

Sources and Methods for the 2012 Seychelles national accounts estimates

(October 2013)

Overview of methodology and data sources for the compilation of 2012 GDP estimates

The overall methodology has not been changed completely from last year. However there have been some improvements to the methods and indicators used and revisions to the underlying data available.

The methods used can be summarised as follows, in order of preference, although data quality considerations also play a role in the methodology decisions for each estimation component.

For current prices:

- a. Direct compilation from financial statements, or the GFS. This approach was mainly limited to the financial sector, major public enterprises, budgetary government and Taxes on Production and Imports.
- b. Growth based on turnover indicators, primarily GST collections, and a survey of the largest construction companies.
- c. Quantity revaluation, utilising the change in constant prices estimates, and the most suitable price index available.
- d. Growth based on employment earnings.
- e. Implicit growth rate for components with evidence based estimate.

For constant prices:

- a. Volume indicators.
- b. Deflation, where current price estimates had a sound indicator.
- c. Taxes moved with constant price growth (or output), for the taxable activities.
- d. Midpoint between growth implied by deflation of current price estimate and change in employment numbers.
- e. Taxes moved with growth in GDP at basic prices, where the taxes cannot be linked to specific estimation components.
- f. Implicit growth rate for components with evidence based estimate. GDP growth assumed to equal GDP growth for the sum of components with evidence based estimates using methods above.
- g. Judgement based estimates, where none of the above methods was deemed suitable.

Table: Data and methods used for compilation of 2012 GDP, by estimation component.

ISIC group	GDP estimation component	% of 2012 GDP ¹	Current price method (CP)	Constant price method (KP)
A01	Agriculture	1.2%	Quantity revaluation of constant price movement, using weighted average of selected CPI Food items	Estimated on trend since 2006. Direct estimate.
A03	Fishing	0.8%	Quantity revaluation, using CPI Fish	Moved with domestic fish catch volumes (artisanal plus semi industrial)
B	Mining and quarrying	0.0%	Not separately estimated. Included with companies in Manufacturing (C23) or Construction	
C10	Manufacture of food - Tuna Cannery	4.3%	Direct compilation from financial statements	Volume of tuna exported by cannery, from production survey
C10	Manufacture of food - Other	0.2%	Implicit growth rate	Implicit growth rate
C11-12	Manufacture of beverages and tobacco - Beverages	2.1%	Direct data from companies in the C11 and C12 ISIC group. Quantity revaluation for the remainder, using CPI non alcoholic beverages.	Volume index of beverage products, from production survey
C11-12	Manufacture of beverages and tobacco - Tobacco	0.1%	Quantity revaluation, using CPI tobacco	Volume indicator: cigarette production
C23	Manufacture of concrete, rock products, glass etc	0.5%	GST growth rate	Volume index of manufactured concrete products, from production survey
C13-22, 24-33	Manufacturing, other	1.2%	GST growth rate	Implicit growth rate
D	Electricity, gas, steam and air conditioning supply	0.9%	Direct compilation from financial statements. Company in D35 ISIC group was treated as non-market, thus a change in methodology.	Volume indicator, Output: Electricity produced Volume indicator, Intermediate Consumption: Fuel used. Remainder: deflated by CPI non-food
E36	Water supply; sewerage, waste management and remediation activities	0.4%	Direct compilation from financial statements. Company in E36 ISIC group was treated as non-market, thus a change in methodology.	Volume indicator: treated water consumption
E37-39	Water supply; sewerage, waste management and remediation activities - Other	0.3%	Direct compilation from financial statements, plus estimates	Volume indicator: employment numbers
F	Construction	4.1%	Growth rate from turnover survey for three largest companies	Average of i) movement implied by change in employment numbers, and ii) movement implied by current price deflated by Construction Cost Index
G	Wholesale and retail trade; repair of motor vehicles and motorcycles – fuel (domestic market)	1.1%	Direct compilation from financial statements	Volume indicator: gallons of fuel sold into the domestic market

¹ In current prices

G	Wholesale and retail trade; repair of motor vehicles and motorcycles - fuel (re-exports)	1.1%	Direct compilation from financial statements	Volume indicator: gallons of fuel re-exported
G	Wholesale and retail trade; repair of motor vehicles and motorcycles-remainder	3.7%	Quantity revaluation, using CPI all items	Implicit growth rate
H	Transportation and storage	4.6%	Direct compilation from financial statements	Volume indicator: consist of tanker operational days weighted by tanker capacity, air passenger miles flown Deflation, number of passengers carried, number of vessel arrivals, total air passenger movements.
H	Water Transportation	1.6%	GST growth rate	Volume indicator: total visitor nights
H	Transportation and storage - remainder	3.1%	Implicit growth rate	Implicit growth rate
I55	Hotels	19.4%	GST growth rate	Volume indicator: total visitor nights
I56	Restaurants & Beverage serving activities	0.3%	GST growth rate	Deflate current price estimate, by CPI all items
I56	Other food service activities	0.7%	Implicit growth rate	Implicit growth rate
J	Information and communication	3.4%	GST growth rate	Volume indicator: index of telecommunication services based on production survey. Internet usage data was introduced for the first time, added to 2012 with an appropriate assumed weight to represent the number of hours used.
K	Financial and insurance activities - Banks	3.9%	The Central Bank is treated as non-market so value added is based on the sum of costs method. Direct compilation from financial statements for Other banks and non bank lenders.	Central Bank, Volume indicator: employment numbers. Others, average of i) movement implied by change in employee numbers, and ii) movement implied by current price deflated by CPI
K	Financial and insurance activities - Insurance	0.6%	Direct compilation from financial statements	Average of i) movement implied by change in employment numbers, and ii) movement implied by current price deflated by the CPI
K	Financial and insurance activities - Other	0.1%	Implicit growth rate	Average of i) movement implied by change in employment numbers, and ii) movement implied by current price deflated by the CPI
L	Real estate activities	5.9%	Quantity revaluation, using CPI rent	Estimated at 50% of employment growth.
L	Residential rentals	0.0%	Not separately estimated. Implicitly included where the rent is paid to businesses, but the rent paid to households is not currently included.	
L	Owner Occupied dwellings	8.7%	2006 Benchmark value from Household Budget Survey "imputed rent", less 10% for intermediate consumption (i.e. repairs) Quantity revaluation, using CPI rent	Volume indicator: number of owner occupied dwellings (from 2002 and 2010 censuses, population based estimates for other years, plus assumed housing quality improvement of 2% per year)

M	Professional, scientific and technical activities	1.9%	GST growth rate	Deflate current price estimate, by CPI all items
N	Car hire	0.6%	GST growth rate	Volume indicator: total visitor nights
N	Other Tourism related	1.4%	Quantity revaluation, using CPI all items	Volume indicator: total visitor nights
N	Administrative and support service activities-Other	0.9%	Implicit growth rate	Implicit growth rate
O	Public administration and defence; compulsory social security - Budgetary Government	4.3%	Compensation of employees, from Government Finance Statistics.	Volume indicator: employment numbers
O	Public administration and defence; compulsory social security - remainder	1.3%	Compensation of employees: based on NBS employment statistics	Deflate current price estimate, by labour cost index derived for budgetary government
P	Education - Budgetary Government	1.9%	Compensation of employees, from Government Finance Statistics;	Education volume indicator, based on enrolment and student teacher ratios by level
P	Education - remainder	0.6%	Compensation of employees: based on NBS employment statistics	Education volume indicator, based on enrolment and student teacher ratios by level
Q	Human health and social work activities - Budgetary Government	1.4%	Compensation of employees, from Government Finance Statistics;	Volume indicator: employment numbers
Q	Human health and social work activities - remainder	0.2%	Compensation of employees: based on NBS employment statistics	Volume indicator: employment numbers
R	Arts, entertainment and recreation	0.6%	Implicit growth rate	Implicit growth rate
S	Other service activities	0.5%	Implicit growth rate	Implicit growth rate
T	Activities of households as employers and undifferentiated producers	0.0%	Not estimated	
	<i>less intermediate FISIM</i>	-1.8%	FISIM allocated to users, by assumed ratios.	Deflation, using implicit GDP deflator for banks
	Value Added at basic prices	84.7%		
	Trades Tax from Direct Imports	2.7%	From Government Finance Statistics	Moved with constant price GDP at basic prices
	GST on imported goods	2.9%	From Government Finance Statistics	Moved with constant price GDP at basic prices
	GST on manufacturing of alcohol	0.1%	From Government Finance Statistics	Moved with constant price estimate for beverage manufacturing
	GST on manufacturing of tobacco	0.0%	From Government Finance Statistics	Moved with constant price estimate for tobacco manufacturing
	GST on other manufacturing	0.2%	From Government Finance Statistics	Moved with constant price estimate for other manufacturing
	GST on fuel	0.0%	From Government Finance Statistics	Moved with constant price estimate from company in G46 ISIC group for domestic market.
	GST on professional services	0.2%	From Government Finance Statistics	Moved with constant price estimate for relevant activities
	GST on tourism	4.9%	From Government Finance Statistics	Moved with constant price estimate for relevant activities

	GST on telecommunications	0.8%	From Government Finance Statistics	Moved with constant price estimate for Information and Communication
	GST on utilities	0.0%	From Government Finance Statistics	Moved with constant price output indicator: Electricity produced
	GST on insurance	0.2%	From Government Finance Statistics	Moved with constant price estimate for insurance
	GST on residential rentals	0.3%	From Government Finance Statistics	This tax did not exist in the base year (2006), so this item is zero at constant prices
	GST on Gambling	0.1%	From Government Finance Statistics	This tax did not exist in the base year (2006), so this item is zero at constant prices
	Excise tax: Imported Alcohol	0.4%	From Government Finance Statistics	This tax did not exist in the base year (2006), so this item is zero at constant prices
	Excise tax: Petroleum	1.9%	From Government Finance Statistics	This tax did not exist in the base year (2006), so this item is zero at constant prices
	Excise tax: Motor Vehicles	0.4%	From Government Finance Statistics	This tax did not exist in the base year (2006), so this item is zero at constant prices
	Excise tax: Tobacco Imported	0.0%	From Government Finance Statistics	This tax did not exist in the base year (2006), so this item is zero at constant prices
	Excise tax: Local manufacturing Alcohol	1.3%	From Government Finance Statistics	This tax did not exist in the base year (2006), so this item is zero at constant prices
	Excise tax: Local manufacturing Tobacco	0.8%	From Government Finance Statistics	This tax did not exist in the base year (2006), so this item is zero at constant prices
	Less Subsidies	-1.8%	From Government Finance Statistics	Moved with constant price GDP at basic prices
	Value Added at Market prices	100.0%		

Revisions to GDP estimates since the 2011 estimates

A number of revisions have been made to the GDP estimates for previous years, 2004-2011. These included some improvements in methodology, and incorporation of newly available data. The extent of the revisions and the reasons for the changes are summarized in the tables below.

Current price revisions (SR million)		2004	2005	2006	2007	2008	2009	2010	2011	Reasons for revision
A01	Agriculture	~	~	~	~	~	~	~	~	
A03	Fishing	~	~	~	~	~	~	~	~	
C10	Manufacture of food	~	~	~	~	~	~	-0.1	0.1	Improvements in data
C11-12	Manufacture of beverages and tobacco	~	~	~	~	~	~	~	-0.1	Improvements in data
C23	Manufacture of concrete, rock products, glass etc	~	~	~	~	~	~	~	~	
C13-22,24-33	Manufacturing, other	~	~	~	~	~	~	~	~	
D	Electricity, gas, steam and air conditioning supply	~	~	~	~	~	~	~	91.0	Change in methodology, using sum of cost method.
E	Water supply; sewerage, waste management and remediation activities	~	~	~	~	~	~	~	39.8	Change in methodology, using sum of cost method.
F	Construction	~	~	~	~	~	~	~	~	
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	~	~	~	~	~	~	3.0	9.0	Improvements in data
H	Transportation and storage	~	~	~	~	~	~	-1.1	184.1	Improvements in data
I	Accommodation and food service activities	~	~	~	~	~	~	-74.6	-132.6	Improvements in data
J	Information and communication	~	~	~	~	~	~	~	~	
K	Financial and insurance activities	~	~	~	~	~	~	-0.1	-10.2	Improvements in data
L	Real estate activities	~	~	~	~	~	~	~	~	
L	Owner occupied dwellings	~	~	~	~	~	~	~	~	
M	Professional, scientific and technical activities	~	~	~	~	~	~	36.0	56.9	Improvements in data
N	Administrative and support service activities	~	~	~	~	~	~	-3.1	5.8	Improvements in data
O	Public administration and defense; compulsory social security	~	~	~	~	~	~	-2.7	6.4	Improvements in data
P	Education	~	~	~	~	~	~	1.7	-6.4	Improvements in data
Q	Human health and social work activities	~	~	~	~	~	~	1.0	~	Improvements in data
R	Arts, entertainment and recreation	~	~	~	~	~	~	-0.4	0.7	Improvements in data
S	Other service activities	~	~	~	~	~	~	-0.4	0.6	Improvements in data
X	less intermediate FISIM	~	~	~	~	~	~	~	~	
	GDP at current basic prices	~	~	~	~	~	~	-40.8	245.1	
	Taxes on Production and Imports	~	~	~	~	~	~	~	-42.1	Improvements in data
	Goods and Services Tax	~	~	~	~	~	~	~	-14.7	Improvements in data
	Subsidies	~	~	~	~	~	~	~	~	
	GDP at market prices	~	~	~	~	~	~	-40.8	188.3	

Constant price revisions (SR million)		2004	2005	2006	2007	2008	2009	2010	2011	Reasons for revision
A01	Agriculture	~	~	~	~	~	~	~	~	
A03	Fishing	~	~	~	~	~	~	~	~	
C10	Manufacture of food	~	~	~	~	~	~	0.1	0.4	Improvements in data
C11-12	Manufacture of beverages and tobacco	~	~	~	~	~	~	~	-0.1	Improvements in data
C23	Manufacture of concrete, rock products, glass etc	~	~	~	~	~	~	~	~	
C13-22,24-33	Manufacturing, other	~	~	~	~	~	~	0.9	2.6	Improvements in data
D	Electricity, gas, steam and air conditioning supply	~	~	~	16.7	5.1	-45.4	-53.5	27.2	Change in methodology, using sum of cost method.
E	Water supply; sewerage, waste management and remediation activities	~	~	~	~	-4.2	-7.5	-7.1	0.7	Change in methodology, using sum of cost method.
F	Construction	~	~	~	~	~	~	-0.1	-0.4	Improvements in data
G	Wholesale and retail trade; repair of motor vehicles and motorcycles	~	~	~	~	~	~	1.6	4.7	Improvements in data
H	Transportation and storage	~	~	~	~	~	~	-1.7	55.4	Improvements in data
I	Accommodation and food service activities	~	~	~	~	~	~	-1.2	0.7	Improvements in data
J	Information and communication	~	~	~	~	~	~	~	~	
K	Financial and insurance activities	~	~	~	~	~	~	~	1.0	Improvements in data
L	Real estate activities	~	~	~	~	~	~	~	~	
L	Owner occupied dwellings	~	~	~	~	~	~	~	~	
M	Professional, scientific and technical activities	~	~	~	~	~	~	21.2	32.6	Improvements in data
N	Administrative and support service activities	~	~	~	~	~	~	-1.3	4.0	Improvements in data
O	Public administration and defense; compulsory social security	~	~	~	~	~	~	0.4	0.4	Improvements in data
P	Education	~	~	~	~	~	~	~	~	
Q	Human health and social work activities	~	~	~	~	~	~	~	~	
R	Arts, entertainment and recreation	~	~	~	~	~	~	0.3	0.3	Improvements in data
S	Other service activities	~	~	~	~	~	~	0.2	0.7	Improvements in data
X	less intermediate FISIM	~	~	~	~	~	~	~	-3.3	Improvements in data
	GDP at current basic prices	~	~	~	16.7	0.8	-52.9	-40.2	127.1	
	Taxes on Production and Imports	~	~	~	1.5	0.1	-4.8	-3.7	11.6	Excluded airport charges from taxes. Revised due to other revisions
	Goods and Services Tax	~	~	~	~	~	~	1.3	4.5	Revised due to other revisions
	Subsidies	~	~	~	-0.3	~	1.0	0.7	-2.4	Revised due to other revisions
	GDP at market prices	~	~	~	18	0.9	-56.7	-41.8	140.8	

Gross National Income (GNI) and Gross National Disposable Income (GNDI) at current prices

Balance of Payments data on Primary Incomes and Secondary Incomes have been used to develop these additional income measures. Both GNI and GNDI are lower than GDP.

These are considered provisional until discussions can be had with the Balance of Payments compilers to ensure agreement on the classification of all income flows in accordance with the BPM 6.

Development of these aggregates at constant prices needs further work to determine appropriate deflators.

Future Improvements:

National accounts estimates can always be improved, and this 2012 set of estimates are no exception. Users should be aware of the following areas where further improvement is necessary:

- a. Current price estimates for the private sector: When it is possible to return to full estimation using financial statements this is expected to revise the estimates.
- b. Construction: Only limited data is available. We intend to survey other large construction companies.
- c. Financial Intermediation and FISIM: The methodology for the commercial banks and estimation of intermediate FISIM are not final. We intend to switch to the SNA 2008 method to derive FISIM.
- d. Seychelles International Trade Zone (SITZ): Apart from Indian Ocean Tuna, activities in this zone have not been investigated, though they are implicitly covered in the indicator based industry estimates rated forward from 2009.
- e. Household activities. Examples include residential rentals, and informal employment (e.g. domestic workers, unregistered businesses). These are not specifically or implicitly covered by the estimates. It is hoped that the Labor Force and Household Budget surveys will provide information to improve the estimates in these areas. Note however, that because of the extent of licensing, and tax coverage, informal household activities are understood to comprise a minor share of GDP.
- f. Constant price estimates: These need further work for many components, either to deepen and expand the range of volume indicators, or develop more suitable price deflators such as Producer Price Index (PPI).
- g. Agriculture. We are planning to survey the agricultural industry with the support of the Seychelles Agriculture Agency (SAA) to compile the Value added for the quarterly and annual GDP.
- h. Information and communication. We have it in mind to collect data on internet data usage from large internet providers, to improve the volume indicator for telecoms.