growth between the collection year (2011) and the SUT reference year (2014).

HES Code	HES Code Description
0311101	Pants Material
0311102	Dress Material
0311103	Suit Material
0311104	Shirt Material
0311105	Uniform Material School Boys
0311106	Other Men and Boys Material
0311107	Uniform Material for School Girls
0311108	Uniform Material for Work Women
0311109	Other Women and Girls Material
0313201	Sewing thread
0314201	Sewing of men Clothing (Tailor)
0314301	Tailoring Repair
0314501	Men/Boy Tailoring (complete suits)
0314502	Men/Boy Tailoring (pants)
0314503	Men/Boy Tailoring (shirts)
0314504	Men/Boy Tailoring (uniform school)
0314505	Men/Boy Tailoring (other)
0314601	Women/Girl Tailoring (Complete suit)
0314602	Women/Girl Tailoring (Dress/skirt/blouse)
0314603	Women/Girl Tailoring (uniform school)
0314604	Women/Girl Tailoring (uniform work)
0561406	Pins
0561408	Sewing Needle

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	5,754	Modelled using HES data
Intermediate Consumption	4,143	Fixed ratio of 72% of output; informed via the chemical industry data

FISIM allocation	45	SUT estimate
Value Added	1,566	Total output less IC
Compensation of Employees	1,450	Fixed ratio of 90% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived using the chemical industry as a proxy.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added using cement block manufacturing as a proxy.

Electricity, gas, steam and air conditioning supply (ISIC D)

This industry covers establishments engaged in the activity of generating, transmitting or distributing electric power through a network of lines.

Electricity Generation is distributed amongst several local players and received via imports from Mexico. Substantially all this generated electricity is routed through one main provider of electricity.

Output was measured using information from the annual report of the largest company (the distributor). The smaller generators were imputed using volume purchase data described in the annual report of the largest producer.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Large producer	228,060	Revenues from the financial report
Small generators	77,410	Imputed using volume purchases from the financial report
Total Output	**305,470**	
Intermediate Consumption – Large producer	136,560	Expense information from the financial reports; includes purchased power
Intermediate Consumption – small generators	50,669	Imputed using fixed ratio of 65% of output based on tax data
Total Intermediate Consumption	**187,229**	
FISIM allocation	11,259	SUT estimate
Value Added	**106,982**	Total output less IC

Compensation of Employees	21,891	Measured directly for the large producer, imputed for the small generators

Intermediate consumption was calculated using data from the financial statement of the largest producer and via imputation from a donor for the small generators. Tax data was used for the donor. Similar methodology and relevant expense items as described in the "Building Controls from the BES" section were employed. Note that purchased power is not netted out against the revenues of the electricity industry. The result is that this industry appears to use a lot of electricity – when in fact most power purchases are ultimately routed to final consumers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated directly from financial information for the largest player. Tax data for a donor was used for the smaller generators

Water supply; sewerage, waste management and remediation activities (ISIC E)

Establishments in this industry are engaged in providing water supply and waste management services to final consumers.

There is effectively one large producer in each of water supply and waste management. Data was taken directly from the financial statements of these entities in calculating the SUT controls. There are several small players where tax data was used to supplement the core estimates. However, the omission of rural producers of water supply was recognized (i.e. Rural Water Boards).

SUT Elements	Value BLZ thousands	Data Sources and Methods
Water	43,333	Revenues from financial report of the major supplier and tax data for secondary producer
Waste	5,487	Revenues from financial report of producer
Total Output	**48,820**	
Intermediate Consumption – Water	19,670	Expense information from the financial reports
Intermediate Consumption – Waste	3,556	Expense information from the financial reports
Total Intermediate Consumption	**23,225**	

FISIM allocation	1,126	SUT estimate
Value Added	**24,469**	Total output less IC
Compensation of Employees	11,045	Measured directly from financial information

Intermediate consumption was calculated directly from financial statements of the companies involved. Tax data was used for the one small supplier of water. Similar methodology and relevant expense items as described in the "Building Controls from the BES" section was employed.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated directly from financial information.

Construction (ISIC F)

This industry includes general and specialized construction activities for buildings and civil engineering works. It also includes new work, repair, additions, alteration and erection of prefabricated buildings or structures on the site and also construction of a temporary nature.

Output for the construction industry is very hard to estimate given the perceived level of undercoverage in most data. This challenge is not unique to Belize, nor in advanced economies or larger statistical agencies. As such, the convention is to build the estimates from relatively stronger data on material costs (where the country requires a lot of imports in the process of production), government investment information (where government has a large impact on investment) and financial data on the total value of the construction projects – the capitalized costs approach.

The following table delineates the output valuation for several categories of final investment (Residential construction (GFCF-COH), Non-residential construction by private enterprises (GFCF-COG), Non-residential construction by government (GFCF-COG)) and for the four main SUT construction products (Non-residential buildings, civil engineering works, residential buildings, and construction services).

BLZ_FND Code	BLZ_SUT Product	Construction Estimation Category	Value BLZ thousands	Data sources and methods
GFCF-COG	F5312X - Non-residential Buildings	Buildings	50,944	data source = government investment data; mostly building projects

	F532X0 - Civil Engineering Works	Infrastructure-utilities, sanitation and roadwork	205,306	data source = government investment data; primarily for water and sanitation projects
GFCF-COB	F532X0 - Civil Engineering Works	Land improvement	7,511	new acres harvested * cost per acre
		New Non-Residential Construction - Other	18,181	Based on imports data of materials
	F5312X - Non-residential Buildings	New Non-Residential Construction - Tourism, Building and Construction, Real Estate	14,589	Based on loans data by industry coded as "commercial"
		Undercoverage	3,647	Added 25% of loans estimate
GFCF-COH	F5311X - Residential Buildings	Residential building improvements	35,247	based on several COICOP from 2011 HES (mostly 04311* and 04321*), i.e. household consumption, inflated (i.e. price adjusted), and volume adjusted (by the population growth)
		New Residential Construction - Building and Construction	15,352	Based on loans data by industry coded as "residential"
		New Residential Construction - Real Estate	16,308	Based on loans data by industry coded as "residential"
		Undercoverage - residential	10,036	Added 15% of other estimates of GFCF-COH
N/A (IC only)	F54X00 - Construction Services	Repair construction	18,075	represents non capitalized minor repairs by businesses and households
Total Output			**395,196**	

Residential construction is made up of estimates of new construction and renovations. New construction uses loan information. Renovations use HES expenditures.

Non-residential construction from the corporate sector was modelled from loan data, then inflated to account for undercoverage. In addition, 2014 includes a specific adjustment for the construction of the Santander sugar mill. This estimate was modelled from international imports data, confronted by information from Beltraide.

Government sector construction is based off of information received from the Ministry of Investment.

The approach documented above was compared with several other methods to validate its appropriateness. The data was compared with the current GDP compilation system, data from the BES, a model using entirely customs imports data, and using information from the LFS.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	395,196	See above
Intermediate Consumption	220,125	Fixed ratio of 62% of output; informed via the BES, other SUTs and the GDP compilation system
FISIM allocation	29,981	SUT estimate
Value Added	145,090	Total output less IC
Compensation of Employees	94,630	Fixed ratio of 45% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived using the BES data to inform the estimate.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added using other SUTs to inform the estimate.

Wholesale and retail trade; repair of motor vehicles and motorcycles (ISIC G)

This section includes wholesale and retail sale of any goods and the rendering of services incidental to the sale of the goods. Additionally, it includes the sale and repair of motor vehicles and motorcycles.
In this sector of the economy in Belize, the following are of national interest and have been highlighted as focus areas in the compilation of the national accounts estimates.

1. **Wholesale and retail and repair of motor vehicles and motorcycles (ISIC G45)**
    a. The products of interest are Wholesale services (CPC 61)
    b. The products of interest are Retail trade services (CPC 62)

c. Maintenance and Repair of Transport equipment (CPC 87)

The following table details the source where the information will feed into the proposed national account estimates.

ISIC class	Source	Comments
Wholesale and retail trade and repair of motor vehicles and motorcycles (ISIC G45)	Business Establishment Survey, Income Tax Authority, Labor Force Survey	From the Business Establishment Survey of 2016, a total of 4064 establishments were surveyed. Low response rate for the revenue and expenditure component of the questionnaire. Note additionally that large importers that did not respond were imputed with the revenue information from the income tax and given a weight of 1.

Output: From the Business Establishment Survey utilizing the weighted information from the revenues and expenditures questionnaire.

SUT Elements	**Value BLZ thousands**	**Data Sources and Methods**
Wholesale trade services	782,803	Information obtained from BES
Maintenance, repair and installation services	69,943	Information obtained from BES
Total Output	**852,746**	
Intermediate Consumption	**211,372**	Fixed ratio of 25% of output; informed via the BES.
FISIM allocation	**28,150**	SUT estimate
Value Added	**613,224**	Total output less IC
Compensation of Employees	**178,446**	Fixed ratio of 28% of non-FISIM value added

Output was computed as Margin (goods sold- cost of goods sold) plus other income. It was estimated at the company level and then weighted up.

A ratio for **intermediate consumption** was derived from the expense composition of the Business Establishment survey, (note that cost of goods sold is not included as it is part of the estimation of the margin). This ratio was applied to the estimated output per company and then weighted up.

Transportation and storage (ISIC H)

This section includes the provision of passenger or freight transport by road, water or air and associated activities such as terminal and parking facilities, cargo handling, storage, this includes the renting of transport equipment with driver or operators. It includes postal and courier activities.

In this sector of the economy in Belize, the following are of national interest and have been highlighted as focus areas in the compilation of the national accounts estimates.

a.

ISIC class	Source	Comments
Land transport (ISIC H49)	Ministry of Transport, National Registry of Cooperatives, LFS, BES	Financial Statements, Registration of Vehicles by type of plates
Water transport (ISIC H50)	Income tax, Social Security, Port Authority of Belize	Financial Statements, Registration of boats, number of passengers
Air transport (ISIC H51)	Civil Aviation, Income Tax, Social Security	Financial Statements, number of passengers
Warehousing and support activities for transportation (ISIC H52	Business Register, Social Security of Belize, Income Tax	Financial Statements and Number of persons employed
Postal and courier activities (ISIC H53)	Business Register, Social Security of Belize, Belize Postal Service	Financial Statements

H49X0 – Land transport

This industry covers three major types of land transportation services: taxi, bus and freight transport services. Each were measured separately and then combined to form the total industry estimate. Thus, output is:

Total output = Taxi output + Bus output + Freight output

Taxi output relies on counts of registered taxis data received from the Ministry of Transport, an estimate of the average revenue per day and an assumption for the number of operational days, for the year 2008:

2008 Estimate = Registered vehicles * Average revenue * Operational days
Taxi Output= 2008 Estimate * Implicit Index * CPI

Variable	Value BLZ thousands	Data Sources and methods
Number of taxis	3,209	Ministry of Transport; 2008 estimate
Average per day revenue	44	Average Rental Cost

Operational days	330	Remove holidays
2008 Estimate	**46,134**	Number * revenue * days
Implicit Index (2014/2008)	**1.26**	Index based on the movement from 2008 to 2014 of vehicle registration(taxi), Population, Overnight Tourist Visitors.
CPI (2014/2008)	**1.19**	CPI change 2014 to 2008
Total Taxi Output	**68,978**	2008 Estimate * Implicit Index* CPI

Bus output relies on an assumption of operational days, the number of bus routes, average fares, average bus capacity, for the year 2008:

2008 Estimate = Number of routes * Average capacity * Average fare * Operational days

Bus Output= 2008 Estimate*implicit index*CPI

Variable	**Value BLZ thousands**	**Data Sources and methods**
Bus routes	174	
Bus capacity	54	
Average bus fare (round trip)	14	
Operational days	330	
2008 Estimate	**42,437**	
Implicit Index (2014/2008)	**1.26**	Index based on the movement from 2008 to 2014 of vehicle registration(bus), Population, Overnight Tourist Visitors.
CPI (2014/2008)	**1.19**	CPI change 2014 to 2008
Total Bus output	**63,450**	2008 Estimate * Implicit Index*CPI

Freight output was calculated using tax data revenues for the set of companies identified as part of this industry from the SSB. Where a company had missing tax revenue, it was imputed based on the available companies with tax revenue and similar employment size.

Intermediate consumption was calculated as a fixed ratio of output. The ratio varies depending on the type of service (42% for taxis, 47% for busing and freight). Ratios were informed using the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output. The ratio varies depending on the service: 96% for taxies and 90% for the other services.

SUT Element	Value BLZ thousands	Data Sources and methods
Taxi	**68,978**	Per above
Bus	**63,450**	Per above
Freight	21,411	Revenues for identified companies from tax data
Total output	**153,839**	
Intermediate consumption	**68,681**	Ratio of 42% of output for taxies; 47% for buses and freight; ratios from BES data
FISIM	6,394	SUT estimate
Value Added	**78,764**	
Compensation of employees	70,788	Ratio of 96% of non-FISIM value added for taxies; 90% for buses and freight; ratios from BES data

H50X0 – Water transport

This industry comprises establishments involved in either (or both) freight and passenger transportation services by water.

Output was computed directly from the reported revenue to the Income Tax Authority. From the Income Tax and Social Security data, companies involved in water transport were identified. The employment number was identified from either the Social Security or Income Tax data. From income tax, the reported revenue by company was assessed against the reported employment of the company. Thus, a ratio of revenue per employee was created per company and if necessary (that is if the revenue per employee is below the expected salary range as observed in the LFS) it was adjusted. Where a company did not report the revenue, then the expected revenue was derived from a company with similar employment characteristics. Thus, borrowing the ratio from this company, we could arrive at an expected revenue of the company with a missing reported revenue. The total output is the sum of revenue obtained from all companies identified.

A ratio for **Intermediate Consumption** was derived utilizing the information from Financial statements of some of the companies involved in the activities. These reports were obtained at the Income Tax Department. The ratio was then applied to the estimated output of each activity.

A ratio for **Compensation of Employees** was derived utilizing the information from Financial statements of some of the companies involved in the activities. These reports were obtained at

the Income Tax Department. The ratio was then applied to the estimated value added of each activity.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Local water transport	28,802	Information obtained from Tax authority
Water transport services of freight	9,354	Information obtained from Tax authority
Total Output	**38,156**	
Intermediate Consumption	**14,102**	Fixed ratio of 37% of output; informed via the Financial statement.
FISIM allocation	**955**	SUT estimate
Value Added	**23,099**	Total output less IC
Compensation of Employees	**6,343**	Fixed ratio of 26% of non-FISIM value added

H51X0 – Air transport

Output was computed directly from the reported revenue to the Income Tax Authority. Additionally, from the Income Tax Authority, a global summary was generated on revenues by domestic airlines, this value was compared to the sum of all revenues reported by domestic airlines identified. Where the value on this report was higher than the sum of the companies, then the value of the summary became the output. The value was further adjusted to include the revenue reported by incorporated international airlines to the country of Belize. This adjustment was estimated directly from the reported revenue of these companies to the income tax authority. Thus, total output = output of domestic + adjustment.

A ratio for **Intermediate Consumption** was derived utilizing the information from financial statements of some of the companies involved in the activities. These reports were obtained at the Income Tax Department or from industry reports. The ratio was then applied to the estimated output of each activity.

A ratio for **compensation of Employees** was derived utilizing the information from financial statements of some of the companies involved in the activities. These reports were obtained at the Income Tax Department or from Industry reports. The ratio was then applied to the estimated value added.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Total Output	**62,901**	Information obtained from Tax authority

Intermediate Consumption	**31,200**	Fixed ratio of 50% of output; informed via the Financial statement.
FISIM allocation	**855**	SUT estimate
Value Added	**30,846**	Total output less IC
Compensation of Employees	**15,120**	Fixed ratio of 48 % of non-FISIM value added

H52X0 – Warehousing and support activities for transportation

From the Income Tax and Social Security, companies involved in warehousing and support activities of transportation were identified. Output was computed directly from the reported revenue to the Income Tax Authority. Based on conversation with the Central Bank it was noted that the credit item on air transportation comes from the entity that manages the international airport. Thus, this value is included to be a part of the output.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Total Output	**82,922**	Information obtained from Tax authority and BOP
Intermediate Consumption	**33,029**	Fixed ratio of 40% of output; informed via the Financial statement.
FISIM allocation	**2,308**	SUT estimate
Value Added	**47,585**	Total output less IC
Compensation of Employees	**23,151**	Fixed ratio of 46 % of non-FISIM value added

A ratio for **Intermediate Consumption** was derived utilizing the information from financial statements of some of the companies involved in the activities. These reports were obtained at the Income Tax Department or industry reports. The ratio was then applied to the estimated output of each activity.

A ratio for **Compensation of Employees** was derived utilizing the information from financial statements of some of the companies involved in the activities. These reports were obtained at the Income Tax Department or industry reports. The ratio was then applied to the estimated value added.

H53X0 – Postal and courier activities

From the Income Tax and Social Security, companies involved in warehousing and postal and courier activities were identified. Output was computed directly from the reported revenue to the Income Tax Authority. It was determined that the Postal Service of Belize should be measured as a part of postal and courier activities (like the approach taken in the previous SNA system for Belize) and not government. The output was derived from the Government Finance Statistics on

the amount spent by the government on this department. Thus, this value was included to be a part of the output.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Courier services	1,394	Information obtained from Tax authority
Postal services	4,011	Expenditure on government postal service.
Total Output	**5,405**	
Intermediate Consumption	**1,860**	Fixed ratio of 34% of output; informed via the Financial statement.
FISIM allocation	**169**	SUT estimate
Value Added	**3,376**	Total output less IC
Compensation of Employees	**2,811**	Fixed ratio of 95% of non-FISIM value added

A ratio **for Intermediate Consumption** was derived utilizing the information from financial statements or distribution of expenses report. These reports were obtained at the Income Tax Department and from the Government Finance Statistics. The ratio was then applied to the estimated output of each activity.

A ratio for **Compensation of employees** was derived utilizing the information from financial statements or distribution of expenses report. These reports were obtained at the Income Tax Department and from the Government Finance Statistics. The ratio was then applied to the estimated value added.

Accommodation and food service activities (ISIC I)

This industry grouping includes the provision of short-stay accommodation for visitors and other travelers and the provision of meals and drinks for consumption. This section excludes the provision of long-term accommodation as primary residence which is classified as real estate activities (ISIC L). It also excludes the preparation of food or drinks that are either not fit for immediate consumption or that are sold through independent distribution channels, i.e. through retail trade activities.

I56X0 – Accommodation

From the Balance of Payments, total tourist travel expenditure was obtained. It entails overnight visitor expenditure and cruise ship visitor expenditure. From the overnight visitor expenditure and by utilizing a ratio derived from Visitor Motivation Expenditure Survey (which is a monthly survey to arrive to total tourism expenditure, executed by the Statistical Institute of Belize for the Central Bank of Belize and the Belize Tourism Board) we derived the total expenditure on accommodation and food and beverage services incurred by the overnight visitors. Also, from the

VEMS, a ratio was derived to differentiate the expenditure between accommodation services and food and beverage services.

Thus, arriving at the overnight visitor expenditure on accommodation services and overnight visitor expenditure on food and beverage services.

From the Household Expenditure Survey of 2008 an estimate was taken on other types of accommodations reported by households. This value was adjusted for inflation and population growth.
Total output for accommodation is the sum of the overnight visitor expenditure on accommodation services (derived from the BOP) and the estimated value from the HES.

Note: The output of accommodation services could have been derived also utilizing hotel statistics produced by the Belize Tourism Board: average room price, total number of rooms and average occupancy rate.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Total Output	**309,459**	Balance of Payment, Central Bank, BTB, VEMS
Intermediate Consumption	**159,373**	Fixed ratio of 52% of output; informed via the Financial statement.
FISIM allocation	**9,008**	SUT estimate
Value Added	**141,078**	Total output less IC
Compensation of Employees	**95,303**	Fixed ratio of 63 % of non-FISIM value added

A ratio for **Intermediate Consumption** was derived utilizing the information from financial statements of some of the companies involved in the activities. These reports were obtained at the Income Tax Department. The ratio was then applied to the estimated output of each activity.

A ratio for **Compensation of Employees** was derived utilizing the information from financial statements of some of the companies involved in the activities. These reports were obtained at the Income Tax Department. The ratio was then applied to the estimated value added of each activity.

I57X0 – Food and beverage services

From the Household Expenditure Survey of 2008 an estimate was derived on the consumption of food and beverage products away from home by the Belizean population. This value was adjusted for inflation and population growth. The values from the survey only accounted for one component of the output of restaurants and bars.
From the Balance of Payments, total tourist travel expenditure was obtained. Which is composed of overnight visitor expenditure and cruise ship visitor expenditure. From the overnight visitor expenditure and utilizing a ratio derived from Visitor Motivation Expenditure Survey (which is a monthly survey to arrive to total tourism expenditure, executed by the Statistical Institute of

Belize for the Central Bank of Belize and the Belize Tourism Board) we derived the total expenditure on accommodation and food and beverage services incurred by the overnight visitors. Also, from the VEMS a ratio was derived to differentiate the expenditure between accommodation services and food and beverage services.

Thus, arriving at the overnight visitor expenditure on accommodation services and overnight visitor expenditure on food and beverage services.

In the same manner the expenditure of cruise ship visitors on food and beverage services, is arrived at by the use of a ratio derived from the VEMS to the total cruise visitor expenditure.

Total output for food and beverage services is the sum of the tourist expenditure (cruise and overnight visitor) on food and beverage services plus the estimated value from the HES.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Total Output	**205,181**	HBS and BTB
Intermediate Consumption	**114,208**	Fixed ratio of 56% of output; informed via the Financial statement.
FISIM allocation	**6,193**	SUT estimate
Value Added	**84,780**	Total output less IC
Compensation of Employees	**58,337**	Fixed ratio of 64 % of non-FISIM value added

A ratio for **Intermediate Consumption** was derived utilizing the information from financial statements of some of the companies involved in the activities. These reports were obtained at the Income Tax Department or from the Business Establishment Survey. The ratio was then applied to the estimated output of each activity.

A ratio for **Compensation of Employees** was derived utilizing the information from financial statements of some of the companies involved in the activities. These reports were obtained at the Income Tax Department or from the Business Establishment Survey. The ratio was then applied to the estimated value added of each activity.

Information and communication (ISIC J)

Establishments in these industries are involved in the production and distribution of information and cultural products, the provision of the means to transmit or distribute these products, as well as data or communications, information technology activities and the processing of data and other information service activities.

The Belize SUT separates this ISIC class into six aggregates as follows:

Belize SUT Industries

J58X0 - Publishing activities
J59X0 - Motion picture, video and television programme production, sound recording and music publishing activities
J6010 - Radio broadcasting
J6020 - Television programming and broadcasting activities
J61X0 - Telecommunications
J6X00 - Computer programming and other information activities

J58X0 – Publishing activities

This industry covers a variety of publishing houses.

ISIC Class Mapping for J58X0 – Publishing activities
5811 - Book publishing
5812 - Publishing of directories and mailing lists
5813 - Publishing of newspapers, journals and periodicals
5819 - Other publishing activities
5820 - Software publishing

Output was computed first by identifying companies producing cultural products in the Income Tax and Social Security data. The employment number was identified from either the Social Security or Income Tax data. From Income Tax, the reported revenue by company was assessed against the reported employment of the company. This created a ratio of revenue per employee per company. If this value was below the expected salary range as observed in the LFS it was adjusted. Where a company did not report the revenue, then the expected revenue was derived from a company with similar employment characteristics. The total output was calculated as the sum of revenue obtained from all companies identified.

The total output was adjusted for underreporting by 10 percent.

SUT Elements	**Value BLZ thousands**	**Data Sources and Methods**
Output	5,340	Per above
Intermediate Consumption	2,477	Fixed ratio of 46% of output; informed via BES data for a key respondent
FISIM allocation	113	SUT estimate
Value Added	2,750	Total output less IC
Compensation of Employees	2,300	Fixed ratio of 52% of non-FISIM value added

A ratio of **intermediate consumption** was derived from financial statements of some companies obtained from the income tax authority. This ratio was applied to the derived output per activity.

A ratio of **compensation of employees** was derived from financial statements of some companies obtained from the income tax authority. This ratio was applied to the derived value added per activity.

J59X0 – Motion picture, video and television programme production, sound recording and music publishing activities

This industry covers a variety of video production activities.

ISIC Class Mapping for J59X0 – Motion picture, video and television programme production, sound recording and music publishing activities
5911 - Motion picture, video and television programme production activities
5912 - Motion picture, video and television programme post-production activities
5913 - Motion picture, video and television programme distribution activities
5914 - Motion picture projection activities
5920 - Sound recording and music publishing activities

Output was computed first by identifying companies producing cultural products in the Income Tax and Social Security data. The employment number was identified from either the Social Security or Income Tax data. From Income Tax, the reported revenue by company was assessed against the reported employment of the company. This created a ratio of revenue per employee per company. If this value was below the expected salary range as observed in the LFS it was adjusted. Where a company did not report the revenue, then the expected revenue was derived from a company with similar employment characteristics. The total output was calculated as the sum of revenue obtained from all companies identified.

The total output was adjusted for underreporting by 30 percent.

SUT Elements	**Value BLZ thousands**	**Data Sources and Methods**
Output	6,090	Per above
Intermediate Consumption	1,428	Fixed ratio of 23% of output; informed via tax data for a key respondent
FISIM allocation	169	SUT estimate
Value Added	4,493	Total output less IC
Compensation of Employees	2,884	Fixed ratio of 48% of non-FISIM value added

A ratio of **intermediate consumption** was derived from financial statements of some companies obtained from the income tax authority. This ratio was applied to the derived output.

A ratio of **compensation of employees** was derived from financial statements of some companies obtained from the income tax authority. This ratio was applied to the derived value added.

J6010 – Radio broadcasting

From the Income Tax and Social Security data, companies involved in radio were identified. The employment number was identified from either the Social Security or Income Tax data. From Income Tax, the reported revenue by company was assessed against the reported employment of the company. A revenue per employee was created per company and if necessary, it was adjusted. Where a company did not report the revenue, then the expected revenue was derived from a company with similar employment characteristics. The total output was calculated as the sum of revenue obtained from all companies identified.

The total output of ratios was adjusted by 16% for underreporting.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	5,159	Per above
Intermediate Consumption	1,572	Fixed ratio of 30% of output; informed via BES data for a key respondent
FISIM allocation	113	SUT estimate
Value Added	3,474	Total output less IC
Compensation of Employees	2,884	Fixed ratio of 56% of non-FISIM value added

A ratio of **intermediate consumption** was derived from financial statements of some companies obtained from the income tax authority. This ratio was applied to the derived output per activity.

A ratio of **compensation of employees** was derived from financial statements of some companies obtained from the income tax authority. This ratio was applied to the derived value added per activity.

J6020 – Television programming and broadcasting activities

The output was derived from the reported revenue by company to the Income Tax authority. Alternatively, this could be estimated utilizing the information from the population census on households that indicated that they had cable. Similarly, it could be verified with the expenditure reported by households on cable from the HES of 2008 and adjusting this output for the provision to other customers else than households.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	49,133	Per above
Intermediate Consumption	26,118	Fixed ratio of 53% of output; informed via the financial statements of the largest producers
FISIM allocation	2,252	SUT estimate
Value Added	20,763	Total output less IC
Compensation of Employees	8,425	Fixed ratio of 37% of non-FISIM value added

A ratio of **intermediate consumption** was derived from financial statements of some companies obtained from the income tax authority. This ratio was applied to the derived output per activity.

A ratio of **compensation of employees** was derived from financial statements of some companies obtained from the income tax authority. This ratio was applied to the derived value added per activity.

J61X0 – Telecommunications

Outputs were calculated using administrative data for companies belonging to this industry. No adjustments were made for under coverage, inventory changes or own consumption.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	203,576	Tax data of identified companies
Intermediate Consumption	71,929	Fixed ratio of 35% of output; informed via the financial statements of the largest producers
FISIM allocation	9,008	SUT estimate
Value Added	122,639	Total output less IC
Compensation of Employees	33,664	Fixed ratio of 17% of non-FISIM value added

Intermediate consumption is a fixed ratio of the calculated output control derived from the financial statements of the major producers.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated as a fixed ratio of non-FISIM value added, again using information from the financial statements of major producers.

J6X00 – Computer programming and other information activities

From the Income Tax and Social Security data, companies involved in computer programming or provision of data services were identified. The employment number was identified from either the Social Security or Income Tax data. From Income Tax, the reported revenue by company was assessed against the reported employment of the company. Thus, a ratio of revenue per employee was created per company and if necessary (that is if the revenue per employee was below the expected salary range as observed in the LFS), it was adjusted. Where a company did not report the revenue, then the expected revenue was derived from a company with similar employment characteristics. Thus, borrowing the ratio from this company, we arrived at an expected revenue of the company with a missing reported revenue. The total output was calculated as the sum of revenue obtained from all companies identified. The total output was adjusted for non-observed activity by 20 percent. An estimate for the output of informal internet cafés was also included.

SUT Elements	Value BLZ thousands	Data Sources and Methods

Output	19,949	Tax data of identified companies
Intermediate Consumption	2,433	Fixed ratio of 12% of output; informed via the financial statements
FISIM allocation	676	SUT estimate
Value Added	16,840	Total output less IC
Compensation of Employees	5,975	Fixed ratio of 30% of non-FISIM value added

A ratio of **intermediate consumption** was derived from financial statements of some companies obtained from the income tax authority or from the Business Establishment Survey. This ratio was applied to the derived output per activity.

A ratio of **compensation of employees** was derived from financial statements of some companies obtained from the income tax authority or from the Business Establishment Survey. This ratio was applied to the derived value added per activity.

Financial and insurance activities (ISIC K)

This section includes financial service activities, including insurance, reinsurance and pension funding activities and activities to support financial services. It also includes activities of holding companies and trusts and similar financial entities.

Four groups of ISIC divisions have been deemed important to distinguish in the Belize economy:

Belize SUT Industries
K6411 - Central banking and other monetary intermediation
K6419 - Other monetary intermediation
K65X0 - Insurance, reinsurance and pension funding, except compulsory social security
K6X00 - Other activities related to financial service and insurance activities

K6411 - Central banking and other monetary intermediation

Following the recommendation on the treatment to the central bank from the SNA 2008, the Central Bank of Belize was treated as a non-market producer (See SNA 2008 paragraph 6.152), similar to the methodology of the previous SNA for Belize. In this respect the output of the central bank is estimated as the sum of the costs.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	16,964	Financial Statement
Intermediate Consumption	6,500	Fixed ratio of 38% of output; informed via the financial statements
FISIM allocation	0	SUT estimate
Value Added	10,464	Total output less IC

Compensation of Employees	9,513	Fixed ratio of 91% of non-FISIM value added

K6419 - Other monetary intermediation

Financial service activities:

The Central Bank of Belize is responsible for regulating all banks and financial institutions licensed under the Domestic Banks and Financial Institutions Act (DBFIA) and the International Banking Act (IBA), credit unions registered under the Credit Unions Act (CUA), moneylenders licensed under the Moneylenders Act (MLA), and remittance service providers legislated by the National Payment System (NPS) Act. Thus, most of the information is obtained from the Central Bank of Belize.

Commercial Banks and International Banks:

The financial intermediaries provide services for which they do not charge explicitly. They apply different rates of interest to borrowers and lenders (and to different categories of borrowers and lenders). The intermediaries pay lower rates of interest to depositors than they charge on loans. This scheme of interest makes it possible for the financial intermediaries not to charge their customers individually for the services involved in the financial intermediation. In this situation, the national accounts must use an indirect measure of the value of these services. This is labelled the financial intermediation services indirectly measured (FISIM). Following the recommendations given by the SNA 2008, A3.24-27

The method for calculating financial intermediation services indirectly measured, widely known as FISIM, has been refined in the light of experience in implementing the 1993 SNA recommendations. By convention the 2008 SNA recommends that FISIM be applied only to loans and deposits and only when those loans and deposits are provided by, or deposited with, financial institutions. The 2008 SNA calculates the output of FISIM on loans (yL) and deposits (yD) only, using a reference rate (rr). Assuming that these loans and deposits attract interest rates of rL and rD respectively, the output of FISIM should be calculated according to the formula (rL - rr) yL + (rr - rD) yD.

Financial intermediaries also provide various financial or business services for which they charge a fee or commission. Also, some of the intermediation services are charged explicitly. The output of such services is valued based on the value of these charges as for other services.
In summary the output of financial intermediaries in Belize's national accounts is measured as

= FISIM
+ other income (Commissions and fees explicitly charged)
= OUTPUT

Credit Unions:

Credit unions have only recently been allowed to take deposits and so far, interest paid makes up a small share of output. The depositors get shares in the union their return takes the form of dividends. Thus, an explicit measure for FISIM is suggested to be taken as a proportion of the

interest income. Following the methodology from the Belize previous SNA base 2000, we assume that this rate to be 50%.

In summary the output measure for credit unions is as follows:
FISIM (Interest Income * 0.5) + other Income (Commissions and fees explicitly charged)

Development Finance Corporation:

The development finance corporation is Belize's only Development Bank. Its purpose is to support the strengthening and expansion of Belize's economy by providing developmental financing on an economically sustainable and environmentally acceptable basis to individuals, businesses and organizations. DFC is not a cash-deposit Bank. The Corporation accesses financing from larger regional and international lending institutions at attractive rates for lending to Belizeans citizens, residents, companies, cooperatives and other bodies with Belizean majority share interest.
Output is estimated following the recommendation of the SNA 2008, A3.24-27.
Output= FISIM + Other Income

SUT Elements	Value BLZ thousands	Data Sources and Methods
Credit Unions	57,298	
Commercial Banks	255,367	
International banks	72,704	
DFC	8,689	
Output	**394,058**	Central Bank provided consolidated financial statements of these institutions
Credit Unions	5,601	Fixed ratio of 10% of output; informed via the financial statements
Commercial Banks	53,945	Fixed ratio of 21% of output; informed via the financial statements
International banks	16,872	Fixed ratio of 23% of output; informed via the financial statements
DFC	2,006	Fixed ratio of 23% of output; informed via the financial statements
Intermediate Consumption	**78,424**	
Credit Unions	6,808	Fixed ratio of 13% of non-FISIM value added
Commercial Banks	52,569	Fixed ratio of 26% of non-FISIM value added
International banks	8,722	Fixed ratio of 16% of non-FISIM value added
DFC	5,031	Fixed ratio of 75% of non-FISIM value added
FISIM allocation	**9,152**	SUT estimate
Value Added	**306,482**	Total output less IC
Compensation of Employees	**73,130**	

K65X0 - Insurance, reinsurance and pension funding, except compulsory social security

The office of the supervisor of insurance and pensions is responsible for the oversight of insurance sector. In which the department reviews annual financial statements submitted by insurers and intermediaries.

Non-Life Insurance:
Following the recommendation of the SNA 2008, 6.185. Output was estimated as follows:
Output= Total premiums earned plus premium supplements less adjusted claims incurred.

Life Insurance:
Following the recommendation of the SNA 2008, 6.195. Output was estimated as follows:
Output= Premiums earned plus premium supplements, less benefits due, less increases (plus decreases) in life insurance technical reserves.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Life-life	21,400	
Life-non-life	8,810	
General-life	2,668	
General-nonlife	83,331	
Output	**116,209**	Financial Statement
Life-life	15,151	Fixed ratio of 71% of output; informed via the financial statements
Life-non-life	5,047	Fixed ratio of 57% of output; informed via the financial statements
General-life	1,809	Fixed ratio of 68% of output; informed via the financial statements
General-nonlife	66,528	Fixed ratio of 80% of output; informed via the financial statements
Intermediate Consumption	**88,535**	
FISIM allocation	**1,914**	SUT estimate
Value Added	**25,760**	Total output less IC
Compensation of Employees	**11,968**	Fixed ratio of 43% of non-FISIM value added

K6X00 - Other activities related to financial service and insurance activities

From the Financial Statement of Insurance, we obtained an estimate for the auxiliary services to insurance that is the activity of agents. The value to estimate the output was commissions paid for both life and non-life insurance. This was adjusted by also incorporating other auxiliary services for financial activities by considering the information from the income tax authority on these types of companies.

Output = commissions paid+ revenue (of other auxiliary financial services; from tax)

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	**10,023**	Per above
Intermediate Consumption	**5,358**	Fixed ratio of 53% of output; informed via the financial statements
FISIM allocation	**146**	SUT estimate
Value Added	**4,519**	Total output less IC
Compensation of Employees	**3,697**	Fixed ratio of 79% of non-FISIM value added

Intermediate consumption was estimated directly from the reported financial statements by type of activity.

Value Added:

Generally, the value added is estimated as = Output – Intermediate Computation

Compensation of Employees:

The value was estimated directly from the reported financial statements by type of activity.

Real estate activities (ISIC L)

This section includes acting as lessors, agents and or brokers in one or more of the following: selling or buying of real estate, renting real estate, providing other real estate services such as appraising real estate or acting as a real estate agent. Activities in this section may be carried out on own or leased property and may be done on a fee or contract basis.

L68X0 – Real estate activities

This industry covers two major activities: household property rental by tenants of leased facilities and other activities related to real estate (such as real estate agents, non-residential property rental).

Output for other real estate activities utilized the social security file to build a list of companies that form the population for estimation. Revenues from the administrative files were added to arrive at total output.

For household rental payments, the population census of 2010 information was used. A question on tenure of the household unit was utilized. This question allowed us to identify the households that reported to be homeowners, or renters. This was further tabulated by district and urban and rural. From the Consumer Price Index survey, the average rental price of a household was obtained by district and urban area. By district the rural price was estimated to be lower than the respective urban average of the district. The output was derived by multiplying the number of households reporting to have been renting by the average price per area. This value then should be adjusted to incorporate the growth in the stock of houses, by comparing the stock of 2010 against the reported estimates from the Labor Force survey of 2014. This should be grossed up by 7 percent.

Type	Region	Stock	Rental Price per Month	Yearly Valuation	Value BLZ thousands	Sources and methods
Rural	Corozal	799	200	12	1,917	Census stock, inflated by population growth; price from CPI
	Orange Walk	788	200	12	1,892	Census stock, inflated by population growth; price from CPI
	Belize	1,423	315	12	5,380	Census stock, inflated by population growth; price from CPI
	Cayo	795	230	12	2,194	Census stock, inflated by population growth; price from CPI
	Stann Creek	1,214	210	12	3,058	Census stock, inflated by population growth; price from CPI
	Toledo	426	200	12	1,021	Census stock, inflated by population growth; price from CPI

Urban	Corozal	796	240	12	2,294	Census stock, inflated by population growth; price from CPI
	Orange Walk	931	250	12	2,793	Census stock, inflated by population growth; price from CPI
	Belize	8,242	315	12	31,157	Census stock, inflated by population growth; price from CPI
	Cayo	2,844	300	12	10,237	Census stock, inflated by population growth; price from CPI
	Stann Creek	1,214	210	12	3,058	Census stock, inflated by population growth; price from CPI
	Toledo	446	240	12	1,283	Census stock, inflated by population growth; price from CPI
Rental output sub-total					66,283	sum of above
Real Estate Agents					30,979	Revenues from administrative data
Total Output					**97,262**	
Intermediate consumption					**32,538**	Ratio of 34% of output; informed via the BES
FISIM					**5,630**	SUT estimate
Value added					**59,094**	
Compensation of employees					**9,464**	Ratio of 10% of non-FISIM value added; informed via the BES

Intermediate consumption was derived as a fixed ratio of 39% of output. The ratio was calculated using a representative respondent's information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output.

X6800 – Owner occupied dwellings

This industry is very unique and is a very large addition to the Belize macroeconomic statistics. It is a requirement for complete measurement of the economic activity of an economy. It represents the effective payments made by families who own their homes. Generally speaking, one can think of this as the sum of mortgage payments.

This is a required element of macroeconomic statistics as these payments represent a key component of household expenditures.

Output of this industry was calculated by determining the number of houses that are owned and the rental payment ***that would have been paid*** if the family did not own their home. The census data provided the count of houses (via a question on home ownership), while the CPI provided an equivalent rental payment. An effort was made to distinguish between rural and urban housing – with urban homes having a higher rental price. Output was simply the products.

Type	Region	Stock	Rental Price per Month	Yearly Valuation	Value BLZ thousands
Rural	Corozal	5,764	200	12	13,834
	Orange Walk	6,289	200	12	15,093
	Belize	5,927	315	12	22,402
	Cayo	6,864	230	12	18,944
	Stann Creek	5,288	210	12	13,325
	Toledo	4,754	200	12	11,411
Urban	Corozal	1,899	240	12	5,470
	Orange Walk	2,444	250	12	7,332
	Belize	11,688	315	12	44,182
	Cayo	6,387	300	12	22,992
	Stann Creek	1,826	330	12	7,231
	Toledo	912	240	12	2,627
Total Imputed Output					**184,844**
Intermediate consumption					**18,484**
FISIM					**11,259**
Value Added					**155,101**

Intermediate consumption was calculated as a fixed ratio of 7% of output. In combination with FISIM, total intermediate consumption was increased slightly from the ratio used in the published GDP-P program. The pattern of products used in this industry are very limited: repair expenses, FISIM and insurance. Expenses related to the operation of the household, for example electricity was captured as household final consumption.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption – FISIM

Value added in this case represents gross mixed income.

There is no **compensation of employees** for this industry as it is an SNA construct used to capture the expenditures on houses owned.

Professional, scientific, and technical activities (ISIC M)

This section includes specialized professional, scientific and technical activities. In this sector of the economy in Belize, the following are of national interest and have been highlighted as focus areas in the compilation of the national accounts estimates:

Belize SUT Industries
M69X0 - Legal and accounting activities
M70X0 - Activities of head offices; management consultancy activities
M71X0 - Architectural and engineering activities; technical testing and analysis
M7X00 - All other professional services, including scientific research and development

M69X0 – Legal and accounting activities

A list of establishments involved in legal and accounting services was derived from the Social Security and Income Tax files. This list served as the basis for the estimates for this sector, and where possible the list was vetted against the registered sector association member lists available on the web.

Output was then a combination of tax data and an adjustment for undercoverage.

SUT Element	Value BLZ thousands	Data Sources and Methods
Tax data	31,040	Revenues from applicable companies
Undercoverage	19,078	62% of tax data
Total Output	**50,118**	
Intermediate consumption	**15,305**	Ratio of 31% applied to output; ratio derived from BES data for applicable respondents
FISIM	**2,027**	SUT Calculation
Value added	**32,786**	
Compensation of employees	**13,434**	Ratio of 39% applied to non-FISIM value added; ratio derived from BES data for applicable respondents

Intermediate consumption was derived as a fixed ratio of 31% of output. The ratio was calculated using a representative of respondent's information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output.

M70X0 – Activities of head offices; management consultancy activities

Output was derived from tax data.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	**18,153**	From tax data
Intermediate Consumption	**6,318**	Fixed ratio of 35% of output; informed via BES data
FISIM allocation	**563**	SUT estimate
Value Added	**11,272**	Total output less IC
Compensation of Employees	**3,582**	Fixed ratio of 30% of non-FISIM value added

Intermediate consumption was derived as a fixed ratio of 35% of output. The ratio was calculated using information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output.

M71X0 – Architectural and engineering activities; technical testing and analysis

Output was derived from tax data. 33% was added to the tax data to account for undercoverage.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Tax data	7,968	From tax data
Undercoverage	2,656	Add 33% of tax amount
Total Output	**10,624**	
Intermediate Consumption	**3,852**	Fixed ratio of 36% of output; informed via BES data
FISIM allocation	**225**	SUT estimate
Value Added	**6,547**	Total output less IC
Compensation of Employees	**3,018**	Fixed ratio of 45% of non-FISIM value added

Intermediate consumption was derived as a fixed ratio of 36% of output. The ratio was calculated using information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output.

M7X00 - All other professional services, including scientific research and development

Companies in this industry are involved in the following activities:

ISIC Class Mapping for M7X00 – All other professional services, including scientific research and development
7210 - Research and experimental development on natural sciences and engineering
7220 - Research and experimental development on social sciences and humanities
7310 - Advertising
7320 - Market research and public opinion polling
7410 - Specialized design activities
7420 - Photographic activities
7490 - Other professional, scientific and technical activities n.e.c.
7500 - Veterinary activities

Output was derived from tax data.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	**12,360**	From tax data
Intermediate Consumption	**4,964**	Fixed ratio of 40% of output; informed via BES data
FISIM allocation	**146**	SUT estimate
Value Added	**7,250**	Total output less IC
Compensation of Employees	**4,187**	Fixed ratio of 57% of non-FISIM value added

Intermediate consumption was derived as a fixed ratio of 40% of output. The ratio was calculated using information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output.

Administrative and support service activities (ISIC N)

These industries cover a variety of activities that support general business operations.

N77X0 – Rental and leasing

Output calculation for this industry required the use of several source data to inform the results: tax information, Social Security Board employment as well as the BES. First, the SSB data was

used to build a population of companies involved in this industry – 61 in total. Second, where tax data exists, the reported revenue became the output for those companies. For the set of companies without tax information, employment counts from the SSB data was merged with an estimate of the average revenue per employee from the first set of companies. If an estimate for a company was available from the BES, then this was utilized.

SUT Element	Value BLZ thousands	Data Sources and Methods
Revenue as reported	16,560	Revenues from applicable companies from administrative files
Estimated annual revenue	6,161	Imputed Revenue based on employment
BES estimate	6,513	Revenues estimated from BES
Total Output	**29,235**	
Intermediate consumption	**11,446**	Ratio of 39% of output; derived from BES data
FISIM	**1,689**	SUT estimate
Value added	**16,100**	Output – IC – FISIM
Compensation of employees	**3,780**	Ratio of 21% of non-FISIM value added; derived from BES data

Intermediate consumption was derived as a fixed ratio of 39% of output. The ratio was calculated using a representative respondent's information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output.

N79X0 – Travel agency, tour operator, reservation services and related activities

Output for this industry was constructed using tax data. Outputs were revenues of applicable entities, with one of the larger entities increased by 10% to account for undercoverage.

SUT Element	Value BLZ thousands	Data Sources and Methods
Pure Tax	36,175	Revenues from applicable companies from administrative files
Undercoverage	3,618	10% mark-up applied to tax data
Total Output	**39,793**	
Intermediate consumption	**18,065**	Ratio of 45% applied to output; ratio derived from BES data for applicable respondents
FISIM	**3,378**	SUT Calculation

Value added	**18,350**	
Compensation of employees	**12,039**	Ratio of 55% applied to non-FISIM value added; ratio derived from BES data for applicable respondents

Intermediate consumption was calculated as a ratio of output. The ratio of 45% was calculated using respondent data from the BES. Refer to the Section "Controls from the BES" to see the specific cells included.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits)**.**

N80X0 – Security and investigation activities

Output for the security and investigation industry was modelled from tax and SSB data. First, the list of companies in this industry was identified from the SSB data. Thereafter the tax data was sought to identify any reported revenue of the applicable companies. Where data existed in the tax data, this became the estimate for the company. For the set of companies without tax information, employment counts from the SSB data was merged with an estimate of the average revenue per employee from the first set of companies. Additionally, an adjustment for informal security activities was estimated.

SUT Element	Value BLZ thousands	Data Sources and Methods
Revenue Estimated	13,764	Revenues from applicable companies from administrative files derived from tax
Revenue Imputed	11,881	From SSB employment counts and ITX revenue/employment
Informal Estimate	8,471	1% of total Formal sector estimate
Total Output	**25,903**	
Intermediate consumption	**3,799**	Ratio of 15% applied to output; ratio derived from BES data for applicable respondents
FISIM	**563**	SUT Calculation
Value added	**21,541**	
Compensation of employees	**11,050**	Ratio of 50% applied to non-FISIM value added; ratio derived from BES data for applicable respondents

Intermediate consumption was derived as a fixed ratio of 15% of output. The ratio was calculated using a representative respondent's information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output.

Research

To validate the final estimates, a second model was developed. First, the companies that reported revenue to the tax authority and employment to either the social security board or the tax authority were identified. From this, a ratio of revenue per employee per company was created. This ratio was adjusted if the revenue per employee was lower than the expected monthly salary range reported through the Labor Force Survey. Where a company did not report revenue, an expected revenue was derived from a company with similar employment characteristics. The total output was calculated as the sum of revenue obtained from all companies identified.

From the social security data it was observed that informal watchmen services (self-employed) make a 1 percent of all employed persons in security services as reported by the social security. Thus, the estimated output was adjusted by 1 percent to include this informal activity.

N82X0 - Office administrative, office support and other business support activities

Output for the Office administrative, and other business support activities industry was modelled from the tax and SSB data. First, the list of companies in this industry was identified from the SSB data. Thereafter the tax data was sought to identify any reported revenue of the applicable companies. Where data exist in the tax data, this became the estimate for the company. For the set of companies without tax information, employment counts from the SSB data was merged with an estimate of the average revenue per employee from the first set of companies. Additionally, an adjustment for under coverage was estimated.

SUT Element	Value BLZ thousands	Data Sources and Methods
Revenue Estimated	26,207	Revenues from applicable companies from administrative files derived from tax
Revenue Imputed	5,937	From SSB employment counts and ITX revenue/employment
Under coverage Estimate	3,411	10% of total estimate
Total Output	**35,556**	BLZ thousands (annual income / CE ratio)
Intermediate Consumption	**7,213**	Fixed ratio of 20% output; informed via a large respondent to the BES
FISIM	**563**	SUT estimate
Value added	**27,780**	Output – IC – FISIM
Compensation of employees	**25,321**	Ratio of 89% of non-FISIM value added; derived from a large respondent to the BES

Intermediate consumption was derived as a fixed ratio of 20% of output. The ratio was calculated using a representative respondent's information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output.

NX000 – Other administrative related services

Output was derived first by obtaining reported revenues for the companies in the industry. From the same file, employment information was obtained. The employment information was verified with the social security file.

Where a company did not report revenue, then the expected revenue was derived from the reported average wage and the derived wage to output ratio. This was adjusted to include smaller companies with less than 4 employees as reported through the social security file.

The informal sector adjustment was also estimated utilizing the Household Expenditure Survey of 2008, where Belizean households indicated spending in the following services: caretaking, gardening, fumigation services, other household services paid outside the home. The value from the 2008 survey was then further adjusted for inflation.

SUT Element	Value BLZ thousands	Data Sources and Methods
Tax data	3,085	Revenues from applicable companies; imputed revenue for other SSB entities (includes an adjustment of 25 percent for under reporting)
Informal Sector Estimate	9,628	Using HES 2008 data adjusted for population growth rate and inflation
Total Output	**12,714**	
Intermediate consumption	**3,814**	Ratio of 30% applied to output; ratio derived from BES data for applicable respondents
FISIM	**225**	SUT Calculation
Value added	**8,675**	
Compensation of employees	**6,786**	Ratio of 53% applied to non-FISIM value added; ratio derived from BES data for applicable respondents

Intermediate consumption was derived as a fixed ratio of 30% of output. The ratio was calculated using a representative respondent's information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits) to calculate a ratio relative to output.

Public administration and defense; compulsory social security (ISIC O)

The public sector industries includes activities such as the enactment and judicial interpretation of laws and their pursuant regulation, as well as the administration of programs based on them, legislative activities, taxation, national defense, public order and safety, immigration services, foreign affairs and the administration of government programs. This section also includes compulsory social security activities.

Estimates for government are calculated differently than other industries. Since government market revenue does not cover their costs, output for government is defined as the sum of expenses less any market revenue:

Government output = Market revenues + Net expenses + Imputed investment (Software and R&D)

Market revenues are very narrowly defined and must involve a quid pro quo between the transacting entities.

Net expenses are defined as: Total expenses less Market revenues

The net expenses are then balanced in the SUT (and in the national accounts) by the final consumption expenditure of government.

The SUTs break out the various functions of government per COFOG, that is:

- General administration
- Health
- Education

General administration is further delineated by:

- Central government services, and
- Local government services

O84X0_A – Public administration and defense (excluding compulsory social security) - central government

Government services are treated as non-market producers; "The current value of the output of non-market goods and services produced by government units or NPISHs is estimated on the basis of the sum of costs incurred in their production" as per the SNA 2008 definition (15.116). In terms of data sources to construct the SUT estimates, for all government services the information was derived from fiscal data from central government, local governments, statutory bodies, etc.

CENTRAL GOVERNMENT

Output was derived from government finances from MOF, excluding health and education services, postal services, library and archives services. This output includes health and education administration services. Additionally, the capitalization of research and development is added to the output of the central government. Similarly, the output of the central bank is added to the output of government but netted out in the IC.

GFS Code	Total Government GFS	Remove Health	Remove Education	Remove Statutory Bodies	Net General Government Output	SNA designation
230:PERSONAL EMOLUMENTS	329,880	36,115	102,890	-	190,874	COE
231:TRAVEL & SUBSISTENCE	7,988	1,019	100	-	6,869	COE
340:MATERIALS & SUPPLIES	38,373	17,026	324	-	21,023	IC
341:OPERATING COSTS	38,450	1,383	7,178	-	29,888	IC
342:MAINTENANCE COSTS	12,831	896	260	-	11,675	IC
343:TRAINING	14,505	195	-3	-	14,312	IC
344:EX-GRATIA PAYMENTS	19,871	-	-	-	19,871	COE
346:PUBLIC UTILITIES	38,971	92	31	-	38,849	IC
347:CONTRIBUTIONS & SUBSCRIPTIONS	6,571	-	3,865	-	2,706	IC
348:CONTRACTS & CONSULTANCY	26,147	909	-3,865	-	29,102	IC
349:RENTS & LEASES	9,649	-	-0	-	9,649	IC
350:GRANTS	144,244	22,419	76,576	48,029	13,231	SUB

Net General Government Output= Sum of Costs

Total Output = Net General Government – Other Government Services + GFCF Output+ Imputed Central Bank Cost

SUT Element	Value BLZ thousands	Notes
Net General Government	388,050	As described in the above table
Other Government Services	- 7,445	Postal Services and Library and Archive services to be removed from the above
GFCF Output	29,500	From the PSIP, it is identified that some components of the overall GFCF belong to government output; specifically software development and research and development.
Imputed Central Bank	16,963	The output of the Central Bank is added here, and also added to the IC. Thus having a net effect on the valuation of the VA.
Output	**427,070**	Sum of the above components
IC	**181,037**	Ratio derived from the above SNA designation to the COFOG, + imputed central bank output
FISIM	**12,385**	SUT Calculation
VA	**233,648**	Value Added Output-IC-FISIM
CE	**223,927**	

O84X0_B – Public administration and defense (excluding compulsory social security) - local government

In accordance with the method described above for calculating government control totals, output was derived as a residual after adding intermediate consumption plus value added components.

Public Accounts category	Value BLZ thousands
Travel and Subsistence	306
Material and Supplies	1,951
Operating Cost	2,790
Maintenance Cost	5,930
Training	54
Public Utilities	985
Social Assistance and Contributions	859
Contract and Consultancy	6,032
Rent and Leases	122
Celebrations and Festivities	1,138
Insurance	252
Total Intermediate Consumption	**20,418**
Personal Emoluments	18,105
Extraordinary Payments	506
Pension	538
Total Compensation of employees	**19,149**
Consumption of fixed capital	**0**
Output (IC + CE +CFC)	**39,567**
FISIM (Derived from the SUT)	**1,216**
Value Added (Output-IC-FISIM)	**18,023**
CE (*SUT adjusted)	**17,149**

O8430 – Compulsory social security activities

In accordance with the method described above for calculating government control totals, output was derived as a residual after adding intermediate consumption plus value added components.

Public Accounts category	Value BLZ thousands
Intermediate Consumption	**6,210**
Compensation of Employees	11,532
Surplus (mixed income)	1,508
Total Value Added	**12,705**
Output (IC +VA)	**19,250**
FISIM (Derived from SUT)	**563**
VA (adjusted for FISM)	**12,478**

O84X0_D – Public administration and defense (excluding compulsory social security) - statutory bodies

In accordance with the method described above for calculating government control totals, output was derived as a residual after adding intermediate consumption plus value added components.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	**48,029**	Output calculated using the sum of cost approach, grants given to Statutory bodies identified from fiscal data was used as proxy.
Intermediate Consumption	**15,369**	Fixed ratio of 32% of output; informed via financial statement
FISIM allocation	**1,689**	SUT estimate
Value Added	**30,971**	Total output less IC
Compensation of Employees	**29,656**	Fixed ratio of 97% of non-FISIM value added

Education (ISIC P)

This section includes education at any level or for any profession, oral or written as well as by radio and television or other means of communication. It includes education by the different institutions in the regular school system at their different levels as well as adult education, literacy programmes etc. Also included are military schools and academies, prison schools etc. at their respective levels. The section includes public as well as private education.

In this sector of the economy in Belize, the following are of national interest and have been highlighted as focus areas in the compilation of the national accounts estimates.

1. **Pre-Primary and Primary Education (ISIC P851)**
    a. Pre- primary Education services (CPC 921)
    b. Primary Education Services (CPC 922)
2. **Secondary Education (ISIC P852)**
    a. Secondary education services (CPC 923)
3. **Higher Education (ISIC P853)**
    a. Post-secondary non-tertiary education services (CPC 924)
    b. Tertiary education services (CPC 925)

The following table details the source where the information will feed into the proposed national account estimates.

ISIC class	Source	Comments
Pre-Primary and Primary Education (ISIC P851)	Ministry of Education	A comprehensive list from Ministry of education was obtained. This includes private, church-state (NPISH), government schools and Enrolment data.

Secondary Education (ISIC P852)	Ministry of Education	A comprehensive list from Ministry of education was obtained. This includes private, church-state (NPISH), government schools and Enrolment data.
Higher Education (ISIC P853)	Ministry of Education	A comprehensive list from Ministry of education was obtained. This includes private, church-state (NPISH), government schools and Enrolment data.

Further the schools were classified by management of service provider, thus ending with three industrial classifications:

Government Education, NPISH Education & Corporate Education. The estimates were then constructed following the derived industrial classes.

Government Education

Output

Schools managed directly by the government are non-market. Thus, the same notion applied in the estimate of government output was also applicable. That is, that the estimate of output is equal to the sum of costs. From the above it was described that for Central Government, the operation cost that was directly mapped to the government and NPISH schools was removed from the total government output. As the fiscal data does not allow for a direct breakout of each of the components, it was decided to use a proxy to estimate the actual output of government schools and NPISH schools independently. From the fiscal data, grants disbursed by MOE can be identified by Government, NPISH or Private.

Therefore, output was calculated using the sum all grants for Government Schools (at all levels). For the University of Belize, data was obtained from their financial reports, and the same approach was applied.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	**116,813**	MOF grants disbursed by MOE government schools (primary, secondary, sixth forms); Plus, University of Belize
Intermediate Consumption	**14,795**	Fixed ratio of 12% of output; informed via MOE cost structure
FISIM allocation	**3,378**	SUT estimate
Value Added	**98,641**	Total output less IC
Compensation of Employees	**92,019**	Fixed ratio of 90% of non-FISIM value added

Intermediate Consumption

IC was calculated using the cost structure break out from the Ministry of Education.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption – FISIM

Compensation of Employees

Computed as a fixed ratio based on the cost structure break out from the Ministry of Education, and financial statements from University of Belize.

NPISH Education

Output

Schools managed directly by the church-state (NPISH) are non-market. Thus, the same notion applied in the estimate of government output was also applicable. That is, that the estimate of output is equal to the sum of costs. From the above it was described that for Central Government, the operation cost that was directly mapped to the government and NPISH schools was removed from the total government output. As the fiscal data does not allow for a direct breakout of each of the components, it was decided to use a proxy to estimate the actual output of government schools and NPISH schools independently. From the fiscal data, grants disbursed by MOE can be identified by Government, NPISH or Private.

Therefore, output was calculated using the sum of all grants for NPISH Schools (at all levels). As it was verified by the Ministry of Education, the grants given to these institutions only covers 70% of the tuition. The remainder of the tuition was paid by the household. Thus, an estimate was required for the cost incurred by the household. For this purpose, the enrollment data on NPISH schools at all levels was utilized, and a tuition fee price estimate derived from the International Comparison Program (2011), for which the prices were adjusted by CPI to be representative of 2014 prices.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Grants proxy	**141,690**	MOF fiscal sheets, Grants from MOE to church-state schools (all levels).
Cost incurred by Households	**14,221**	Total Enrollment (NPISH) * average price (2011) * CPI
Output	**155,911**	Sum of Grants proxy and Cost incurred by HH
Intermediate Consumption	**27,458**	Fixed ratio of 17.6% of output; informed via MOF and MOE
FISIM allocation	**6,756**	SUT estimate
Value Added	**121,697**	Total output less IC
Compensation of Employees	**118,453**	Per below

INTERMEDIATE CONSUMPTION

IC was calculated using the cost structure break out from the Ministry of Education.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of Employees

Computed as a fixed ratio based on the cost structure break out from the Ministry of Education.

Corporate Education

Output

Comprised of all private schools at all levels, which are part of the market output. Therefore, the output was computed utilizing the enrollment data from MOE and the price data obtained from the International Comparison Program (2011) adjusted to the CPI.

Intermediate Consumption

From the Business Establishment Survey of 2016, private school units were identified from which a ratio of intermediate consumption to output was derived. This ratio was applied to the estimated output.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	**14,976**	Per above
Intermediate Consumption	**3,136**	Fixed ratio of 22% of output; informed via BES
FISIM allocation	**507**	SUT estimate
Value Added	**11,153**	Total output less IC
Compensation of Employees	**9,852**	Fixed ratio of 66% of output; informed via BES

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees a ratio was obtained from the BES and applied to the Output estimated.

Human health and social work activities (ISIC Q)

This section includes the provision of health and social work activities. Activities include a wide range of activities, starting from health care provided by trained medical professionals in hospitals and other facilities, over residential care activities that still involve a degree of health care activities to social work activities without any involvement of health care professionals.
In this sector of the economy in Belize, the following are of national interest and have been highlighted as focus areas in the compilation of the national accounts estimates.

1. **Human health activities (ISIC Q86)**
    a. Hospital activities (ISIC Q861)- Human health services (CPC 931)
    b. *Medical and dental practice activities* (ISIC Q862)- Human health services (CPC 931)
    c. *Other human health activities* (ISIC Q869)- Human health services (CPC 931)
2. **Residential care activities (ISIC Q87)**
    a. Residential care services for the elderly and disabled (CPC 932)
    b. Other social services with accommodation (CPC 933)
3. **Social work activities (ISIC Q88)**
    a. Social services without accommodation for the elderly and disabled (CPC 934)
    b. Other social services without accommodation (CPC 935)

The following table details the source where the information will feed into the proposed national account estimates.

ISIC class	Source	Comments
Human health activities (ISIC Q86)	Ministry of Health, Income Tax, Social Security, HES	A comprehensive list was provided by the Ministry of Health

From the derived data from the Ministry of Health, two possible sub classifications based on management of the services provider was derived. Government Health Services and Private Health Services (for which some are fully private or managed by NPISH).

Private Health Services

OUTPUT

From the derived list of companies identified as Private Health Care Service providers, a matching exercise was done with the tax records to obtain the estimated reported revenue per company. This became the estimate of output for the company. For companies that weren't able to match to the tax data, then the employment to output measure was used to impute the output.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	**38,330**	Per above
Intermediate Consumption	**16,768**	Fixed ratio of 44% of output; informed via BES
FISIM allocation	**338**	SUT estimate
Value Added	**21,224**	Total output less IC

Compensation of Employees	**14,913**	Fixed ratio of 39% of output

INTERMEDIATE CONSUMPTION

IC was calculated using an expense to output ratio compiled from financial statements obtained from Income tax for private hospital and dental.

Value Added: Output – Intermediate Computation

Compensation of Employees Calculated using a compensation of employees to output ratio compiled from financial statements obtained from Income tax for private hospital and dental.

Government Health Services

OUTPUT

As with all non-market output producers, output was calculated from the sum of cost method, that is, money given to the establishment used to cover the cost of operations. This information was taken from the Ministry of Finance.

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	**80,096**	Per above
Intermediate Consumption	**28,684**	Fixed ratio of 4% of output; informed via MOF
FISIM allocation	**1,126**	SUT estimate
Value Added	**50,286**	Total output less IC
Compensation of Employees	**47,412**	Per below

INTERMEDIATE CONSUMPTION

IC for Government healthcare was calculated using output ratio calculated from government finances obtained from MOF

Value Added: Output – Intermediate Computation

Compensation of Employees: Calculated using a compensation of employees ratio calculated from government finances from MOF

Arts, entertainment, and recreation (ISIC R)

This industry includes a wide range of activities to meet varied cultural, entertainment and recreational interests of the public, including live performances, operation of museum sites, gambling, sports and recreation activities.

In this sector of the economy in Belize, the following are of national interest and have been highlighted as focus areas in the compilation of the national accounts estimates:

Belize SUT Industries
R9000 - Creative, arts and entertainment activities
R91X0 - Libraries, archives, museums and other cultural activities
R9200 - Gambling and betting activities
R93X0 - Sports activities and amusement and recreation activities

R9000 – Creative arts and entertainment activities

Since no survey data exists for this industry, nor is tax information considered reliable enough, the output and input controls must be imputed. Output was imputed by first estimating the approximate amount of labor compensation earned by employees in this industry, which was then inflated based on data from a representative respondent from the BES data:

Output = (number of people employed * average yearly income) / compensation of employees ratio

SUT Element	Value BLZ thousands	Data Sources and Methods
Number of people employed	60	From the LFS of 2014
Estimated monthly income	1201	From the LFS of 2014
Estimated annual income	865	BLZ thousands (number employed * average monthly * 12)
CE ratio	15%	From representative respondent from the BES
Total Output	5,764	BLZ thousands (annual income / CE ratio)
Intermediate Consumption	1,636	Fixed ratio of 28% output; informed via respondent to the BES
FISIM	113	SUT estimate
Value added	4,015	Output – IC – FISIM
Compensation of employees	2,698	Fixed ratio of 65% of non-FISIM value added

Intermediate consumption was derived as a fixed ratio of 28% of output. The ratio was calculated using a representative of respondent's information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated per above and forms the basis for output. Thus, COE is equal to:

COE = number of people employed * average yearly income

R91X0 – Libraries, archives, museums and other cultural activities

This industry covers two entities: The National Library Service and the Belize Archives Department.

Since these are government run operations, output was defined as the sum of costs, similar to the estimation of other government industries. Data comes from the public accounts.

Intermediate consumption was calculated using government expense data.

Value added is primarily wages. Surplus in this case represents the consumption of fixed capital, or depreciation associated with assets owned by the entities. Both estimates were derived from public accounts information.

Compensation of employees was calculated directly using the government financial data.

Example Estimation of the Belize Archives

SUT Category	Public Accounts Data	Value BLZ thousands
IC	TRAVEL & SUBSISTENCE	10
IC	MATERIALS & SUPPLIES	28
IC	OPERATING COSTS	19
IC	MAINTENANCE COSTS	27
IC	TRAINING	9
IC	PUBLIC UTILITIES	13
IC	CONTRIBUTIONS & SUBSCRIPTIONS	0
IC	CONTRACTS & CONSULTANCY	5
IC	**Total Intermediate consumption**	**110**
VA	PERSONAL EMOLUMENTS	284
VA	GRANTS	571
	Total value added	**856**
	Total Output	**966**

SUT Elements	Value BLZ thousands	Data Sources and Methods
Output	**3,434**	Per above (Belize Archives + Belize Library Services)
Intermediate Consumption	**1,113**	Fixed ratio of 32% of output; informed via MOF
FISIM allocation	**113**	SUT estimate
Value Added	**2,208**	Total output less IC
Compensation of Employees	**2,000**	Per above

R9200 – Gambling and betting activities

There are several casinos in Belize located in Belize , Corozal and Cayo districts in addition to some small slot machine operators throughout the country. Additionally, there are several organized lotteries operating in Belize. Companies in this industry are identified using the available administrative data. Thereafter a matching exercise was done with the tax information to estimate the reported revenue.

Output of this industry was constructed using tax data. Outputs are revenues of applicable entities, with one of the larger entities increased by 10% to account for under coverage.

SUT Element	Value BLZ thousands	Data Sources and Methods
Pure Tax	62,822	Revenues from applicable companies
Undercoverage	1,240	10% applied to one entity
Total Output	**64,062**	
Intermediate consumption	**18,464**	Ratio of 29% applied to output; ratio derived from BES data for applicable respondents
FISIM	**1,689**	SUT Calculation
Value added	**43,909**	
Compensation of employees	**18,408**	Ratio of 29% applied to non-FISIM value added; ratio derived from BES data for applicable respondents

Intermediate consumption was calculated as a ratio of output. The ratio of 29% was calculated using respondent data from the BES. Refer to the Section "Controls from the BES" to see the specific cells included.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated using data from the BES (see cell BE1 – Wages and salaries and social benefits)**.**

R93X0 – Sports activities and amusement and recreation activities

Since no survey data exists for this industry, nor is tax information considered reliable enough, the output and input controls must be imputed. Output was imputed by first estimating the approximate amount of labour compensation earned by employees in this industry, which was then inflated based on a comparison of expenditures reported to the HES:

Output = (number of people employed * average yearly income) / compensation of employees ratio

The HES data contains information on consumer expenditures on items such as sports, stadium purchases, fitness centers, etc.[9]

SUT Element	Value BLZ thousands	Data Sources and methods
Number of people employed	203	From the LFS of 2014
Estimated monthly income	1,396	From the LFS of 2014
Estimated annual income	3,400	BLZ thousands (number employed * average monthly * 12)
CE ratio	60%	From representative respondent from the BES
Total Output	**5,666**	BLZ thousands (annual income / CE ratio)
Intermediate Consumption	**1,700**	Fixed ratio of 30% output; informed via respondent to the BES
FISIM	**113**	SUT estimate
Value added	**3,853**	Output – IC – FISIM
Compensation of employees	**3,400**	

Intermediate consumption was derived as a fixed ratio of 30% of output. The ratio was calculated using a representative of respondent's information from the BES.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated per above and forms the basis for output. Thus, COE is equal to:

COE = number of people employed * average yearly income

[9] The specific HES codes used for comparison are: 0942198, 0941101, 0941202, 0941301.

Other service activities (ISIC S)

Establishments in these industries are engaged in activities related to repair and maintenance of computers and personal goods, in addition to other services mostly consumed by households, such as: washing and dry cleaning, beauty and physical well-being services, funeral related activities, escort services and other miscellaneous services.

The following activities were deemed of national interest:

Belize SUT Industries
S94X0 - Activities of membership organizations
S95X0 - Repair of computers and personal and household goods
S96X0 - Other personal service activities

S94X0 - Activities of membership organization

This industry comprises unions, religious organizations, associations, cooperatives, political parties, chambers of commerce, among other similar organizations.

Since no survey data exists for this industry, nor is tax information considered reliable enough, the output and input controls must be imputed. Output was imputed by first estimating the approximate amount of labour compensation earned by employees in this industry, which was then inflated based on the Costa Rican SUT ratio of IC to output:

Output = (number of people employed * average yearly income) / compensation of employees ratio

SUT Element	Value BLZ thousands	Data Sources and Methods
Number of people employed	1,638	From the LFS of 2014
Estimated monthly income	776	From the LFS of 2014
Estimated annual income	15,245	BLZ thousands (number employed * average monthly * 12)
CE ratio	37%	From the Costa Rica SUT
Total Output	**41,308**	BLZ thousands (annual income / CE ratio)
Intermediate Consumption	**19,905**	Fixed ratio of 48% output; informed via Costa Rica SUT
FISIM	**563**	SUT estimate
Value added	**20,840**	Output – IC – FISIM
Compensation of employees	**15,245**	As calculated above

Intermediate consumption was informed from the Costa Rican SUT and is a fixed ratio of 48% of output.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated per above and forms the basis for output. Thus, COE is equal to:

COE = number of people employed * average yearly income

S95X0 – Repair of computers and personal and household goods

Similar to S94X0 – Activities of membership organizations, although some survey data exists for this industry it is not deemed representative enough to estimate the controls. Output was imputed by first estimating the approximate amount of labor compensation earned by employees in this industry, which was then inflated based on information from the BES on the ratio of IC to output:

Output = (number of people employed * average yearly income) / compensation of employees ratio

SUT Element	Value BLZ thousands	Data Sources and Methods
Number of people employed	1,045	From the LFS of 2014
Estimated monthly income	663	From the LFS of 2014
Estimated annual income	8,319	BLZ thousands (number employed * average monthly * 12)
CE ratio	36%	Informed from the BES
Total Output	**22,953**	BLZ thousands (annual income / CE ratio)
Intermediate Consumption	**11,601**	Fixed ratio of 51% output; informed from the BES
FISIM	**113**	SUT estimate
Value added	**11,239**	Output – IC – FISIM
Compensation of employees	**8,319**	As calculated above

Intermediate consumption was informed from the BES and is a fixed ratio of 51% of output based on the respondents to the BES for this industry.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated per above and forms the basis for output. Thus, COE is equal to:

COE = number of people employed * average yearly income

S96X0 – Other personal service activities

This industry comprises companies involved in washing and dry cleaning, beauty and physical well-being services, funeral related activities, escort services and other miscellaneous services.

Similar to S94X0 – Activities of membership organizations, although some survey data exists for this industry it is not deemed representative enough to estimate the controls. Output was imputed by first estimating the approximate amount of labour compensation earned by employees in this industry, which was then inflated based on information from the BES on the ratio of IC to output:

Output = (number of people employed * average yearly income) / compensation of employees ratio

SUT Element	Value BLZ thousands	Data Sources and Methods
Number of people employed	1,805	From the LFS of 2014
Estimated monthly income	626	From the LFS of 2014
Estimated annual income	13,556	BLZ thousands (number employed * average monthly * 12)
CE ratio	24%	Informed from the BES
Total Output	**56,041**	BLZ thousands (annual income / CE ratio)
Intermediate Consumption	**23,159**	Fixed ratio of 41% output; informed from the BES
FISIM	**1,126**	SUT estimate
Value added	**31,756**	Output – IC – FISIM
Compensation of employees	**13,556**	As calculated above

Intermediate consumption was informed from the BES and is a fixed ratio of 41% of output based on the respondents to the BES for this industry.

Value added was derived as a residual:

Value Added = Output – Intermediate Consumption - FISIM

Compensation of employees was calculated per above and forms the basis for output. Thus, COE is equal to:

COE = number of people employed * average yearly income

Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use (ISIC T)

This industry includes the activities of households as employers of domestic personnel such as maids, cooks, waiters, babysitters, gardeners, caretakers, etc. Given the lack of availability of data, only one sub-industry was estimated for this ISIC grouping.

T9X00 - Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use

The activities covered by this industry were out of scope for the Business Establishment Survey. In addition, tax data was deemed too underreported as an input for the macroeconomic estimates. Instead, the industry was estimated via the reported ***expenditures*** for these activities from the Household Expenditure Survey. A variety of HES codes equivalent to the industry characteristics were extracted and inflated to arrive at their 2014 valuation.

All production was assumed to use labor inputs only and there was no estimate for intermediate inputs. This is a simplifying assumption, but clearly the primary input is people's time for most of these activities.

HES Description	Value BLZ thousands	Data Sources and Methods
Cooks	43	HES code 0562101
Maids	12,934	HES code 0562102
Babysitters	1,014	HES code 0562105
Domestic helper and childcare cost past 12 months	3,453	HES code 0562107
Other household services cost past 12 months	372	HES code 0562199
Babysitting (by enterprises or self-employed person)	4,229	HES code 0562201
Sub-Total	**22045**	Sub total of HES 2008 data
Population inflation factor	1.17	17% increase in population per the census
Prices inflation factor	1.01	1% increase in prices per CPI data
Total Output	**26,050**	Sub-total multiplied by population and price growth
Intermediate Consumption	**0**	Simplifying assumption
Value Added	**26,050**	
Compensation of employees	**26,050**	

Activities of extraterritorial organizations and bodies (ISIC U)

Includes activities of international organizations such as the United Nations and the specialized agencies of the United Nations system, regional bodies etc., the International Monetary Fund, the World Bank, World Trade Organization, etc. It also includes activities of diplomatic and consular missions.

Currently there are none of these bodies active in the Belize economy and so no estimates exist in the SUT. The SUT classification structure keeps the various dimensions to allow for their estimation should these bodies open facilities in the country.

Expenditure GDP

Household final consumption expenditure

According to the SNA 2008, "Household final consumption expenditure consists of expenditure incurred by resident households on consumption goods or services. Along with the purchase of consumer goods and services, final consumption expenditure includes the estimated value of barter transactions, goods and services received in kind, and goods and services produced and consumed by the same household".

Household final consumption expenditure represents the spending of resident households on goods and services in Belize.

In the Belize SUT, total HFCE is delineated in three ways: expenditure on products sold through market mechanisms, imputed expenditure on items not sold through market channels (like own produced fruit or vegetables) and travel expenditures. The imputed expenditure items can be viewed as the value of the goods if one ***would have*** purchased them on the open market. The following table summarizes these components using the final data:

SUT category	**Value BLZ thousands**
HFCE	2,347,528
HFCE- own account	71,940
HFCE_TRAV	82,385
TOTAL HFCE	**2,501,853**

Each one of these categories of HFCE are estimated in different ways. HFCE non-travel non-imputed are initialized using information from the Household Expenditure Survey. Since this survey was conducted for reference year 2008, levels had to be inflated to account for both price changes and population growth to arrive at an estimate applicate to the SUT reference year 2014.

Once entered into the framework of the SUT and confronted by the other information (such as production and international trade information), these estimates underwent substantial modification.

Own account or imputed expenditures undergo no adjustments as they are built directly into the controls of the industry data. For example, when building the output of the crop production industry, the output is increased to account for own account production. This value is carried, or balanced, directly in HFCE – ensuring that supply equals use. 22 categories of own-account activities are accounted for.

SUT Product Code	SUT Product Description
X011X0	Cereals - own-account
X012X0	Vegetables - own-account
X01312	Bananas - own-account
X0131X	All other tropical and subtropical fruits - own-account
X0132X	Citrus Fruits - own-account
X013X0	All other fruits and nuts - own-account
X014X0	All other oilseeds and oleaginous fruits - own-account
X01460	Coconuts, in shell - own-account
X015X0	Edible roots and tubers with high starch or inulin content - own-account
X016X0	Stimulant, spice and aromatic crops - own-account
X017X0	Pulses (dried leguminous vegetables) - own-account
X0211X	Bovine animals, live - own-account
X02X00	All other live animals and animal products (excluding meat) - own-account
X02140	Swine / pigs - own-account
X0215X	Poultry - own-account
X022X0	Raw milk - own-account
X023X0	Eggs of hens or other birds in shell, fresh - own-account
X043X0	Lobsters, live, fresh or chilled - own-account
X043Z0	All other crustaceans, live, fresh or chilled - own-account
X04X00	All other fish and other fishing products - own-account
X711X0	Financial Intermediation Services Indirectly Measured (FISIM)
X72000	Owner occupied dwellings

Expenditures on travel were taken from the Balance of Payments information on travel expenditures. This information provided the control. Canadian SUT patterns by product were used to inform the initial distribution of the BOP control across products.

Gross fixed capital formation

Gross fixed capital formation 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.

The gross fixed capital formation is estimated independently from the production account. As goods consumed as part of the production process are not considered to be capital expenditures.

Machinery and Equipment

From the reports of the Ministry of Economic Development on the PSIP, the spending in Machinery and Equipment (M&E) was identified. From the Statistical Institute of Belize information on International Merchandise Trade Statistics, imports of goods according to the broad economic classification (rev 4) was also considered. Of interest, was the imports of capital goods according to the BEC. It is noted however that the BEC rev 5 would have strengthened the estimates of the IMTS. This is something to be considered in preparation for the annual compilation of the GFCF.

Building and Constructions

From the Reports of the Ministry of Economic Development on the PSIP, the spending in Buildings and Constructions was identified. From the Statistical Institute of Belize information from the Household Expenditure Survey was considered. Where the spending of the households on material and services for construction was obtained, the value was further adjusted for population growth and inflation. From the Central Bank we studied the information on the distribution of loans from commercial banks. Since this is stock information on the return of loans and advances, we had to derive the actual value 'spent' for the year 2014. This was achieved by taking the sum of the difference of the stocks from month to month, starting from December 2013 to December 2014. From which the value spent for construction and building was identified.

Cultivated Assets and Land

From the Ministry of Agriculture, the total acreage for agricultural lands was taken for 2014 and 2013. Taking the difference in the acreage of 2014 and 2013 and multiplying it by the average price for the acquisition of 1 acre of land, we obtained a proxy for the capitalization of land. The result was included in the SUT in GFCF-COB- Gross Fixed Capital Formation- Construction - Non-residential - corporate sector.

	2013	2014	Additions	Average Cost of Acre	Increase in Land (Value BLZ thousands)

Total Acres Harvested	229,461	235,470	6,009	1,250	7,511

Intellectual Property

There are three main components to intellectual property investment as measured in the Belize SUT: 1) software, 2) R&D, and 3) mineral exploration activities.

SUT Final Demand Categories	**Value BLZ thousands**
GFCF_IPG - Gross Fixed Capital Formation - Intellectual Property Products - software - government sector	17,869
GFCF_IPG_RD - Gross Fixed Capital Formation - Intellectual Property Products - R&D - government sector	11,632
GFCF_IPB - Gross Fixed Capital Formation - Intellectual Property Products - exploration - corporate sector	84,460

R&D and software were estimated using data from the Reports of the Ministry of Economic Development.

The Geology and Petroleum Department provided financial statements of companies involved in the exploration of petroleum which formed the basis of the exploration estimate.

The treatment of exploration follows that used in the Canadian SUTs and involves an equivalent flow through estimates of the exploration investment in the Oil and Gas Extraction industry (B06X0 – see this industry for additional documentation). Exploration appears as follows in the SUTs:

	Supply			**Use**	
	Output		**INTIM**	**Intermediate Consumption**	**GFCF_IPB**
	B06X0 - Extraction of crude petroleum and natural gas	Other Industries		B06X0 - Extraction of crude petroleum and natural gas	
M834X0 - Scientific and other technical services	84,460		51,640	51,640	84,460
Related scientific products		30,000		30,000	

Note that the sum of the columns for B06X0 are equal (so output = IC), and that these values are equivalent to the exploration estimates. The hypothesis is that majority of the costs related to exploration are sub-contracted to companies external to the owner of the exploration property.

International imports and exports

The control totals come from the Balance of Payments data which themselves are a combination of a variety of data sources and estimation techniques. The user may refer to the available BOP documentation for more detail.

Briefly, BOP estimates add coverage, valuation and timing adjustments to customs-based trade information, as well as valuing trade in transport, travel and commercial services.

The SIB obtained the customs-based microdata directly from the ASYCUDA system. This facilitated a very detailed evaluation of the trade data controls, helped validate the output controls and composition (as these should mirror the export data), and aided in generating the correct intermediate consumption and final demand patterns by product (as these should correlated with imports)

BOP Category	International Exports (BLZ thousands)	International Imports (BLZ thousands)
Customs data (merchandise)	614,419	1,924,497
Reexports/reimports	102,444	154
Merchandise adjustments	456,772	-120,367
Travel-business	47,146	2,095
Travel-personal-health	0	3,136
Travel-personal-education	746	16,113
Travel-personal-other	699,442	63,136
Transport-ocean-other	31,920	0
Transport-ocean-freight	0	102,048
Transport-air-passenger	0	4,323
Transport-air-other	18,515	0
Insurance-direct	507	25,436
Insurance-reinsurance	0	61,632
Financial	5,642	6,470
Charges Intellectual Property	0	9,696
Telecommunications	17,111	2,064
Computer	0	5,603
Information	0	6,131
Professional and management fees	13,883	19,236
Technical trade	80,742	51,640
Personal-other	0	544
Government	58,495	23,945
TOTAL	**2,151,999**	**2,207,532**

Some of the BOP adjustments to customs data included adding electricity imported from Mexico, imports passing through the post office, and subtracting banana box imports (since there is no ownership change). However additional adjustments were introduced, that are not available in the BOP data, for instance the cattle exports and adjusted exports of tobacco products to correlate with imported tobacco products (CFZ). Similar adjustments were done to the imports, to arrive to an FOB value.

As mentioned in a previous section, this data was assigned to products by category described in the table above. Thus, merchandise data was allocated to products using the HS detail available in the microdata. The services and travel was either assigned directly to a product where it mapped 1-to-1, or using the Canadian SUT pattern (to initialize the data) for travel.

Government final consumption expenditure

This is simply the balancing item after estimating the output of the government industries. Recall that the output of these industries was calculated as the sum of costs. Thus, one could interpret this element of GDP as the total costs, intermediate consumption plus compensation of employees and consumption of fixed capital associated with government activities.

NPISH final consumption expenditure

Akin to government final expenditure, the NPISH final expenditure was calculated as the sum of costs associated with this activity.

Taxes and subsidies on products

According to the SNA 2008 “Taxes are compulsory, unrequited payments, in cash or in kind, made by institutional units to government units”. The estimates for taxes are classified as Taxes on products and Other taxes on production.

According to the SNA 2008 “Subsidies are current unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods or services that they produce, sell or import”.