

**SEEA Training Programme  
14-16 September 2016  
Nadi**

**NATIONAL ACCOUNTS**

**Bimlesh Krishna**  
Divisional Manager  
Economics Statistics Division  
Fiji Bureau of Statistics  
Email: bkrishna@statsfiji.gov.fj

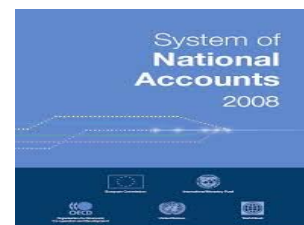
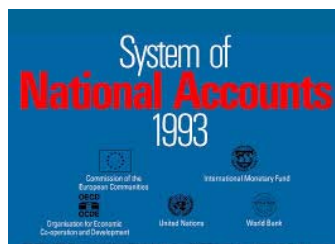
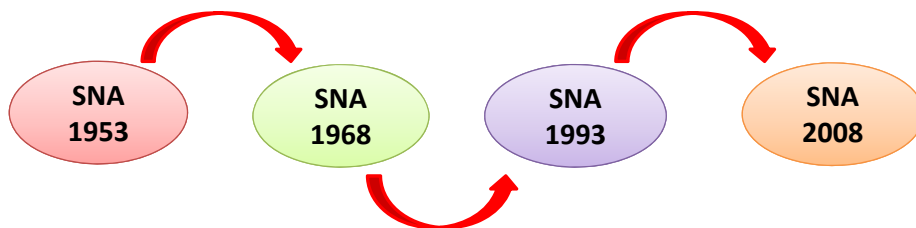
**Overview**

SNA is a framework for systematic presentation of estimates of macro-economic aggregates relating to national income and wealth.

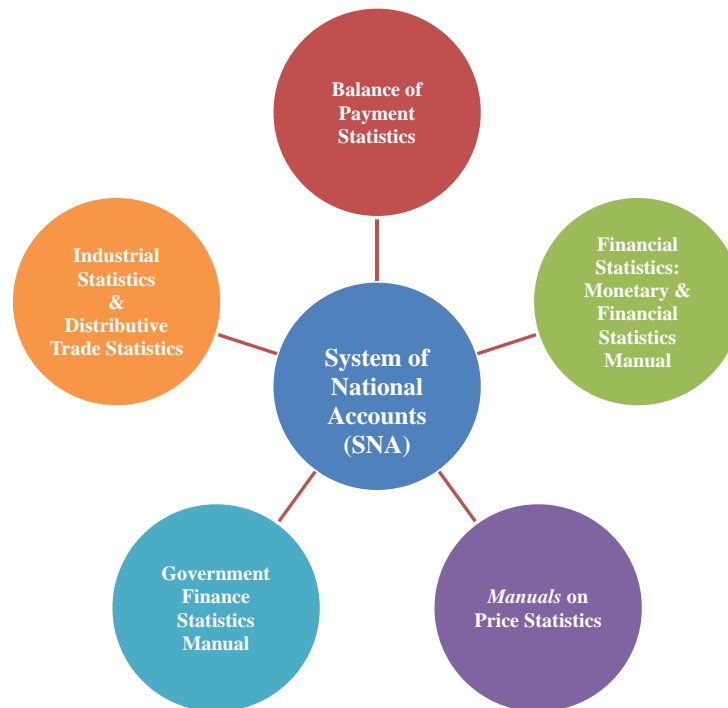
Shows the relationship between different economic variables.

National accountants measure the economic activity of a nation.

**Manuals**



## SNA - coordinating conceptual framework



## Institutional Units

### Defining characteristics of institution units:

- Capable of owning goods and assets
- Incurring liabilities
- Engaging in economic activities and transactions with other units
- In its own right



## Institutional Units

The SNA is designed to provide information about the behaviour of institutional units and the activities in which they engage, namely production, consumption and the accumulation of assets, in an analytically useful form.

- a. **Non-financial corporations;**
- b. **Financial corporations;**
- c. **Government units, including social security funds;**
- d. **NPIs serving households (NPISHs);**
- e. **Households.**



## Institutional Units

### **Corporations**

- Produce goods and services for the market with the objective of making a profit.

### **Government Units**

- Set by means of the political process
- Organise and finance the provision of goods and services to individual households and the community at large
- Also concerned with the distribution and redistribution of income and wealth





## Institutional Units

### **NPIs serving households (NPISHs);**

- These units also provide goods and services
- May make a profit
- Prohibited from distributing this profit to their owners

### **Households**

- Ultimately all economic activity is to satisfy needs and wants of households
- Households supply labour to other producing units or may undertake production themselves



## Economic Activities

1. Production – producing the goods and services that households want to satisfy their needs and wants.
2. Consumption – (1) satisfying needs and wants immediately, (2) using goods and services to produce more goods and services in future.
3. Accumulation – retaining goods, services and assets for future use or incurring liabilities.



## Transactions and other flows

1. Transactions – show how goods, services, assets and liabilities are exchanged between institution units willingly by both parties.
2. Other flows – show how the value of assets and liabilities change over period other than by transactions (by non-economic factors and others)



## Measuring Economic Activities

**Total Supply of Goods and Services = Total Use of Goods and Services**

Total Supply in the economy:

1. Production/Output (Formal & Informal) - GO
2. Import - M

Total Use in the economy:

1. Intermediate Consumption - IC
2. Private Final Consumption - PFC
3. Government Final Consumption Expenditure - GFCE
4. Gross Capital Formation – GCF
5. Export - X

## Measuring Economic Activities

$$GO + M = IC + PFCE + GCF + GFCE + X$$

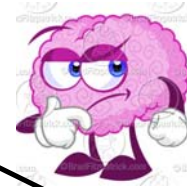
Re-arrange the formula

$$GO - IC$$

$$PFCE + GFCE + GCF + X - M$$

GDP by Production Approach = GDP by Expenditure Approach = GDP by Income Approach

Taxes and subsidies on product



## Measuring Economic Activities

$$GO - IC = VA - COE - CFC = OS$$

- GO - gross output
- IC - intermediate consumption
- VA - value added
- Also known as the value added approach
- Measured in real and nominal prices



# Measuring Output

## Types of Output

### Market output

- Transactions between institutional units at market prices
- e.g. buyers and sellers of cars, sheep, apples, electronic goods, accommodation in hotel, etc.

### Non-market output

- Not transacted at market prices (e.g. government education and health)
- Valued at cost of production
- Own-account production (within institutional units)
- For own final consumption (e.g. subsistence agriculture) or own final capital formation (e.g. building own house)
- For own intermediate consumption : EXCLUDED (except ancillary activity)

# Measuring Output

## Market Output

Sales  
+  
Change in Inventories

## Non-Market Output (Cost Approach)

Intermediate cost  
+  
Compensation of employees  
+  
Consumption of fixed capital  
+  
other taxes less subsidies on production

# Industrial Classification

## Primary Sector

1. Agriculture
2. Forestry
3. Fishing

## Industries Sector

4. Mining & Quarrying
5. Manufacturing
6. Electricity
7. Water Supply & Sewerage
8. Construction

## Services Sector

9. Wholesale & Retail Trade
10. Transport & Storage
11. Information & Communication
12. Accommodation & Food Service Act.
13. Real Estate
14. Professional, Scientific & Technical Services
15. Administrative & Support Services
16. Public Administration
17. Health
18. Education
19. Financial Service Activities
20. Arts, Entertainment & Recreation
21. Other Services

International Standard Industry Classification (ISIC Revision 4)  
Four levels: 21 Sections; 88 Divisions; 238 Groups and; 419 Classes.  
<http://unstats.un.org/unsd/cr/registry/isic-4.asp>

# Group Activity





# Industrial Classification

How would you classify these?

	Sector	Industry
A state owned company supplying electricity to households		
A company listed on the stock exchange manufacturing paper		
A company supplying irrigation water to farmers		
An owner-driver transporting logs from the forest to a sawmill		
A family growing vegetables for sale		
A school run by a religious organisation for poor children		
A bank lending money for renewable energy generation		

# Constant Price Value Added

1.  
Quantity  
Revaluation

2.  
Deflation

3.  
Volume  
Extrapolation

## Constant Price VA - Qty Revaluation

Current Price Estimates		\$\$
Gross Output	= P* Q = 2 * 50	100
Intermediate Costs	= P*Q = 10*4	40
Value Added		60

	Y <sub>0</sub>	Y <sub>1</sub>
Price of Output	1.50	2.00
Price of Input	8.00	10.00

Constant Price Estimates	\$\$
Gross Output	= 50*1.50= 75
Intermediate Costs	= 4*8 = 32
Value Added	= 75-32 = 43

## Constant Price VA - Deflation

Current Price Estimates	\$\$ [Millions]
Gross Output	100
Intermediate Costs	40
Value Added	60

	Y <sub>0</sub>	Y <sub>1</sub>
Price of Output	100	103
Price of Input	100	101

Constant Price Estimates	\$\$ [Millions]
Gross Output	= 100m/103 * 100 = 97.1m
Intermediate Costs	= 40m/101 * 100 = 39.6m
Value Added	= 97.1m - 39.6m = 57.5m

## Constant Price VA - Deflation

Current Price Estimates	\$\$ [Millions]
Gross Output	100
Intermediate Costs	40
Value Added	60



	Y <sub>0</sub>	Y <sub>1</sub>
Price of Output	100	103

Constant Price Estimates	\$\$ [Millions]
Value Added	$= 60m/103 * 100 = 58.3m$

## Constant Price VA - Volume Extrapolation



	Y0	Y1	Y2
<b>Current Price Estimates</b>			
Gross Output	100		
Intermediate Cost	40		
Value Added	60		
<b>Constant Price Estimates</b>			
Gross Output	100		
Intermediate Cost	40		
Value Added	60	61.8	64.8
<b>Volume Indicator</b>	<b>100</b>	<b>103</b>	<b>108</b>



## Constant Price VA - Volume Extrapolation

Survey results  
are not  
available

	Y0	Y1	Y2
<b><u>Current Price Estimates</u></b>			
Gross Output	100		
Intermediate Cost	40		
Value Added	60		
<b><u>Constant Price Estimates</u></b>			
Gross Output	100	103	108
Intermediate Cost	40	41.2	43.2
Value Added	60	61.8	64.8
<b>Volume Indicator</b>	<b>100</b>	<b>103</b>	<b>108</b>

## Constant Price VA - Volume Extrapolation

Survey results  
are not  
available

	Y0	Y1	Y2
<b><u>Current Price Estimates</u></b>			
Gross Output	100	A	C
Intermediate Cost	40	B	D
Value Added	60	=A-B	=C-D
<b><u>Constant Price Estimates</u></b>			
Gross Output	100	103	108
Intermediate Cost	40	41.2	43.2
Value Added	60	61.8	64.8
<b>Volume Indicator</b>	<b>100</b>	<b>103</b>	<b>108</b>

Relevant output and input prices are used to obtain the current price values.

## GDP-P Implicit Price Deflator

Survey results  
are available

	Y0	Y1	Y2
<b><u>Current Price Estimates</u></b>			
Gross Output	100	112	130
Intermediate Cost	40	48	50
Value Added	60	64	80
<b><u>Constant Price Estimates</u></b>			
Gross Output	100	103	108
Intermediate Cost	40	41.2	43.2
Value Added	60	61.8	64.8
<b>Volume Indicator</b>	<b>100</b>	<b>103</b>	<b>108</b>

## GDP by Expenditure Approach

Obtained by summing up the expenditures of final users of goods and services in the economy.

$$\text{GDP} = E = C + I + G + (X - M)$$

**Consumption (C)** - is the expenditure on goods and services by the household.

**Investment (I)** – is the expenditure on buildings and equipment by firms and new residence by households and also include change in inventories.

**Government (G)** – is all the expenditure on goods and services by all levels of government.

**Exports less Imports (X-M)** – net exports of goods and services.

- Measured in **Real** and **Nominal** terms



## Why we compile GDP-E?

- Impacts on business and households  
Effects of policies made could be determined in the Consumption and Investment respectively
- Influence interest rates  
Used by RBF to determine the level of interest rates in the economy
- Impact of events overseas- Remittances, Imports, and Exports
- ICP weights



## GDP by Income Approach

This approach is used to show the final income of the economy for all the industries.





## GDP – I Measurement

$$\text{GDP} = \text{COE} + \text{GMI} + \text{GOS} + \text{Taxes less subsidies on production and imports}$$

COE = Wages and Salaries

GMI = Gross Mixed Income

GOS = Gross Operating Surplus

Net Taxes = Taxes less subsidies



## Data Sources for GDP

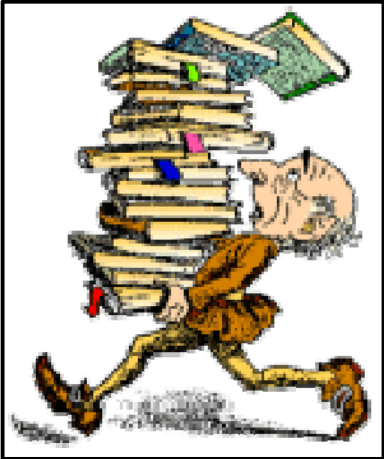
**Administrative Data**

**Survey Data**

# Data Sources for GDP

## Administrative Data

History  
??



# Data Sources for GDP

## Administrative Data

Now

- ✓ Timely
- ✓ Efficient
- ✓ No cost





## Data Sources for GDP

### Survey Data

- 1.0 Obtain the list of commercial businesses.
- 2.0 Prepare and send questionnaires.
- 3.0 Send reminders.
- 4.0 Conduct fieldwork.
- 5.0 Collate all information gathered.
- 6.0 Prepare report.
- 7.0 Prepare analysis in comparison with previous report.
- 8.0 Submit for checking, approval and publication.



## Data Sources for GDP

### Survey Data

- 1.0 Survey Frame & Responses
- 2.0 Legal Status of businesses
- 3.0 Ownership of businesses
- 4.0 Size of business by employment
- 5.0 Number of employees
- 6.0 Output/Value Addition of FSIC/Industry
- 7.0 Gross Fixed Capital Formation
- 8.0 Summary/Breakdown of Output and Costs



# Survey Tables

Table 6: Macroeconomic Aggregates (\$)

FSIC 2010		GO	IC	VA	COE	CFC	OS
SUB-CLASS	ACTIVITY						
<b>PUBLISHING ACTIVITIES</b>		<b>38,883,792</b>	<b>18,122,108</b>	<b>20,761,685</b>	<b>7,328,068</b>	<b>864,380</b>	<b>12,569,237</b>
58111	Book publishing						
58121	Publishing of directories and mailing lists	9,449,563	4,085,614	5,363,949	2,559,042	466,065	2,338,842
58131	Publishing of newspapers, journals and periodicals						
58199	Other publishing activities	29,434,229	14,036,494	15,397,735	4,769,026	398,315	10,230,394
<b>MOTION PICTURE, VIDEO AND TELEVISION PROGRAMME PRODUCTION, SOUND RECORDING AND MUSIC PUBLISHING ACTIVITIES</b>		<b>13,943,434</b>	<b>5,398,050</b>	<b>8,545,385</b>	<b>2,526,683</b>	<b>975,730</b>	<b>5,042,972</b>
59101	Motion picture, video and television programme production activities	13,943,434	5,398,050	8,545,385	2,526,683	975,730	5,042,972
<b>PROGRAMMING AND BROADCASTING ACTIVITIES</b>		<b>43,579,503</b>	<b>25,543,245</b>	<b>18,036,258</b>	<b>9,844,108</b>	<b>3,549,475</b>	<b>4,642,675</b>
60101	Radio broadcasting	18,065,191	10,541,472	7,523,719	4,240,928	896,185	2,386,606
60201	Television programming and broadcasting activities	25,514,312	15,001,773	10,512,539	5,603,180	2,653,290	2,256,069
<b>TELECOMMUNICATIONS</b>		<b>425,720,463</b>	<b>127,202,081</b>	<b>298,518,382</b>	<b>54,333,520</b>	<b>43,245,483</b>	<b>200,939,409</b>
61101	Wired telecommunications activities	119,691,826	36,735,727	82,956,099	18,953,140	23,728,188	40,274,771
61201	Wireless telecommunications activities	249,565,378	69,168,504	180,396,874	26,601,958	14,671,000	139,123,916
61301	Satellite telecommunications activities						
61909	Other telecommunications activities	56,463,259	21,297,850	35,165,409	8,778,422	4,846,265	21,540,722
<b>COMPUTER PROGRAMMING, CONSULTANCY AND RELATED ACTIVITIES</b>		<b>25,123,693</b>	<b>10,726,160</b>	<b>14,397,533</b>	<b>3,707,748</b>	<b>562,712</b>	<b>10,127,073</b>
62011	Computer programming activities						
62021	Computer consultancy and computer facilities management activities	15,501,817	5,484,596	10,017,221	1,838,340	291,501	7,887,380
62099	Other information technology and computer service activities	9,621,876	5,241,564	4,380,312	1,869,408	271,211	2,239,693
<b>INFORMATION SERVICE ACTIVITIES</b>		<b>14,963,095</b>	<b>3,646,075</b>	<b>11,317,020</b>	<b>1,438,427</b>	<b>244,047</b>	<b>9,634,546</b>
63111	Data processing, hosting and related activities						
63121	Web Portals activities	14,963,095	3,646,075	11,317,020	1,438,427	244,047	9,634,546
<b>TOTAL</b>		<b>562,213,980</b>	<b>190,637,718</b>	<b>371,576,262</b>	<b>79,178,554</b>	<b>49,441,797</b>	<b>242,955,911</b>

# Survey Reports

Link to survey reports on FBoS website:

<http://www.statsfiji.gov.fj/statistics/economic-statistics/key-stats>

Annual Reports

Filter

Choose Archive :

Zip Archive

File Name	File Size
01_Agriculture-Forestry--Fishing	
02_Mining--Quarrying	
2010-Mining-And-Quarrying	243.95 KB
2011-Mining-And-Quarrying	626.46 KB
2012-Mining-And-Quarrying	393.24 KB
2013-Mining-And-Quarrying	424.64 KB
03_Manufacturing	
04_Electricity	
05_Water-and-Sewerage	
06_Construction	
07_Wholesale-Retail-Trade	
08_Transport	
09_Accommodation-and-Food-Services	
10_Information--Communication	
12_Real-Estate-Activities	
13_Professional-Scientific-and-Technical-Activities	
14_Administrative-and-Support-Service-Activities	
15_General-Government-Accounts	
16_Education	



## Supply & Use Table

### Why do we compile SUT

#### Eliminates statistical discrepancy

SUT offer an ideal framework to balance the three approaches of calculating GDP.

#### Goods and services account, production account and generation of income account included

SUT enable the first three accounts to be compiled by industry and sector.

#### Integrated framework

SUT enables an efficient analysis and comparison of data including the improvement of weak areas in GDP compilation e.g. inconsistencies between different sources, poor quality of data, lack of information for some indicators, etc.

#### Supply and use tables benefits for users

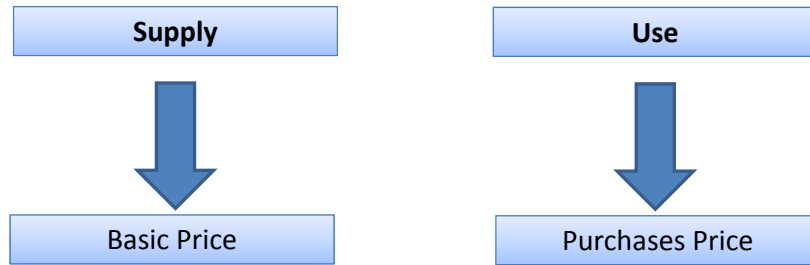
SUT form the basis for estimating other indicators, economic analysis and forecasting for users.



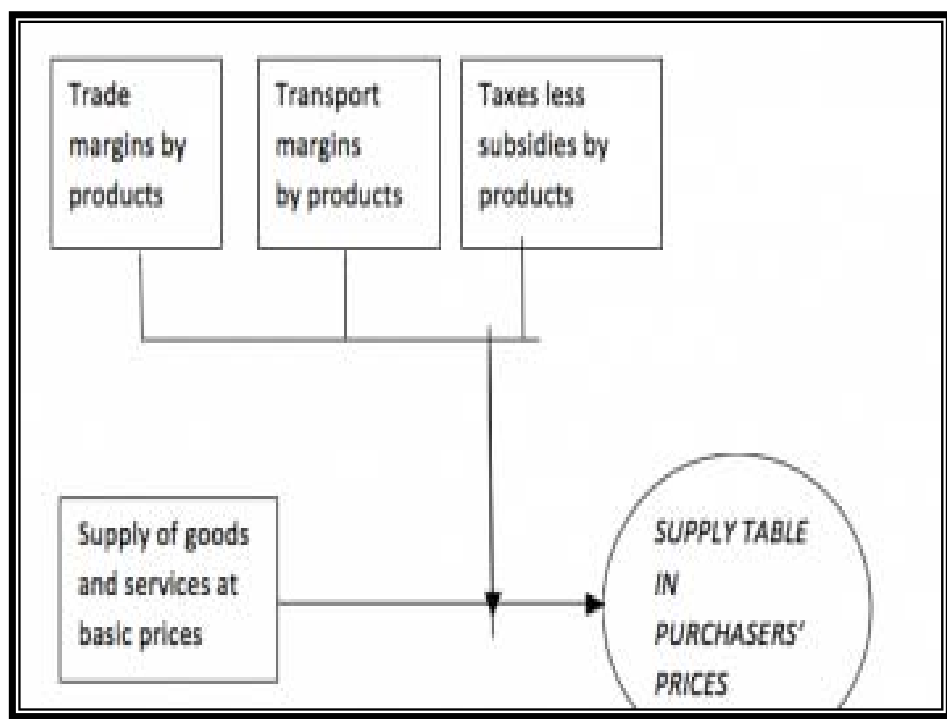
## Additional Uses of SUT

- Use of imported vs. domestically produced products used by industries or final demand
- Inter-industry transactions – traces flows through the economy
- Enables sensitivity analyses – e.g., impact of price change, impact of policy change
- Compilation of Satellite accounts
  - Tourism Satellite Accounts
  - Environment, NPISH, labour, health

# Supply & Use Table Valuation



# Supply & Use Table Valuation





# Supply & Use Table Valuation

$$\begin{aligned}
 & \text{Basic Price} \\
 & + \\
 & \text{Taxes on product (except deductible VAT)} \\
 & - \\
 & \text{Subsidies} \\
 & = \\
 & \text{Producer prices} \\
 & + \\
 & \text{Non Deductable VAT (Non Claim VAT)} \\
 & + \\
 & \text{Transport charges} \\
 & + \\
 & \text{Trade margins} \\
 & = \\
 & \text{Purchasers Price}
 \end{aligned}$$

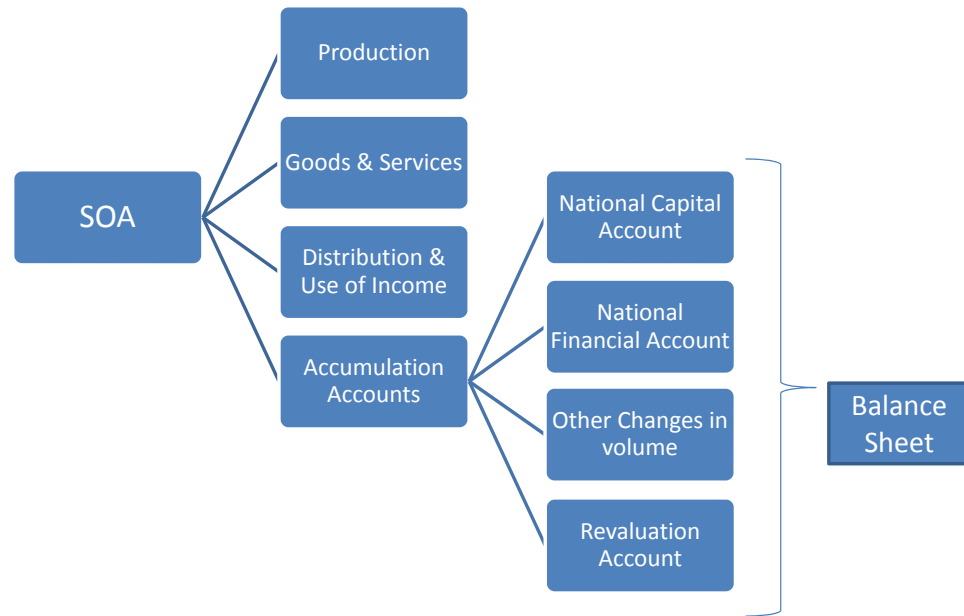
# Supply & Use Table Example

Specification	Output				Imports of goods and services	Taxes less subsidies on products	Trade and transport margins	CIF-FOB corr.	TOTAL Resources
	Primary sector	Secondary sector	Tertiary sector	TOTAL Output					
Product A	110	20	5	135	10	2	1		148
Product B	2	210	10	222	90	25	29		366
Product C	1	77	220	298	20	8	-30	-1	295
CIF-FOB Territorial correction					-4			1	-3
					1				1
<b>TOTAL</b>	<b>113</b>	<b>307</b>	<b>235</b>	<b>655</b>	<b>117</b>	<b>35</b>	<b>0</b>	<b>0</b>	<b>807</b>

Specification	Intermediate consumption, by industry				Final consumptions	Gross capital formation	Exports of goods and services	TOTAL Uses
	Primary sector	Secondary sector	Tertiary sector	TOTAL				
A	20	23	10	53	22	70	3	148
B	10	137	60	207		159		366
C	5	44	37	86	85		124	295
CIF-FOB Territorial correction					-1		2	-3
								1
<b>TOTAL</b>	<b>35</b>	<b>204</b>	<b>107</b>	<b>346</b>	<b>106</b>	<b>229</b>	<b>126</b>	<b>807</b>
Output	113	307	235	655				
Gross value added	78	103	128	309				
Compensation of employees	5	80	65	150				
Other taxes less subsidies on production	-3	1	-1	-3				
Gross operating surplus/mixed income	76	22	64	162				

# Sequence of Accounts

## Sequence of Accounts (SOA) Structure



# Sequence of Accounts

## SNA 2008

1. Production account
2. Generation of income account
3. Allocation of primary income account
4. Secondary distribution of income account
5. Redistribution of income account
6. The use of disposable income account
7. The use of adjusted disposable income account
8. Capital account
9. Financial account
10. Other changes in volume of assets account
11. Revaluation account
12. Opening and closing balance sheet



*Thank You*