THE CAYMAN ISLANDS' SYSTEM OF NATIONAL ACCOUNTS 2006-2007

JUNE 2009

THE ECONOMICS AND STATISTICS OFFICE
PORTFOLIO OF FINANCE AND ECONOMICS

Table of Contents

Page

ACKNOWLEDGEMENT

The estimation of the Gross Domestic Product is dependent on a wide range of data gathered from administrative records and specially designed surveys (ANAS), all of which involve the participation of a large number of persons and institutions. The Economics and Statistics Office (ESO) acknowledges the assistance and cooperation of all those persons, government departments and agencies, non-governmental organizations and the private sector that supplied the relevant data and anticipate their continued support. ESO extends its appreciation to the Bermuda and Jamaica Statistics Offices for their general support to the development of the project, and to the Caribbean Regional Technical Assistance Agency (CARTAC) for providing valuable comments and evaluating the final results.

This report was produced by the System of National Accounts (SNA) Unit, Statistics Section of the ESO, and edited by the Director. Assistance in some field work was provided by the Survey Staff members of the Social Statistics Unit. Overall support from other staff members of the ESO is gratefully acknowledged.

ABBREVIATIONS AND ACRONYMS

AAC:	Aggregate Advisory Committee
ANA:	Annual National Accounts
ANAS:	Annual National Accounts Survey
BR:	Business Register
CARTAC:	Caribbean Regional Technical Assistance Centre
CBBEC	Classification by Broad Economic Categories
CIDOT:	Cayman Islands Department of Tourism
CIF:	Cost, Insurance, Freight
CIIB:	Cayman Islands Investment Bureau
CIMA:	Cayman Islands Monetary Authority
CISNA:	Cayman Islands System of National Accounts
CPI:	Consumer Price Index
CRE:	Central Register of Establishments
ECLAC:	Economic Commission for Latin America and the Caribbean
ESO:	Economics and Statistics Office
FISIM:	Financial Intermediation Services Indirectly Measured
FOB:	Free On Board
GDP:	Gross Domestic Product
GO:	Gross Output
GVA:	Gross Value Added
HBS:	Household Budget Survey
IMF:	International Monetary Fund
ISIC:	International Standard Industrial Classification of all Economic Activity
LFS:	Labour Force Survey
NEC:	Not Elsewhere Classified
NPISG:	Non-Profit Institutions Serving Government
NPISH:	Non-Profit Institutions Serving Household
PSPB:	Public Sector Pension Board
ROW:	Rest of the World
SBU:	Simple Blow Up
SITC:	Standard International Trade Classification
SNA:	System of National Accounts
SR:	Sample Ratio
UNSD:	United Nation Statistics Department

1. EXECUTIVE SUMMARY

1.1 Importance of the SNA

The SNA is a system of accounts that is used globally to measure the economic performance of countries and jurisdictions using accepted international standards issued by the United Nations and the International Monetary Fund (among others). In the context of the Cayman Islands, its main uses are to:

a. Comply with the Public Management & Finance Law (2005 Revision) which requires the reporting of gross domestic product in the Strategic Policy Statement. Governments in general use the SNA statistics as key indicators for evaluating the potential and actual macro-economic impact and sustainability of fiscal policies.

b. Comply with data requirements of foreign investors and creditors. For instance, these are required for inclusion in official borrowing documents (i.e., Offering Memorandum or Private Placement Memorandum). These statistics are key in making an assessment of the worthiness of the jurisdiction as an investment site and/or the worthiness of its entities as borrowers;

c. Comply with data requirements of international credit rating agencies which provide credit ratings for the Cayman Islands Government and private entities who borrow from the global financial market;

d. Provide necessary data for the conduct of economic impact assessments of hurricanes and other disasters, which are required by funding and other donor agencies. As pointed out by previous teams from the Economics Commission for Latin America and the Caribbean (ECLAC), the GDP statistics by sector for Cayman are necessary in calculating the economic impact of disasters in each sector and therefore, the approximate amount of resources required for the reconstruction of these sectors.

e. Provide data necessary for government departments and business associations to monitor the economic performance and contribution of their respective sectors; and

f. Provide data that can assist government departments, local businesses and non-government organizations in preparing business plans or assistance to businesses. These statistics help determine the “buying power” or the size of the local market, the potential growth of the market, and alternative sectors for investment.

1.2 Objectives

The SNA is a milestone statistical system for the Cayman Islands. This is the first compilation of economic data in the country that accomplishes the two broad objectives of:

(a) measuring the economic contribution and performance of all productive industries using a single benchmark and standard; and

(b) introducing the use of international standards in the above-mentioned measurement.

This report serves as the first presentation of the economic contribution of all industries in the Cayman Islands and is classified in accordance with the International Standards Industrial Classification (Revision 3.1). In addition to presenting the major industries, sub-industries are also included in the report. All industries and their sub-industries are measured in terms of their value added or direct contribution to the Gross Domestic Product (GDP) for two years: 2006 and 2007 with 2007 being the base year.

At the outset, it was planned that the SNA project be strictly guided by international standards. In general, the development and implementation of the SNA was guided by the United Nations SNA manual (1993 Revision). The technical guidelines and definitions from the manual are incorporated in various sections of this report. In addition, the implementation was also verified by a technical mission from the Caribbean Regional Technical Assistance Centre (CARTAC) in April 2009. CARTAC also provided training for the SNA compilers and data users in government in September 2008.

1.3 Key Data Sources

The SNA estimates in this report are based on the Annual National Accounts Survey (ANAS) conducted during the period February to April 2008 among all businesses and establishments included in the ESO Business Register. This was augmented by secondary data provided by various government ministries, departments and statutory authorities including the Cayman Islands Monetary Authority; and other informal interviews with industry sources.

As in any survey, the response rate to the ANAS is mainly a function of the appreciation and understanding of the respondents on how the data will be used. It is hoped that this report will be an instrument in demonstrating the potential uses of the SNA to the business sector, business associations and those providing services to the businesses in the Cayman Islands.

1.4 Overview of Results

Gross Domestic Product. This inaugural report of the Cayman Islands' SNA exclusively focuses of the results of the estimation of the gross domestic product (GDP) using the production approach, where GDP is obtained by summing the value added of all industries. (Value added is equal to gross value of outputs minus the value of intermediate inputs). The overall GDP estimate comprises the value added of the 15 industries; these 15 industries are further categorized as goods-producing or service-producing industries.

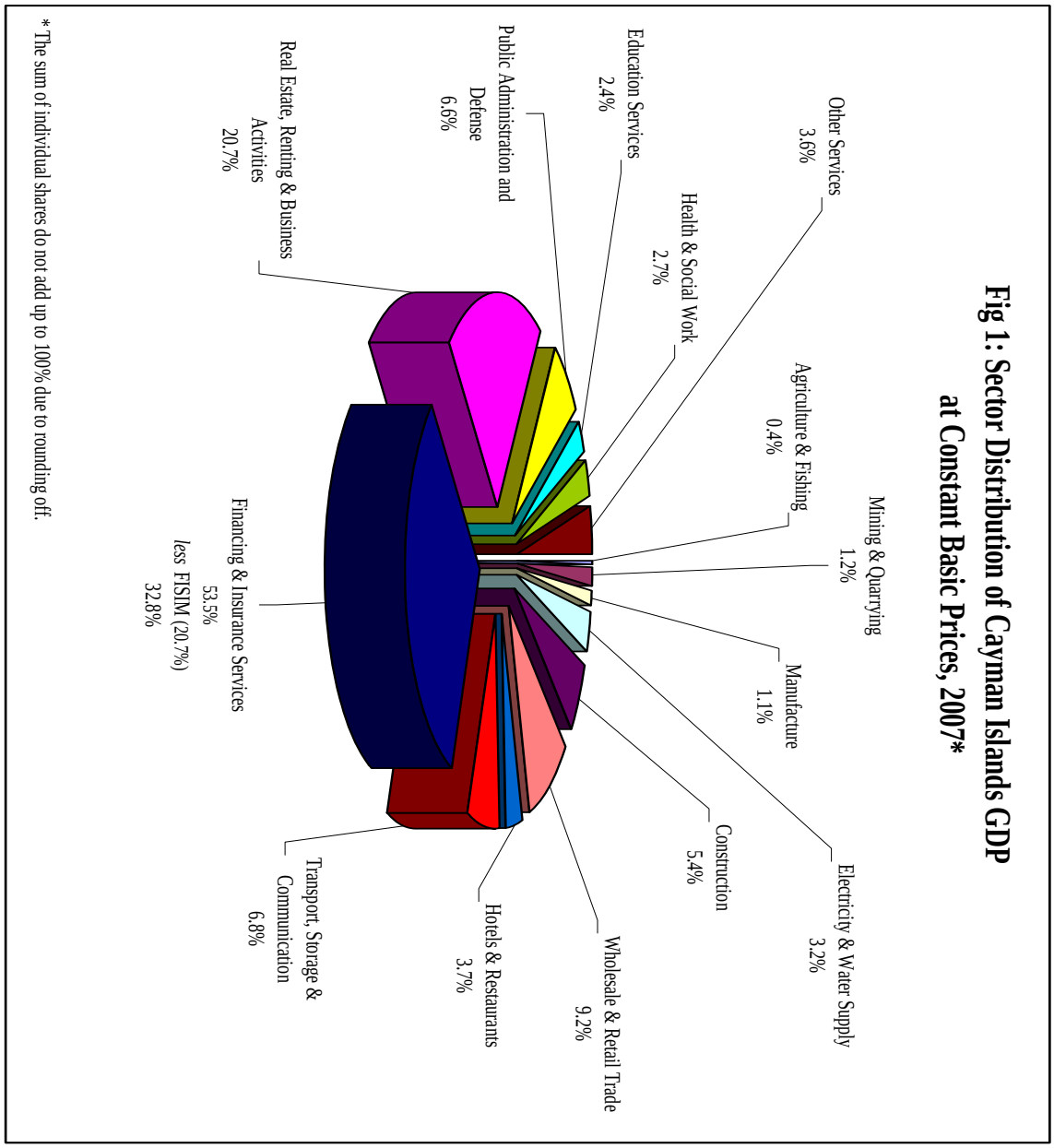
In summary, the total value of the Cayman Islands GDP in 2006 and 2007 are presented in Table 1 below. These amounts pertain to all entities that have physical presence in the Cayman Islands; therefore, they exclude entities registered in the Cayman Islands but have no physical presence in the country. Table 1 shows the current and constant price estimates of GDP (as well as per capita indicators) valued in both basic and purchasers' prices.

Table 1: SNA Main Aggregates and Per Capita Indicators

Main Aggregates ($'000)	2006	2007
Gross Domestic Product In Basic Prices At Current Prices	2,389,430.5	2,569,500.9
Gross Domestic Product In Basic Prices At Constant 2007 Prices	2,461,358.1	2,569,500.9
Gross Domestic Product In Purchasers' Prices At Current Prices	2,611,246.0	2,778,536.0
Gross Domestic Product In Purchasers' Prices At Constant 2007 Prices	2,691,664.7	2,778,536.0
Mean Population ('000)	**52.0**	**54.1**
Per Capita Indicators ($)		
Gross Domestic Product In Basic Prices At Current Prices	45,950.6	47,495.4
Gross Domestic Product In Basic Prices At Constant 2007 Prices	47,333.8	47,495.4
Gross Domestic Product In Purchasers' Prices At Current Prices	50,216.3	51,359.3
Gross Domestic Product In Purchasers' Prices At Constant 2007 Prices	51,762.8	51,359.3

Note: 1. GDP at basic prices excludes net taxes on goods and services.
2. GDP at purchasers' prices includes net taxes on goods and services, and any trade and transport charges.

Industry contribution to GDP. The industry data provides us with preliminary estimates of the contribution of the various industries to the Cayman Islands GDP. These industries are classified according to the International Standard of Industrial Classification (Revision 3.1). As shown in Figure 1, there are fourteen industries[1], of which the largest is financial and insurance services followed by real estate, renting and business activities, transport, storage and communication. (Though estimated separately, the agriculture and fishing industries were combined in Figure 1 due to their small individual contributions).



[1] There are fifteen industries but Agriculture and Fishing which are two separate industries were combined for the purpose of this presentation because of their very small size.

Reconciliation with GDP forecasts. The Economics Section of ESO has been providing GDP forecasts based on an indicator system, primarily the value of total imports and government expenditures. These forecasts have also been used as GDP estimates for a number of years in view of the lack of actual GDP estimates. In view of best practice among national statistical offices, GDP official estimates shall henceforth be based on the SNA. The estimates presented in this report thus become the official estimates of GDP. (The Economics Section will, however, continue to produce GDP forecasts as similarly practiced in other countries).

1.5 Organization of the Report

This report presents the development, implementation and preliminary estimates of the System of National Accounts for the Cayman Islands. It consists of seven (7) main sections as follows:

- Introduction to the System of National Accounts (Section 2)
- The Cayman Islands' System of National Accounts (Section 3)
- Key Concepts and Definitions (Section 4)
- Implementation of the Cayman Islands' SNA (Section 5)
- GDP by Industry at Current Prices: Estimation Method (Section 6)
- GDP by Industry at Constant Prices: Estimation Method (Section 7)
- GDP by Industrial Origin: Preliminary Results (Section 8)

Appendix 1 presents the International Standards Industrial Classification (Revision 3.1) as used in the Cayman Islands' SNA.

Appendix 2 presents the Central Register of Establishments questionnaire used to update the Business Register.

2. INTRODUCTION TO THE SYSTEM OF NATIONAL ACCOUNTS

2.1 Overview of the System

The national accounts provide a comprehensive accounting framework for compiling and presenting economic data of a country. Estimates of national accounts are critical for analyzing, monitoring and evaluating the performance of the economy. The systematic accounting framework of the national accounts allows for the organizing and presenting of data in a way that highlights economic activities and the interactions of the different economic agents within the country while at the same time showing the various linkages between the domestic economy and the rest of the world. The national accounting system is a key tool used by government in its policy formulation and economic analysis. However, its use is not limited only to government as it is often used in data analysis and forecasting, market research and as an index in contracts. It is therefore one of the most important statistical systems for the development and monitoring of financial and economic programs.

The United Nations has been documenting the internationally agreed guidelines on the concepts, definitions, classifications, and accounting rules to be followed in the compilation of national accounts since the 1950s. An updated version of the System of National Accounts 1993 (SNA93) was published in 1993 and presents a much more comprehensive and fully integrated framework for national accounting than its predecessor, the SNA 1968. Basically, the theoretical framework of both the SNA93 and the 1968 version are similar. However, the SNA93 clarifies and adjusts some concepts and definitions in keeping with structural and societal changes.

The system is developed around a sequence of interconnected flow accounts which record different types of activities taking place in the economy. The following are the main accounts in the system:

1.) **The Current Accounts** which comprise both the production accounts (account I) and the generation and distribution of income accounts (account II). The first account records the production of goods and services while the second set of accounts, the income accounts, show how incomes are generated and distributed and then redistributed through taxation and transfer payments and used for final consumption and saving.

2.) **The Accumulation Accounts** (account III) which records the acquisition and disposal of financial and non-financial assets and liabilities and changes in net worth consists of the (a) capital account, (b) financial account and (c) other changes in assets accounts.

Each of the flow accounts is connected to the following account via a balancing item, namely, value added, operating surplus/mixed income and saving which is carried

forward to the following account. The flow accounts are ultimately linked to the balance sheets.

3. **Balance Sheets** (account IV) record the value of stocks and liabilities at the beginning and the end of each accounting period.

The accounts of the system move from the fairly simple production and generation of income accounts through the more intricate recording of the acquisition and disposal of financial and non-financial assets and liabilities and the preparation of balance sheet.

The system requires that all transactions be recorded on an accrual basis, that is, at the time the transaction takes place and not necessarily when payments are made. The transactions between economic agents that take part in the economic process or the stocks and balance sheets that result from transactions are from the entries in the accounts.

2.2 Implementation of SNA

The system allows for a phased implementation by countries at different stages of development. The United Nations recommends five stages:

1st Stage — Basic indicators
- Gross domestic product (GDP) by industry of origin
- Final expenditure on GDP
- Supply and use (SUT) as a complementary data system.

2nd Stage — Gross national income and other primary indicators
- External accounts of primary incomes and current transfers
- Capital and financial accounts for the rest of the world

3rd Stage — Accounts for the five institutional sectors namely:
- The non-financial corporations sector
- The financial corporations sector
- The general government sector
- The non-profit institutions serving households sector
- The household sector

Production accounts showing the components of value added: compensation of employees, taxes on production *less* subsidies on production, consumption of fixed capital and operating surplus

4th Stage — Accounts for the five institutional sectors
- Allocation of primary income accounts
- Secondary distribution of income accounts
- Use of income accounts

- Capital accounts
- Financial accounts

5th Stage Other flows, accounts and balance sheets for the five institutional sectors

- Other changes in assets accounts
- Balance sheets

A significant feature of the SNA93 is that while not a part of the central framework it facilitates the development of satellite accounts. Tourism, for example, while not a part of the central framework of the system is connected to and forms part of several industries of the national accounts, a study of which therefore can be accommodated by the use of satellite accounts. Central to the system is a classification system which classifies transactions according to major activities, that is, industries in the system are developed from the perspective of the producer (supply side). However, tourism is primarily built from the demand side, that is who consumes it. It is therefore not possible to show the effect of tourism in a country by the standard representation of national accounts.

3. THE CAYMAN ISLANDS' SYSTEM OF NATIONAL ACCOUNTS

3.1 Overview of the Project

In 2007 the Economics and Statistics Office (ESO) embarked on a program to produce National Accounts for the Cayman Islands using the production approach. This approach was decided on since it provides the most comprehensive set of information and is the simplest in terms of data requirements. The comprehensive SNA is a demanding project and few countries will ever be able to implement the full sequence of accounts. It is recognised the world over that choices have to made about which accounting sub-system is feasible to implement in term of resources available to a country. The United Nations Statistics Department (UNSD) recognizes this and recommends phased implementation of the SNA by countries. Countries like the Cayman Islands who are at this initial stage of implementation should start with basic indicators.

As is the internationally accepted method, it was decided that the data needed for the compilation of the estimates of GDP would be collected through an economic survey (Annual National Accounts Survey). The GDP estimates would measure the economic performance of the economy and would be a critical tool for government in its policy formulation and monitoring of economic activities in the Cayman Islands. Overseas investors and agencies, businesses, economic analysts and forecasters as well as the general public would also be able to make sound decisions based on the information provided by the GDP estimates.

3.2 Business Register (BR)

The project started in August 2007 by first trying to establish a comprehensive business register. A business register is a first requirement as it is from this that company names, addresses, telephone numbers, types of business activity etc. would be obtained. Most importantly, it is from this sampling frame that samples for economic surveys are drawn. The process involves updating the existing Business Register. The updating process involves gathering data on businesses from other sources such as the Tourism Department, the Immigration Department, the Cayman Islands Investment Bureau (CIIB), the telephone directory, etc and crosschecking their databases for names of existing businesses. Having compiled a reasonable list of businesses, the next step was to gather some basic information on the businesses.

In October 2007 a two-page questionnaire was developed and sent to all businesses identified from the compiled list of business establishments. This was critical in order to determine some basic characteristics of firms such as the type of economic activity the business is engaged in, if they are single, branch or subsidiary companies, etc. The responses to this survey were very slow in coming in but it improved with numerous follow-ups via the telephone calls and fax messages.

3.3 Design and Testing of Survey Instrument

Survey instruments – Annual National Accounts Survey forms – were designed and tested through a pilot survey in February 2008. These were the instruments used to capture the information needed for the compilation of the GDP estimates. As outlined by the SNA manual, an economy consists of five sectors.[2] These five sectors are broken down into broad industries (15 of them in total) as defined by the International Standard Industrial Classification (ISIC) which was used. These industries were further broken down in what were called "product groups". These smaller groups allowed for more practical calculation of the estimates bearing in mind that the classification system is based on the economic activity being undertaken by the establishment. Twenty one (21) different survey questionnaires/forms were designed for the first Annual National Accounts (ANA) Survey of establishments. Each establishment is allocated a type of form according to its major economic activity. The format of each form varies to accommodate the different types of information needed from each industry and also for ease of completion by the respondents.

The Annual National Accounts Questionnaires consisted of six main sections. The first section dealt with characteristics of the establishment; this includes name, address, telephone number, etc. and type of business activity (primary/secondary). The second, third and fourth sections of the questionnaire dealt with accounting information relating to the income and expenditure of the establishment. The information falls under the following categories:

A) Revenue
B) Expenditure
C) Inventories

The fifth section of the questionnaire deals with fixed and intangible assets and requires information from the balance sheet of the establishment. The sixth and final section deals with employment numbers. (The complete set of ANA survey questionnaires are posted at www.eso.ky).

To aid with the accurate completion of the questionnaires, a five-page user guide was attached to the survey questionnaire. This guide provided respondents with definitions of the codes used on the survey forms and allowed for easier understanding of the forms.

3.4 Survey Methodology

Benchmark estimates had to be developed since this was the first time that the GDP estimates were being compiled for the Cayman Islands. This means that the total

[2] The SNA manual resulted from the need for an international standard for the compilation of national account statistics which would facilitate international comparison. The manual was produced through the combined efforts of The United Nations, The International Monetary Fund, The Commission of the European Community, The Organization for Economic Cooperation and Development, and The World Bank.

population of establishments, or as close to the total population that can be had, had to be surveyed. After establishing this first year's estimates or what is referred to as the "benchmark estimates", a representative sample survey using the BR as the frame will be used in the ensuing years to make inference about the population of establishments as a whole.

3.5 Data Extraction

After the forms were completed and returned, the data were then entered into spreadsheets. Data were collected for the calendar years 2006 and 2007. Calculation worksheets were created to capture all the data supplied on each form. When the data from the completed forms were entered on the computer they were fed directly into pre-designed worksheets in specific excel files which compute the relevant GDP aggregates such as gross output, intermediate consumption, valued added, etc. Again, questionnaires were sorted and entered by their major economic activity as prescribed by the ISIC classifications. All the companies with a particular ISIC code that is, performing the same economic activity are entered in one worksheet. In a few cases, ISIC groups were merged because of too few questionnaire returns or because the number of establishments in the ISIC group were too few to produce meaningful results. However, this was avoided as much as possible.

Imputation and adjustments to data were also done on this excel worksheet. Another worksheet (the E8 worksheet) was then created to capture only the totals for a particular economic activity, i.e. combining all the establishments' data into one worksheet. In this worksheet the estimates at current prices were calculated. If data were received from the entire population (the universe) for a particular product group, then the estimates were derived without adjustments. Deflator worksheets were also constructed for deriving the constant price estimates.

3.6 Reference Period

Data for national accounts are usually presented on a calendar year basis. For this round of GDP estimation, data were requested for calendar years 2006 and 2007. If the calendar year data were not available then the establishment's accounting year was used and assigned to the calendar year based on the guideline that if the accounting year ends on or before June 30, 2007, the information provided would be treated as calendar year 2006. This method was adopted for ease of reporting by establishments and for calculation of estimates. It was agreed that the cost to do otherwise would be too onerous and the benefits to be derived were not commensurate with the cost.

3.7 Challenges

The major challenge has been the very low response rate to the ANA Survey. The resulting 28 percent response rate was obtained through a very gruelling follow-up

system.[3] The average follow up exercise to get a completed form is about six telephone calls. A number of respondents mislaid the questionnaires and this meant faxing or emailing another set to them. About 90 percent of the forms submitted had errors in them which necessitated numerous call backs; this also affected the data input process. Some sub-industries (such as those in the Financial and Insurance industry) had good representation or there were sufficient supplementary information available to compute fairly reliable estimates. However, these were comparably few in numbers. As a result of the very low response rate, supplementary data from less reliable sources had to be used which to some extent compromised the quality of some of the estimates. One of the major challenges was the absence of supplementary data such as payroll tax system or employment data in terms of number of jobs, employees, hours worked and earning from establishments. The merchandise trade data, a very vital source of data for national accounts compilation was also inadequate. Some of the data were highly aggregated and only a limited number of commodities had quantities. The Classification by Broad Economics Categories (CBBEC) was also imprecise due to misclassified items. The consumer price (CPI) data used mainly for constant price estimation was also inadequate.

The project was also ambitious in terms of the time projected to develop the GDP estimates taking into consideration the lack of a sound business register and the culture of not supplying information of this type to government. There were also concerns from respondents in relation to the confidentiality of their information.

Perhaps the most significant impediment to the rate of returns of survey forms was the weak provision in the **Statistics Law** for collecting expenditure data; this not being explicitly included in section 7, although it is implicitly included. The Statistics Law needs to be amended to provide stronger support for the ANA data collection.

3.8 Recommendations

It was noted that most establishments had their year end in June. It would therefore be better and easier for establishments to provide data for the period after their accounting year ends. This was so for the government accounts also. The ESO carried out its survey in March of the following year, that is, data for 2007 are requested in March of 2008. Given the accounting year-end of a significant number of establishments, it meant they would have had to estimate their data for 2007 given the criterion used and stated above. This would also impose some degree of error associated with projections.

Improving the source data for national accounts is necessary. Occupational wage, hours worked and numbers employed survey are needed. More detailed and disaggregated import and export trade data, classification of foreign trade data according to the international recommended standard are of urgent priority and the Statistics Law must support the data collection process.

[3] The response rate relates to all establishments returning the ANA Survey questionnaire to the ESO irrespective of the degree of completeness or accuracy.

4. KEY CONCEPTS AND DEFINITIONS

4.1 Classifications in the National Accounts

The main building blocks in the system of national accounts are classifications. These are used in different ways and situations throughout the system. The system of national accounts involves a large number of economic transactions in goods and services that are undertaken by a number of economic agents. The function of the national accounts is to organize and group the basic units of transactions to provide meaningful information. The classification system also guarantees comparability over time and internationally.

Economic activities are reflected in transactions of all economic agents in the domestic economy. Depending on the analytical focus these economic agents can be classified as:

1. Institutional units and sectors;
2. Establishments and industries.

4.2 Institutional Unit and Sectors

An institutional unit is an economic entity that is capable in its own right of owning assets, incurring liabilities, engaging in economic activities and transactions with other entities. There are two main institutional units:

- Households – these consists of persons or group of persons sharing domestic arrangements; and
- Legal Entities – these are created for purposes of production and are mainly corporations, non-profit institutions or government unit.

The resident institutional units make up the total economy and are grouped into five mutually exclusive institutional sectors based on their financial role, behaviour and experience:

- The non-financial corporation sector ;
- The financial corporation sector;
- The general government sector;
- The non-profit institutions serving household sectors; and
- The household sector.

‘’Resident” is a concept that differentiates which units belong to the domestic economy and which belong to the Rest of the World (ROW). A resident institutional unit has a centre of economic interest in the economic territory of that country and that interest is indicated by having a dwelling or place of production activity for long or indefinite period of time (generally one year or more). The concept of residency is applied as follows:

a) Foreign workers-they should be allocated to the economy in which they have their centre of economic interest. Exceptions are (i) cross border workers - residence is

assigned on the basis of where the principal dwelling exists; (ii) long- term foreign workers working in a country one year or more, their residency status is in that country.

b) Corporations have residence in the country where they are legally constituted and registered.

c) Offshore banks and other enterprises- residence must be assigned to the country where their activity takes place.

d) Mobile equipment e.g. aircraft, ships, etc.- when mobile equipment is used in international waters or airspace, the activity is attributed to the country in which the operator maintains residence. When the equipment is used in another country the enterprise can generally be considered to have an economic interest in that country.

e) Governments – land, building, embassies military installations, research facilities etc. owned by governments are always residents of the country to which they relate and not of the country within which borders they are located.

f) International organizations- these are extra-territorial entities and are residents of no country. Therefore the U.N., I.M.F, World Bank, while located in the United States are not residents of the United States. However, staff members of these organizations are residents of the United States because their dwellings are located there.

4.3 Industries and Establishments

An industry is a grouping of establishments engaged in similar types of economic activities. An establishment is an enterprise or part thereof that is located in a single location in which only a single productive activity or the principal activity accounting for most of its output is carried out. The establishments are statistical units used in the compilation of output in the production accounts. Establishments that are engaged in the production of more than one activity are classified according to the major income earning activity, for example a supermarket that is engaged in retailing goods and has its own bakery is classified as a retailer and not as a bakery if the major income is from the retailing of goods. The retailing activity is known as the principal activity and the bakery secondary activity. Secondary activities are those activities that are carried out within an establishment, in addition to the principal activity and are suitable for delivery outside of the establishment. The output of an establishment is therefore the sum of both the principal and secondary activities. The system also recognizes supporting activities to the principal and secondary activities of an establishment. These are known as ancillary activities and are explicitly recognized or separately recorded in the system.

The national accounts use the International Standard Industrial Classification of all Economic Activities (ISIC) for the classifications of industries. The ISIC has four levels of aggregation, namely (i) tabulation categories (highest level) (ii) division (2 digits) (iii)

group (3 digits) and (iv) class level. It, however, allows for further disaggregating by countries to a 5-digit level. The production accounts by industry of the Cayman Islands are calculated using the ISIC rev 3.1 at the 4 digit level in the main. However because of data constraints, some 4-digit levels are aggregated, some are disaggregated to a 5-digit level if data are available. Local situations also caused some tabulation categories to be aggregated.

The Cayman Islands' value added by industry is presented using the following industries:

i. Agriculture, Hunting and Forestry
ii. Fishing
iii. Mining and Quarrying
iv. Manufacturing
v. Electricity, Gas and Water Supply
vi. Construction
vii. Wholesale and Retail Trade; Repair of Motor Vehicles, Motorcycles and Personal and Household Goods
viii. Hotels and Restaurants
ix. Transport, Storage and Communications
x. Financial Intermediation
xi. Real Estate Renting and Business Activities
xii. Public Administration and Defence
xiii. Education
xiv. Health and Social Work
xv. Other Services

It should be noted that establishments owned or controlled by government are excluded from the industry "Public Administration and Defence" using the following criteria:

(a) if the prices they charge for the goods and services they produce are economically significant;
(b) if they are operated and managed like a corporation; and

(c) if they have a complete set of accounts such that their operating surplus, savings, assets and liabilities can be separately identified and measured. These establishments are included in the industries in which their principal activity falls.

4.4 Measuring Gross Domestic Product (GDP)

4.4.1 Measurement of total production

The measurement of the total production of an economy employed in the SNA is the Gross Domestic Product. This is a flow phenomenon, i.e. it is measured over a period of time. Since the underlying purpose of economic activity is the satisfaction of human wants and since satisfaction results from consumption of goods and services, the performance of the economy can be measured in terms of the amount of productive

activity taking place. Money value is the common denominator, which enables the summation to a single figure the complex aggregation of goods and services included in the economy's flow of output during some definite period.

One very important aspect of the national accounting systems is the measurement of production. Production is a basic concept, which can be defined as the process whereby labour, natural resources, accumulated capital assets and technical knowledge (factors of production) are applied to the task of making valuable goods and services. They are designed to show in monetary terms the productive activity taking place within a specified period of time usually a year or shorter. Production in the SNA93 is limited to activities which fall in the production boundary, these activities are as follows:

a) Production of all goods whether produced for the market or for own use for consumption and capital formation.
b) Production of services if:
   - Sold on the market;
   - Supplied to units other than the producers themselves; and
   - Produced by paid labour.
c) Production of own-account housing services.

The production boundary includes the following, in addition to the generation of goods and service exchanged on a market for money (or bartered):

a) Goods or services that are not paid for separately at the market or economically significant prices; such as:
   - Production of government services and output of other non-profit institutions (other non-market output);
   - Banking services not explicitly charged for;
   - Services of pension funds; or
   - Services by life and casualty insurance companies.
b) Own-account production of capital goods.
c) Production of other goods (but not services) for own final consumption.
d) Imputed services of owner-occupied dwellings.
e) Output used as payments in kind, e.g. as compensation of employees.

Theoretically, illegal and concealed production and the underground economy are included in the production boundary.[4]

[4] There are two types of illegal production:
(a) The production of goods or services whose sale, distribution or possession is forbidden by law;
(b) Production activities which are usually legal but which become illegal when carried out by unauthorized producers e.g. unlicensed medical practitioners.

Household activities included in the production boundary comprise the following:

1. Services provided by paid domestic staff.
2. Housing services of owner occupied dwellings.
3. Major do-it-yourself repair and maintenance of durable goods used in production (fixed capital) and dwellings (own account capital formation).
4. Agricultural product, storage and processing.
5. Other processing e.g. cloth, footwear.
6. Illegal and concealed production activities.

On the other hand, household activities outside of the production boundary comprise:

1. Domestic services consumed by households and produced by themselves without paying domestic staff.
2. Minor do-it-yourself repair and maintenance of durable goods and dwellings.

Transactions which simply redistribute the goods and services produced in the economy among the different members of the community are outside the production boundary.
Examples:

- Transfer payments such as old age pension
- A father giving pocket money to his son (even if his son washes his car, it is regarded in some cases as a leisure time activity and not absorbing some scarce resource).

4.4.2 Approaches to measuring GDP

GDP is the total value of goods and services produced in an economy within a specified period of time, usually a month, a quarter or a year. The GDP along with its associate measures such as per capita GDP and debt to GDP ratios remain the primary indicators of economic performance and well-being of a country. The SNA identifies three alternative ways of measuring GDP:

a) The expenditure approach;
b) The income approach; and
c) The production approach.

The data gleaned from the ANA survey allow estimation using the production approach only hence it will be discussed in detail. For completeness, the other two approaches are briefly discussed below. It should be noted that the expenditure and income approaches are not currently used in this the beginning stage of the compilation process. However, these approaches will be employed as the program develops.

The Expenditure Approach is the sum of the final uses of goods and services less the value of imports of goods and services or equivalently the total value of the final product of resident producers (i.e. the part of their gross output which goes to final use only)

minus the value of imported goods and services which are used up in intermediate consumption. In the category of final product/use would fall:

- Household Final Consumption Expenditure
- Government Final Consumption Expenditure
- Gross Fixed Capital Formation (e.g. investment in building, machinery, equipment)
- Changes in inventory
- Exports of goods and non-factor services
- *Less* imports of goods and non-factor services

The Income Approach takes the sum of incomes accruing to the factors of production, i.e., the consumption of fixed assets (depreciation and other capital allowances), compensation of employees, operating surplus and the excess of taxes on production and imports over subsidies on production and imports.

- Compensation of Employees
- Consumption of Fixed Capital
- Operating Surplus
- Taxes on production and imports
- *Less* subsidies on production and imports

4.5 The Production Approach

This approach calculates GDP as the sum of the value added of all industries. This is the difference between gross output (essentially sales) of producers and the value of their intermediate inputs (that is purchases of commodities that are used up in the production of other commodities):

Gross Output – Intermediate Input = Value Added

The production account for industries allows for the compilation of GDP using the production approach. It records the production of goods and services as defined by the production boundary. Output generated from the production process is recorded as a resource on the left hand side of the 'T' account and the inputs used up in the production process is recorded as a use on the right hand side of the account. The value added is the balancing item for this account.

Production Account of a Producer

Uses (Debit)		Resources (Credit)	
Intermediate consumption	30	Gross Output	100
		Market	95
		For own final use	5
		Other non-market	0
Gross Value Added	70		

4.5.1 Gross output

Output comprises those goods or services that are produced within an establishment that become available for use outside that establishment. It includes inventory of work-in-progress and finished goods. The SNA recognizes three categories of output:

A. Market output which includes the following:
   - *i)* The total value of goods and services sold at economically significant prices;
   - *ii)* The total value of goods and services bartered;
   - *iii)* The total value of goods and services used for payment in kind, including compensation in kind;
   - *iv)* The total value of goods and supplied by one establishment to another in the same market enterprise to be used as intermediate inputs;
   - *v)* The value of the changes in inventories of finished goods and work in progress.

Market output = sales plus changes in inventory of finished goods and work in progress.

B. Output for own final use:
   - *i)* Production of capital goods for own gross capital formation
   - *ii)* Household production of goods and services for own final consumption e.g. owner occupied dwellings
   - *iii)* Changes in inventories of finished goods and work in progress intended for own final use.

Output for own final use can be valued at prices for similar goods and services on the market or valued at the production cost plus mark up and normal profit.

C. Other non-market output:
   This consists of goods and services produced by private non-profit institutions serving households (NPISH) and government. These goods and services are usually supplied free of costs or at economically insignificant prices.

Other non-market output = sum of production costs (intermediate consumption + compensation of employees + consumption of fixed capital + other taxes on production).

4.5.2 Output of particular industries

Wholesale and retail distribution

The output of the Wholesale and Retail industry is measured by the total value of trade margins realized on the goods purchased for resale. When minimal processing such as packaging, cleaning, grading etc. is done, these costs are included in intermediate consumption but the goods purchased for resale are not treated as intermediate consumption when they are resold.

The value of output = the value of sales, including sales at reduced prices
+ the value of goods purchased for resale and used for consumption, compensation of employees, etc.
- the value of goods purchased for resale
+ the value of additions to inventories of goods for resale
- the value of goods withdrawn from inventories of goods for resale
- the value of recurrent losses due to normal rates of wastage, theft or accidental damage.

Operating lease

This activity consists of renting of machinery and equipment for periods significantly shorter than their expected service life. The owner (lessor) of the machinery and equipment provides a service to the user (lessee) of the machinery and equipment for which he pays rents. The value of output for this activity is measured by the rental paid to the owner (lessor) by the user (lessee). Operating lease is a productive process and should be distinguished from financial leasing which is a method of financing the acquisition of fixed assets.

Financial intermediaries (except insurance and pension funding)

Output is normally derived from the transactions in goods and services while interest is derived from transactions in financial instruments. In other parts of the system interest earned is excluded from gross output but in financial intermediation interest simultaneously reflects transactions both in goods and services and as well as financial instrument.

Financial intermediary institutions intermediate between lenders and borrowers by routing funds between them. These institutions such as banks and others incur liabilities on their own account by taking deposits, issuing bills, bonds or other securities. They in turn make loans and advances, purchase bills, bonds and other securities from other institutional units, such as, corporations, households and government on varying terms and conditions. The difference between the higher rates charged to borrowers and the lower rates paid to lenders is an implicit charge to customers for the service provided by these financial intermediaries and is referred to as financial intermediation services indirectly measured (FISIM) and forms part of the output. If gross output of banks were calculated in a similar way to other industries, their operating surplus would be negative.

Unlike the 1968 SNA, the 1993 SNA recommends that FISIM be allocated not only to industries but also to households, government and the export of services as they too are users of the financial intermediation process.

The SNA93 proposed two approaches to the allocation of FISIM to final users and industries:

1. To base the allocation of interest paid by borrowers and received by lenders on a sector to sector basis by applying the difference between the reference or pure rate and the actual rates. This reference rate represents the pure cost of borrowing and would eliminate the risk associated with making transactions. The "actual" interest rate contains both a fee for intermediation services as well as transaction risks. However, this approach requires a great deal of detailed information; or

2. To allocate the FISIM to the different users proportionately to their financial assets and liabilities or other financial indicators.

The SNA93 recognizes that these two approaches may not be feasible for all countries due to data constraint. The alternative would be (similar to the 1968 SNA) to create a notional industry with no output and the FISIM treated as intermediate consumption resulting in negative value added. This implies that industries use all of the services of the banks. The Cayman Islands SNA uses this approach for the reasons stated above. These institutions are also engaged in secondary activities for which fees and commissions are explicitly charged such as buying and selling of foreign currency, investment advice, real estate transaction, etc.

Output for Financial Intermediaries = Property income receivable (interest + dividend)[5]
- Total interest payable
+ Bank charges, fees, commissions, etc.

Insurance and pension funding

Insurance and pension funds are intended to provide individuals with financial protection against the risk of certain types of eventualities such as fire, accident, etc. Funds are collected in the form of premiums from the policy holders and invested in financial or other assets. These are held in technical reserves to meet future claims arising from the occurrence of the events specified in the insurance policy contract. As insurance companies do not charge explicitly for providing financial protection, the value of such services has to be estimated indirectly. The value of the output of the services provided by insurance companies is therefore estimated as revenues from premium and interest on investments less expenses in the form of expected claims and changes in the allocation of technical reserves.

[5] According to SNA93 output for financial intermediaries should exclude the value of any property income receivable from investments of their own funds.

The value of output of insurance services and pension funds is calculated as:

Total actual premiums (contributions) earned
+ Total premium supplements (investment income)
- Claims (benefits) due
- Increases in actuarial (mathematical) reserves

- Actual premiums earned refer to the portions of premiums payable in the current or previous periods which cover the risks incurred during the specified accounting period. They are *not* equal to the total premiums payable during accounting period, as only that portion of premiums payable covers the risk incurred in that particular period. The other portion of the premiums is a prepayment for subsequent periods, and forms part of the technical reserves.
- The income from investment of technical reserves, built up to protect the policy holders is referred to as premium supplements.
- Claims due refers to the claims that become due for payment during the accounting period.
- Changes to actuarial reserves refer to the allocation to technical reserves to accumulate the capital sums guaranteed under the policies that is, the sum set aside to cover the risk of insuring future periods. It excludes holding gains or losses.

Insurance transactions are recorded on a consolidated basis in the national accounts; that is, claims and premiums are recorded net of reinsurance transactions between insurance companies and only net reinsurance transaction with the rest of the world is recorded.

4.5.3 Intermediate consumption

Intermediate consumption consists of the value of the goods and services consumed as inputs by a process of production. It excludes fixed assets whose consumption is recorded as consumption of fixed capital. The goods or services may be either transformed or used up by the production process. Some inputs re-emerge after having been transformed and incorporated into the outputs; for example grain may be transformed into flour which in turn may be transformed into bread. Other inputs are completely consumed or used up; for example, electricity and most services.

Intermediate consumption includes the value of all the goods or services used as inputs such as sales expenses, marketing, accounting, data processing, transportation, storage, maintenance, security, renting of building and equipment etc. Intermediate consumption also includes rentals paid on the use of fixed assets, whether equipment or buildings that are leased from other institutional units, fees, commissions, royalties, etc. payable under licensing arrangements.

4.5.4 Valuation of output, intermediate consumption and value added

Output can be valued at either basic or producers' prices. The SNA93 recommends basic prices for the valuation of output; intermediate consumption should be valued at purchasers' price.

Basic price is defined as the amount receivable by the producer from the purchase of a unit of good or service less any tax payable, plus any subsidy receivable as a consequence of its production or sale. Separately invoiced transport charges by the producer are excluded.

Producer's price (net of all valued tax (VAT)) is the amount receivable by the producer from the purchase of a unit of good or service less any VAT invoiced to the purchaser. Separately invoiced transport charges by the producer are excluded.

Purchaser's value is the amount paid by the purchaser, excluding any deductible VAT but includes any transport charges paid separately by the purchaser for delivery of the goods. These three concepts are related as follows:

- Basic Price
  plus taxes on product excluding VAT
  less subsidies on product
- Equals Producer's Price
  plus trade and transport margins
  plus non- deductible VAT
- Equals Purchaser's Price

It should be noted that in the Cayman Islands there is no VAT hence producers' prices is the same as purchasers' price if there are no trade and transport margins.

4.5.5 Taxes on production and imports

Taxes are compulsory, unrequited payments made to government by other institutional units. There are two types of taxes on production and imports:

1. Taxes on products are taxes on goods and services that become payable when the goods are produced, sold, imported or otherwise disposed of by their producers. The following are categories of this type of tax:
   a) Value added taxes (VAT)
   b) Taxes and duties on import
   c) Export taxes
   d) Taxes on product n.e.c. (e.g. hotel occupancy tax).

2. Other taxes on production are all taxes excluding taxes on product that establishments incur as a result of engaging in production (e.g. business and professional licences, property tax, stamp duties).

4.5.6. Subsidies on production and imports

Subsidies are current unrequited transfers from government to resident producers and importers. These transfers or payments are based on the levels of production and/or the quantity and value of goods and services produced, imported or sold. Subsidies are seen as negative taxation as producers receive them rather than pay them. There are two types of subsidies on production and imports:

1. Subsidies on products – subsidies payable per unit of a good or service;
2. Other subsidies on production - subsidies excluding subsidies on products that are paid to resident establishments as a result of engaging in production.

4.6 Measuring Gross Domestic Product at Constant Prices

The change in GDP results from the contribution of (i) the quantity of goods and services produced and (ii) the price at which these goods and services are sold. GDP at current prices reflects both these contributions as the production of the period is measured at the prices at that period. GDP at constant prices, on the other hand, reflects only the change in quantities produced. This indicator measures the production of the period at the prices of another period referred to as the base year.

GDP at constant price is a measure of the real growth, which takes place within an economy. The rate of change of GDP at constant prices from period to period is often used to assess the economic performance of a country as it shows only the change in the volume of goods and services produced as the price effect is removed. In theory, correcting for inflation refers to the process of revaluing current production using the average prices prevailing in the base year as follows:

GDP at current prices = $Quantity_t \times \Pr ice_t$

(Current quantities of goods and services produced multiplied by their current prices)

GDP at constant prices = $Quantity_t \times \Pr ice_0$

(Current quantities of goods and services produced multiplied by their prices in a year chosen as the base year)[6].

Movement in GDP at constant prices over time indicates whether the economy is growing or is in decline. An increase in GDP at constant prices means that output is growing faster than the rate of inflation and hence the economy is considered to be growing. The reverse would be true for a fall in GDP at constant prices.

The explanation given above is an oversimplification of the actual computation but is necessary to convey what the process is intended to accomplish. The final estimates of GDP contain different components which all have to be adjusted for inflation. Even

[6] The base year chosen for the Cayman Islands System of National Accounts is 2007.

though the process of deflation varies depending on the industry, the process always entails the compilation of indices. The deflation process can be effected by either directly deflating the current price estimates with a price index (usually the CPI) or by extrapolating the base year estimates by a volume index.[7] The two approaches might also be used simultaneously.

The process recommended by the SNA to estimate GDP at constant prices is to deflate both gross output and intermediate consumption separately and then subtract the latter from the former. Basically, the recommendation is that estimations be made for both gross output and intermediate consumption at constant prices; taking the difference would yield GDP at consistent prices. This is referred to as double deflation and though intuitively appealing, it is difficult to apply in practice as it requires detailed data of good quality on price indicators for both gross output and intermediate inputs.

The alternative to double deflation is the use of a single indicator to extrapolate or deflate GDP at current prices. Although single indicators are generally unsuitable in industries where the relationship between value added, gross output and intermediate consumption vary significantly from one year to the other, they are less sensitive to errors in other industries and hence extensively used.[8] The single indicator method was the method of choice for the Cayman Islands and hence is discussed below in more details.

The single indicator method used in the Cayman Islands is the extrapolation of base year value added by a volume index of gross output. Where relevant quantity data were available, the volume index was calculated directly. In the absence of quantity data, the volume index was calculated indirectly by deflating gross output at current prices by the appropriate price index from the CPI. This approach tends to be the most frequently used single indicator and is based on the assumption that the ratio of value added to gross output in current prices remains unchanged at constant prices. This assumption might hold in the short run but becomes progressively less relevant in the long run hence periodic rebasing of the constant price estimates is recommended.

Another single indicator approach is the deflation of current value added by a price index of gross output. SNA defines a price index as “an average of the proportionate changes in the prices of a specified set of goods or services between two periods of time.” This approach is referred to as single deflation due to the fact that only the current value added is deflated and not the gross output and the intermediate consumption. The ideal price index for this approach would be one based on wholesale or producer prices. However, these types of indices are not always available; as a result indices based on retail or consumer prices (e.g. CPI) are used. The disadvantage with using the CPI in this case is that the CPI relates specifically to price movements of goods and services purchased by

[7] In the base year the current and constant estimates are the same.
[8] The agriculture industry is one such industry where the relationship between gross output, intermediate consumption and valued added vary significantly from one year to another due to disease, weather conditions, etc.

households for consumption and so should not be used as a deflator for gross output destined for non-household consumption.

Extrapolation of value added by a volume index of employment is another single indicator method employed in the Cayman Islands System of National Accounts. This method entails the use of proxy indicators of gross output, such as hours worked, or numbers employed to extrapolate gross value added in the base year. These proxy indicators are most often used in services industries where it is difficult to specify direct volume measures. The weakness of this method is that it assumes constant labour productivity between the base year and subsequent years. This assumption inevitably leads to mismatches between employment and gross output hence the necessity for frequent revisions. According to accepted convention, where this method is employed an explicit assumption should be made about growth in labour productivity of about 1% per year.

Material input is another proxy indicator that can be used to extrapolate base year gross value added. This volume index should comprise of the most import material inputs to the production process. This method is usually employed in industries with heterogeneous output (e.g. construction, garment manufacturing, manufacturing of bakery products, etc). This method also necessitates frequent rebasing to account for changes in the ratio of gross output to value added and inputs.

5. IMPLEMENTATION OF THE CAYMAN ISLANDS' SNA

5.1 Introduction

This section provides an overview of the work done in developing the System of National Accounts for the Cayman Islands. It examines the classification system employed in delineating institutional units into specific industries. This is fundamental to the measurement of output and value added by industry. The section also examines the main sources of data used in compiling the estimates. The Annual National Accounts Survey was the main data source and was supplemented by data from government accounts and other administrative sources. The section concludes by examining the estimation techniques employed in deriving gross value added by industry at current and constant prices.

5.2 Coverage of Industries

All active business units were classified according to the International Standard Industrial Classification (ISIC) revision 3.1, which is the industrial classification scheme recommended by SNA93. In accordance with SNA93 and ISIC guidelines, business units were assigned codes based on their principal economic activity.[9] The ISIC rev 3.1 was adapted to accommodate a more detailed dis-aggregation of economic activity. For the most part, estimation and analysis were done at the product group level (5-digit ISIC code). However, some estimations had to be done at the class level (4-digit code) due to data constraints.

5.3 Data Sources

Gross value added at current and constant prices was compiled using data from a variety of primary and/or secondary sources. Primary sources relate to data collected and compiled by the Economics and Statistics Office (ESO). The main source of primary data was the Annual National Accounts Survey. Other primary data sources were the consumer price index (CPI), Labour Force Survey (LFS), Survey of Living Conditions (SLC) and the Household Budget Survey (HBS). Secondary data sources, i.e., sources external to the ESO, consist mostly of administrative records and data generated as by-products of the administrative process. Revenue and expenditure accounts of government and statutory agencies, merchandise trade data, and specified data from the Cayman Islands Monetary Authority (CIMA) comprised the main important secondary data sources.

The Annual National Accounts Survey is designed primarily to collect information from active business units on their income and expenditure. Questionnaires were hand-

[9] The principal activity of a business is the activity whose value added exceeds that of any other activity carried out by the business.

delivered to business units on Grand Cayman and mailed to those in Cayman Brac and Little Cayman. The survey collected information for calendar years 2006 and 2007. The survey was administered to all units in the ESO Business Register. Data on government ministries and departments were obtained from government accounting reports.

The consumer price index (CPI) was predominantly used in computing gross value added at constant 2007 prices. The gross value added of a number of industries, at current prices, was deflated by the price indices of CPI items, or groups of items. The CPI was also used in estimating the gross value added of owner-occupied dwellings, some groups within the agriculture and fishing industries and mining at current prices.

The government accounts comprise a voluminous amount of data that had to be classified, partitioned and adjusted to suit national accounts purposes. Revenue and expenditure data were gathered from the government database and then exported to Excel where it was adjusted for national accounts purposes. The database allows for the generation of reports based on cost centres. Through this process, public administration was identified and separated from government companies. Additionally, revenue was classified into three groups: taxes (customs duties, property tax, hotel occupancy tax, cruise ship departure tax, stamp duty, etc.), sales of goods and services (work permits, departmental sales, etc.) and other revenue (interest, fines and forfeitures, etc.).

Import and export data for 2006 and 2007 were inadequate for national accounts purposes because of the imprecise commodity classifications and the high level of data aggregation. This proved challenging as the data on imports are essential to the commodity flow method employed to estimate the gross value added of construction and distribution. Alternatively, data on exports to the Cayman Islands from the USA were used. The USA is the major source of imports into the Cayman Islands accounting for approximately 75 percent of total imports. This USA data had to be transformed into usable format for national accounts estimation.

5.4 Current Price Estimation

The estimates of gross value added at current prices were derived by compiling and analyzing data at the level of the product groups (5-digit ISIC code). This detailed approach ensured good coverage of all economic activity, subject to the limitations of the available data. This information was then aggregated to compile the production and generation of income accounts for the industries.

The estimation process was carried out in the following way. Data from the ANA Survey were grossed up (where necessary) using the simple blow up (SBU) technique. This involves the use of a weighting factor to gross up the sample data to that of the population. The weighting factor is the ratio of the sample to the population. The complete process was carried out as follows:

1. Ratio of individual expense items to gross output was established, which yielded the expense coefficients (cost structure)

2. Sampling ratio (SR) was calculated as the number of employees in the sample divided by number of employees in the total population.

3. The reciprocal of the sampling ratio (or estimator) was used to gross up sample output (i.e., 1/SR multiplied by the sample output, or sample output divided SR).

4. Total expense ratio was applied to the grossed up output figure to derive the grossed up figure for total expenses.

5. Expense coefficients (Step 1) were applied to grossed up output to arrive at individual expense items.

This estimation procedure covered only those product groups for which ANA survey returns were received. In some cases, no grossing up was required since the sample data coincided with the population data. Different approaches were employed for product groups for which no survey responses were received (e.g. expenditure data from the Household Budget Survey, price and quantity data, import data, etc.).

5.5 Constant Price Estimation

Constant price GDP was estimated by deflating current price GDP using various price or volume indices. Single deflation was the generally used method in estimating GDP at constant prices. Most of the constant price estimates were derived through the extrapolation of base year estimates by volume indices of gross output.[10] Unlike the current price estimates, no general approach was used in deriving the estimates at constant prices. Different indices were used in almost every category, either directly from the CPI, or specially constructed to give the most reliable results.

5.6 Revision Policy

In order to improve the System of National Accounts revisions are undertaken periodically. New and revised data from regular surveys, administrative records, audited financial statements from companies, public sector accounts, etc. are incorporated into the system as they become available. Previous year estimates are revised when current year estimates are being generated.

[10] The process entails using the gross output constant to construct an index which is then used to extrapolate the base year gross value added.

6. GDP BY INDUSTRY AT CURRENT PRICES: ESTIMATION METHOD

This section examines the estimation process for individual product groups and specific industrial groupings. It looks at the specific sources of the data and summarizes the estimation methods used in preparing gross value added at current prices. It also looks at the shortcomings in terms of data availability and the estimation procedure employed.

6.1 Agriculture

This section covers growing of field crops, fruits, vegetables, flowers and ornamental plants; rearing of cattle, poultry and other livestock, landscape gardening services, and animal husbandry. Estimates of gross value added were made for the following eight product groups below:

01110 - Growing of field crops
01120 - Growing of flowers and vegetables
01213 - Farming of beef and dairy cattle
01214 - Farming of goats
01220 - Pig farming
01230 - Poultry production
01415 - Landscape gardening services
01430 - Animal husbandry

Sources and methods. Limited data were available on the product groups in this section. The Department of Agriculture had no recent data on the growing of crops which made the estimation process extremely difficult. The last set of published data from the Agriculture Department was for 2000. However, limited data on livestock population were available for 2006 and 2007. The estimate for crop production was derived by applying input/output ratios of a similar economy.[11] The fertilizer-to-input ratio (of a similar economy) was applied to total fertilizer imports (for the Cayman Islands) to derive total input. The input to output ratio was then applied to this estimated total input to get an estimate for gross output.

Gross valued added for the growing of flowers was derived using data from the ANA Survey. The simple blow technique (based on employment numbers) was used to gross up the sample data to that for the population. The cost structure coming out of the sample was then applied to the estimated gross value added.

The estimate for the farming of beef and dairy cattle was derived using the ratio of beef production to cattle population of a similar economy. Also a slaughtered weight to live weight ratio was used based on data from another country since there was no such data

[11] It is reasonable to apply ratios from another economy which has similar structure to that of the Cayman Islands.

available on the Cayman Island. This ratio was applied to the livestock population of cattle in the Cayman Islands to estimate total domestic beef production. The estimated beef production was then multiplied by the CPI price for stew beef to derive an estimate of gross output. An estimate of domestic dairy production was made using the expenditure on fresh cow's milk coming out of the Household Budget Survey (HBS). The cost structure of a similar economy was then applied to the estimated gross output resulting in the estimated gross value added.

The estimation process for the farming of goats is similar to that for farming of beef cattle. It was derived using the ratio of goat meat production to goat population of a similar economy. This ratio was applied to the livestock population of goat in the Cayman Islands to estimate total domestic goat meat production. The estimated production was then multiplied by the CPI price for lamb (since the CPI price for goat was not available) to derive an estimate of gross output. The cost structure of a similar economy was then applied to the estimated gross output resulting in the estimated gross value added.

Pig farming was estimated using the relevant ratios of a similar economy and applying the CPI price. Estimated domestic pork production was then multiplied by the CPI price for pork chops to derive as estimate of gross output. The cost structure of a similar economy was then applied to the estimated gross output resulting in the estimated gross value added.

In the case of landscape gardening, the simple blow technique (using the number of employees) was used to estimate gross output and detailed expenditure. For animal husbandry no extrapolation was necessary as the sample data coincided with that for the population.

Limitations of estimates. The estimates in this sector are severely limited by the paucity of reliable data on production, material inputs and farm gate prices. No information was available on the level of subsistence or own-use agricultural production. The most useful statistics for estimating agricultural production are those which relate to total acreages and yield per acre of main agricultural crops, however, such data were not currently available. Data on the main material inputs into agriculture (fertilizers and insecticides) came from trade statistics but this was not as detailed as required. Cost studies were needed as these would provide valuable data on agricultural inputs.

6.2 Fishing

Sources and methods. Data on the fishing industry were not readily available; this inhibited the estimation process. Information gleaned from the HBS was utilized in deriving the estimate for this industry. The HBS only provides data on household expenditure hence estimation had to be done for non-household expenditure. It was estimated (based on anecdotal evidence) that household expenditure represents 25% of total expenditure on domestic fishing. Gross output for fishing therefore equals household

expenditure on domestic fish multiplied by four (4). Gross value added was derived by applying cost structure from another country to estimated gross output.

Limitations of estimates. Some of the limitations experienced were lack of data on the quantity of fish landed and material inputs. No data were available on the costs involved in the industry hence the use of proxy data. This could be mitigated, to some extent, by acquiring data on the quantity of fish and sea products landed and cost outlay from a sample of fishermen.

6.3 Mining and Quarrying

Mining and quarrying covers mining of minerals and ores, extraction of crude petroleum and natural gas and provision of services associated with this activity, and operation of quarries. The mining industry in the Cayman Islands is monitored by the Aggregate Advisory Committee (AAC).[12] According to the AAC, local quarrying may be grouped into the following categories; construction-grade rocks, rocks for fill material, marl, peat, and sand. In this section only one class of industrial activity was recognized as being important to the economy of the Cayman Islands.

14100 - Quarrying of stone, sand, clay and gravel.

Sources and methods. Gross output was derived using price and quantity data. Quantity data were sourced from the AAC and the Port Authority. The AAC provided data on the seven licensed quarries in Grand Cayman. These data were gleaned via surveys conducted by the AAC to assess the average monthly production rate for all licensees. Data on the shipment of aggregate from Cayman Brac to Grand Cayman were provided by the Port Authority. Not all aggregate produced in Cayman Brac was shipped to Grand Cayman so an estimate (20 percent of total shipped) was added for local use in Cayman Brac. The unweighted average CPI price for crushed rocks, quarry rocks and sand, quarry fill, and top soil was applied to the total production to derive gross output. The sample expense coefficients on intermediate inputs were then applied to gross output to derive gross value added.

Limitations of estimates. No actual data were available on quarrying in Cayman Brac (CB) and Little Cayman (LC). Shipment of aggregate to Grand Cayman (from CB) plus an estimate for domestic use constitutes the production for Cayman Brac; no estimate was made for production on Little Cayman.[13] The other major limitation is that the available data do not cover on-site quarrying as part of property development - production for own use. According to the AAC, this is a common method of raising the elevation of the land to height suitable for development. Another problem was that the AAC does not collect price data.

[12] The AAC is the government inter-agency committee technical group comprised of the Public Works Department, Planning, Department of Environment, and Water Authority for the purpose of advising the Cabinet on issues related to aggregate production and supply.
[13] The single quarry on Little Cayman was not operating on a full time basis.

6.4 Manufacturing

Manufacturing encompasses a wide range of activities. It is defined generally as the physical or chemical transformation of materials or components into new products. The manufacturing sector is relatively small in the Cayman Islands hence some estimates were aggregated. Also, because of the small sample received some of the product groups had to be combined to arrive at meaningful estimates.

Gross value added was estimated for the following groups:

15 - Manufacture of food products and beverages (3 product groups)
18 - Manufacture of wearing apparel (1 product group)
19 - Manufacture of luggage, handbags and footwear of leather (1 product group)
20 - Manufacture of wood and products of wood and cork, except furniture (1 product group)
22 - Publishing, printing and reproduction of recorded media (1 product group)
25 - Manufacture of rubber and plastic products (1 product group)
26 - Manufacture of other non-metallic mineral products (2 product groups)
28 - Manufacture of fabricated metal products (1 product group)
35 - Manufacture of other transport equipment (1 product group)
36 - Manufacture of furniture; manufacturing n.e.c. (1 product group)

Sources and methods. Data from various sources were used in the estimation process for the manufacturing sector. Some information was available from the ANA survey which was supplemented by data from the HBS and other secondary data. The manufacturing of food products and beverages utilized heavily data from the HBS, but the data were adjusted for imports and exports. Manufacturing of wearing apparel, glass and glass products, fabricated metal products, and repairing of boats used the simple blow technique (based on number of employees) to gross up the data from the sample. For manufacture of plastic products, and luggage and handbags, the sample data coincided with that for the population. Manufacture of builders' carpentry and joinery utilized proxy ANA survey and HBS data due to survey non-response for this product group. Publishing and printing utilized price and estimated quantity data along with data from the ANA survey to derive gross value added.

Limitations of estimates. The major limitation was the low response to the ANA survey and the inconsistencies in the data from the completed survey forms. Some of the major manufacturing establishment did not respond to the survey at all.

6.5 Electricity and Water Supply

Estimates of gross value added were compiled for the following product groups:

40100 - Production, collection and distribution of electricity
41000 - Collection, purification and distribution of water

Sources and methods. Income and expenditure data on electricity and water production were received through the ANA survey. There was no need for grossing up as the data received represented the population.

6.6 Construction

The construction industry covers general construction contractors engaged in constructing, altering, repairing structures, highways, roads, etc. It also includes sub-contractors engaged in only part of the work on a construction project such as repairs, painting, plumbing, installation of air condition and heating equipment, excavating and foundation work. Estimates of gross value added were made for the following product groups in the construction sector:

45210 - Building of complete constructions or parts thereof
45221 - Construction of roads
45229 - Other civil and structural engineering activities
45300 - Building installation and completion
45500 - Rental of construction or demolition equipment, with operator

Sources and methods. Estimates of construction activity were derived from two main sources: ANA survey data and specific trade data. Building installation was combined with building completion due to data gaps. The commodity flow approach was used to derive an estimate of gross output. The basis of the commodity flow approach is the imports of construction inputs. The CIF value of construction inputs was added to the import duty on the inputs, the distribution mark-up, and domestic production of construction inputs to derive gross output (see equation below). The cost coefficients derived from the ANA survey returns were then used to compute gross value added.

$$\textbf{Gross output} = I_{cif} + I_d + M(I_{cif} + I_d) + D$$

Where I_{cif} = cost insurance and freight value of the imports of construction imports

I_d = duty on construction imports

$M(I_{cif} + I_d)$ = mark-up on construction inputs

D = domestic production of construction inputs

Gross output for 45210 and 45300 were derived using the commodity flow approach which utilizes the flow of locally produced and imported building materials. Cost coefficients from the ANA survey returns were employed to derive gross value added. For 45221 and 45229 the sample data coincided with that for the population hence no grossing up was necessary. The simple blow technique (based on employment numbers) was used for 45500.

Limitations of estimates. The paucity of data from construction companies led to the application of a commodity flow approach. The main source of data was the external trade data. However, these data were not as detailed as expected and of the required quality. Another limitation was the lack of reliable data on wage rates of various

construction workers which did not allow for further disaggregating of the various sub industries within the construction industry.

6.7 Wholesale and Retail Trade and Repair Services

Sources and methods. Gross value added was estimated via a commodity flow approach. With this approach the gross output was computed by applying net trade margins to the gross value of commodities entering the distributive trade; these commodities consists of imports (excluding imports by final users) and locally manufactured goods. In this case, data on the flow of imported and locally produced goods were predominantly used in generating the estimates of gross output. Cost coefficients derived from the ANA survey were employed to derive estimates of gross value added. Repair services are carried out mainly as secondary activities hence no stand-alone estimates needed to be generated.

Limitations of estimates. These estimates are subject to the limitations of the external trade data as was outlined for the construction sector.

6.8 Hotels and Restaurants

This industry is integral to tourism in the Cayman Islands. Gross value added was estimated for the following product groups:

55101 Hotels
55102 Guest houses, apartments, villas, resort cottages, etc.
55200 Restaurants, bars, cafes, fast food outlets, and catering activities

Sources and methods. Data from the ANA survey was supplemented with data from the Cayman Islands Department of Tourism (CIDOT) to derive the estimates. Gross output for hotels and guest houses, etc was derived using the simple blow technique (based on number of beds). The cost structure from the sample data was applied to derive gross value added. For 5520, gross value added was derived using household consumption data from the HBS coupled with tourist expenditure data from the CIDOT.

Limitations of estimates. The low response to the ANA survey is a major limitation of this estimate. In addition, some data from the tourist statistics report were not as recent as would be desirable.

6.9 Transport, Storage and Communications

Estimates of gross value added were derived for the following product groups:

602 Other land transport (3 product groups)
611 Sea and coastal water transports (1 product group)
621 Scheduled air transport (1 product group)
630 Supporting and auxiliary transport activities (6 product groups)
641 Post and courier activities (2 product groups)
642 Telecommunications (1 product group)

Sources and methods. Estimates were based mainly on data from the ANA survey. This was supplemented with data from the Market Assessment of Public Transportation Report (June 2007).[14] Estimates for land transport were mainly based on data from the report; the simple blow technique was also used where necessary. Estimates for 621, 623 and 642 were mainly based on ANA survey data, applying the simple blow technique where necessary. National postal service (64110) was based on data extracted from government accounts**.**

Limitations of estimates. The low response rate to the ANA survey affected the quality of estimates for some of the product groups in this sector. This especially affected the estimates for other land transport, which was alternatively derived using data from the public transportation report.

6.10 Financial Intermediation

This industrial sector encompasses the activities of depository institutions, central banking, credit unions, financial auxiliary, life and non-life insurance, etc. Gross value added was estimated for the following product groups:

651 Monetary intermediation (4 product groups)
659 Other financial intermediation (3 product groups)
660 Insurance and pension funding (3 product groups)
671 Activities auxiliary to financial intermediation (7 product groups)
672 Activities auxiliary to insurance and pension funding (2 product groups)

Sources and methods. Estimates for monetary intermediation were derived using data from the ANA survey and from the Cayman Islands Monetary Authority (CIMA). For commercial banking activities and building societies, data were received for the entire population hence, no grossing up was necessary.

Gross output for life and non-life insurance was derived from summary data on revenues provided by CIMA. As regulators, the data from CIMA were comprehensive hence there was no need for grossing up. The cost coefficients were derived from the ANA survey data. Gross value added for pension funding was estimated from financial statement data received from the Cayman Islands National Pensions Office and the Public Service Pensions Board (PSPB).[15]

Estimates for financial intermediation auxiliaries were derived mainly from data from the ANA survey, applying the simple blow technique where necessary. The gross output for remittance services was derived using price and quantity data due the non-response of these establishments to the ANA survey. The average value of transactions was calculated using data received from CIMA on the number and value of transactions. An

[14] The assessment was conducted by Deloitte as commissioned by the Department of Tourism
[15] The Cayman Islands National Pensions Office is the regulatory body for all private pension plans. The PSPB manages and administers the Public Service Pensions Funds/Plans.

average price was derived based on the magnitude of the average transaction. Gross output was estimated by multiplying the estimated price by the number of transactions. Estimates for insurance and pension funding auxiliaries were made using ANA survey data which were grossed up using the simple blow up technique based on employment numbers.

Limitations of estimates. The data received from CIMA were in aggregate form hence, it was impossible to separate some institutions by their major economic activity. This could lead to some double counting -- overestimation in some economic activities and underestimation in others. In addition, the data from CIMA were collected for their own purpose hence some of the details needed for national accounting purposes were lacking. The lack of data for financial institutions that are not regulated and supervised by CIMA was another major constraint.

6.11 Real Estate, Renting and Business Activities

The following product groups were estimated in this industrial sector:

701 Real estate activities with owned or leased property (3 product groups)
702 Real estate activities on a fee or contract basis (2 product groups)
711 Renting of transport equipment (1 product group)
712 Renting of other machinery and equipment (1 product group)
720 Computer and related activities (1 product group)
741 Legal, accounting, auditing, tax consultancy, market research and business and management consultancy (4 product groups)
742 Architectural, engineering and other technical activities (2 product groups)
743 Advertising (1 product groups)
749 Business activities n.e.c. (5 product groups)

Sources and methods. Data from a myriad of sources were employed in the estimates for this industrial sector. ANA survey data were supplemented by data from the Household Budget Survey (HBS), Labour Force Survey (LFS), Survey of Living Conditions (SLC), CPI, Compendium of Statistics, etc.

Gross output estimate for residential renting was based on consumption data from the HBS. Cost coefficients were derived from the ANA survey data. For commercial renting, gross output was derived using ANA survey data which were grossed up using the simple blow up technique based on employment numbers. Due to the imputed nature of output for rental of owner-occupied dwellings, ANA survey data could not be used. Gross output for owner-occupied dwellings was computed by multiplying the estimated owner-occupied housing stock by an estimated average rent. The housing stock of owner-occupied dwellings was derived by applying the ratio (of owner-occupied households to total households) to the estimated total housing stock.[16] The housing stock was calculated

[16] There are differences between the number of households and the housing stock as a house may accommodate more than one household hence this ratio serves as a proxy.

by extrapolating the 2004 estimate of the number of dwellings by the number of approved developments.[17] Average rent was derived by dividing total rent expenditure (from the HBS) by the estimated number of rented dwellings. From gross output, expenditure on insurance, repairs and maintenance (derived from the HBS) was subtracted to derive gross value added.

Gross output and expenditure estimates for real estate activities on a fee or contract (702), renting of transport equipment (711), renting of other machinery and equipment (712) computer and related activities (720), legal and accounting activities (741), architectural and engineering activities (742), advertising (743), and business activities n.e.c. (749) were based on ANA survey data grossed up using the simple blow up technique.

Limitations of estimates. The inadequacy of responses to the ANA survey inhibited the estimates in this industrial sector. The unavailability of data on the current housing stock made the estimation process even more difficult.

6.12 Public Administration and Defence

Public administration and defence encompasses the administrative and regulatory functions of central government, non-profit institutions serving government (NPISGs) that carry out administrative and regulatory functions, and public order and safety. Government functions relating to education, health and social work are included in their respective industries.

This sector covers gross value added estimates for the following product groups:

75110 General (overall) public service activities
75120 Regulation of the activities of agencies providing health, education, cultural and other social services
75130 Regulation of and contribution to more efficient operation of business
75231 Police services
75232 Fire services
75233 Prison administration and correctional services
75234 Legal and judiciary services
75239 Other public security services n.e.c.

Sources and methods. The main source of data for compiling the estimates of gross value added was the government financial accounts for the fiscal years 2006/2007 and 2007/2008.[18] Government's enterprise-type activities were identified and separated in the process of analyzing the government accounts.

[17] The housing stock estimate for 2004 was taken from the Economic Commission for Latin America and the Caribbean (ECLAC) report on the impact of Hurricane Ivan in the Cayman Islands.
[18] The fiscal year in the Cayman Islands run from July to June hence fiscal year data for 2007/2008 is treated as 2007 data.

By convention, gross output for government services/public administration (and other non-market producers) is measured as the sum of production costs. With this approach gross output is the sum of intermediate consumption, compensation of employees, and consumption of fixed capital (depreciation) and other taxes (less subsidies) on production.

Limitations of estimates. One of the major concerns for this estimate is the fact that data from government accounts are based on the fiscal year and not the calendar year. Some recurrent expenditure items are grouped under broad headings which made it difficult to accurately classify them. Budgeted figures are sometimes used due to the lag in the availability of the actual figures.

6.13 Education

This sector encompasses activities undertaken by both private sector and public sector establishments. The output of educational service provided by public sector entities were treated as non-market production and hence they were computed as the sum of production costs. For the private sector entities/market producers, gross value added was derived via the usual method.

Sources and methods. The gross value added of government enterprises engaged in activities related to education was computed from detailed income and expenditure data from government financial accounts. For the private sector, gross value added was derived via ANA survey data which were grossed up using the simple blow up technique based on enrolment numbers. Expenditure data from the HBS were utilized in computing the gross output for adult and other education. This was due to the fact that many of these entities never responded to the ANA survey.

Limitations of estimates. The major limitation is the low response to the ANA survey. The other limitation relates to the public education entities and is similar to that experienced in public administration and defence.

6.14 Health and Social Work

Similar to the education sector, this sector encompasses activities undertaken by both private sector and public sector establishments. Public sector entities are treated as non-market producers.

Sources and methods. For public health and social work, the main source of data used in the computation comes from government accounts. For private sector entities/market producers, the main source of data was the ANA survey. Expenditure data from the HBS were also employed in deriving the estimates. The output of private medical centres (85122), private dental surgeons (85123), opticians (85192), physiotherapists and other para medical services (85194) were estimated using the simple blow up techniques based on employment numbers.

Limitations of estimates. This sector contains both public and private entities. Pubic entities are affected by the accuracy of the government budgetary financial accounts. The low response by private establishments to the ANA survey resulted in a greater dependence on data from the HBS.

6.15 Other Services

This sector covers a wide range of economic activity. Estimates of gross value added were made for 20 product groups in the following 5 industrial divisions:

900 Sewage and refuse disposal; sanitation and similar activities (2 product groups)
910 Activities of membership organizations (3 product groups)
920 Recreational, cultural and sporting activities (10 product groups)
930 Other service activities (4 product groups)
950 Private households with employed persons (1 product group)

Sources and methods. This section consists mainly of relatively small establishments engaged in a myriad of heterogeneous activities. For most of the product groups, output and expenditure were generally estimated using ANA survey data which were grossed up using the simple blow up technique. The estimates that deviated from this method of estimation are mentioned below.

Data on activities undertaken by government entities were taken directly from official accounting information. The outputs of library and archives activities (92310), museum activities (92321), preservation of historical sites (92322), botanical gardens and nature reserves (92330) together with parks (92493) were treated as non-market production of government.

Expenditure data from the HBS were used to estimate the gross output of cinemas (92120) which was combined with dramatic arts and music activities (92140) due to the lack of response to the ANA survey. HBS data were also used to estimate the output of dry cleaners (93010), hairdressers and barbers (93020) and other service activities n.e.c. (93090). Gross output for radio activities (92131) was estimated based on annual turnover data for FM broadcasting received from the Information and Communication Technology Authority (ICTA).[19] Gross output estimates for night clubs (92191) was derived using expenditure data (from the HBS) along with tourist expenditure data collected by the Cayman Islands Department of Tourism (CIDOT) via visitor exit surveys. Proxy cost coefficients were employed to estimate gross value added. For funeral related activities (93030), price and quantity data were used to derive the estimates of gross output. The estimated price for an average funeral package was multiplied by the number of deaths to derive gross output.

[19] Information and Communication Technology Authority (ICTA) is an independent statutory authority responsible for the regulation and licensing of telecommunications, broadcasting, and all forms of radio which includes ship, aircraft, mobile and amateur radio in the Cayman Islands.

Private households with employed persons (950) cover households that employ members of other households as cooks, chauffeurs, maids, baby-sitters, gardeners, etc. The gross output of these services is the compensation (mainly wages) received by these employees. Gross output is equal to the gross value added as no intermediate consumption is calculated for this activity; i.e. compensation of employees = gross output = gross value added. Estimates of gross output of private households with employed persons were based on CPI and Labour Force Survey (LFS) data. The number of employees working in private household was taken from the LFS and multiplied by average wage to estimate gross value added.[20]

Limitations of estimates. As usual, low response to the ANA survey severely inhibited the estimates in this sector. Expenditure data from the HBS (with estimates for non-household expenditure where necessary) were used in many cases.

[20] The derivation of the average wage was based on anecdotal evidence.

7. GDP BY INDUSTRY AT CONSTANT PRICES: ESTIMATION METHOD

7.1 Introduction

Gross value added is usually expressed in current (nominal) or constant (real) prices. At current prices, production is measured in terms of prices relating to the current reference period. At constant prices, production is measured in terms of prices relating to the base period - prices are held constant. Estimates of production for different years reflect both changes in the quantity of goods and services produced, together with changes in the price level and price structure over that time. Holding prices constant removes the impact of inflation on the estimates of production revealing changes in production volume over time. This is referred to as GDP at constant price/real GDP as it has been corrected for inflation.

7.2 Deflation Method Overview

As previously stated, the single indicator method was the deflation method used for the Cayman Islands System of National Accounts. The process was inhibited by the absence of suitable indicators for preparing the gross value added at constant prices. Data on government employment numbers and salary scale, and the CPI were readily available but not much more. Some data were secured from the Cayman Islands Compendium of Statistics (e.g. school enrolment, telephone subscribers, electricity and water production, etc) The Cayman Islands Monetary Authority supplied data on deposit liabilities, loans and advances, and interest rates on savings and loans for banks. There were no wholesale, producer price, production volume or import export trade indices.

Estimates of GDP at constant prices were prepared at the level of the product groups as much as possible. However, where suitable indicators could not be developed for individual product groups, they were aggregated with other product groups within the same division. Constant price estimates were derived for financial intermediation services indirectly measured (FISIM) and taxes and duties on imports.

In the main, volume indices were constructed using a Laspeyres index number formula, with each year being directly comparable with the base year (2007). Constant price gross value added was derived using the formula below:

$$P_0 Q_0 \left(\frac{Q_t}{Q_0} \right)$$

Where $P_0 Q_0$ represents gross value added in the base year (2007) and $\frac{Q_t}{Q_0}$ is the ratio of the quantity of a specific set of goods or services in the current year (*t)* to the quantity of the same products in the base year (0).

Extrapolation of the base year gross value added by a volume index based on gross output was used to deflate most of the product groups. Direct volume measures were applied where data were available. A weighted wage index computed from data on government employment was applied to public administration and other non-market government production. Constant price FISIM was computed using weighted interest rates along with the stock of deposits and loans.

7. 3 Deflation by Industry

Agriculture and Fishing

For the most part, constant price gross value added for agriculture and fishing was computed by extrapolating base year gross value added using a volume index of gross output. The overall CPI was used to deflate gross output to formulate a volume index for most of the product groups. Volume data were available for livestock and hence were used to derive the volume indices. Double deflation was not possible due to the severe lack of relevant data. The overall CPI was also used for mining and quarrying.

Manufacturing

Constant price estimates for manufacturing were derived exclusively using CPI data. The non-food CPI was the sub-index used mostly for the deflation process. The only deviation from the use of CPI data was in manufacture of articles of concrete, cement and plaster (26950) for which the volume of imported cement was used to derive a volume index.

Electricity and water supply

Electricity production was inflation adjusted by extrapolating the base year estimates of gross value added by a volume index of the volume of electricity produced. For water production, the volume index used to deflate the current estimates was based of the volume of production.

Construction

Building construction and civil engineering was deflated using the CPI relating to construction costs. The price index was used to derive a volume index based on the gross output; the volume index was then used to extrapolate the base year gross value added. For the other product groups in the construction sector, the overall CPI was used.

Wholesale and retail

For the distribution sector, the deflation was done on the entire sector as a whole. The constant price estimates was derived by extrapolating the base year gross value added by a weighted composite price index. The composite index was a combination of a trade index and the CPI. The trade index was derived using a Laspeyres price index based on

the imports of goods destined for the distribution trade.[21] The weighted sub-index from the CPI contains the following groups: food, alcohol and tobacco, clothing and household equipment.

Hotels and restaurants

Accommodation services (e.g. hotels, guest houses, villas, etc.) were deflated using a volume index based on the number of stop-over visitors. The weighted CPI sub index (meals away from home) was used to derive the constant price gross value added for Restaurants, bars, etc. The sub index was used to compute a volume index based on gross output constant.

Transport, storage and communication

For transport, storage and communication, constant price estimates were computed using both direct and indirect volume measures. For other passenger transport by road (60220) and coastal water transport (61100), the number of stop-over visitors and number of landed cruise passengers was used to compute a direct volume index, respectively. Cargo landed at George Town port was used for freight transport by road (60230), cargo handling (63010), other supporting activities for transport (63030) and activities of other transport and receiving agencies (63090). Volume of paid telephone minutes (fixed and mobile) was used for telecommunications (64200). The indirect volume measures were based on sub indices of the CPI. The main sub index used for this sector was based on non-food CPI.

Financial services

For financial intermediation services, gross output was divided two parts:

1. The portion associated with the imputed service charges (FISIM)
2. The non-FISIM portion.

Actual FISIM was deflated using a volume index based on implicit constant price FISIM. The implicit FISIM was derived by subtracting implicit interest expenses from implicit interest income. The current stock of loans and deposits was deflated by the overall CPI and the average weighted interest rate applied to derive implicit interest income and expenses. The latter is subtracted from the former to derive the implicit FISIM. This implicit FISIM was used to formulate a volume index which was then used to extrapolate the actual base year FISIM. The constant price non-FISIM portion is computed by extrapolating the base year current by a volume index based on gross output constant. Gross output constant was based on overall CPI.

For pension funding (66020) and remittance services (67193), the volume indices are based on the number of employees and volume of transactions, respectively. The overall

[21] The Laspeyres price index uses the base year quantity as weights.

CPI was used to deflate gross output and derive the volume index for the other product groups in this industrial sector.

Real estate, renting and business activities

Indirect volume measures were predominantly used in deflating product groups in the real estate and business services sector. The indirect measures were based on the overall CPI as well as various sub-indices. The only deviation was for architectural services (74212) where the number of approved developments was used to formulate the index used to extrapolate the base year gross value added.

Education

Education services consist of both private and public educational institutions. For the public educational institutions, constant price estimates were derived by extrapolating base year gross value added by a weighted wage index. The index is weighted based on the number of employees in the civil service (excluding teachers) and the average salary within each salary scale. The only exception was for public universities (80321) for which enrolment number was used to compute the volume index. For most private institutions, the CPI was used to compute the volume index. Enrolment numbers was used for private secondary high schools (80212) and private universities (80322).

Public Administration and Defence

A weighted wage index was used as the deflator for public administration and defence. The index is weighted based on the number of employees in the civil service (excluding teachers) and the average salary within each salary scale with 2007=100. The average salary was derived as the simple arithmetic average of all the salary points within each grade. Each salary grade was weighted by the number of employees within that grade. The grades with more employees would have greater influence on the wage index. The weighted wage index was used to directly deflate the current price estimates for each year.[22]

Health Services and Social Work

As with educational services, health and social work consist of both private and public entities. For public entities, the weighted wage index was used to deflate the current price estimate as is the case with public administration and defence. For private entities, base year estimates were extrapolated using a volume index based on gross output. Gross output was deflated using various sub indices of the CPI.

[22] This is as opposed to using the index to extrapolate the base year estimates as is the case in all other product groups.

The deflation of gross value added for the miscellaneous services sector is done mainly using the CPI. The overall CPI and various sub indices were employed to derive the volume index used to extrapolate base year estimates. Direct volume indices based on the number deaths and the number of employees in private households was used for funeral and related activities (93030) and private households with employed persons (95001) respectively.

7.4 Conclusion

In conclusion, it should be noted that the deflation method used in the Cayman Islands SNA depends predominantly on the base year data. In a handful of cases, gross value added in each year is directly deflated. The drawback to the deflation method employed is that it assumes a constant relationship between the volume indicator and gross value added in the base year. This gives rise to the necessity to periodically rebase the estimates as the constant relationship becomes less relevant as time passes. The rebasing will account for the inevitable changes in technology, productivity, etc over time. According to international guidelines this rebasing should be undertaken every 5 to 10 years. However, a higher frequency might be necessary based on the evolution of various industries of the economy.

8. GDP BY INDUSTRIAL ORIGIN: PRELIMINARY RESULTS

8.1 Introduction

This section presents a series of tables showing the preliminary estimates of GDP by industry as follows:

- GDP at constant (2007) basic prices (Table 2);
- Contribution to GDP at constant basic prices (Table 3);
- GDP rate of growth at constant prices (Table 4);
- GDP at current basic prices (Table 5 and Figure 2);
- Value added by industries (Table 6);

In addition, some commentaries are provided on the sector contribution to GDP and the growth rates of industries.

8.2 GDP at Constant Basic Prices

CAYMAN ISLANDS GDP BY INDUSTRIAL ORIGIN		
TABLE 2: GDP AT CONSTANT BASIC PRICES, 2007=100 (CI$' 000)		
INDUSTRY	**2006**	**2007**
Goods Producing Industries	**216,730**	**208,773**
01 Agriculture	7,321	8,151
02 Fishing	2,248	2,192
03 Mining & Quarrying	31,577	29,577
04 Manufacture	27,733	29,524
05 Construction	147,853	139,329
Service Producing Industries	**2,748,166**	**2,893,213**
06 Electricity & Water Supply	77,614	82,443
07 Wholesale & Retail Trade	247,013	236,400
08 Hotels & Restaurants	90,204	96,295
09 Transport, Storage & Communication	166,847	175,454
10 Financing & Insurance Services	1,293,456	1,374,888
11 Real Estate, Renting & Business Activities	486,680	532,302
12 Public Administration and Defense	164,914	169,410
13 Education Services	60,413	62,700
14 Health & Social Work	68,526	69,779
15 Other Services	92,500	93,543
Less: Financial Services Indirectly Measured (FISIM)	503,539	532,485
GDP at Constant Basic Prices	**2,461,358**	**2,569,501**

8.3 Sectoral Contribution to GDP

CAYMAN ISLANDS GDP BY INDUSTRIAL ORIGIN TABLE 3: INDUSTRY CONTRIBUTION TO GDP AT CONSTANT BASIC PRICES, 2007=100		
INDUSTRY	**2006**	**2007**
Goods Producing Industries	**8.8%**	**8.1%**
01 Agriculture	0.3%	0.3%
02 Fishing	0.1%	0.1%
03 Mining & Quarrying	1.3%	1.2%
04 Manufacture	1.1%	1.1%
05 Construction	6.0%	5.4%
Service Producing Industries	**91.2%**	**91.9%**
06 Electricity & Water Supply	3.2%	3.2%
07 Wholesale & Retail Trade	10.0%	9.2%
08 Hotels & Restaurants	3.7%	3.7%
09 Transport, Storage & Communication	6.8%	6.8%
10 Financing & Insurance Services	52.6%	53.5%
11 Real Estate, Renting & Business Activities	19.8%	20.7%
12 Public Administration and Defense	6.7%	6.6%
13 Education Services	2.5%	2.4%
14 Health & Social Work	2.8%	2.7%
15 Other Services	3.8%	3.6%
Less: Financial Services Indirectly Measured (FISIM)	20.5%	20.7%
GDP at Constant Basic Prices	**100.0%**	**100.0%**

Commentary

The service producing sector dominates in terms of contribution to real GDP, accounting for 91.2 percent and 91.9 percent for 2006 and 2007 respectively. Financial and Insurance Services was the single largest contributor accounting for 52.6 percent and 53.5 percent of total real GDP in 2006 and 2007. This results from the large offshore financial services sector that is the mainstay of the Cayman Islands economy. The second largest contributor in 2007 was Real Estate, Renting and Business Activities which accounted for 20.7 percent of real GDP. Wholesale and Retail Trade, Transport, Storage and Communication, and Public Administration and Defence contributed 9.2 percent, 6.8 percent and 6.6 percent respectively in 2007.

8.4 GDP Rate of Growth by Sector

CAYMAN ISLANDS GDP BY INDUSTRIAL ORIGIN		
TABLE 4: RATE OF GROWTH OF GDP AT CONSTANT PRICES, 2007=100		
INDUSTRY	**2006**	**2007**
Goods Producing Industries		**-3.7%**
01 Agriculture		11.3%
02 Fishing		-2.5%
03 Mining & Quarrying		-6.3%
04 Manufacture		6.5%
05 Construction		-5.8%
Service Producing Industries		**5.2%**
06 Electricity & Water Supply		6.2%
07 Wholesale & Retail Trade		-4.3%
08 Hotels & Restaurants		6.8%
09 Transport, Storage & Communication		5.2%
10 Financing & Insurance Services		6.3%
11 Real Estate, Renting & Business Activities		9.4%
12 Public Administration and Defense		2.7%
13 Education Services		3.8%
14 Health & Social Work		1.8%
15 Other Services		1.1%
Less: Financial Services Indirectly Measured (FISIM)		5.7%
GDP at Constant Basic Prices		**4.4%**

Commentary

Growth of GDP in the Cayman Islands in 2007 was primarily driven by the services-producing industries sector which had a combined growth rate of 5.2 percent, while the goods-producing industries declined by 3.7 percent mainly due to the decline of construction.

Goods-producing industries

The **Agriculture, Forestry and Fishing** industry grew by 8.1 percent in 2007. The industry continued its steady improvement after being devastated by hurricane Ivan in 2004.

Production in the **Mining and Quarrying** industry declined by 6.3 percent in 2007 when compared with 2006. The demand for stone and marl fell as the construction industry slowed. The mining and quarrying industry is closely linked to the construction industry and mirrors to a large extent the activity in that industry.

In 2007 the **Manufacturing** industry registered an overall increase of 6.5 percent. Many of the groups within this industry experienced growth.

During 2007 there was a 5.8 percent decline in the activities of the **Construction** industry when compared to similar period of the previous year. All the groups experienced negative growth except building installation which grew marginally by 0.4 percent. The decline output in this industry is evidenced by the fall in both the number of building permits and planning approvals. The total number of buildings permits in Grand Cayman at the end of 2007 stood at 1,090, a decline of 15.5 percent over the previous year. The value of approved development at the end of 2006 was $638,887 thousands and $505,100 thousands at the end of 2007. There was also an 11.0 percent decline in the number of planning approvals. This slowing of activities in the construction industry was due mainly to the high levels of recovery made by country in the aftermath of the devastating effects of hurricane Ivan in 2004.

Service-producing industries

The **Electricity and Water** industry grew by 6.2 percent during the year reflecting higher levels of output in both electricity and water. Total electricity generated in Grand Cayman for the period was 584,370 Mwhrs compared to 535,692 Mwhrs in 2006. Desalinated water sold by Cayman Water Company and Water Authority was 1,657.7 million gallons in 2007, an increase of 6.2 percent over 1,560.6 million gallons sold in 2006.

Real output in the **Wholesale and Retail Trade** industry declined by 4.3 percent in 2007 when compared to 2006. This decline was influenced by a 2.9 percent fall in the value of imports of consumer goods which moved from CI$ 371 million in 2006 to CI$ 360.4 million in 2007.

The **Hotel and Restaurant** industry grew by 6.8 percent. All the groups within the industry experienced improved performance. This was facilitated by the growth in the number of stop-over visitors to the islands which moved from 291,503 in 2007 to 267,527 in 2006, an increase of 9.1 percent. The output of restaurant and other eating establishments grew by 4.1 percent.

Transport Storage and Communication realized growth rate of 5.2 percent. This was fuelled mainly by growth in the Scheduled Air and Post and Telecommunications sub-industries. Despite the many challenges experienced, Scheduled Air Transport grew by 5.0 percent in 2007 reflecting the positive impact of increased tourist arrivals. The Communication sub-sector benefited from the dynamism in the telecommunication

subgroup as the major players in the market increased their efforts to gain greater market share. This resulted in the introduction of new products some of which led to reduction in prices.

Land, Sea and Coastal Water Transport and Supporting Transport Activities sub-industries all experienced lower levels of output owing to declining activities at the port resulting from a decline in the importation of goods.

When compared to 2006, the **Finance and Insurance** services industry grew by 6.3 percent in 2007 at constant prices. All the sub-industries within the industry registered improved performance. All three sub-groups, Monetary Institutions, Other Financial Institutions & Financial Services and Insurance, Pension Funding (incl. Auxiliary Activities) recorded strong growth.

The rate of growth in the **Real Estate, Renting and Business Activities** in 2007 was 9.4 percent. The main contributors to this growth were a 7.6 percent growth in Real Estate sub- industry and a 10.2 percent growth in Other Business Services including Computer and Related Services. The sector is strongly linked to and benefits from the offshore sector.

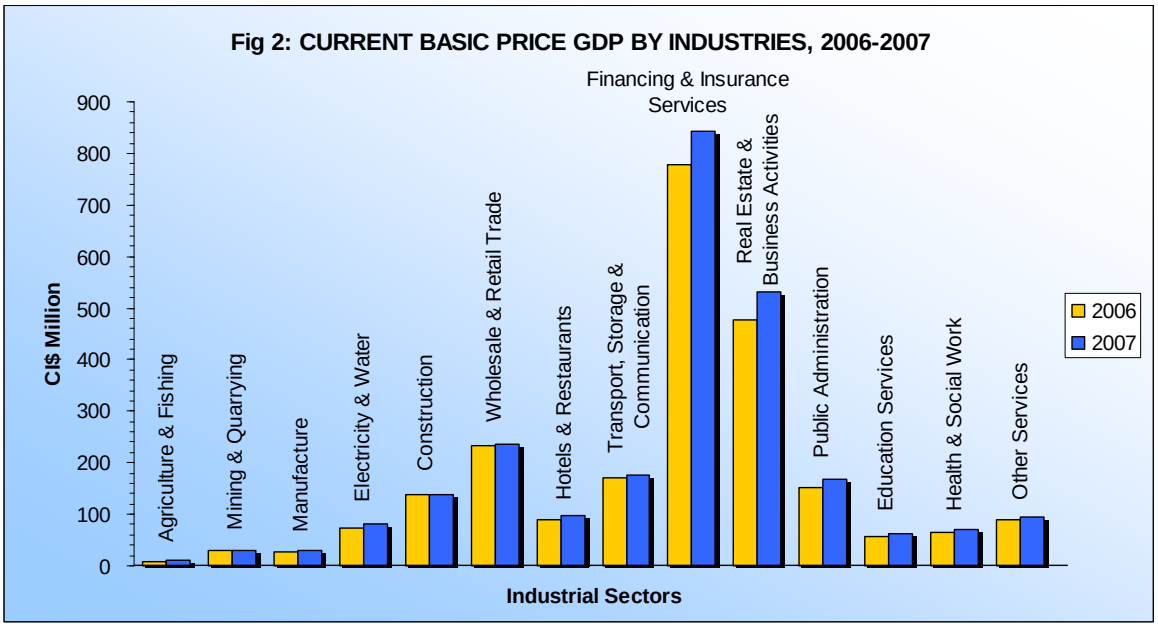
When compared with 2006 **Public Administration and Defence** industry grew by 2.7 percent in real terms. Throughout the year government concentrated on reducing costs while increasing revenue in order to maintain its fiscal targets.

The **Education Services** industry grew by 3.8 percent while **Health and Social Work** increased by 1.8 percent.

Real GDP of the **Other Services** industry increased marginally by 1.1 percent in 2007. Recreational, Cultural & Sporting Activities, the largest group in this industry grew by 3.6 percent in real terms when compared with the previous year. The growth in this industry was tempered by a 7.3 percent decline in the Private Households with Employed Persons group.

8.5 Sector GDP at Current Basic Prices

CAYMAN ISLANDS GDP BY INDUSTRIAL ORIGIN		
TABLE 5: GDP AT CURRENT BASIC PRICES (CI$' 000)		
INDUSTRY	**2006**	**2007**
01 Agriculture	7,118	8,151
02 Fishing	1,995	2,192
03 Mining & Quarrying	30,387	29,577
04 Manufacture	26,987	29,524
05 Electricity & Water Supply	73,246	82,443
06 Construction	139,516	139,329
07 Wholesale & Retail Trade	234,088	236,400
08 Hotels & Restaurants	88,531	96,295
09 Transport, Storage & Communication	170,308	175,454
10 Financing & Insurance Services	1,255,195	1,374,888
11 Real Estate, Renting & Business Activities	476,585	532,302
12 Public Administration and Defense	152,834	169,410
13 Education Services	56,674	62,700
14 Health & Social Work	64,156	69,779
15 Other Services	89,780	93,543
Less: Financial Services Indirectly Measured (FISIM)	477,969	532,485
GDP at Current Basic Prices	**2,389,431**	**2,569,501**
Percentage change from previous year		7.5%



8.6 Detailed Value Added by Industries

Table 6: DETAILED VALUE ADDED BY INDUSTRIES	CURRENT (CI$' 000)		CONSTANT (CI$' 000)	
INDUSTRY	**2006**	**2007**	**2006**	**2007**
AGRICULTURE	**7,118.1**	**8,150.8**	**7,320.6**	**8,150.8**
Growing of Agricultural Crops	3,958.2	4,504.2	4,093.1	4,504.2
Farming of Animals	779.1	923.2	820.1	923.2
Agricultural & Animal Husbandry Services	2,380.9	2,723.4	2,407.4	2,723.4
FISHING	**1,995.2**	**2,192.3**	**2,247.5**	**2,192.3**
Capture Fishing	1,995.2	2,192.3	2,247.5	2,192.3
MINING & QUARRYING	**30,387.5**	**29,576.9**	**31,576.6**	**29,576.9**
Quarrying incl. Stone, Sand and Gravel	30,387.5	29,576.9	31,576.6	29,576.9
MANUFACTURE	**26,987.0**	**29,524.3**	**27,732.9**	**29,524.3**
Food Products and Beverages	11,212.9	11,530.9	11,624.8	11,530.9
Textiles & Wearing Apparel	553.7	642.8	574.9	642.8
Builders' Carpentry and Joinery	2,874.3	3,098.7	2,958.7	3,098.7
Paper & Paper Products, Printing & Publishing	4,356.7	5,060.3	4,356.7	5,060.3
Plastic Products, Metal Products and Other Non-Metallic Mineral Products	5,733.5	6,512.5	5,859.0	6,512.5
Other Manufacturing Goods n.e.c.	2,255.9	2,679.1	2,358.8	2,679.1
ELECTICITY & WATER SUPPY	**73,246.0**	**82,443.0**	**77,613.9**	**82,443.0**
Production, Collection and Distribution of Electricity	49,508.0	57,083.0	53,739.4	57,083.0
Collection, Purification and Distribution of Water	23,738.0	25,360.0	23,874.5	25,360.0
CONSTRUCTION	**139,516.0**	**139,329.1**	**147,852.9**	**139,329.1**
Construction (incl building installation, building completion,etc.)	139,516.0	139,329.1	147,852.9	139,329.1
WHOLESALE AND RETAIL TRADE, REPAIRS & INSTALLATION OF MACHINERY	**234,088.0**	**236,400.0**	**247,013.0**	**236,400.0**
Wholesale & Retail Trade	234,088.0	236,400.0	247,013.0	236,400.0
HOTELS & RESTAURANTS	**88,530.5**	**96,294.6**	**90,203.5**	**96,294.6**
Hotels and Restaurants (incl Bars)	88,530.5	96,294.6	90,203.5	96,294.6
TRANSPORT, STORAGE AND COMMUNICATION	**170,308.3**	**175,453.8**	**166,847.5**	**175,453.8**
Transport	33,221.2	34,388.0	34,118.1	34,388.0
Supporting Activities for Transport (incl Cargo, Storage and Travel Agencies)	58,449.6	55,392.9	59,979.3	55,392.9
Post & Telecommunications	78,637.6	85,672.9	72,750.1	85,672.9

Table 6 cont'd: DETAILED VALUE ADDED BY INDUSTRIES	CURRENT (CI$' 000)		CONSTANT (CI$' 000)	
INDUSTRY	2006	2007	2006	2007
FINANCING & INSURANCE SERVICES	**1,255,194.7**	**1,374,887.8**	**1,293,456.4**	**1,374,887.8**
Monetary Institutions (incl. CIMA)	726,048.4	784,214.4	746,164.9	784,214.4
Other Financial Institutions & Financial Services	330,339.7	369,307.6	336,018.7	369,307.6
Insurance, Pension Funding (incl. Auxillary Activities)	198,806.5	221,365.8	211,272.9	221,365.8
REAL ESTATE, RENTING & BUSINESS ACTIVITIES	**476,584.7**	**532,301.6**	**486,679.5**	**532,301.6**
Operating of Owner-Occupied Dwellings	82,495.5	85,893.2	83,241.0	85,893.2
Renting of Residential Buildings	44,057.8	51,067.0	44,164.9	51,067.0
Renting of Commercial Buildings	7,400.1	9,311.8	7,805.0	9,311.8
Other Real Estate Activities	19,944.1	22,258.9	21,399.3	22,258.9
Business Activities (incl. Renting of Machinery & Equipment)	322,687.2	363,770.7	330,069.3	363,770.7
PUBLIC ADMINISTRATION AND DEFENSE	**152,834.3**	**169,410.3**	**164,914.2**	**169,410.3**
Public Administration and Defense	152,834.3	169,410.3	164,914.2	169,410.3
EDUCATION SERVICES	**56,673.5**	**62,700.1**	**60,412.6**	**62,700.1**
Public Education	36,350.9	40,169.9	39,386.0	40,169.9
Private Education	20,322.6	22,530.2	21,026.6	22,530.2
HEALTH AND SOCIAL WORK	**64,155.5**	**69,778.5**	**68,526.1**	**69,778.5**
Public Health and Social Services	47,725.1	51,974.5	51,591.0	51,974.5
Private Health & Social Services (incl. Veterinary Actvities)	16,430.4	17,804.0	16,935.1	17,804.0
OTHER SERVICES	**89,780.3**	**93,543.1**	**92,499.6**	**93,543.1**
Community, Social & Personal Services n.e.c.	15,942.0	16,701.4	16,591.4	16,701.4
Recreational, Cultural & Sporting Activities	35,462.8	38,052.5	36,744.6	38,052.5
Personal & Household Services	14,944.3	17,058.4	15,732.4	17,058.4
Private Households with Employed Persons	23,431.2	21,730.8	23,431.2	21,730.8
FINANCIAL SERVICES Indirectly Measured (FISIM)	477,969.1	532,485.3	503,538.7	532,485.3
VALUE ADDED AT BASIC PRICES	**2,389,430.5**	**2,569,500.9**	**2,461,358.1**	**2,569,500.9**

APPENDIX 1: INTERNATIONAL STANDARD OF INDUSTRIAL CLASSIFICATION (REVISION 3.1)

A - Agriculture, hunting and forestry

- 01 - Agriculture, hunting and related service activities
- 02 - Forestry, logging and related service activities

B - Fishing

- 05 - Fishing, aquaculture and service activities incidental to fishing

C - Mining and quarrying

- 10 - Mining of coal and lignite; extraction of peat
- 11 - Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying
- 12 - Mining of uranium and thorium ores
- 13 - Mining of metal ores
- 14 - Other mining and quarrying

D - Manufacturing

- 15 - Manufacture of food products and beverages
- 16 - Manufacture of tobacco products
- 17 - Manufacture of textiles
- 18 - Manufacture of wearing apparel; dressing and dyeing of fur
- 19 - Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
- 20 - Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
- 21 - Manufacture of paper and paper products
- 22 - Publishing, printing and reproduction of recorded media
- 23 - Manufacture of coke, refined petroleum products and nuclear fuel
- 24 - Manufacture of chemicals and chemical products
- 25 - Manufacture of rubber and plastics products
- 26 - Manufacture of other non-metallic mineral products
- 27 - Manufacture of basic metals
- 28 - Manufacture of fabricated metal products, except machinery and equipment
- 29 - Manufacture of machinery and equipment n.e.c.
- 30 - Manufacture of office, accounting and computing machinery
- 31 - Manufacture of electrical machinery and apparatus n.e.c.
- 32 - Manufacture of radio, television and communication equipment and apparatus
- 33 - Manufacture of medical, precision and optical instruments, watches and clocks
- 34 - Manufacture of motor vehicles, trailers and semi-trailers
- 35 - Manufacture of other transport equipment
- 36 - Manufacture of furniture; manufacturing n.e.c.
- 37 - Recycling

E - Electricity, gas and water supply

- 40 - Electricity, gas, steam and hot water supply
- 41 - Collection, purification and distribution of water

F - Construction

- 45 - Construction

G - Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods

- 50 - Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel
- 51 - Wholesale trade and commission trade, except of motor vehicles and motorcycles
- 52 - Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods

H - Hotels and restaurants

- 55 - Hotels and restaurants

I - Transport, storage and communications

- 60 - Land transport; transport via pipelines
- 61 - Water transport
- 62 - Air transport
- 63 - Supporting and auxiliary transport activities; activities of travel agencies
- 64 - Post and telecommunications

J - Financial intermediation

- 65 - Financial intermediation, except insurance and pension funding
- 66 - Insurance and pension funding, except compulsory social security
- 67 - Activities auxiliary to financial intermediation

K - Real estate, renting and business activities

- 70 - Real estate activities
- 71 - Renting of machinery and equipment without operator and of personal and household goods
- 72 - Computer and related activities
- 73 - Research and development
- 74 - Other business activities

L - Public administration and defence; compulsory social security

- 75 - Public administration and defence; compulsory social security

M - Education

- 80 - Education

N - Health and social work

- 85 - Health and social work

O - Other community, social and personal service activities

- 90 - Sewage and refuse disposal, sanitation and similar activities
- 91 - Activities of membership organizations n.e.c.
- 92 - Recreational, cultural and sporting activities
- 93 - Other service activities

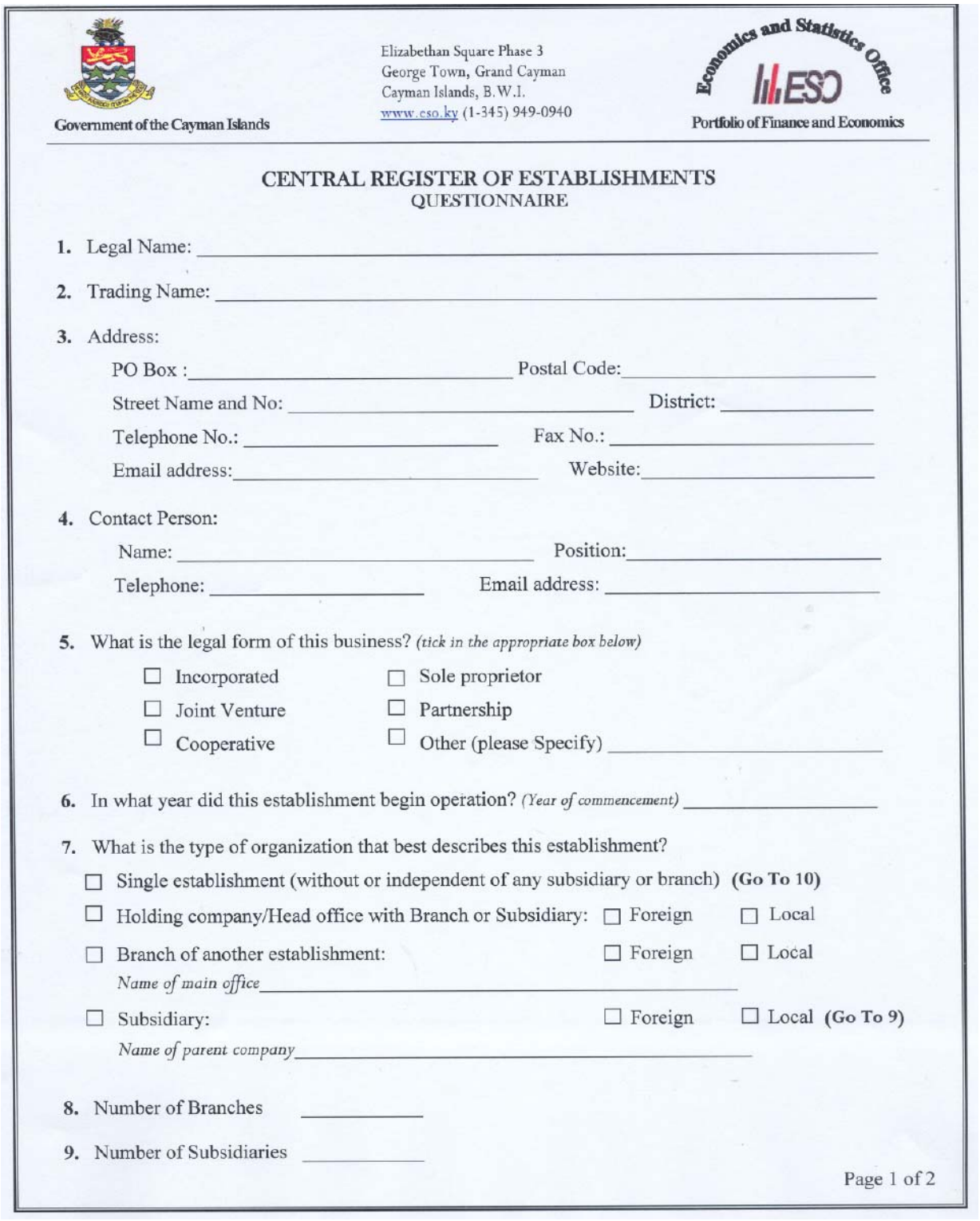
P - Activities of private households as employers and undifferentiated production activities of private households

- 95 - Activities of private households as employers of domestic staff
- 96 - Undifferentiated goods-producing activities of private households for own use
- 97 - Undifferentiated service-producing activities of private households for own use

Q - Extraterritorial organizations and bodies

- 99 - Extraterritorial organizations and bodies

APPENDIX 2: CENTRAL REGISTER OF ESTABLISHMENTS QUESTIONNAIRE



Government of the Cayman Islands

Elizabethan Square Phase 3
George Town, Grand Cayman
Cayman Islands, B.W.I.
www.eso.ky (1-345) 949-0940

Economics and Statistics Office
Portfolio of Finance and Economics

CENTRAL REGISTER OF ESTABLISHMENTS
QUESTIONNAIRE

1. Legal Name: _____

2. Trading Name: _____

3. Address:

   PO Box :_____ Postal Code:_____

   Street Name and No: _____ District: _____

   Telephone No.: _____ Fax No.: _____

   Email address:_____ Website:_____

4. Contact Person:

   Name: _____ Position:_____

   Telephone: _____ Email address: _____

5. What is the legal form of this business? *(tick in the appropriate box below)*

   ☐ Incorporated ☐ Sole proprietor

   ☐ Joint Venture ☐ Partnership

   ☐ Cooperative ☐ Other (please Specify) _____

6. In what year did this establishment begin operation? *(Year of commencement)* _____

7. What is the type of organization that best describes this establishment?

   ☐ Single establishment (without or independent of any subsidiary or branch) **(Go To 10)**

   ☐ Holding company/Head office with Branch or Subsidiary: ☐ Foreign ☐ Local

   ☐ Branch of another establishment: ☐ Foreign ☐ Local

   *Name of main office*_____

   ☐ Subsidiary: ☐ Foreign ☐ Local **(Go To 9)**

   *Name of parent company*_____

8. Number of Branches _____

9. Number of Subsidiaries _____

Page 1 of 2

10. What is this establishment's form of ownership?

☐ Private Enterprise ☐ Government enterprise ☐ Non- Profit Organisation

11. Is the establishment a franchisee of a foreign company? ☐ Yes ☐ No

12. Ownership of Equity: _____ % Caymanian

_____ % Foreign *(Please list nationalities):* _____

_____

_____

13. Is this establishment operating as an offshore company? ☐ Yes ☐ No

14. What are the main activities of this Establishment (Product/Service): *List in order of importance:*

(Please be as detailed as possible: e.g. retail of clothing, retail of household appliances, construction of buildings, renting of construction equipment with/without operator, real estate development and sales, renting of owned residential/commercial building, etc)

a. _____

b. _____

c. _____

15. How many persons were employed at this establishment as at September 30, 2007?

Full Time: _____ Part Time: _____ On contract: _____

16. Does this establishment directly import/export goods from/to abroad? ☐ Yes ☐ No

17. Does this establishment sell services to, or purchase services from abroad? ☐ Yes ☐ No

18. Does this establishment receive financing/investment from outside the Cayman Islands? ☐ Yes ☐ No

19. Does this enterprise hold investment outside the Cayman Islands? ☐ Yes ☐ No

THANK YOU FOR YOUR COOPERATION

For inquiry or clarification, please contact:
Theodore Thompson Email: Theodore.Thompson@gov.ky Telephone.: 244-1612