

The Cayman Islands' Gross Domestic Product for 2008-2009: Income Approach

1. Introduction

This report complements the report "The Cayman Islands' System of National Accounts Report 2008-2009" (2009 SNA Report) dated November 2010.

Gross Domestic Product (GDP) is the total value added of goods and services produced in an economy within a specified period of time, usually a month, a quarter or a year.

The SNA identifies three alternative ways of measuring GDP: a) the expenditure approach, i.e. by summing up expenditures for consumption, physical investment, and net trade; b) the production approach, i.e., by summing up the value added of all local industries; and c) the income approach which is discussed in this paper. The 2009 SNA Report presented the GDP calculation using the production approach.

This report uses the income approach in measuring GDP where it is calculated as the sum of all income accruing to the factors of production. That is,

$$\begin{aligned} \text{GDP} &= \text{Compensation of Employees} \\ &+ \text{Consumption of Fixed Capital} \\ &+ \text{Operating Surplus} \\ &+ \text{Taxes on production and imports} \\ &- \text{Subsidies on production and imports} \end{aligned}$$

The definitions used in calculating each of the above are discussed in Section 2 of this report. The results of the calculation are presented in Section 3.

2. Methodology and Definitions

2.1 Compensation of employees. This is defined as the total remuneration, in cash and kind, paid by employers to employees for work done during the accounting period. Compensation has two components:

1. Gross wages and salaries
2. Employers' social contributions

2.1a Gross wages and salaries

This is defined to include all payments which employees receive in respect of their work. Included are:

- (a) Commissions, tips, bonuses and gratuities;
- (b) Allowances such as housing, uniform and travelling;
- (c) Wages paid during vacation and sick leave;
- (d) Overtime payments; and
- (e) Wages and salaries in kind.

The following items are among the consumption goods and services provided by the employer to the employee without charge or at a markedly reduced cost, which are of

clear and direct benefit to the employees as consumers and are therefore included as part of wages and salaries:

- (a) Meal and drinks;
- (b) Housing services that can be used by all members of the household;
- (c) Uniforms that employees choose to wear frequently outside of the workplace as well as at work;
- (d) Sports, recreation and holiday facilities for employees and their families;
- (e) Transportation to and from work, car parking; and
- (f) Nurseries for the children of employees.

2.1b Employers' social contribution

This includes contributions paid by employers on behalf of their employees to social security schemes, private pension funds and insurances schemes. These are geared towards providing benefits for the employees in the event that circumstances affect their ability to earn income, such as sickness, accidents, redundancy, retirement etc. These social contributions may be actual or imputed.

- Employers' actual social contributions - These consists of social contributions paid directly by employers for the benefit of their employees to social security funds, insurance enterprises or other instituted units responsible for the administration and management of social insurance schemes.
- Employers' imputed social contributions - Some employers provide social benefits directly to their employees or dependents out of their resources without the use of an insurance enterprise or special pension fund. Remuneration should therefore be imputed equal in value to the amount of social contributions that would be needed to secure the entitlement.

2.3 Consumption of Fixed Capital

This is the cost of production associated with the decline in the value of fixed assets used in the production process. It can be viewed in general terms as the replacement cost of the fixed assets used up in the process of production.

The SNA recommends that this be valued using the actual or estimated prices of fixed assets prevailing at the time the production takes place but not the prices at the time the fixed asset was originally acquired. However, in the case of the Cayman Islands depreciation is used as the indicator for consumption of fixed capital.

2.4 Taxes less subsidies on production and imports

Taxes are compulsory, unrequited payments made to government by other institutional units. Taxes are said to be unrequited because the government does not directly provide a specific good or service in return for the payments made. There are two types of taxes on production and imports:

a. 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) Taxes and duties on import
- b) Other taxes on product excluding taxes and duties on import (e.g. hotel occupancy tax).

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

2.5 Subsidies on production and imports

It should be noted that in the Cayman Islands, subsidies as defined by SNA are negligible.

Subsidies are current unrequited transfers that government makes 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 e.g. fertilizer sold to farmers;
2. Other subsidies on production - subsidies excluding subsidies on products that are paid to resident establishments as a result of engaging in production.

2.6 Operating surplus/mixed income

Operating surplus/mixed income is the income accruing to the production process before deducting interest charges, rent or property incomes payable. It is equivalent to the excess of the value added over the sum of the compensation of employees, net taxes on production, and allowances for the consumption of fixed capital.

That is,

Operating Surplus = Gross Value Added – (Compensation of Employees + net Taxes on Production and Imports + allowance for the Consumption of Fixed Capital)

3. Results of GDP Calculation at Current Market Prices by Income

3.1 Value and Contribution to GDP

The Gross Domestic Product (GDP) at current market prices for the Cayman Islands stood at \$2,715.7 million in 2009. The components of GDP by income type and their corresponding share are presented in Tables 1a and 1b.

Table 1a: GROSS DOMESTIC PRODUCT (GDP) BY INCOME AT CURRENT PRICES (CI\$'000)				
Type of Income	2006	2007	2008	2009
Compensation of Employees	1,284,376.2	1,397,334.3	1,445,900.0	1,359,143.9
Operating Surplus\Mixed Income	867,800.9	916,237.0	885,046.3	850,171.9
Consumption of Fixed Capital	150,877.9	173,084.7	172,519.5	167,772.0
Taxes less Subsidies on Production and Imports	369,461.0	361,323.1	379,712.1	338,664.4
Gross Domestic Product at Market Prices	2,672,516	2,847,979	2,883,178	2,715,752

The table above also shows the decline in all types of income. Total compensation of employees grew by 8.8 percent in 2007, and further by 3.5 percent in 2008 but this fell by 6.0 percent in 2009.

Operating surplus/mixed income increased in 2007 (5.6%) and started to decline in 2008 (-3.4%) and further fell in 2009 (-3.9%).

Consumption of fixed capital also rose in 2007 (14.7%) but dropped in 2008 by 0.3 percent and by 2.8 percent in 2009.

Taxes (less subsidies on production and imports) declined in 2007 by 2.2 percent but recovered in 2008 (5.1%). The recovery was not sustained as it dipped by 10.8 percent in 2009.

Table 1b: PERCENTAGE CONTRIBUTION to GDP BY INCOME AT CURRENT PRICES				
Type of Income	2006	2007	2008	2009
Compensation of Employees	48.1	49.1	50.1	50.0
Operating Surplus\Mixed Income	32.5	32.2	30.7	31.3
Consumption of Fixed Capital	5.6	6.1	6.0	6.2
Taxes less Subsidies on Production and Imports	13.8	12.7	13.2	12.5
Gross Domestic Product at Market Prices	100.0	100.0	100.0	100.0

The Cayman Islands is a service-oriented economy which relies heavily on labour. The estimation of GDP by income type shows the relative importance of labour as a factor of production relative to physical capital and equity. As shown in Tables 1a – 1b compensation of employees amounted for \$1,359.1 million in 2009 and was the largest contributor to GDP accounting for 50.0 percent of total GDP.

The second largest contribution (31.3%) came from operating surplus/mixed income with a total value of \$850.17 million in 2009.

Contribution from taxes net of subsidies on production and imports amounted to \$338.66 million or 12.5 percent of GDP.

Finally, the small share of fixed capital consumption (6.2%) suggests the relatively low usage of physical capital including industrial machinery and other types of fixed asset in domestic production and is consistent with a service-oriented economy.

3.2 Contribution to GDP Growth in 2009 at Current Market Prices

The economy as measured by the GDP at market prices experienced a decline of 5.8 percent in 2009 when compared to 2008. All categories of income declined as shown in Table 2 below.

Table 2: PERCENTAGE GROWTH of GDP BY INCOME AT CURRENT MARKET PRICES			
Type of Income	% Growth		
	2007	2008	2009
Compensation of Employees	8.8	3.5	(6.0)
Operating Surplus\Mixed Income	5.6	(3.4)	(3.9)
Consumption of Fixed Capital	14.7	(0.3)	(2.8)
Taxes less Subsidies on Production and Imports	(2.2)	5.1	(10.8)
Gross Domestic Product at Market Prices	6.6	1.2	(5.8)

Total compensation of employees declined by 6.0%, operating surplus by 3.9%, consumption of fixed capital by 2.8% and net taxes on production and imports by 10.8%.

The 6.0% decline in compensation is due partly to a decline in the labour force as well as a freeze on wages as businesses sought to adjust their business plans to cope with the economic crisis. The number of persons employed fell from 37,449 in 2008 to 33,920 in 2009.

The fall in net taxes on production and imports is due mainly to the lower level of import duties collected as importation of goods declined by 16.3 percent. The decline in the number of tourists visiting the island also negatively impacted this category.

3.3 Compensation of Employees

Table 3 shows the breakdown of total compensation by industry in the Cayman Islands for 2006 to 2009. (This classification is based on the International Standard Industrial Classification Revision 4.1).

Table 3: COMPENSATION OF EMPLOYEES (CIS\$'000)				
Industry	2006	2007	2008	2009
Agriculture & Fishing	3,052.7	3,618.3	4,776.5	4,046.4
Mining & Quarrying	16,588.4	17,493.3	10,577.0	10,382.1
Manufacture	10,500.4	11,497.7	13,164.4	11,230.6
Electricity, Gas & Air Conditioning Supply	16,408.0	15,445.0	12,938.5	13,180.1
Water Supply, Sewerage & Waste Management	16,157.3	19,381.4	15,966.9	15,477.0
Construction	91,258.4	91,413.0	93,801.2	58,397.3
Wholesale & Retail Trade	92,351.7	91,180.3	137,691.7	118,125.5
Transport & Storage	62,389.3	65,824.4	69,075.0	66,357.1
Hotels & Restaurants (incl Bars)	61,771.4	67,552.4	73,377.2	65,386.8
Information & Communication	44,129.1	46,657.8	48,666.9	50,706.4
Financial & Insurance Services	326,979.1	363,918.9	358,017.2	347,404.9
Real Estate Activities	30,406.7	33,080.3	34,635.8	32,303.2
Professional, Scientific & Technical Activities	174,493.0	198,687.9	184,292.5	186,214.4
Administrative & Support Service Activities	36,164.1	39,502.7	40,145.8	38,313.0
Public Administration and Defense	146,407.1	162,449.1	178,815.5	171,977.1
Education Services	50,707.7	56,684.4	62,292.2	62,280.7
Health and Social Work	57,201.7	60,705.0	58,504.1	57,820.3
Other Services	47,410.3	52,242.3	49,161.7	49,541.2
TOTAL	1,284,376.2	1,397,334.3	1,445,900.0	1,359,143.9

As can be seen from the table above, the following three industries dominated the distribution of total compensation:

- The financial and insurance services industry with \$347.4 million in compensation or 25.6 percent of the total compensation in 2009;
- The professional, scientific and technical services industry with \$186.2 million in compensation or 13.7 percent of total compensation in 2009; and
- The public administration and defense sector with \$171.98 million in compensation or 12.7 percent of total compensation in 2009.

The above-mentioned industries accounted for 52 percent of the total compensation of the Cayman Islands.

It may be noted that financial and insurance services sector was the fifth largest employer in Cayman in 2009 with a share of 9.4 percent of total employment. Meanwhile, the professional, scientific and technical services industry, along with real estate, was the second largest employer with 12.7 percent of the total employment. The fact that the shares of these industries in total compensation are higher than their share to total employment suggests that average compensation in these industries are also higher than the overall average compensation in the country.

The largest employer of labour in the Cayman Islands is the construction industry with a workforce of 5,018 persons or 14.8 percent of total employment in 2009. In terms of compensation, the calculated value from this industry amounted to \$58.397 million or only 4.3 percent of total compensation. The relatively small share is, however, not surprising since labour cost in the construction industry is generally lower relative to the financial and insurance industry and other high-paying industries. This industry also has the highest percent of unskilled and semi-skilled labour.

Based on the 2009 Labour Force Survey, wholesale and retail trade, and hotels and restaurants are also among the major industries in terms of employment. Wholesale and retail trade employed 4,563 persons in 2009 (or 13.5 % of total) while hotels and restaurants had 3,307 (or 9.8% of total). The calculated compensation for these industries amounted to \$118.125 million for wholesale and retail trade (including repairs and installations of machinery), and \$65.387 million for hotels and restaurants.

3.4 Operating Surplus/Mixed Income¹

Since the private sector is the driving force of domestic production in the Cayman Islands, it follows that this category will be prominent in its contribution to GDP.

As shown in Table 4, three industries – finance and insurance services, real estate and professional, scientific and technical - accounted for approximately 72.6 percent share of operating surplus/mixed income (before deducting interest expenses) in the country. Each amassed operating surplus/mixed income in excess of \$100 million.

In 2009, the finance and insurance services industry recorded the largest amount of operating surplus/mixed income (\$616.4million). It should be noted that this is more than twice the amount of total compensation for the industry, which could be explained by significant amounts of interest expenses and/or net operating surplus.

The second largest amount of operating surplus/mixed income (before interest) was recorded by the real estate industry (\$160.4 million), followed by the professional, scientific and technical industry with \$129.6 million.

¹ As shown in Table 4, the total amount of this income type comprises two parts:

- (A) : The amount before deducting interest expenses across industries, equivalent to \$1,248.6 million in 2009; and
- (B) : The total amount after deducting overall interest expenses which is equivalent to the line “Financial Services Indirectly Measure” (FISIM). Ideally, FISIM should be apportioned across the various spending industries. However lack of data does not currently permit this exercise.

Table 4: OPERATING SURPLUS AND MIXED INCOME (CIS\$'000)				
Industry	2006	2007	2008	2009
Agriculture & Fishing	3,140.3	3,369.7	2,387.6	3,992.3
Mining & Quarrying	11,858.9	9,579.4	10,730.2	8,022.8
Manufacture	10,179.8	10,991.0	13,046.7	11,874.8
Electricity, Gas & Air Conditioning Supply	19,815.0	27,203.0	17,487.7	20,504.1
Water Supply, Sewerage & Waste Management	11,410.7	8,798.6	9,848.2	13,789.5
Construction	40,940.9	38,253.3	46,573.8	42,594.2
Wholesale & Retail Trade	118,224.6	119,848.1	76,011.2	75,773.8
Transport & Storage	30,175.6	28,016.5	24,320.9	18,755.1
Hotels & Restaurants (incl Bars)	49,636.5	53,113.3	61,535.7	61,553.8
Information & Communication	35,282.2	38,098.4	38,006.0	39,607.9
Financial & Insurance Services	704,852.4	766,582.1	738,971.1	616,398.7
Real Estate Activities	152,420.4	164,647.8	168,353.9	160,429.1
Professional, Scientific & Technical Activities	94,352.9	101,713.1	129,965.3	129,571.8
Administrative & Support Service Activities	9,037.6	9,433.8	9,585.9	8,764.4
Public Administration and Defense	-	-	-	-
Education Services	1,923.9	1,902.6	2,187.1	2,584.6
Health and Social Work	4,619.1	5,400.8	5,788.5	5,867.4
Other Services	31,153.4	26,385.8	30,608.6	28,519.7
Sub-Total	1,329,024.3	1,413,337.4	1,385,408.3	1,248,604.1
Less Financial Services Indirectly Measured (FISIM)	461,223.3	497,100.4	500,362.0	398,432.2
TOTAL	867,800.9	916,237.0	885,046.3	850,171.9

3.5 Consumption of Fixed Capital

The Cayman Islands' economic structure is basically service-oriented. This suggests that consumption of fixed capital (or depreciation cost of capital) would be relatively low compared with economies that are more industrial in nature and have manufacturing as a base.

As presented in Table 5, the total contribution of consumption of fixed capital to GDP is only \$167.8 million or 6.2 percent.

The largest portion of depreciation in 2009 was incurred by information and communication (\$24.6 million), followed closely by financial and insurance services (\$24.3 million), real estate (\$21.1 million), wholesale and retail trade (\$20.2 million) and electricity, gas and air conditioning supply (\$16.6 million). The information and communication, real estate and electricity, gas and air conditioning supply industries have relatively high depreciation due to their physical capital-intensive nature.

Table 5: CONSUMPTION OF FIXED CAPITAL (CIS\$'000)				
Industry	2006	2007	2008	2009
Agriculture & Fishing	424.0	472.5	697.3	634.9
Mining & Quarrying	1,930.5	2,309.8	919.0	942.9
Manufacture	870.1	962.5	957.2	1,150.0
Electricity, Gas & Air Conditioning Supply	12,544.0	13,587.0	15,247.9	16,594.8
Water Supply, Sewerage & Waste Management	5,180.0	5,808.3	6,188.7	5,377.4
Construction	5,567.3	6,350.3	5,511.2	3,911.1
Wholesale & Retail Trade	18,796.3	19,471.1	22,991.0	20,207.0
Transport & Storage	9,190.5	9,384.6	10,377.4	9,781.5
Hotels & Restaurants (incl Bars)	10,119.7	11,476.5	3,270.4	1,680.4
Information & Communication	18,028.9	22,266.7	23,357.4	24,565.8
Financial & Insurance Services	25,035.6	26,203.1	25,482.5	24,342.3
Real Estate Activities	11,536.4	15,188.2	20,005.1	21,086.6
Professional, Scientific & Technical Activities	8,318.1	8,670.8	8,988.3	9,389.8
Administrative & Support Service Activities	4,241.3	4,562.3	4,780.8	5,063.3
Public Administration and Defense	7,079.1	10,049.3	11,254.9	10,062.4
Education Services	3,465.0	3,347.5	3,664.9	3,629.7
Health and Social Work	2,736.3	3,560.7	3,339.6	3,340.1
Other Services	5,815.0	9,413.6	5,486.1	6,012.0
TOTAL	150,877.9	173,084.7	172,519.5	167,772.0

3.6 Taxes less Subsidies on Production and Imports

Table 6 shows two data sets: 1) other taxes on production net of other subsidies on production charged to industries; and 2) taxes net of subsidies charged to buyers of products and imports. The second type of charges is more dominant as it accounts for 51.4 percent of all taxes (net of subsidies) in 2009.

The industrial breakdown of the first type of taxes “other taxes on production” showed that the financial and insurance industry alone accounted for 76.9 percent of all taxes (net of subsidies) paid by the domestic industries. This data shows the continued importance of the industry as a revenue base.

Table 6: TAXES less SUBSIDIES ON PRODUCTION AND IMPORTS (CIS\$'000)				
Industry	2006	2007	2008	2009
Agriculture & Fishing	138.9	189.3	251.5	270.0
Mining & Quarrying	145.5	194.5	186.6	185.1
Manufacture	179.9	227.0	351.3	321.7
Electricity, Gas & Air Conditioning Supply	741.0	848.0	1,084.8	1,052.1
Water Supply, Sewerage & Waste Management	114.8	185.8	150.9	136.2
Construction	3,299.7	3,823.6	1,980.4	1,688.6
Wholesale & Retail Trade	4,715.7	5,900.4	6,232.1	6,505.7
Transport & Storage	602.8	612.4	753.9	836.9
Hotels & Restaurants (incl Bars)	1,165.3	1,339.0	1,319.1	624.1
Information & Communication	6,479.6	6,819.1	7,101.7	7,214.3
Financial & Insurance Services	112,025.4	110,949.9	123,892.6	126,500.6
Real Estate Activities	8,537.7	8,936.7	9,923.5	9,303.3
Professional, Scientific & Technical Activities	6,139.3	8,451.8	8,601.6	8,095.7
Administrative & Support Service Activities	977.9	1,201.4	1,273.9	1,015.7
Public Administration and Defense	16.6	82.9	103.9	8.7
Education Services	15.9	27.2	39.3	29.2
Health and Social Work	208.6	213.7	242.0	249.4
Other Services	321.6	397.5	486.9	434.8
Taxes less Subsidies on Products	223,635.1	210,922.9	215,736.2	174,192.3
TOTAL	369,461.0	361,323.1	379,712.1	338,664.4