
Statistical Institute for Asia and the Pacific

**An Introduction to System of National Accounts
– Basic Concepts**

Reading Materials

**e-Learning Course on the 2008 System of National
Accounts**

Acknowledgement

This reading material is intended to help the readers in understanding the basic concepts of System of National Accounts. We have made use of the teaching materials on national accounts available at the SIAP, which have been developed over years.

In addition, we have made use of various handbooks and publications of international organisations like United Nations Statistics Division (UNSD), Organisation for Economic Corporation and Development (OECD), International Monetary Fund (IMF) and Statistical Office of the European Communities (Eurostat), for preparing this reading material.

Acronyms

<i>CE</i>	Compensation of Employees
<i>CFC</i>	Consumption of Fixed Capital
<i>CII</i>	Change in Inventories
<i>FCE</i>	Final Consumption Expenditure
<i>GCF</i>	Gross Capital Formation
<i>GDCF</i>	Gross Domestic Capital Formation
<i>GDP</i>	Gross Domestic Product
<i>GFCE</i>	Government Final Consumption Expenditure
<i>GFCF</i>	Gross Fixed Capital Formation
<i>GNDI</i>	Gross National Disposable Income
<i>GNI</i>	Gross National Income
<i>GVA</i>	Gross Value Added
<i>GVO</i>	Gross Value of Output
<i>HFCE</i>	Household Final Consumption Expenditure
<i>IC</i>	Intermediate Consumption
<i>M</i>	Imports
<i>MI</i>	Mixed Income
<i>NDP</i>	Net Domestic Product
<i>NNI</i>	Net National Income
<i>NVA</i>	Net Value Added
<i>NVO</i>	Net Value of Output
<i>NPI</i>	Non-Profit Institution
<i>NPISH</i>	Non-Profit Institution Serving Households
<i>OS</i>	Operating Surplus
<i>PFCE</i>	Private Final Consumption Expenditure
<i>PI</i>	Property Income
<i>RoW</i>	Rest of the World
<i>SNA</i>	System of National Accounts
<i>TTM</i>	Trade & Transport Margin
<i>(t-s)</i>	taxes <i>minus</i> subsidies
<i>VAT</i>	Value Added Tax
<i>X</i>	Exports

Subscripts

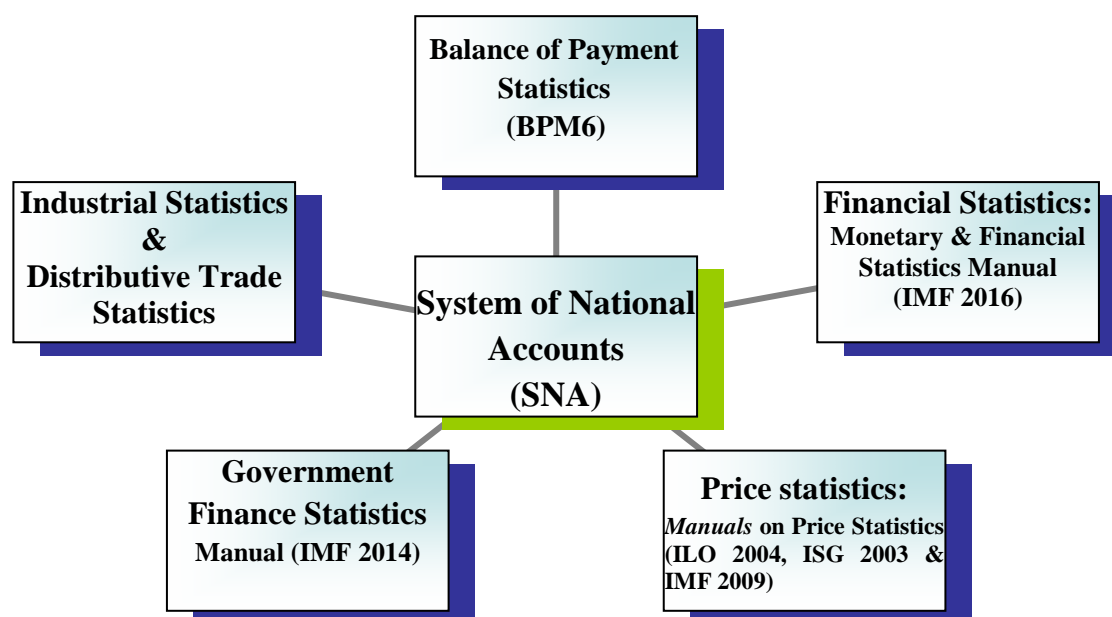
<i>bp</i>	stands for	<i>at basic prices</i>
<i>purp</i>	stands for	<i>at purchasers' prices</i>
<i>mp</i>	stands for	<i>at market prices</i>

I. INTRODUCTION

The System of National Accounts (SNA) consists of a broad and comprehensive statistical system which helps in systematic presentation of estimates of macroeconomic aggregates relating to national income and wealth. Macroeconomics deals with totals of economic variables or aggregates for the economy as a whole. It deals with aggregates like, production, income, consumption, labour, business investment, money supply, and total wealth. National accounts consist of a systematic presentation of estimated money value of these and other such macroeconomic aggregates relating to national income and wealth.

The SNA provides the framework for presenting these aggregates in form of a coherent, consistent and integrated set of macroeconomic accounts, balance sheets and tables. The framework is based on a set of internationally agreed concepts, definitions, classifications and accounting rules. The framework seeks to capture the details of the complex economic activities taking place within an economy. It also provides for recording the interactions between different economic agents and groups of agents like households, business companies, government and non-profit institutions who are involved in economic activities. The estimates of macro-economic aggregates compiled in the framework of SNA are called *National Accounts Statistics* (NAS).

SNA – An Overarching Framework for Economic Statistics



The SNA is also the coordinating conceptual framework for all economic statistics ensuring consistency of definitions and classifications used in different, but related, fields of economic statistics. It thus occupies a central position in the analytically oriented frameworks of economic statistics set out in various international manuals for economic statistics.

Economic statistics – indispensable for policy making

Economic statistics form an indispensable set of data for economists, other analysts, (economic) policy makers and financial administrators. The practicing economists like those involved in economic decision making in the government and the corporate bodies or those running private business firms rely heavily of the national accounts statistics for assessing

- level of economic development
- rate of economic growth
- consumption demand
- rate of inflation
- savings and investment



of the economy as well as its different segments.

Integrated Framework

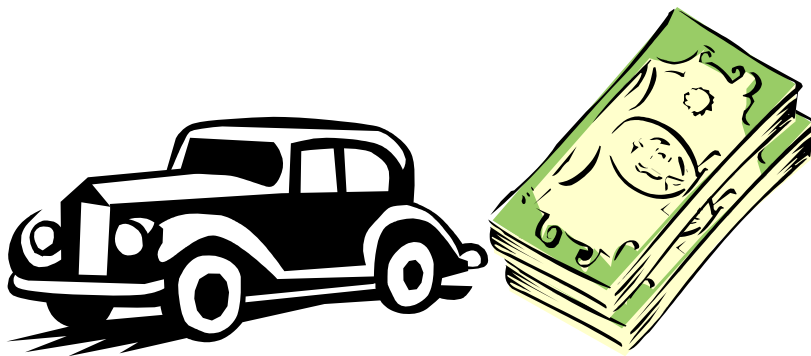
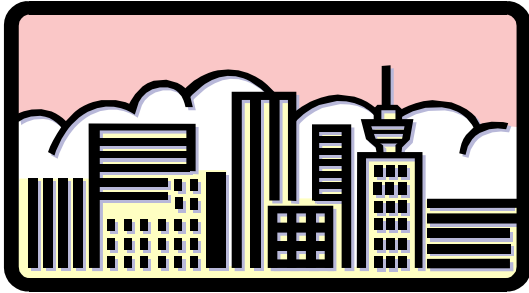
The development planning of the country involves activities designed to balance the resources through expansion and improvement of their qualities. Countries with rich natural resources might wish to use it in exchange of having more produced or financial assets. Other countries with excess human resources might let other countries use them in exchange of financial resources. Countries with excess financial resources on the other hand try to make investments in other countries to derive more income or more financial resources. Development planning also involves the maximum use of the resources to generate goods and services as well as income.

Imagine yourself sitting by your dining table, all set to savour a nice mid-day meal in a leisurely weekend family get-together. The dishes laid on the table may consist of delicacies like salmon caught in the Atlantic, fresh shrimps from the river flowing across your district,



portions of lamb raised in the steppes of Mongolia, collection of locally-grown and imported fruits & vegetables, butter & cheese and other milk products supplied by the dairy farm of a neighbouring country. These would invariably be served with rice, quite likely grown somewhere in the alluvial plains of South and South-East Asia, or bread made of wheat, perhaps raised in the unending flatlands of Kansas State of North America. The table on which the meal is served may as well be made of teakwood from Indonesian rain forests, while the cutlery made of fine steel made from Indian iron ore smelted in a giant Korean steel plant.

These are the kind of sources we draw upon for just a mid-day meal, which is just one form of human consumption of goods and services. Coming to think of all kinds of human consumption, a multitude of geographically dispersed sources are tapped to meet the human wants and needs. A planner needs to take stock of all the resources that could be utilized to produce goods and services to meet the wide range of human needs – both for the present and the future – and improve the level of human well being.



Resources

People have unlimited wants and needs. The wants and needs are satisfied by consuming goods and services (products). Goods and services are produced by units such as establishments/enterprises including own account enterprises/ government/ non-profit institutions/ households using the resources. These resources may be broadly classified into the Human, Natural, Produced capital, Financial and Natural resources.

Human resources consist of the population of the country and made up of the different age groups-children (usually 0-14 years) who are in the formative stage; the productive and reproductive age group (15-59 or 64); and the retired (60 or 65 years and over). The productive and reproductive age group is crucial for production of goods and services, development of technology, and the command of resources that would enable the other population group attain the desired quality of life. It is also the age group which is capable of the reproduction for the next generation. The children and retired are generally dependent on society for their development (in the case of children) or for their support. The role/functions of human resources in a socio-economic framework are in the following forms: People manage the resources; People serve as means of production; People are consumers or users of resources; and People reproduce themselves

Produced capital resources such as machinery, equipment, buildings, roads/ bridges, livestock, inventory of goods, etc. make possible the expansion of capacity of industries to produce goods and services. These assets, which are created from present and past production, provide facilities that contribute to the welfare of the population. The expansion, quality and full utilization of these resources are among the objectives of society in development. However, they can also cause damage to natural and human resources. Produced resources are used as means of production as well as materials for production besides providing services like living, workplace and transportation.

Financial resources provide the means for efficient flow and use of the resources to the societies which have increasingly been market-oriented. While financial resources are not directly used for production, they are very important in acquiring the materials for production and in making possible all the flows in the use and transfers of these resources. They are also used in facilitating the flows of the produced goods and services from the producers to the users. Financial resources are creation of transactions, as such, for every financial resource a corresponding liability is also created except for monetary gold, and to some extent Special Drawing Rights (SDR) and corporate equity. For example, currency, a financial instrument is an asset of the holder and the liability of the Central Bank; loan is another financial asset for which the creditor has a claim to the debtor who has the liability.

Natural resources provide the means (land, water, air, etc), raw materials for production (trees, minerals, biota, water, etc), and the needed environment for the living and well-being of people. The balance of these resources at the country and global level is extremely important for the total well being of the people in the long range. While some of these resources can reproduce themselves (renewable resources, biota), others (fossil oil, mineral deposits) cannot. For example, plants and animals, given the appropriate environment can reproduce while mineral deposits cannot; they diminish as they are extracted. Replacement of such resources would take thousands of years. Natural resources are very important because they provide raw material for production; serve as means of production; absorb waste products of production, and other social and economic processes; and provide consumption services to people. Natural resources also reproduce themselves

Economic Assets

All kinds of assets do not fall in the purview of macroeconomics. National accounts, being a macro-economic depiction of the “circular flow” of purchasing power (or simply ‘money’) through the economy, takes into consideration only those resources that have *value in exchange* or ‘money value’.

Since, human resources do not have an explicit money value (at least not legally since the abolition of slavery in early 19th century), they do not appear in the national accounts. Only the services provided by human resources are treated as factors of production like labour and entrepreneurship. Similarly, national accounts do not encompass all natural resources. Only those naturally occurring resources over which individual ownership rights are established and are effectively enforced appear in the national accounts. Certain natural resources like air, oceans, remote inaccessible forests that are, in practice, not under human control, are excluded from the realm of national accounts. Also excluded are the natural assets that do not bring any economic benefits to their owners, given the technology, scientific knowledge and prevailing price structure. Thus, known deposits of minerals that are not commercially exploitable in the foreseeable future are not included in the SNA. The SNA is therefore only a part of the integrated framework which includes only the kind of natural resources mentioned above, produced capital resources and financial resources. In the SNA, these are called *economic assets*. The natural resources that are treated as economic assets are called *non-produced natural assets*.

An *economic asset* is a store of value (money value or *exchange value*) over which ownership rights are enforced, individually or collectively (like by government or community) and from which economic benefits can be derived by holding it or using it in a production process.

Thus, in the SNA, the goods held for consumption by the households are not treated as economic assets. For example, household durables like refrigerators, other electrical equipments, furniture and automobiles are not included in the asset boundary of the SNA. Whereas automobiles owned by a company or refrigerators used by restaurants are treated as assets in the SNA, since they are used in the production process. Stock of grains held by households for its own consumption is not treated as assets, while the same held by a trader or rice milling factory is treated as produced assets.

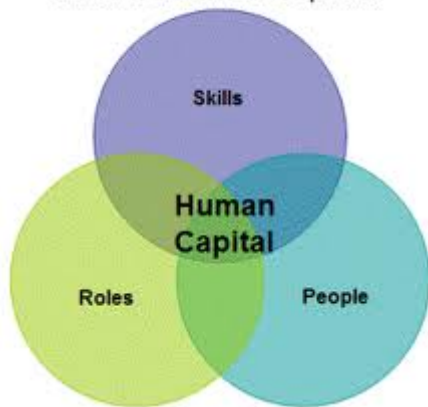
Economic Flows

The national accounts provide a macro-economic depiction of the “circular flow” of purchasing power (or simply ‘money’) through the economy.

The NAS consists of quantitative estimates (in monetary terms) of aggregates like stock of resources (or economic assets); flows of goods & services – production, consumption, investment, exports & imports; income and other economic instruments that emanates from using these resources or as consequence of economic flows. Besides the (economic) transactions, SNA also provides for recording changes in wealth (assets with economic value) occurring due to non-economic causes like natural disaster, war, scientific discoveries etc. and changing prices.

Input	Other Names	Categories	Examples
Land	Natural Resources Raw Materials	Land, water, minerals, plants, animals, climate	Fertile soil, Mississippi River, coal, forests, salmon, temperate climate
Labor	Human Resources Workers Entrepreneurs	Agricultural workers, construction workers, factory workers, miners, professionals, service workers	Farmers, electricians, steel workers, teachers, managers, flight attendants, waitpersons
Capital	Capital Equipment Infrastructure	Tools, equipment, machinery, buildings, vehicles, infrastructure	Scissors, oil drill, computers, office building, warehouse, tractors, airports, roads

What is Human Capital?



The Production Process



The NAS are presented in form of a comprehensive, consistent, flexible set of macro-economic accounts that meets needs of government, analysts, and policy/ decision makers. We will use the following table of main macroeconomic aggregates of Slovenia as an illustration through this note.

Slovenia

Million. EUR

Main Macroeconomic Aggregates at current and constant (2000) prices				
Aggregates	at current prices		at constant prices	
	2002	2003	2002	2003
GDP – Expenditure Approach				
Final consumption expenditure	17 357	18 845	14 876	15 321
Household	12 645	13 755	10 910	11 273
NPISHs	291	312	242	244
Government	4 422	4 779	3 723	3 804
Gross capital formation	5 500	6 326	5 045	5 567
Gross fixed capital formation (<i>GFCF</i>)	5 332	6 015	4 889	5 283
Change in inventories (<i>CII</i>)	146	308	...	...
Acquisition less disposal of valuables	22	3	...	...
External balance of goods & services	271	-58	-159	-569
Exports (<i>X</i>)	12 775	13 554	11 320	11 674
Imports (<i>M</i>)	12 504	12 612	11 479	12 243
Gross Domestic Product (GDP)	23 128	25 114	19 762	20 323
GDP – Output Approach				
Total Gross Value Added (<i>GVA</i>) at basic prices	20 146	21 920	17 383	17 902
Taxes less subsidies on products	2 983	3 194	2 380	2 424
Statistical discrepancies	0	0	-1	-3
GDP at market prices	23 128	25 114	19 762	20 323
GDP – Income Approach				
Compensation of employees	11 855	12 800	...	...
Gross operating surplus (<i>OS</i>) & mixed income (<i>MI</i>)	8 027	8 798	...	...
Taxes less subsidies on production & imports	3 246	3 516	...	...
Gross Domestic Product (GDP)	23 128	25 114	...	...

Main Macroeconomic Aggregates at current prices (contd.)		
Aggregates	at current prices	
	2002	2003
Disposable income, savings and net lending / borrowing		
Net primary income from the RoW	-129	-194
primary income receivable from the RoW	450	482
primary income payable to the RoW	579	676
Gross National Income (GNI)	23 000	24 920
Consumption of Fixed Capital (CFC)	3 768	3 885
Net National Income (NNI)	19 232	21 036
Net current transfers from the RoW	62	29
Current transfers receivable from the Row	470	463
Current transfers payable to the Row	408	434
Net National Disposable Income (NNDI)	19 293	21 065
Final consumption expenditure	17 357	18 845
Net Savings	1 936	2 220
Net capital transfers from the RoW	-141	-141
Capital transfers receivable from the Row	84	98
Capital transfers payable to the Row	225	239
Gross capital formation	5 500	6 326
Acquisition less disposal of non-produced non-financial assets	1	2
Consumption of fixed capital (CFC)	3 768	3 885
Net lending / net borrowing	63	-365

Source: *National Accounts of OECD Countries – Main Aggregates*, OECD (2010)

5.1 Real GDP

Calculating real GDP

Real GDP is calculated by adding up the value of all final goods and services produced in the economy. Because it measures the rate at which goods and services are produced, real GDP is a flow variable; it is usually expressed as an annual amount.

What are the final goods and services that make up GDP? A final good or service is something that is not used further in production during the course of that year. Thus final goods and services include:

-Everything bought by consumers

-Everything bought by businesses not as an input for further production, but as an investment to increase the business's capital stock and expand its future production capacity

-Everything bought by the government.

Because GDP measures *product* and not *spending*, it includes a balancing item, exports minus imports. Because imported goods bought by consumers, installed as pieces of investment, or bought by the government were not made in the United States, they are not part of Gross Domestic *Product*, so imports need to be subtracted from GDP. Because exported goods bought by foreigners *were* made in the United States, they *are* part of GDP, and need to be added to the total.

Real and nominal GDP

When economists add up final goods and services produced in the year to calculate GDP, how do they weight each good or service? The answer is that they use market value-- what people paid for a good or service--in the calculation of *nominal* GDP.

But it is clear this *nominal* measure of GDP in which current-year prices are used to weight the final goods and services produced, and to calculate growth rates, is not a good measure of productivity or material output. It confuses changes in the overall price level--inflation or deflation—with changes in total production.

While nominal GDP does not distinguish between these two sources of increase in total expenditure, we need to distinguish between them. Hence economists favor of real GDP--the value of final goods and services weighted by the prices of a particular year.

As has been noted above, economists construct an alternative index number for the rate of inflation, the GDP deflator, from nominal GDP and real GDP. The procedure is:

-Calculate nominal GDP

-Calculate real GDP

-Divide the first number by the second; the quotient is the GDP deflator.

The GDP deflator is a Paasche index--the kind of index that tends to understate the effect on the price level of a rise in the price of a particular good. While the GDP deflator takes account of purchasers' ability to substitute away from items that have increased prices, it does not take account of the reduction in utility--the implicit cost to consumers—of settling for second best.

The system of national accounts (SNA) is part of the integrated framework which includes only the resources which are classified as *economic assets*. An asset is classified as *economic asset* if there is an ownership right. Those with ownership rights can derive economic benefit from these assets. The system of national accounts provides the framework for measuring the stock of resources, production, the flows resulting from production and other flows. It also measures flows of resources, goods and services and incomes to and from the rest of the world.

System of National Accounts

National accounts provide a comprehensive view of these flows within an economy and between the economy and the rest of the world. National accounts consist of estimates of income, production, consumption and other macro-economic aggregates like investment and savings of an economy. National Accounts aim to provide a comprehensive, coherent, and consistent picture of the economy

- that reflects all transactions and other economic activities
- taking place in an accounting period
- between the agents that together constitute an economy and with those outside the economy.

It also provides estimates of the related stocks – like stock of human-made productive and other assets. [See *Box 1* for a brief history of development of system of national accounts.]

The estimates of macro-economic aggregates compiled in the framework of SNA are called National Accounts Statistics (NAS). The NAS consists of quantitative estimates (in monetary terms) of aggregates like stock of resources (or economic assets); flows of goods & services – production, consumption, investment exports & imports; income and other economic instruments that emanates from using these resources or as consequence of economic flows. The NAS are presented in form of a comprehensive, consistent, flexible set of macro-economic accounts that meets needs of government, analysts, and policy/ decision makers. Besides the (economic) transactions, SNA also provides for recording changes in wealth (assets with economic value) occurring due to non-economic causes like natural disaster, war, scientific discoveries etc. and changing prices.

The 2008 SNA is based on a set of concepts, definitions, classifications and registration rules – rules for valuation of goods & services, rules for time of recoding the accounting rules. The rest of this note is devoted to discussion on these concepts, definitions and rules.

The basic concepts and definitions and the essential elements of the accounts are discussed in the following sections of the note. Section 2 contains information on macroeconomic foundations of the SNA. In Section 3, we will look at what an economy is constituted of. This section also consists of brief discussions on the individual constituent elements, their classification into sectors.

Section 4 contains discussion on the macro-economic aggregates relating to stocks of assets and economic flows covered in the SNA like, output, production, consumption, capital formation (investment), stock of assets, transfer payments and taxes & subsidies. The relationships between these aggregates are established in Section 5. Lastly, the SNA sequence of accounts are briefly discussed in Section 6.

Box 1:
System of National Accounts

The System of National Accounts (SNA) provides a complete and consistent conceptual framework for measuring all economic activities of a nation. It also provides a comprehensive and detailed record of complex economic activities taking place within an economy. It is an accounting framework that

- specifies what (estimates of macro-economic aggregates) are to be compiled
- how the compiled estimates are to be presented – i.e. format of presentation, and
- helps in maintaining consistency between the compiled estimates, following the system's well-defined accounting rules

The format of presentation is designed for purposes of economic analyses, decision-taking and policy making.

The recommended format for presentation, in fact, consists of a coherent, consistent and integrated set of macro-economic accounts, balance sheets and tables based on a set of internationally agreed concepts, definitions, classifications and accounting rules. These provide information not only about economic activity but also about the levels of an economy's productive assets and the other wealth of the residents of the economy at a particular point of time. It also includes an external account that displays the links between an economy under the rest of the world.

The origin of the SNA can be traced back to the report of the Sub-Committee on National Income Statistics of the League of Nations Committee of Statistical Experts published in 1947. The first System of National Accounts was prepared by the UN Statistics Office in 1953. This underwent a number of revisions and in 1968 the Statistical Commission of UN approved a draft submitted by an expert committee, which came to be known as 1968 SNA.

The 1968 SNA was further revised under the auspices of Inter-secretariat working Group on National Accounts (ISWGNA) comprising the Commission of the European Communities (Eurostat), International Monetary Fund (IMF), Organisation for Economic Cooperation and Development (OECD), United Nations (UN) and the World Bank. The revised version is popularly known as 1993 System of National Accounts (1993 SNA). The 1993 SNA retained the basic analytical and accounting framework of 1968 SNA but was much more elaborate and comprehensive. At the same time, it was harmonised with other major statistical systems, like, Balance of Payments Statistics and Government Finance Statistics.

The System of National Accounts 2008 (2008 SNA) retains the basic theoretical framework of 1993 SNA. It only introduces treatment of new aspects of economies and provides guidance and elaboration on a wide range of issues.

II. MACRO-ECONOMIC FRAMEWORK

Balanced ‘circular flow of money’ is the core idea on which the theory of macroeconomics is founded. This leads to the fundamental macroeconomic relationship:

$$\begin{aligned} \text{value of production (Y)} &\equiv \text{Consumption (C)} + \text{Investment (I)} \\ &\equiv \text{final demand aggregate.} \end{aligned}$$

National income of a country represents the total income earned by those residing in the country during a period of time - usually one year. The residents mostly earn their income from the production processes in which they participate. Participation in production process may simply be by providing labour or by making available the assets required for carrying out production. As we will presently see, the income generated through the process of (domestic) production is equal to the value of production (Y) of the economy.

A part of the income earned by the residents from participation in the production process is, in turn, spent on consumption of goods and services (C) produced in the economy (or imported), and the rest is saved. The savings made by the individuals are utilised by entrepreneurs (either directly or through banks) for making investments (I) for further production. These are used for financing the expenditures made by the production units for acquiring physical assets like plants & machinery, building & constructions and transport equipments, which are used for further production.

Economy of Monojima – an illustration

In an island country called Monojima there was only one enterprise that carried out production in 2005. The enterprise produced all goods – like food, clothing, houses, tractors and other machinery – and services – like education, health, housing and personal services – for the residents of the island. It was a closed economy (i.e. had no overseas transactions) and had no government.

In 2005, the enterprise

- was a partnership of three different households;
- sold all the goods and services produced during the year;
(capital goods like tractors & other machinery, houses, etc. were purchased by the three households owning the enterprise for carrying out production in the enterprise)
- hired land from other households and paid them *rent*;
- borrowed money from other households and paid them *interest*;
- engaged workers from households and paid wages and salaries (w & s) to workers.

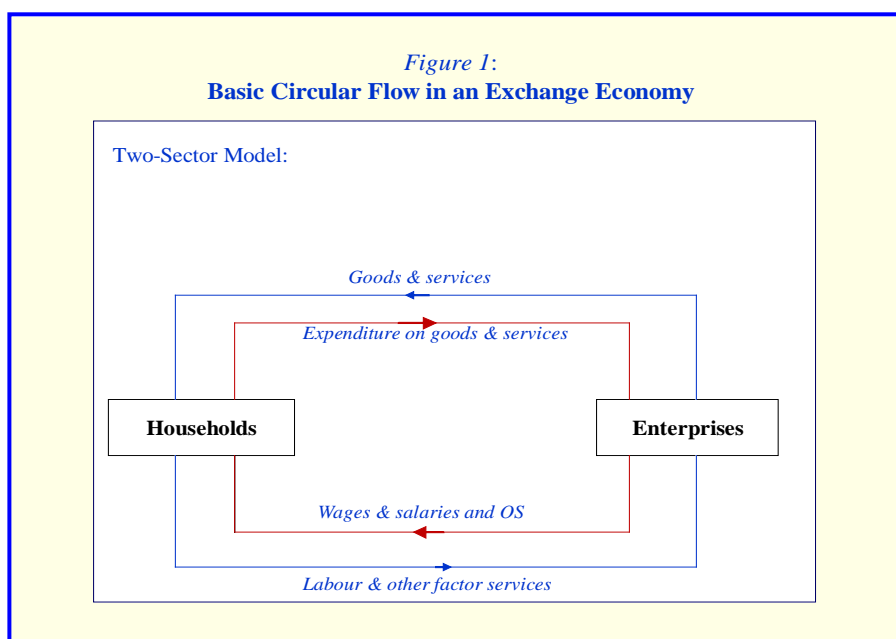
In 2005, the accounts (in the local currency ‘cowries’) of the enterprise showed that

- Value of goods and services sold: 15,000 cowries
- Rent paid: 1,200 cowries
- Interest paid: 900 cowries
- Wages and salaries paid: 8,900 cowries

The *value of production* (Y) of the economy in 2005 was clearly 15,000 cowries – the value of goods & services produced and sold by the enterprise, which was the only production unit in the economy. The partners earned a profit of 4,000 cowries ($= 15,000 - 1,200 - 900 - 8,900$). The income of the other households was 11,000 cowries (the sum of rent, interest and wages & salaries received from the enterprise for the land, loans and labour provided to the enterprise). Thus, the *national income*, i.e. the total income of all the residents of Monojima, during 2005 was also 15,000 cowries – same as the *value of production* (Y). Since all the goods & services – those for consumption and the capital goods – produced in the economy were sold during the period, the total expenditure of the households – *final demand aggregate* – was also 15,000 cowries. Capital goods purchased by the partner households for running the enterprise represents investment (I) and the purchase of the rest represents consumption (C) of all the resident households.

Circular flows of income and output

Figure 1 illustrates the circular flows in the simplest (oversimplified) kind of an economic structure. It omits the government. It also omits external transactions like international trade. In this two-sector structure of an exchange economy, there are only households and enterprises. In this structure, if a household runs an enterprise, the household and the enterprise are treated as two separate entities. Thus, all productive activities are assumed to be carried out only in the enterprises. Households purchase all the goods and services produced by the enterprises.

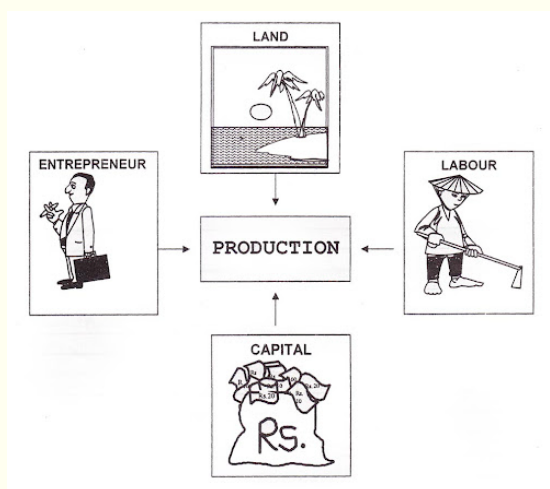


This interrelation between income, production and expenditures on consumption and investment is referred to as ‘circular flow of income and output’. Production processes require capital assets and persons to work for production of goods and services. In the illustration, both these are provided by the households. The services provided by human labour and the capital assets are called *factor services*-labour, land, capital and entrepreneurship [See *Box 2.1*].

Box 2.1

Factors of production

Factors of production are the resources employed in production processes that facilitate production but do not become part of the product or become significantly transformed by the production process.



In macroeconomics, **land** (natural resources), **labour**, **capital** (finance) and **entrepreneurship** are treated as factors of production, which are directly or indirectly owned by the households. Services provided by these factors in production process are called *factor services*.

The payments made for use of factor services by the enterprises are called *factor payment* or *factor compensations*. The total value of these payments is described as *factor incomes* generated by production, which is the *factor cost*, i.e. the cost incurred for acquiring factor services for production. However, the concept of factor cost is no longer used in valuation of production in the system of national accounts since 1993 SNA.

In this representation of economic flows, households provide factor services to the enterprises; in return the enterprises pay factor compensations to the households, in form of wages & salaries, rent, interest and profit. The enterprises’ earnings from the sales of goods and services are distributed to households providing the factor services. The money distributed to the households providing factor services is called *factor compensation*. [See *Box 2.2*]

Box 2.2:**Factor Compensations**

An enterprise, which is a legal entity like a corporate body or a company, obtains factor services (directly or indirectly) from the households for carrying out production. Payments made in return of the factor services provided by the households are called factor compensations. The enterprise distributes the earnings from production (which is value added and not the value of output – see *Box 3*) as factor compensations to those who provide the factor services.

Factor	Factor compensation
Land (natural resources)	Rent
Labour	Wages & salaries (compensation of employees)
Capital	Interest
Entrepreneurship	Profit (dividends to share holders)

A part of the income generated from production also flows to the government in form of (production) taxes. The treatment of taxes in the national accounts is discussed later.

Compensation of Employees (CE) is the total remuneration in cash or in kind payable by employers to employees for the work done.

Operating Surplus (OS) is the balance or residual after all the costs, including labour costs, and (production) taxes (*less* subsidies) are deducted from the value of goods and services produced.

Thus, *gross operating surplus* includes

- *interest* payable to lenders of financial assets,
- *rent* payable to owners of non-produced assets, such as land and sub-soil assets and
- *profit* payable to share-holders and undistributed profits.

Mixed Income (MI)

For the unincorporated enterprises that are owned by households like proprietorship & partnerships, the owners and their family members work without wages & salaries. The earnings of the owners and family members of such enterprises are partly *compensation for their labour* and partly *operating surplus*. The earnings of the owners and family members are called mixed income (**MI**). It is the balance or residual in household enterprise, after netting out

- (i) intermediate consumption
- (ii) all production taxes (*less* subsidies) paid by the enterprise and
- (iii) payments made to paid employees from the value of output.

[Please see Box 2.3 for an example]

Box 2.3:**Mixed Income – an example**

During an accounting period, a bakery run by an individual proprietor (an unincorporated enterprise)

produced bread worth	15,000 Rials,
using flour worth	10,000 Rials
paid salary of employees	1,000 Rials
paid sales tax (product tax) to the government	200 Rials
and spent on electricity, fuel, and other incidentals	2,000 Rials.

Clearly, during the accounting period,

value of output	15,000 Rials	
value of intermediate consumption	12,000 Rials	(10,000 + 2,000)
payment of production tax	20 Rials	
payment to employees	1,000 Rials	

Thus, **mixed income** of the proprietor **1,800 Rials**
(= 15,000 – 12,000 – 1,000 – 200)

[We will later see that in this case

gross value added at <i>market prices</i>	3,000 Rials	(15,000 – 12,000)
gross value added at <i>basic prices</i>	2,800 Rials	(3,000 – 200)

The definitions of basic prices, producer's prices, purchaser's prices and market prices at discussed *Valuation* in Section - IV]

The households, on the other hand, spend the income (earned as factor compensations) for purchasing the goods and services produced by the enterprises. All final goods and services are bought by households. This describes the basic circular flow in an exchange economy - the sale of factor services for factor compensations and the expenditure of money income on the goods and services produced using the factors services. The blue lines in the diagram represent the real flows of commodities produced and factor services, and the brown lines their images, in terms of monetary flow, in the reverse direction.

Note that, in this structure of an economy, the value of production of the economy is the national income, i.e. the income of the households, which in turn is equal to the expenditure on purchase of goods & services made by the households.

Questions that immediately arise are: “what about goods and services that are produced but not sold in the marketplace?” and “if the goods & services produced during a period remains unsold, how can production be equal to expenditure?”. We will see later that these are included in *change in inventories (CII)*, which is considered a part of capital formation – a component of aggregate expenditure – in the SNA.

Circular flow in presence of Government and external transactions

The simplified diagram in *Figure 1* is elaborated in *Figure 2* to reflect the role of the government, of financial markets, and of international trade and investment. But, the core idea of a balanced circular flow of purchasing power still holds.

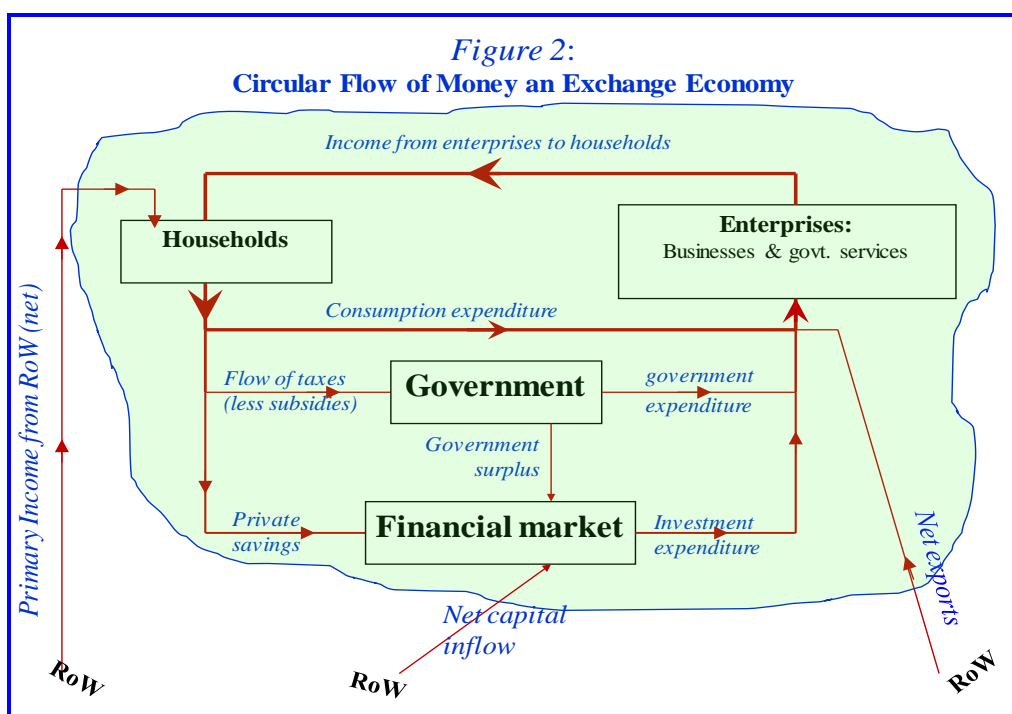


Figure 2 shows only the monetary flows. In this version of circular flow, all goods and services for *final use* (as against goods & services for intermediary use as inputs) are not bought by households alone. Some are bought by the government¹, which taxes the households (all taxes on business may be seen as though passed on to the ultimate consumers) to raise resources to finance itself. Some are bought by businesses seeking to invest, which raise the needed resources by issuing stock, issuing bonds, and borrowing - all of which take place in financial markets. This version also include the transaction with the world outside the domestic economy – **Rest of the World (RoW)**.

¹ Note that in this diagram, ‘government’ excludes its production activities which are included in ‘Enterprises’.

The goods & services purchased by the enterprises for using them as inputs for further production are called *intermediate consumption (IC)* in national accounts. The enterprises, within themselves, buy and sell intermediate goods & services from each other as they carry out production of goods and services. The goods & services that are not put to use as *intermediate consumption* constitute the goods & services for *final use*.

Value added – the measure of production

For each individual enterprise, *Gross Value Added (GVA)* is defined as the gross value of output *minus* the value of goods & services (intermediate consumption) used to produce the output.

$$GVA = \text{Gross Value of output (GVO)} - \text{Intermediate Consumption (IC)}$$

This represents the value of production (in gross terms) of each enterprise. The *production* of an economy, i.e. the money value of goods & services produced by the enterprises, is measured as the sum of *value added* of all the enterprises of the economy [See *Box 2.4*]. The measure of aggregate *production*, being derived by netting out all intermediate consumption from the value of aggregated output, is equal to the value of goods & services produced for *final use*.

Consider an example in which farmers produce wheat worth €16,000. The farmers sell the entire output to millers. The millers make flour worth €21,000 out of the wheat purchased from the farmers. The entire amount of flour is sold to households for their final use (i.e. consumption). In this case,

value of output of farmers	=	€16,000
value of output of millers	=	€21,000

Clearly, the final outcome of the farmers' and millers' efforts, taken together, is the flour worth €21,000, the value of goods for *final use* of the households. The sum of the values of outputs of the farmer and miller, €37,000 (= €16,000 + €21,000), therefore do not represent the combined value of production of the farmers and millers.

The millers in the process of producing flour have used wheat worth €16,000 as intermediate consumption. Since the value of wheat (€16,000) has already been accounted for as output of the farmers, this has to be deducted from the value of flour produced by the millers to arrive at the value of millers' contribution in the production carried out by 'farmers and millers taken together'.

In the above example, the millers add value worth €5,000 by producing flour from wheat worth €16,000 produced by the farmers. The millers' value added

$$GVA = \begin{array}{r} \text{€1,000} \\ \text{[output]} \end{array} - \begin{array}{r} \text{€16,000} \\ \text{[IC]} \end{array} = \begin{array}{r} \text{€5,000} \\ \text{[value added]} \end{array}$$

The value of goods & services produced in an economy, measured as the sum of value added of all enterprises of the economy, is the value of the production carried out within the economy and is called *domestic product*. In the process of production, a part of the capital goods (like plants & machinery, buildings, warehouses and workshops) gets used up, which is called depreciation in business accounting. In national accounting, the term used in place of depreciation is *consumption of fixed capital (CFC)*. [See Box 2.5] The net contribution of an enterprise to economy's production is not just the difference between values of output and *IC* but is value of output minus *IC* net of *CFC*. Value added in net terms, the *Net Value Added (NVA)*, is the measure of production of an enterprise.

$$NVA = GVA - \text{Consumption of fixed capital (CFC)}.$$

Box 2.4:
Gross Value Added

Value added represents the contribution of a producing unit (or a segment of an economy) to the total production of the economy. It measures the *value* that a unit *adds* to the commodities that it uses as inputs, i.e. intermediate consumption.

A part of the goods and services produced in an economy is used as raw materials and other inputs for production of other goods & services. This is called *intermediate consumption* and is deducted from the sum of value of outputs of enterprises to obtain the value of goods and services produced in the economy during the period.

Gross Value Added (GVA) is defined as the gross value of output (*GVO*) minus the value of goods & services (intermediate consumption) used to produce the output.

i.e. $GVA = GVO - IC$

Within the *household sector* as well, one buys and sells assets from and to another. The within-the-business-sector and within-the-household-sector transactions are important components of the economy. But, as they net out to zero within the business sector or within the household sector, they are not shown as a part of the circular flow in *Figure 2*. To underline yet again, note that *Figure 2* does not show the monetary flow caused by the purchase of goods & services for *intermediate consumption* by one enterprise from another.

The enterprises then distribute their earnings from production of goods & services, i.e. *GVA*, in form of factor payments – compensation of employees (wages, salaries, benefits, etc.) and gross operating surplus (rent, interest, and gross profits²). The sum of factor payments made by all enterprises constitutes the income generated from the domestic production, i.e. production of the economy. In addition, a part of the *GVA* also is paid to the government as production taxes (or received from the government as subsidies). Note that, in *Figure 2*, all taxes less subsidies - (*t-s*) in

Box 2.5:

Consumption of Fixed Capital (*CFC*)

Capital goods and services are not used up completely during an accounting period. Only a part of them is consumed in the production process. The capital stock (produced resource, i.e. human-made assets, in the form of buildings, infrastructure, machinery and equipment) undergoes wear and tear as a result of physical deterioration, normal obsolescence or normal accidental damage while being used in the production process. The value of the wear and tear of the assets used in the process of production is defined as *Consumption of Fixed Capital (CFC)* in the SNA. Consumption of fixed capital is the cost of fixed assets used up in production in the accounting period.

Consumption of Fixed Capital (*CFC*) is a cost of production and is calculated for all fixed assets, but not for valuables and non-produced assets (discussed later). It is valued using actual or estimated prices of fixed assets prevailing at the time the production takes place but not the prices at the time fixed asset was originally acquired.

As a general rule, for all macro-economic aggregates in the SNA, the difference between its ‘gross’ value and ‘net’ value is *CFC*. For example,

Net Value Added (*NVA*) = Gross Value Added (*GVA*) minus *CFC*

Net Domestic Product (*NDP*) = Gross Domestic Production (*GDP*) minus *CFC*

Net National Income (*NNI*) = Gross National Income (*GNI*) minus *CFC*

Net Savings = Gross savings minus *CFC*

Note that ‘depreciation’ in business accounting, which also represents wear & tear of fixed assets, is not acceptable in national accounting, since it is based on historical book values. In fact, *CFC* is not observable. It is mostly estimated by the national accountants using indirect methods – using models and estimates of economy’s capital stock.

² The term ‘gross profit’ used here stands for profits without netting out the *CFC*. An equivalent statement, in net terms, would be “*NVA* is distributed as compensation of employees and net operating surplus, i.e. rent, interest and net profit.”

our notation - is shown to be paid by the households, since the production taxes less subsidies - *production(t-s)* in our notation - is eventually paid by the households.

Thus, for a single (say i^{th}) enterprise

$$GVA_i = \sum_i (CE_i + OS_i + MI_i + \text{production}(t-s)_i),$$

which when aggregated over all enterprises of the economy gives

$$GDP = \sum_i (CE_i + OS_i + MI_i + \text{production}(t-s)_i) = CE + OS + MI + \text{production}(t-s)$$

This represents the "**income side**" of the circular flow, ignoring, for the time being, the flow "*Primary Income from RoW (net)*" on the extreme left of the *Figure 2*.

It is seen from the table in Section I that the current-price estimates of the income side aggregates for the Slovenian economy in 2002 were as follows: (in Mill. Euro)

Compensation of employees (<i>CE</i>)	11,855
Gross operating surplus (<i>OS</i>) & mixed income (<i>MI</i>)	8,027
Taxes less subsidies on production & imports(<i>t-s</i>)	3,246
Gross value added (<i>GDP</i>)	23,128

Note that the income side identity stated above holds for Slovenia. The sum

$CE + OS + MI + \text{production}(t-s) = 11,855 + 8,027 + 3,246 = 23,128$ which is same as the estimate of *GDP* of Slovenia in 2002.

Consumption spending flows directly to businesses as households purchase consumption goods. Households *save* whatever is left of their incomes after paying taxes and consumption spending. These savings flow into financial markets as the households put them in banks, mutual funds and other financial institutions. Businesses seeking to invest draw on this pool of savings for financing purchase of capital goods.

A part of the goods & services produced by the domestic enterprises is purchased by the rest of the world (exports). In the diagram, exports and imports are clubbed together and referred to as 'net exports'. Exports serve as an addition to (and imports a subtraction from) total demand for domestically-made products.

Total taxes flow to the government, which uses most of them for government purchases, and sends the remaining government budget surplus to (or to meet the budget deficits borrows from) the financial market. Thus, we have the following components of *aggregate demand*:

consumption spending,
investment spending, and
net exports.

The money that flows from households to enterprises as the households incur consumption expenditure on the produced goods and services is called *household final consumption expenditure (HFCE)*³. The government also makes purchases from the enterprises, which in *Figure 2* represents *government final consumption expenditure (GFCE)*⁴. The enterprises borrow money from the financial market to meet their investment expenditures. The resident enterprises' expenditure on purchase of capital goods & services is called domestic capital formation in national accounts - in gross terms, *gross domestic capital formation (GDCF)* and, in net terms, net domestic capital formation (*NDCF*). The aggregate of the monetary flows to the domestic enterprises from

households, government	– on account of final consumption expenditure
other domestic enterprises	– on account of purchase of capital goods & services, and
<i>RoW</i>	– on account of exports (<i>X</i>) net imports (<i>M</i>).

is in fact the value of production of the domestic enterprises. Thus,

$$GDP = HFCE + GFCE + GDCF + X - M$$

Besides, the government and households there is another kind of units that also makes final consumption. These are the non-profit institutions which provide free (or at a nominal cost) services like health and education services to the households. These are called non-profit institutions serving households (*NPISHs*) in the SNA. The combined consumption expenditure of the households and the NPISHs is referred as *private final consumption expenditure (PFCE)*. Thus,

$$GDP = PFCE + GFCE + GDCF + X - M .$$

This is the "**expenditure side**" of the circular flow.

The equivalence of the *GDP* and the final in the above identity can be verified from the table in Section I. Observe that, for Slovenia in 2002, the sum of

final consumption expenditure	17,357
gross (domestic) capital formation	5,500
external balance of goods & services	271

is equal to the *GDP* (23,128).

³ The term 'final' is used to distinguish it from 'intermediate consumption'. These are discussed later in Section 3 in some more detail.

⁴ Government also makes purchases of intermediate and capital goods & services, which are treated as purchase for productive activities of the government. In *Figure 2*, since the part of the government carrying out production is included in 'enterprises', the entire purchase of the government is for final consumption.

Equivalence of production, income and expenditure

The circular nature of the real and monetary flows establishes the equivalence of production, income generated from domestic production and expenditure. The money that enterprises earn from production of goods & services is the same as the money that firms spend as factor payments to households (directly or through financial institutions).

We have seen that the aggregate demand composed of consumption expenditure of households and government, expenditure on investment and *net* exports is equal to what the enterprises earn from production. The earnings of the enterprises are what the goods and services produced by them are worth, which is measured as the sum of *output* minus *intermediate consumption* over all enterprises of the economy.

This establishes the equivalence of production, income and expenditure in an economy (ignoring ‘net primary income earning from RoW for the present). These are summarized as the fundamental macro-economic equations:

$$\begin{aligned}
 \text{Production} &= \mathbf{GDP} = \sum_i \mathbf{GVA}_i = \sum_i (\mathbf{GVO}_i - \mathbf{IC}_i) \\
 = \text{Income} &= \mathbf{CE} + \mathbf{OS} + \mathbf{MI} \\
 = \text{Final demand} &= \mathbf{PFCE} + \mathbf{GFCE} + \mathbf{GDCF} + \mathbf{X} - \mathbf{M}
 \end{aligned}$$

Box 2.6:
Primary Income

Recall that the income generated, which is equal to the *GVA*, in a production process is distributed to those providing factor services as factor compensations and to the government as production taxes (less subsidies).

The income of the recipients of the shares of income generated in production process is called *primary income* in the SNA. Primary income includes the following components:

- a) Compensation of employees received by the households;
- b) Taxes on production and imports received by the government;
- c) Mixed income (accruing only to residents);
- b) Property income:
 - i) Investment income: like interest and dividends;
 - ii) Rent on land and sub-soil assets.

[Note: Taxes on imports are also treated as primary income in the system, though it does not form a part of the income generated from any production process of the domestic economy. This is discussed in Section IV in some more detail]

Receipts from taxes on production and imports are treated as primary incomes of government even though not all of them may be recorded as payable out of the value added of enterprises. Thus, the income taxes received from the households are not primary income of the government, while production taxes like VAT, excise duties, sales tax etc. received are treated as a part of its primary income. Also note that the receipts from sale of goods and services is not primary income of an enterprise.

Primary income is generated in the production activity of resident producers and distributed mostly to other residents of the economy but also partly to non-residents. At the

Domestic Product and National Income

So far, we have discussed production-, income- and expenditure-side aggregates without taking into account the '*primary income from RoW (net)*' shown in *Figure 2*. The residents of an economy receive primary income [see *Box 2.6*] from the non-residents for providing factors services (of labour and capital, including financial and non-financial assets) for production activities carried out in the ROW. Conversely, the resident enterprises pay primary income to non-residents for using factor services provided by them. For example, earnings of seasonal workers residing in country *A* but working in country *B* is treated as receipt and payment of primary income of countries *A* and *B* respectively.

National income of an economy represents the income of its residents. In 1993 SNA, it is called **gross national income (GNI)**, which was previously referred to as *gross national product (GNP)*. *GDP* measures the total production carried out within the economic territory of a country, while GNI measures the total income of all economic agents residing in the territory. Thus, to arrive at an estimate of **GNI**, the gross domestic income (the income generated from domestic production, which, as we have seen, is same as *GDP*) has to be adjusted for the income of the residents from the production activity in the RoW and the income accruing to the non-residents out of that generated from domestic production. Thus,

$$\text{Gross National Income (GNI)} = \text{GDP} + (\text{net}) \text{ primary income earned (by the residents) from RoW.}$$

For example, the GNI of Slovenia in 2002 was 23,000, which is same as the sum of its GDP (23,128) and net primary income from RoW (-129). [refer to the table in Section I]

Note that equivalence of production and income holds only in a closed economy. In fact, as we will see later, the equivalence of production- and expenditure-side aggregates is also affected by cross-border transactions.

Disposable Income

Clearly national income of an economy – which represents the purchasing power of its residents – is determined not only by its *GDP* but also by the net flow of primary income across its borders. Besides the cross-border flow of primary income, there are other cross-border transactions that determine the purchasing power of the residents [see *Box 2.7*]. The current transfers⁵ from or to the RoW makes the purchasing power at the disposal of the residents different from the **GNI**.

The most common examples of cross-border current *transfers* are remittances received or paid to the domestic economy by non-resident workers, and payments & receipts of insurance premiums and claims to / from non-resident insurance corporations. In the SNA, *transfers* are not treated as income. Receipts and payment of *transfers* from/ to RoW changes the amount of purchasing power with the residents. The income remaining at disposal of the residents after the cross-border transfers is called **gross national disposable income (GNDI)**. This is related to *GDP* and *GNI* as follows:

$$\begin{aligned} \text{GNDI} &= \text{GNI} + (\text{net}) \text{ current transfers from RoW} \\ &= \text{GDP} + (\text{net}) \text{ primary income from RoW} \\ &\quad + (\text{net}) \text{ current transfers from RoW.} \end{aligned}$$

⁵ *Transfers* are unilateral transactions in which one economic entity provides a real resource, such as goods or services, or a financial item to another entity without receiving any real resource or financial item in exchange. [see *Figure 3*, Section IV]

Consumption, savings and investment

The fundamental macro-economic identity:

$$\text{Production (Y)} \equiv \text{Consumption (C)} + \text{Investment (I)}$$

is in fact a synthesis of a number of theoretical relationships under certain assumed ideal conditions. But, the essential idea is that *production* generates an amount of *income* that is equal to the value of goods & services produced, and that a part of the income is spent on (final) *consumption* – leaving an amount as *savings*, which, under the assumed conditions, would be equal to *investment*. In reality, however, the ideal conditions rarely exist. Thus, the SNA, while using the basic ideas of macro-economics, takes *GNDI* in place of just ‘*income*’ and defines *savings* as

$$\text{gross savings} = \text{GNDI} - \text{final consumption expenditure}$$

In the SNA, *final consumption expenditure* is made by the households, government and, as we will later see, non-profit institutions serving households (NPISHs).

Box 2.7:

Transactions with the RoW

All external transactions, i.e. transactions with the RoW, involves transactions between a resident and a non-resident institutional unit. The following are kinds of transactions an economy does with the RoW

- External trade: *exports (X)* and *imports (M)*
- Primary income from and to the RoW
- Current transfers from and to the RoW
- Capital transfers from and to the RoW
- Acquisition from and disposal to the RoW of valuables
- Acquisition from and disposal to the RoW of non-produced assets
- Net acquisition and net incurrence of financial assets and liabilities.

Further, in the SNA, the aggregate *GDCF* represents *investment* of an economy, but it is not assumed to be financed entirely by *gross savings* as defined above. In addition to the cross-border *current transfers*, there is another kind of transfers called *capital transfers*⁶. In Figure 2, ‘*net capital inflow*’ represents *net capital transfer from RoW*. This together with *gross savings* is taken as the resources for *investments* (or *GDCF*) at the disposal of the residents. But, in a given accounting period, the resources available for capital formation often remain underutilized or the *GDCF* exceeds the available resources.

⁶ Capital transfers are those that transfer ownership of a fixed (capital) asset or are linked to acquisition or disposal of a fixed asset or involve forgiveness of a liability (say bad debt) by a creditor.

When the *GDCF* exceeds the available resources, it clearly implies that the residents must have borrowed from the *RoW* to cover the excess of expenditure on capital formation. On the other hand, when *GDCF* falls short of available resources, it implies that the residents must have invested the excess funds in *RoW* by acquiring shares of foreign companies or providing business loans or saved in foreign banks or by acquiring financial assets of other forms.

For all financial assets there is a counterpart financial liability. When a party **A** acquires a financial asset from another party **B**, it creates a financial liability of same value of the latter. In essence it amounts to **A** giving a loan to **B**.

In the SNA, therefore, all these kinds of investments in the *RoW* are treated as acquiring of financial assets, which in fact represent *lending* to *RoW*. Thus,

$$\begin{aligned} & \text{Net lending / borrowing from /to RoW} \\ & = \text{Gross Savings} + (\text{net}) \text{ capital transfer from RoW} - \text{GDCF}. \end{aligned}$$

Relationships between Main SNA Indicators – A sum up

$$\begin{aligned} & \text{GDP} \\ = & \text{GNI} \quad \text{plus (net) primary income from RoW} \\ = & \text{GNDI} \quad \text{plus (net) current transfer from RoW}^7 \\ & \quad \text{minus final consumption expenditure} \\ = & \text{Gross Savings} \\ & \quad \text{plus (net) capital transfer from RoW} \\ & \quad \text{minus gross domestic capital formation}^8 \\ = & \text{Net lending / borrowing from /to RoW} \end{aligned}$$

⁷ For the present, we have omitted an additional term: “(net) taxes on income & wealth from *RoW*”, which will be discussed later in Section 4.

⁸ Also the aggregate “Acquisition less disposal of non-financial non-produced assets” is omitted here.

Test Your Knowledge

Exercise – 1.1: Main SNA Indicators of Slovenia

Using the estimates given in the table in Section I, establish the relationships between the main economic indicators: GDP, GNI, GNDI, gross savings and net lending / borrowing, of Slovenia for 2002 and 2003.

Assume that net taxes on income & wealth from RoW is included in current transfers.

Exercise – 1.2: Monojima 2005 - Revisited

A closer look at the accounts of the enterprise revealed that the partners had sole ownership of specified segments (say A, B and C) of the enterprise and ran the segments as separate enterprises. The total profit was shared in proportion to the contributions (in gross terms) made by the segments owned by the partners. The details of production carried out by each segment and how the products were disposed of are as follows:

(in cowries)

Segment	Economic activities	Sold to			To inventories	Total output
		households	segment			
A	Agriculture	6,000	B	1,500	500	8,000
B	Food processing	3,000		--	--	3,000
	Clothing & footwear	2,000		--	--	2,000
	Steel & coal	--	C	2,000	--	2,000
C	Fertilizer	--	A	500	--	500
	Tractor	--	A	2,500	--	2,500
	Electricity	1,000	B	500	--	1,500
	Personal services	500		--	--	500
Total		12,500		7,000	500	20,000

Note that: for agricultural production, Segment A had used seeds worth 500 cowries from its own inventories carried over from the earlier year.

Assuming *CFC* of 50, 45 and 30 cowries respectively for segments A, B and C, work out the following:

- (i) *GDP* and *NDP* of each segment and Monojima
- (ii) Gross Domestic Capital Formation (*GDCF*), Gross Fixed Capital Formation (*GFCF*) and Change in Inventories (*CII*)
- (iii) Household final consumption expenditure (*HFCE*)
- (iv) Share of (gross) profit earned by each segment

Verify that *GDP* and *NDP* obtained by three approaches are the same.

Work Sheet for Solutions
Solution to Exercise 1.1: Main Indicators for Slovenia

Aggregates	at current prices	
	2002	2003
GDP		
Net primary income from the RoW		
Gross National Income (GNI)		
Net current transfers from the RoW		
Gross National Disposable Income (GNDI)		
Final consumption expenditure		
Gross Savings		
Net capital transfers from the RoW		
Gross capital formation		
Acquisition less disposal of non-produced non-financial assets		
Net lending / net borrowing		

Solution to Exercise – 2: Monojima 2005 - Revisited

Solution: (i)

Segment	GVO	IC	GVA	CFC	NVA
A					
B					
C					
Monojima					

(ii) $GFCF = \dots\dots\dots$; $CII = \dots\dots\dots$; $GDCF = \dots\dots\dots$ (iii) $HFCE = \dots\dots\dots$ (iv) Total Profit = $\dots\dots\dots$;Shares of A = $\dots\dots\dots$; B = $\dots\dots\dots$; C = $\dots\dots\dots$

(v)

Aggregate	Production approach	Income approach	Expenditure approach
GDP			
NDP			

III. ECONOMY AND ECONOMIC AGENTS

The SNA is an accounting system for a national economy i.e. economy of a country. All its aggregates either refer to the national economy or its economic transactions with other economies (RoW). Thus, when we speak of measuring different macro-economic aggregates of an economy, it is necessary not only to have an idea of economic territory but also a clear definition of what constitutes an economy.

What constitutes an economy?

In the SNA a national economy is referred to as 'total economy' and is defined as: all institutional units residing in the economic territory of a country (during the accounting period) constitute its economy.

The definition involves three concepts:

- Economic territory
- Residence and
- Institutional Units.

Economic Territory:

The concept of **economic territory** in the SNA, in its broadest sense, is the area under the effective economic control of a single government. Economic territory of a country refers to the geographic territory administered by the government of the country within which persons, goods, and capital can circulate freely.

The economic territory of a country includes the following:

- airspace, territorial waters, and continental shelf in international waters for which the country has exclusive rights;
 - territorial enclaves (like embassies, consulates, military bases, scientific stations, and information or immigration office) located in other countries with political agreement with the host country. These are used by governments – either owned or rented them – for diplomatic, military, scientific, or other purposes with the formal agreement of governments of the territories where the land areas are physically located.
-

Box 3.1: Residence criteria	
Institutional units	Determined by
Individuals	Residence of the household of which they form part.
Unincorporated enterprises	If not a quasi-corporate, same residence as their owners.
Corporations and NPIs	Normally the country of registration or where legally constituted. Branch in a different country is treated as a quasi-corporate in the host economy.
(i) Owners of land, buildings & immovable structures (ii) extractors of sub-soil resources.	Deemed always to have a centre of economic interest in the country where they are located. Thus, for all land & buildings owned by non-residents, the SNA assumes a notional resident unit (with non-financial asset and direct investment liability).

Residence:

An institutional unit, (a household, an enterprise, a non-profit unit etc.) is treated as a resident unit of a country when it has centre of predominant⁹ economic interest in its economic territory. A unit is considered to have centre of predominant economic interest in an economic territory if it has

- a dwelling or
- a place of production activity for long or indefinite period of time, generally one year.

All resident units, including the ‘notional resident units’¹⁰, constitute the domestic economy. To have a centre of predominant economic interest in a territory is to have ownership of land or ownership of structures or to engage in production in a territory for a long period of time (at least one year). [see *Box 3.1*]

Recall that when we say ‘national income’ we mean the sum of incomes of all the ‘resident’ institutional units of the country. On the other hand, domestic production represents the value of production carried out within the economic territory. In fact, it refers to the value of all goods and services produced by the resident institutional units of the country, whose entrepreneurial activities are normally confined within the economic territory, except for activities like shipping, airways, other cross-border transports and communications.

⁹ The term ‘predominant’ was included in the 2008 SNA.

¹⁰ For example, the notional residential unit created for a non-resident national having land & dwelling in the parent country is treated as the owner of those non-financial assets but having a financial liability of equivalent amount to the non-resident.

Points to note:

- Military personnel and civil servants, including diplomats employed abroad by a country are treated as residents of the territory of the country that employs them.
- Students are residents of their country of origin, however long they study abroad.
- International organizations are not considered residents of any national economy, but their workers are residents of the economy in which they are expected to have their abode for at least one year.
- Owners of buildings and non-produced assets, such as land, sub-soil assets or legal constructs (leases etc.), even if they are not actually residents, a notional unit treated as residents of the economy is created for each of them, since such assets remain in the economy and serve the production activities of the economy. Transactions involving these are not treated as a part of exports or imports.
- Output of multi-national corporations (MNCs) is part of the output of the country within whose economic territory production takes place.
- Cross-border workers residence is determined on the basis of where the principle dwelling exists and not where the productive activity takes place.
- Long-term foreign workers – applying one year rule – is treated as residents of the country where they work.
- Diplomats and military personnel in foreign controlled bases remain residents of the home country regardless of how long they stay abroad
- The activity of international trade, i.e. exports and imports, is by definition a transaction between a resident and a non-resident institutional unit.
- Since tourists and temporary visitors are non-residents, expenditure made by them during the tour / visit is treated as exports of the country visited by them. For the country of tourists' residence, the expenditure is treated as imports.
- For non-financial corporations undertaking construction work abroad, the site offices (subsidiary unit) is treated as non-financial corporations of the country where the work is carried out. If there is no site office, the value of construction work is treated as import/export of service
- Mobile equipment - aircrafts, ships, drilling rigs and platforms - if used in international waters or airspace, the activity is attributed to the country of the operator's residence.

-
- But, if such a mobile equipment is used in another country for more than 12 months, a notional quasi-corporate body is assumed with centre of predominant economic interest in that country.
 - All production taking place in special economic zones (with special custom, tax or labor regimes) is domestic in nature and units are included in the non-financial corporations sector.

Institutional Units:

The theoretical framework used for measuring national income is built on the premise that all economic transactions take place only through institutional units. An institutional unit is defined as an economic entity that is capable of

- owning assets,
- incurring liabilities,
- carrying out economic activities taking decisions on all aspects of economic life and
- engaging in transactions with other entities.

There are two main types of institutional units:

- (i) persons or group of persons in the form of households and
- (ii) legal and social entities whose existence is recognized by law or society like
Corporations – financial and non-financial,
Non-profit institutions serving households (NPISHs) and
Government,
and are independent of persons, or other entities that may own or control them.

Institutional Sectors

In the SNA, institutional units are classified into five main categories called *institutional* sectors. The classification is based on its objectives and behaviour in the economy.

- a) Non-financial corporations sector;
- b) Financial corporations sector;
- c) General government sector;
- d) Households sector;
- e) Non-profit institutions serving households (NPISHs) sector.

Corporation (and Quasi Corporations) - *non-financial* and *financial corporation*

A corporation is a legal entity recognized by laws of the nation independently of its shareholders. It is created for the purpose of producing goods and services for the market that may be a source of profit to its owners. It is collectively owned by shareholders who have the authority to appoint directors responsible for its general management. The Government can also be a shareholder of a

company. These are variously called as corporations, incorporated enterprises, public limited companies, public corporations, private companies, joint-stock companies, limited liability companies, limited liability partnerships, etc.

These are principally engaged in the production of market goods and services, i.e. they sell their products at market prices, and driven by the objective of making profit. These can own assets and enter into contract.

The corporate sector also includes cooperatives, partnerships or single proprietorship or unincorporated enterprise that operate like a corporation (*quasi-corporation*). Unincorporated enterprises are treated as *quasi-corporations* in SNA, if these institutions keep a complete set of accounts.

Corporations and quasi-corporations are classified into **non-financial** and **financial corporation** in national accounts. Non-financial corporations provide goods and services of non-financial nature. On the other hand, financial institutions provide services related to financial instruments. They are mostly engaged in financial intermediation like banks, and insurance companies.

The financial corporations sector can be divided into the following sub-sectors:

- The central bank;
- Other depository corporations/banks;
- Other financial intermediaries, such as investment banks, financial leasing companies, hire purchase companies and consumer credit companies;
- Financial auxiliaries, such as securities brokers and loan or insurance brokers;
- Insurance corporations and pension funds.

Quasi-corporations:

Quasi Corporation is an unincorporated enterprise that functions as if it were a corporation. These are **unincorporated** enterprises owned by households, Government or non-resident units that behave like corporations and have complete set of accounts. The 1993 SNA (and 2008 SNA) recommends that quasi-corporate bodies should be included in the corporate sector. The withdrawals of entrepreneurial income shown in their accounts are analogous to and should be treated like the payments of dividends in case of corporations.

A full set of accounts must exist for unincorporated enterprise to be classified as quasi-corporation. Quasi Corporations are treated as separate institutional units from their owners. Further, in the SNA, the net worth in the balance sheet of Quasi Corporations is always taken as zero, i.e.

$$\text{assets} = \text{liabilities}$$

Quasi-corporations include the following kinds of institutional units:

- (i) Unincorporated enterprises owned by residents and operated like corporations.

Examples:

- a. a partnership business run by members of more than household, which are expected to maintain separate books of account;
 - b. a proprietary business that maintains complete set of accounts.
- (ii) Unincorporated enterprises owned by non-resident deemed to be resident institution because they engage in significant production for long period of time. Examples:
- a. Branches of non-resident units like foreign banks;
 - b. The notional resident unit for a non-resident owner of immovable assets.
- (iii) Cooperatives, Limited liability partnership, unincorporated enterprise owned by government, unincorporated enterprise or partnership owned by households which are operated like they are privately owned corporations, or unincorporated enterprise which belongs to institutional unit's resident abroad: permanent branches.

General Government

This is made up of government units, which organize and finance the provision of non-market goods and services, both

- individual, such as health and education
- and collective, such as defence, police

for households and community that are provided free or not at economically *significant prices*.

One of the main roles of the government concerns distribution and redistribution of income and wealth through taxation, and other transfers.

This sector includes central government, provincial governments or state authorities, local authorities and the social security funds. Put simply, this sector has two functions:

- production of non-market services (education, health care, defence, policing, etc.) and
- redistribution of income (taxation and providing subsidies and social benefits).

To finance the cost of these functions, general government levies taxes and social contributions. Government agencies are structured differently from the corporate sector units, since government services are not sold at market prices; they are free of charge. Moreover, most general government agencies do not run for making an operating profit.

In the SNA, output of government services is classified as non-market production, i.e. the output is not sold at economically significant prices. The output is thus valued at cost. Moreover, almost the entire value of its output is also included in its final consumption expenditure.

Box 3.2:**Economically significant prices**

Economically significant prices are prices that have a significant effect on the amounts that producers are willing to supply and on the amounts purchasers wish to buy.

These prices normally result when:

- a. The producer has an incentive to adjust supply either with the goal of making a profit in the long run or, at a minimum, covering capital and other costs; and
- b. Consumers have the freedom to purchase or not purchase and make the choice on the basis of the *prices charged*.

The implication of these in practice is that the sales normally cover the majority of the production costs. The SNA does not provide any objective criterion to define ‘majority of the production costs’. Normally, the value of output (excluding both taxes and subsidies on products) if sold at economically significant prices should at least, on an average, be half of the production costs over a sustained multiyear period.

Households

A household is an institutional unit composed of persons or group of persons with common arrangement for food and shelter while pooling their income. The sector includes all resident household units as consumers and also all the unincorporated enterprises (not classified as corporation or quasi corporation) owned by them. Unincorporated enterprises, which are owned by households but have complete business accounts, are classified as quasi-corporations in the corporations sector.

Households are unlike corporations in that they undertake final consumption. However, like corporations, they may also engage in production. Household unincorporated market enterprises are created for the purpose of producing goods or services for sale or barter on the market. They can be engaged in virtually any kind of productive activity: agriculture, mining, manufacturing, construction, retail distribution or the production of other kinds of services. They can range from single persons working as street traders or shoe cleaners with virtually no capital or premises of their own through to large manufacturing, construction or service enterprises with many employees.

Non-Profit Institutions Serving Households (NPISH)

Non-profit institutions are legal or social entities created to provide goods and services to other institutional units, whose status does not permit them to create income, profit or financial gains for those who control and finance them. The NPISHs are only those non-government NPIs (not controlled by the government) that serve households and produce non-market goods and services for households’ consumption without charges or at prices not economically significant.

NPISHs are principally engaged in production of non-market services for households and their main resources are voluntary contribution of households and other institutions. Examples:

- Religious institutions like temples, shires, mosques, churches.
- Charitable organisations providing free education, health and cultural services like Red Cross, trust-run educational institutions.
- Local sporting and cultural clubs run on donations and contributions.

Points to note:

- Corporations cannot be final consumers. Only Government, households and NPISHs can incur *final consumption expenditure*.
- A corporate body cannot incur final expenditure for the benefit of households. When it provides goods or service to its employees, they must either be compensation of employees or intermediate consumption.
- The whole of the profit or income accruing to a corporation ultimately benefits other institutional units, namely, its shareholders.
- Corporations engaged in the financial leasing¹¹ is be classified in the Financial corporation sector.
- Mixed income can be generated only in the household sector.
- Some NPIs are market producers. For example, hospitals, schools or colleges that charge fees that enable them to recover their current production costs, or trade associations financed by subscriptions from non-financial corporate. These NPIs are treated in the same way as corporations in the System.
- Other NPIs that are controlled by government are treated as government units.
- The NPIs serving the interest of the market producers are also treated as market producers and classified in corporate sector. Examples: chambers of commerce, agricultural, manufacturing or trade associations, employers' organizations, research or testing

¹¹ A **financial lease** is a contract between lessor and lessee whereby the lessor purchases a good that is put at the disposal of the lessee and the lessee pays rentals that enable the lessor, over the period of the contract, to cover all, or virtually all, costs, including interest; all the risks and rewards of ownership are, *de facto*, transferred from the legal owner of the good (the lessor) to the user of the good (the lessee).

An **operating lease**, on the other hand is an agreement between a lessor and lessee for the rental of machinery or equipment for specified periods of time which are shorter than the total expected service lives of that machinery or equipment; the lessor normally maintains a stock of equipment in good working order which can be hired on demand, or at short notice, by users and is frequently responsible for the maintenance and repair of the equipment as part of the service which he provides to the lessee.

laboratories or other organizations or institutes that engage in activities that are of common interest or benefit to the group of enterprises that control and finance them.

- A holding company is treated as a financial corporation in the 2008 SNA.
- Housing services owner-occupied dwellings are produced and consumed by the households sector. The entire *GVA* generates operating surplus. [See *Box 3.3*]
- Unincorporated enterprises of Households (if they maintain a complete set of accounts) should be included in Non-financial corporations sector.
- Central Bank, with all its activities, is classified in the Financial corporation sector.
- All government-owned units engaged in financial intermediation must be classified in Financial corporations sector provided that they maintain a full set of accounts separately from those of government
- Unincorporated enterprises of Households if they engage in financial activities such as financial intermediation, money changing or investment advisory services, pawn brokers and money lenders (2008 SNA) and maintain a complete set of accounts should be included in Financial corporations sector.

Box 3.3:

Housing Services of Owner-Occupied Dwellings

The production of housing services for their own final consumption by owner occupiers (households residing in their own houses) has always been included within the production boundary in national accounts, although it constitutes an exception to the general exclusion of own-account service production.

For the rented dwellings, the rental paid is taken as the value of the production housing services. For owner-occupied dwellings, since no rental is actually paid, the value of the housing services produced is imputed and taken as the output of this activity. The costs incurred for repair and maintenance of these dwellings is taken as the intermediate consumption.

The entire amount of output, in turn, is included in the final consumption expenditure of the households. Note that, purchase or construction of a dwelling by a household is considered as capital formation and not included in the final consumption expenditure of the households.

Test Your Knowledge

Exercise – 3.1: Institutional sectors

Indicate the institutional sector to which the following units belong.

[In the corresponding boxes, put NFC for non-financial corporate sector, FC for financial corporate sector, GG for general government, HH for households and NPISH for the non-profit institutions serving households.]

- | | | |
|-----|--|---|
| 1. | Japanese Chamber of Commerce | <input style="width: 100%;" type="text"/> |
| 2. | Fortune teller in Shinjuku | <input style="width: 100%;" type="text"/> |
| 3. | Japan Airlines | <input style="width: 100%;" type="text"/> |
| 4. | Self employed carpenter | <input style="width: 100%;" type="text"/> |
| 5. | Thailand Red Cross | <input style="width: 100%;" type="text"/> |
| 6. | Teachers Credit Cooperative | <input style="width: 100%;" type="text"/> |
| 7. | ABC Lawyers and Associates (partnership) | <input style="width: 100%;" type="text"/> |
| 8. | Kyoto Prefecture Museum | <input style="width: 100%;" type="text"/> |
| 9. | Bank of Japan | <input style="width: 100%;" type="text"/> |
| 10. | Neighbourhood Association of Housewives | <input style="width: 100%;" type="text"/> |

Exercise – 3.2: Residential units

Indicate which of the following are treated as resident units of Japan: [put a tick mark (√) on the statement numbers for those treated as residents]

- | | | |
|----|--|---|
| 1. | Households of Indian staff of the Indian Embassy in Tokyo residing in the campus of the embassy. | <input style="width: 100%;" type="text"/> |
| 2. | Households of the Japanese staff of the Indian Embassy in Tokyo. | <input style="width: 100%;" type="text"/> |
| 3. | Fijian students taking 3-year graduation course in Tokyo University. | <input style="width: 100%;" type="text"/> |
| 4. | A branch of Citi Bank (an American bank) in Japan. | <input style="width: 100%;" type="text"/> |

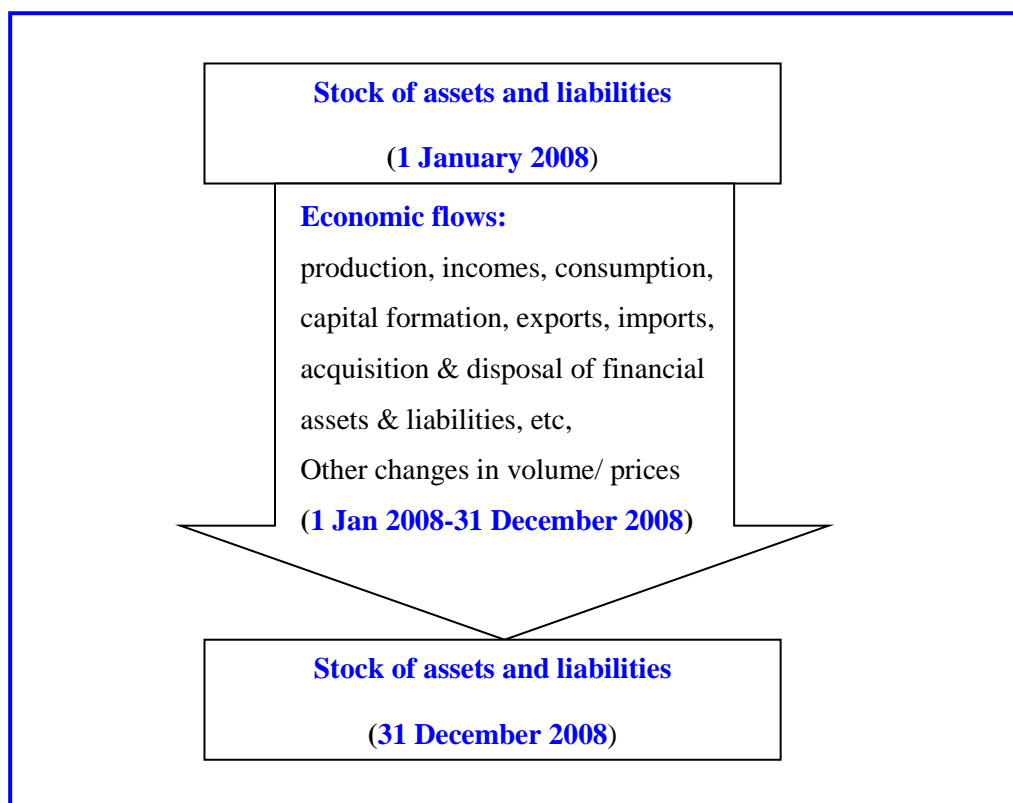
-
- | | | |
|----|--|--------------------------|
| 5. | Australian crew of a ship of a Japanese shipping company. | <input type="checkbox"/> |
| 6. | Japanese crew member of a ship of a Hong Kong shipping company. | <input type="checkbox"/> |
| 7. | Site office (in Uganda) of a Japanese road construction company. | <input type="checkbox"/> |

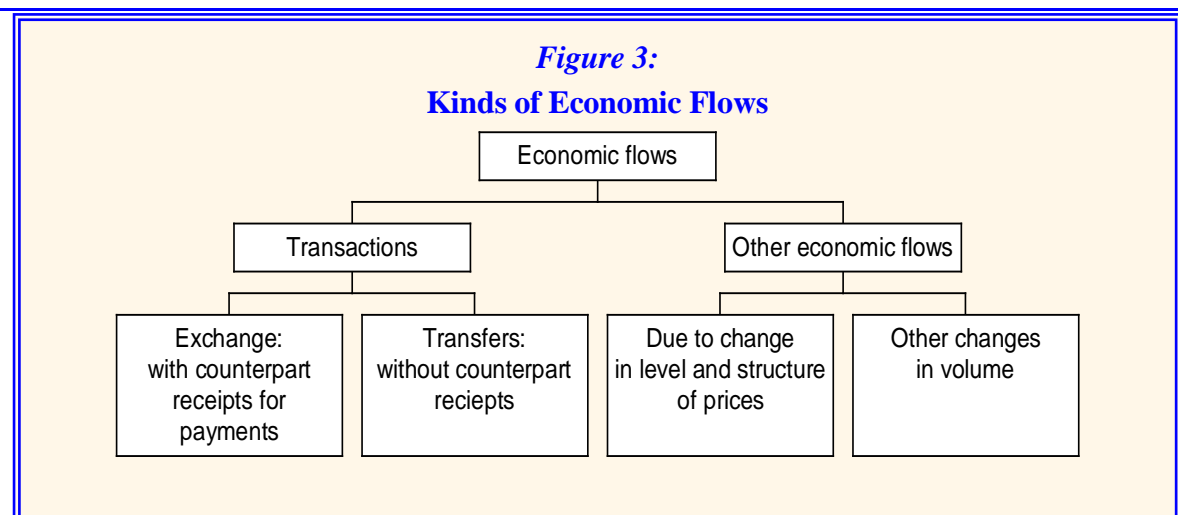
IV. ECONOMIC FLOWS AND STOCKS

The SNA provides a framework to present estimates of economic flows and stocks in an integrated manner. Its sequence of accounts consists of tables and balance sheets that register (in monetary terms) the economic actions or events (flows) that take place within a given period of time and the effect of these events on the stocks of (economic) assets and liabilities at the beginning and end of that period. The stock of resources and liabilities are measured at points in time.

Stocks and Flows

The system of national accounts measures economic stocks and flows. When the accounts measure *economic flow* it tries to capture economic activities mostly in a form of transactions (change of ownership) of goods and services, assets and liabilities, which takes place during a period of time. For example, the gross domestic product (*GDP*), salaries and wages received by employees during the month or the exports of goods and services for the whole year. The economic flow may be a transaction between two contracting institutions or within one institution acting in different capacities. On the other hand there are economic flows recorded within the institution and flow is imputed. The format of the integrated framework presenting Stock and Flows in the system of national accounts is illustrated below:





Economic Stocks are a position in, or holdings of, assets and liabilities¹² at a point in time and the SNA records stocks in accounts, usually referred to as *balance sheets*, at the beginning and end of the accounting period. Stocks result from the accumulation of prior transactions and other flows, and they are changed by transactions and other flows in the period (note that stocks of produced goods and intermediary goods are referred to as “inventories” in the SNA).

Economic Flows reflect creation, transformation, exchange, transfer or extinction of economic value, and involve change in volume, composition, or value of institutional unit’s assets and liabilities. [2008 SNA, para. 3.7] Economic flows are key to the compilation of national accounts. These flows involve the change in economic assets and the sum of these flows during the period is recorded in the system of national accounts. The flows may not all be in the form of transactions. There are **two types of economic flows**:

Transaction: A transaction is an economic flow that involves interaction between institutional units by mutual agreement or an action within an institutional unit that is analytically useful to treat like a transaction, often because the unit is operating in two different capacities(2008 SNA, para 3.7).

In other words, transactions involve interaction by mutual agreement for exchange of goods & services of economic value and financial assets between institutional units or within institutional unit operating in different capacities.

Transactions are of two kinds:

- **Exchange:** in these transactions goods & services are exchanged between institutional units or within institutional units operating in different capacities. For example: buying & selling in the market, providing factor services for factor compensation and incurring financial liability for receipt of assets (as company does when issuing shares to share holders).
- **Transfers:** in these transactions one institutional unit provides goods or service to another unit without receiving anything in return as counterpart. For example: donations made by households to NPIs, money sent home by a non-resident worker, premiums payment (partly) and receipts of claims for non-life insurance and income tax payment.

Other economic flow: Economic flows other than transactions which bring about change in value

¹² Assets and liabilities are discussed later in this section.

of assets and liabilities. For example, discovery or depletion of sub-soil assets, effect of natural or political events (wars, fire, etc.) and holding gains and losses due to change in level and structure of prices fall in this category of economic flows.

These are flows which are not strictly classified as transactions. These flows include the increases in assets caused by discovery or loss of assets due to

- discoveries like mineral deposits and catastrophes - natural or human-made calamities - like tsunami, earthquakes, flood etc. and war, riots and civil violence;
- change in the value of assets and liabilities due to the level and structure of prices.

The latter kind is called ‘changes due to change in level and structure of prices’ and are recorded as *holding gains or losses* [see *Box 11*]. The changes of the former kind are called ‘*other changes in volume*’ and are recorded as catastrophic loss. The flows falling in the category of ‘*other changes in volume*’ are neither due to transactions between institutional units, nor to holding gains and losses.

Transactions

Box 11: Holding Gains or Losses

The concept holding gain (or loss) is an increase (decrease) in value that does not arise from the production process. As defined in the SNA, *holding gains or losses* may accrue during the accounting period to the owners of financial and non-financial assets and liabilities as a result of a change in their prices (holding gains are sometimes referred to as “capital gains”).

Holding gains and losses on inventories and on other assets in the SNA are taken into account in the *other changes in prices*. In the business accounts, often no distinction is made between earnings from production and holding gains, as both are accrued income to the owners. Thus in SNA one needs to clearly identify the holding gains/ losses while estimating changes in inventories. Foreign exchange gains and losses are also similarly considered in the system as holding gains and losses. Another example of mixing production and gains is the activities of real estate developer.

Transactions are economic flows corresponding to actions of institutional units. These cover all flows whether monetary or non-monetary and whether connected with goods and services, distribution and redistribution of income, financial instrument or other non-produced assets. These flows can also be actual observable flows or they can be built up or estimated for analytical purposes.

Transactions may take place between institutional units or within the same institutional unit. Transactions between institutional units may be in the form of purchase of goods, payment of taxes, or distribution of income, accompanied with monetary flows; or without monetary flows as in the case of barter, or government services for public consumption, and production for own use.

Transaction may be monetary or non-monetary. The former is a two-party transaction for which one party make the payment and another party receives the payment or one party incurs a liability and the other party gets an addition to assets. For the transactions without the equivalent monetary flow, the value of transaction is imputed, generally, based on prevailing market value.

In the compilation of the national accounts transactions are grouped in the following categories:

- ***Transaction in goods and services***: shows origin and use of the goods or services;

-
- **Distributive transaction:** flow of income generated by production to the owners of resources (factors of production) and government and the redistribution of income and wealth;
 - **Transaction in financial instruments (assets & liabilities):** net acquisition of financial assets or net incurrence of liabilities for each financial instrument.

Transactions which are illegal – smuggling of narcotics and other illegal activities – are still considered economic flows and therefore are recorded in SNA. All these activities are supposed to be covered in national accounts. In practice, however, not all of them could be covered because of lack of data.

The recording of all transaction, by convention, is on accrual basis, that is when the economic ownership is established or when the transaction is recorded in the books. In the case of financial transaction, at the time the liability or claim occurs.

Most of the transactions are monetary transactions involving at least one of the parties paying money or other financial asset, either with counterpart (exchange) or without counterpart (transfers). Non-monetary transaction may be in the form of barter, consumption of fixed capital, remuneration in kind, or transfer in kind.

The concepts, definitions, and boundaries of the assets and transactions relating to the main aggregates of the SNA are discussed in the rest of this section.

Production

Production is generally defined as the economic activity that creates (produces) goods and / or services from inputs of raw materials and other intermediate products, using (human) labour and available productive resources like machinery, buildings and land.

In general terms, production may be described as an activity in which an enterprise uses inputs to produce outputs. Thus, purely natural process, for example, the unmanaged growth of fish stocks in the international waters is not production, whereas the activity of fish farming is production.

Production Boundary

Only the goods and services resulting from the activities falling within the production boundary of the SNA are considered to be able to generate value added and thus constitute production of an economy. The production boundary not only defines productive activities but also determines indirectly what the macro-economic aggregates like income, consumption and capital formation are comprised of. For example, whatever is used for ‘final consumption’ or ‘capital formation’ or ‘export’ should necessarily be from the output of an activity falling within the production boundary of the System.

The production boundary for the purposes of the National Accounts defined as:

- a) The production of all individual or collective goods or services that are supplied to units or intended to be so supplied, including the production of goods and services used up in the process of producing such goods and services;
- b) Own-account production of all goods that are retained by their producers for their own final consumption or gross capital formation; and
- c) Own-account production of housing services by owner-occupiers (ownership of dwellings) and of domestic and personal services produced by employing paid domestic staff.

The production boundary of SNA includes:

- i) The production of all individual or collective goods and services that are supplied or intended to be supplied to production units other than themselves;

-
- ii) The own-account production of all goods that are retained by their producers for their own final consumption or gross capital formation;
 - iii) The own-account production of housing services by owner-occupiers and personal services produced by the employment of paid domestic staff;
 - iv) The production of all agricultural goods for sale or own final use and their subsequent storage; the gathering of uncultivated crops; forestry; wood-cutting; the collection of firewood; hunting and fishing; carrying of water; the processing of agricultural and other food products; the weaving of cloth, dress-making and tailoring, the production of footwear, pottery, utensils, furnishings etc.
 - v) Production and distribution of goods and services whose sale, distribution or possession is forbidden by law, such as narcotics, smuggling of goods and prostitution;
 - vi) Production of goods and services which are deliberately concealed from public authorities in order to avoid the payment of taxes, the meeting of legal standards or compliance with administrative procedures.
 - vii) Natural growth of *cultivated* forests,
 - viii) Development of entertainment, literary or artistic originals and the leasing of the right to use/ exploit those assets.
 - ix) Development of software on own account that can be used for more than one year.
 - x) Research and development activities carried out for own use by an enterprise [2008 SNA]
 - xi) Financial intermediation services provided by banks and other financial institutions
 - xii) Lending exclusively from own funds like money lenders & pawn brokers [2008 SNA]

Production Boundary excludes: All personal and domestic services that are produced and consumed within the same households, such as cleaning, decoration, cooking, caring for and educating children, caring for sick and old people, maintenance and repair of dwellings and durables, transportation of household members etc. are excluded.

Taxes and Subsidies

In concept, taxes are compulsory, unrequited payments (without counterpart receipts) in cash or kind, made by institutional units – households, enterprises and others - to government units. They are described as unrequited because government provides nothing in return directly to the individual unit making the payment. Subsidies are current unrequited payments by the government to enterprises for production activities only.

Collection of taxes and distribution of subsidies for production activities is integral part of a governments function and are called **redistributive activities of government**. Taxes have an effect of increasing prices of goods and services in the market. They reduce the financial resources in the hands of the households and enterprises, and thus affect the private consumption expenditure and capital formation. Subsidies have the opposite effects.

The following are the broad categories of taxes & subsidies:

- **Production taxes & subsidies**

- **Product taxes & subsidies:** payable / receivable by the enterprises per unit of goods & services produced like excise, sales tax, product subsidies and value added tax (VAT). [see *Box 12*]
 - **Other taxes and subsidies on production:** All other taxes / subsidies except those on products that the enterprises pay / receive for engaging in production like payroll
-

Box 12:**Value Added Tax – an illustration**

Suppose the Government fixes a 10% rate of VAT on the value of all goods and services sold in the market.

Thus for a product sold at ¥ 100, a VAT of ¥ 10 is supposed to be paid to the government.

If the product requires IC (at purchasers price) of ¥ 66, then it would include a VAT of ¥ 6.

Then the amount ¥ 6 is deducted from the VAT the producer of the product.

Thus, deductible VAT = ¥ 6 and

non-deductible VAT = ¥ 4.

The non-deductible part of the VAT (¥ 4) is the tax that a producer ultimately pays to the government.

taxes / subsidies, taxes on land & building, business licenses, pollution tax and pollution control subsidies.

- **Income & Wealth Taxes:** taxes on incomes, profits and holding gains like personal income tax, corporate income tax, taxes on financial or capital transactions etc. These taxes are other than production tax.
- **Capital taxes:** consist of capital levies (i.e. those taxes levied at irregular and very infrequent intervals on the values of the assets or net worth owned by institutional units) and taxes on capital transfers (i.e. taxes on the values of assets transferred between institutional units as a result of legacies, life-time gifts) or other transfers.

In the SNA, production taxes & subsidies are treated as (receipt of the government and payment by other institutional units) *primary income*. As for the second category, note that there are only taxes and no subsidies. The transactions of this category are treated as *current transfers* in the SNA and are recorded as *secondary distribution of income account* [discussed later]. The taxes of the third category – capital taxes – are treated as capital transfers in the SNA and are recorded in the *Capital Account* [discussed later].

Taxes on production and imports consists of taxes on products like value added type taxes, import duties, export taxes, taxes on products excluding VAT, import/ export taxes, and other taxes on production. Subsidies are unrequited payments that government units, including non-resident government units, make to enterprises on the basis of the levels of their production activities or the quantities or value of goods or services that they produce, sell or import.

Sometimes government charges fees for its services like passport fee, driving licenses fees or fees for issue of birth certificate. These are not treated as tax.

Valuation of Goods & Services

Production tax and subsidies on products bring about difference in their prices at different stages – production, distribution and sale. This causes different perception of prices for same transactions between *users* and *producers*, leading to the problem of valuation of goods & services under different transactions. Valuations recommended in SNA 1993/ 2008 are at basic prices, producers prices and purchasers prices.

Basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced less any tax payable, plus any subsidy receivable on that unit as a consequence of its

production or sale. It excludes any transport charges invoiced separately by the producer. This includes all “other” production (taxes – subsidies) but excludes product taxes.

Producer price is the amount receivable by the producer from the purchaser for a unit of a good or service produced less any product taxes (including the non-deductible part of VAT) invoiced to the

	Purchasers’ price
<i>Less</i>	Gross trade and transport margins + product taxes less subsidies on <u>consumers</u>
<i>Equals</i>	Producer's price
<i>Less</i>	products taxes less subsidies payable/ receivable by their producers
<i>Equals</i>	Basic price.

purchaser. It excludes any transport charges invoiced separately by the producer.

Producer price = basic price *plus* taxes on the output invoiced to the purchaser *less* subsidies receivable by the producer from the government.

Purchasers’ price is the amount paid by the purchaser *less* any taxes invoiced by the seller but deductible by the purchaser (like deductible part of VAT). The purchasers’ price include any transport costs and trade margin paid separately by the purchaser to take delivery at the required time and place.

Note that all the prices exclude the deductible part of VAT.

Market, for Own Final Use and Non-market Production

Market Production: The outputs of these market producers are sold at economically significant prices. SNA does not set a standard for economically significant price, but most countries decide that it must cover at least half of production costs. These include establishments in large corporations and small unincorporated enterprises (may be owned by households) most of whose products is marketed. Market output consists of:

- The total value of goods and services produced in the period and sold at economically significant prices (including output indirectly measured)
- The total value of goods and services bartered
- The total value of goods and services used for payment in kind, including compensation in kind
- The total value of goods and services supplied by one establishment to another belonging to the same market enterprise to be used as intermediate inputs
- The total current value of products produced and added to the inventories of finished goods and work-in-progress intended for one or the other of above use
- Output of insurance services.

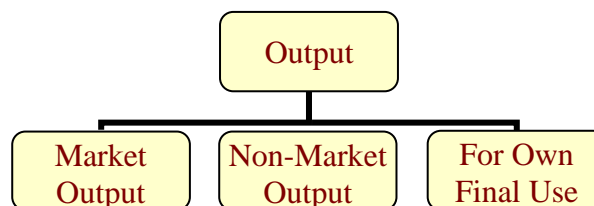
Production for own final use: Output of his category of production are meant for *final use* (*final consumption* and *capital formation*) of the producers themselves. This includes:

- Own-account capital formation like
 - own-account software development,
 - research and development
- Output retained for final consumption by owners of unincorporated enterprises like
 - Subsistence farmers etc.
 - Households engaged in the construction of their own dwellings and other goods for own consumption.

Non-market production: Non-market producers provide their products free or at prices not economically significant. General government and NPISHs are non-market producers.

Value of output:

Three different methods are recommended for three kinds of output.



Value of market output

The output of market products is done at the prices prevailing in the market, i.e. the prices at which the goods services are actually sold or purchased. For the market products like inventories of finished goods and work-in-progress that are yet to be sold, the valuation is done either on the basis of imputed (basic) prices or at cost, i.e sum of all cost of production like intermediate consumption, compensation to employees, *CFC*, other taxes (*less* subsidies) on production and a component of normal profit.

Value of non-market output

Non-market output is recommended to be measured at production costs, when it is provided to the households without charge or at a nominal cost. Output at production costs is the sum of the following items:

- a) Intermediate consumption;
- b) Compensation of employees;
- c) Consumption of fixed capital;
- d) Other taxes (*less* subsidies) on production.

Value of output for own final use

Output for own final use should be valued at the basic prices at which the goods and services could be sold if offered for sale on the market. When reliable market prices cannot be obtained, the value is deemed to be equal to the sum of their costs of production:

- a) Intermediate consumption;
- b) Compensation of employees;
- c) A net return to fixed capital; [introduced in 2008 SNA]
- d) Consumption of fixed capital;
- e) Other taxes on production.

By convention, no net return to capital is included when own-account production is undertaken by non-market producers. Also by convention, subsidies on products can only pertain to market output and output for own final use.

Measurement of output of special industries

Cultivated assets:

The gross value of output (*GVO*) of cultivated assets can be obtained by disposition as

$$GVO = \text{Sales} + \text{change in inventory} + \text{own final use}$$

For example consider a case of a cultivated forest where trees were planted and expected to be cut for sale after 4 years. The following are the estimated value of opening, closing stock, intermediate consumption and sales:

Value of	1990	1991	1992	1993
Opening stock	0	100	250	400
Closing stock	100	250	400	0
Int. consumption	30	70	90	100
Sales	0	0	0	700

The *GVO* of cultivated forest is obtained as sum of sales, change in inventory and own final use. *GVA* is then obtained as difference of *GVO* and intermediate consumption.

Value of	1990	1991	1992	1993
Closing stock	100	250	400	0
less opening stock	0	100	250	400
= Change in inventory	100	150	150	-400
Sales	0	0	0	700
= <i>GVO</i>	100	150	150	300

Distributive Trade:

Trading is a service provided for making the goods available to the purchasers. The output of trading activities is *trade margin* defined as:

$$GVO = \text{Sale} - \text{cost of goods sold}$$

Cost of goods sold = Purchases of goods for resale + opening stock of goods for resale
- closing stock of goods for resale

Thus, $GVO = \text{Sale} + \text{closing stock} - \text{opening stock} - \text{purchases of goods for resale}$

For example consider a retail store that recorded the following transactions in 2006:

Sale	= 50,000	
Purchases of goods for sale	= 30,000	
Opening stock	= 4,000,	Closing stock = 5,000
Utilities	= 200	
Supplies	= 500	
Other services paid	= 50	

$$GVO = 50,000 + (5000-4000) - 30,000 = \underline{21,000}$$

$$GVA = 21,000 - (200+500+50) = 21,000 - 750 = \underline{20,250}$$

Banks:

Banks provide services for both explicit fees and implicit charges. Explicit fees, like fees for issuing a draft or doing money transfer etc., are always recorded as payable by the service-receiving unit to the service-provider. Banks receive implicit service charges mainly for the services of channelling saving of savers to the borrowers. Implicit charges for financial services are measured indirectly and is called financial intermediation services indirectly measured (*FISIM*).

Financial institutions basically provide these financial services provided by means of **financial intermediation**, whereby a financial institution (a bank) accepts deposits from units with ‘excess’ funds to other units in need of funds. Each of the two parties pays a fee to the bank for the service provided. The unit lending funds accepts a lower rate of interest than that paid by the borrower, the difference (= combined fees implicitly charged by the bank to the depositor and to the borrower) represents charges for **financial intermediation services indirectly measured (FISIM)**. However, there is normally little if any FISIM payable between banks, since banks usually borrow from and lend to each other at a risk-free rate. The 2008 SNA recommends FISIM to be measured as:

$$\begin{aligned} \text{FISIM: On Loans} &= (\text{actual} - \text{reference}) \text{ interest rate} \\ \text{On Deposits} &= (\text{reference} - \text{actual}) \text{ interest rate} \end{aligned}$$

that is

$$f_L + f_D = (r_L - rr)Y_L + (rr - r_D)Y_D$$

where f_L and f_D represents the FISIM - output of the financial services on loans and deposits respectively,

Y_L	the amount lend	Y_D	the amount borrowed
r_L	the lending rate	r_D	the borrowing rate

and rr the reference rate.

For example, consider that households deposited 500 mill. and bank lent out 300 mill. The bank charges 10% interest on loans while gives 6% on deposits. If the reference rate is 10 %, then what is the FISIM of bank?

$$\text{FISIM rate on deposit} = 10\% - 6\% = 4 \text{ percent}$$

$$\text{FISIM on Deposit } (f_D) = 500 (0.04) = 20 \text{ mill.}$$

$$\text{FISIM rate on loan} = 15\% - 10\% = 5 \text{ percent}$$

$$\text{FISIM on Loans } (f_L) = 300 (0.05) = 15 \text{ mill.}$$

$$\text{Thus, } GVO = f_L + f_D = 20 \text{ mill.} + 15 \text{ mill.} = 35 \text{ mill.}$$

There are other deviations in the estimate of FISIM depending upon the availability or choice of reference rate and the data. The GVA of banking activity is obtained by subtracting the intermediate consumption (inputs) from the GVO.

Allocation of FISIM:

Since FISIM is counted as output, it must also be recorded as consumption of those who use the service. A part of the FISIM (f_L) is consumed by the by those who take loans from the banks – mainly the enterprises. The other part (f_D) of the FISIM is consumed by the depositors – mainly the households. Up to 1993 SNA, it was permitted to regard FISIM as intermediate consumption for the economy as a whole. In 1993 SNA it was suggested, and in 2008 SNA it is recommended that FISIM should be allocated to

- enterprises (as intermediate consumption)
- household (final consumption)
- export

The 1993 SNA, following the previous practice, suggested that if FISIM is not allocated to user sectors, a nominal sector be introduced in the accounting framework. The whole of the value of the output of FISIM may be treated as intermediate consumption of the nominal sector with zero output and negative value added equal in size but opposite in sign to intermediate consumption. The value added of all sectors and industries together is reduced in total by the amount of FISIM.

Insurance:

In non-life insurance only the risk is covered. Thus, when the event occurs for which insurance has been made, the policy holder makes his/ her claim.

Thus for Non life or term insurance

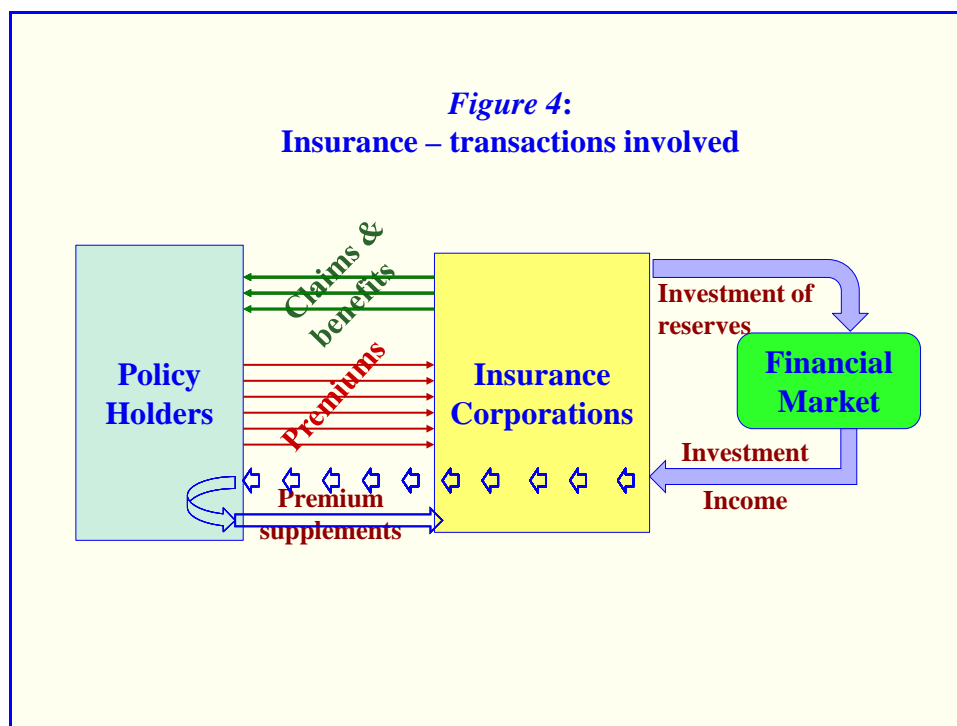
$$GVO = \text{premium payable} + \text{supplemental premium} - \text{claims}$$

However in life insurance there is an element of saving besides risk coverage. Thus besides claims the insurance company pays the insured amount after completion of period to the survived person from its actuarial reserve. Thus for Life insurance

$$GVO = \text{premium payable} + \text{supplemental premium} - \text{claims} - \text{change in actuarial reserve}$$

The premium supplements are the notional payments by the policy holders. This is defined to be equal to the investment income earned by the insurance corporations from the financial markets in return to investment of the reserves. Since these reserves are policy holders' money, the investment income earned should also accrue to them. However, these are usually retained by the insurance corporation and not passed on to the policy holders. Thus, it is considered to be a notional payment of 'supplementary' premiums by the policy holders.

The *GVA* of insurance activity is obtained by subtracting the intermediate consumption (inputs) from the *GVO*.

**Intermediate Consumption**

Intermediate Consumption (*IC*) consists of the value of all goods (non-durable) and services consumed in the process of production. It includes rentals paid on use of fixed assets, goods and services supplied by other establishments of same enterprise, and goods and services used as inputs into the ancillary activity. Intermediate consumption includes goods and services which are entirely used up by producers in the course of production to produce output of goods and services during the accounting period – whether for the market or for own use.

It however excludes *CFC*, goods and services (intermediate products) produced and used within the establishment, purchase of capital goods and transactions treated as transfers like bad debt provisions/write-offs, taxes, fines, donations. It also excludes factor payments like compensation of employees, land rent, interest (other than allocated FISIM), and dividends paid. The non-transaction economic flows like amortization of goodwill, exchange rate losses, loss on sale of assets, are obviously excluded.

IC includes:

- purchase of small tools and ordinary maintenance and repairs;
- purchase of fixed assets to be used under an operational leasing contract
- expenditure that an owner-occupier incurs on the maintenance and repair of the dwelling
- expenditures on goods and services of households in their capacity as producers

IC excludes:

- labour cost, financial costs and production taxes.
- purchase of military weapons and their supporting systems (this was excluded in 1993 SNA. 2008 SNA, recommends: military weapons systems should be classified as fixed assets and single-use items, such as ammunition and missiles, should be treated as military inventories.)
- Machinery and equipment acquired by households for purposes of final consumption (final consumption expenditure)
- the purchase of dwellings (treated as gross fixed capital formation)
- payments of taxes, such as license to own vehicles and license to hunt, shoot or fish
- subscriptions, contributions and dues paid to NPISHs
- voluntary transfers in cash or in kind to charities, relief and aid organizations.

Boundary between Intermediate Consumption and Compensation of Employees:

Intermediate consumption	Compensation of employees
Goods and services that employees are obliged to use in order to enable them carry out work 1. Tools or equipment used at work. 2. Specialized clothing used mainly at work. 3. Accommodation services at the place of work. 4. Transportation and hotel services provided for business. 5. Medical facilities provided because of the nature of work. 6. Meals or drinks provided to workers on active duty.	Goods and services are used by employees in their own time and at their own discretion. 1. Durable goods used extensively away from work. 2. Uniforms which employees choose to wear extensively away from work. 3. Ordinary housing services provided to employees and their dependents. 4. Services of vehicles used away from work and transportation allowances. 5. Ordinary medical facilities provided to employees and their dependents.

Boundary between Intermediate Consumption and Gross Capital Formation

Intermediate Consumption	Gross Fixed Capital Formation
1. Recurrent expenditure on small durable producer goods, like hand tools, that are a small share of total expenditure on machinery and equipment. 2. Regular maintenance, repair of fixed assets and replacement of parts that is required to keep	1. Expenditure on hand tools if it is large compared to total expenditure on machinery and equipment. 2. Major renovation that is not dictated by the condition of the asset and enhances the efficiency or capacity of fixed assets.

fixed assets in working order. 3. Expenditure of research and development (R&D), 4. Staff training, market research are recorded as intermediate inputs though they may bring future benefits. 5. Ammunitions used in war.	3. Mineral exploration, computer software, R&D. 4. Expenditure on items that provide defense services, i.e. buildings, roads, airfields. 5. Weapons systems used primarily for defence.
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IC are recorded when they enter the process of production - time of use and NOT purchase. *IC* is thus derived as sum of purchases of inputs (P) less changes in inventories of inputs (ΔSi):

$$IC = P - (\Delta Si)$$

IC is Valued at purchaser's prices when purchased from outside, and at prices that are used to value output plus any additional transport charges when obtained from other establishments belonging to same enterprise.

Assets

In the SNA, the term “assets” is used in the restricted sense of economic assets. These are defined as entities:

- a) over which (ownership) *rights* are enforced by institutional units, individually or collectively; and
- b) from which economic *benefits* can be derived by their owners by holding them, or using them, over a period of time.

Every economic asset must function as a *store of value* that depends upon the amounts of the economic benefits that its owner can derive from it or using it. Different kinds of benefits may be derived from different kinds of assets, as follows:

- (i) by using assets like building or machinery in production;
- (ii) property incomes: interest, dividends, rents etc. received from financial assets and land;
- (iii) as stores of values (precious stones and metals) without any other benefits being derived from them.

Asset boundary

First, it must be noted that the System provides for accounting only the values of assets that belong to the institutional units. Thus, only the following qualify as economic assets:

- those naturally occurring assets over which ownership rights have been established and are effectively enforced.
- may be owned collectively by groups of units or by governments on behalf of entire communities.

It is not feasible to establish ownership on certain naturally occurring assets, and are thus excluded from assets boundary of the system. For example:

- air, or the oceans.
- others that do not actually belong to any particular unit, including those whose existence is unknown those which may be known to exist but remain so remote or inaccessible that, in practice, they are not under the effective control of any units.

Second, natural assets must not only be owned but capable of bringing economic benefits to their owners.

-
- Economically beneficial dependents on the prevailing condition in respect of technology, scientific knowledge, economic infrastructure, available resources and set of relative prices currently prevailing or expected in the near future.
 - Thus, known deposits of minerals that are not commercially exploitable in the foreseeable future are not treated as an asset in the System, even though they may possibly become commercially exploitable at a later date as a result of major, unforeseen advances in technology or major changes in relative prices.

Third, all assets resulting from the activities falling within the production boundary of the System fall within the asset boundary of the System. Thus, the asset boundary includes

- all dwellings and other buildings and structures, machinery, etc.
- “cultivated” assets (growth of trees, crops or other vegetation or the rearing of animals, birds, fish, etc.,) that are used repeatedly or continuously over periods of time of more than one year to produce other goods and services.

The growth of animals, birds, fish, etc., living in the wild, or growth of uncultivated vegetation in forests, is not an economic process of production so that the resulting assets cannot be produced assets.

Nevertheless, when the forests and/or the animals, birds, fish, etc. are actually owned by institutional units and are a source of benefit to their owners, they constitute economic assets, but are treated as non-produced assets.

Assets Classification

Financial assets: An asset that entitles its owner (the creditor) to receive a payment, or series of payments, from the other unit (the debtor) in certain circumstances specified in the contract between them. Examples: monetary gold, Special Drawing Rights (SDR), shares in corporations, and certain instruments called derivatives.

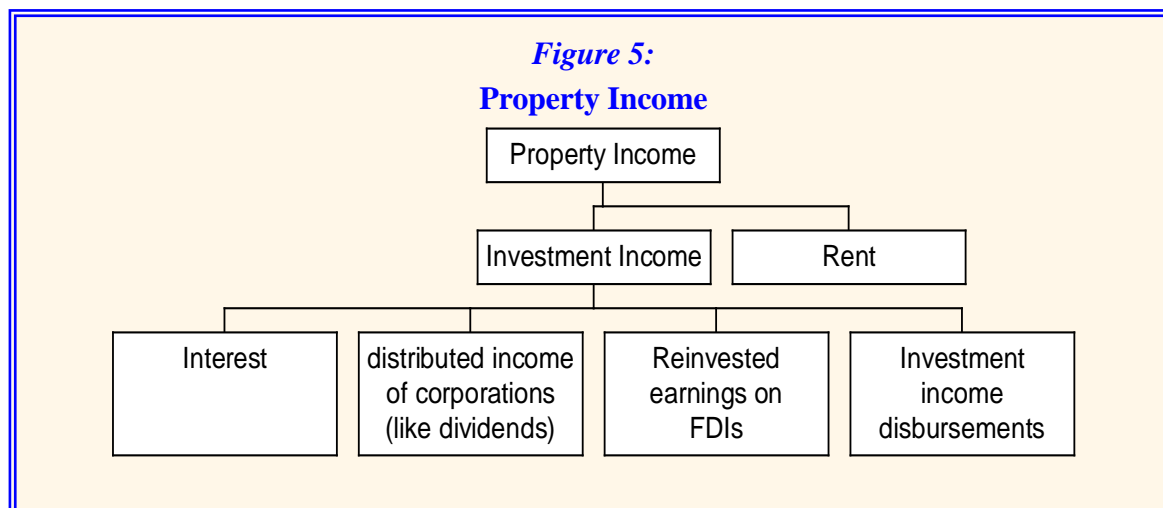
Non-financial assets: Two different categories of non-financial assets are “produced” and non-produced” assets.

Produced assets are defined as non-financial assets that have come into existence as outputs from processes that fall within the production boundary of the System. These are of three types: fixed assets, inventories, and valuables.

Non-produced assets are defined as non-financial assets that have come into existence in ways other than through processes of production. These are used for production but are themselves not produced. They include naturally occurring assets as land, certain uncultivated forests and deposits of minerals. This also includes intangible non-produced assets like patented entities, leases and other transferable contracts, purchased goodwill and other intangible non-produced assets.

Fixed Assets

Fixed assets are used in the process of production for more than one year. Fixed assets include structures, machinery and equipment as well as cultivated assets like trees or animals that are for production of other products such as fruits and dairy products. This also includes intellectual property products [2008 SNA] such as research & development, mineral exploration & evaluation, computer software & databases, entertainment, and literary or artistic originals used in production.



Valuables

Valuables are produced assets

- not used primarily for production or consumption
- expected to appreciate or at least not to decline in real value
- do not deteriorate over time under normal conditions and
- are acquired and held primarily as stores of value.

Examples: precious metals & stones, work of arts etc.

The total production (or *GDP*) includes production of valuables. But purchase of the valuables produced during an accounting period is neither included in consumption or fixed capital formation.

Thus, acquisition *minus* disposal of valuables [= expenditure on (first) purchase of valuables produced during the accounting year, for a closed economy] is included as an expenditure aggregate.

Property Income

Recall that *property income* is one of the components of *primary income*, which accrue to institutional units as a consequence of their involvement in processes of production or ownership of assets that may be needed for purposes of production. In concept, property income is the payment for the use of non-produced and financial assets in the production. Thus, in production if the land (a non-produced asset) is used, then the payment for its use made to the owner of the resource is a *property income* usually termed as *rent*. Other examples of property income for use of non-produced asset are Mineral royalties, Fishing rights, Spectrum rights, etc. *Property income* for the use of financial assets is in form of interest or dividends which are payable to the owners of the asset. These are called *investment income*. Figure 5 shows the different kinds of investment incomes.

Rent¹³

Rent is the sum of rents on land and rents on subsoil assets. *Rents on land* are the amounts paid to a landowner by a tenant for the use of the land. *Rents on subsoil assets* consist of the payments

¹³ Building rent is not a property income even though the term rent is usually used because the building is a produced asset and not a non-produced asset. Thus in the system for the use of building or any other produced asset like machinery or equipment, rent is referred to as rental, a service charge and not a property income.

made to the owners of the subsoil assets by institutional units permitting them to extract the subsoil deposits over a specified period.

Investment Income

Investment income corresponds to factor compensations: interest and profit, generated in the process of production. Investment income is also earned through holding of financial assets.

Compensation of Employees (CE)

Compensation of employees is the total remuneration in cash or in kind payable by employers to employees for the work done. Direct social transfers from employers to their employees or retired employees and their family, such as payments for sickness, educational grants and pensions that do not set up an independent fund, are also imputed to compensation of employees. Compensation of employees is thus constituted of

- i) **wages and salaries** in cash and in kind, commissions and other benefits to employees or workers for their labour input
- ii) **employers' social contribution** to social security, provident funds, insurance schemes and pension funds;
- iii) **benefits** for sickness, unemployment, retirement etc. paid by employers directly to employees (which are called imputed social contributions).

Examples: salaries of employees; wages of construction workers; bonus, tips of waiters in restaurants; employers' contribution to provident fund or life insurance of employees, clothing allowance given to employees; food allowance, housing benefit, gasoline allowance, etc..

Operating Surplus (OS)

The balance or residual when all the costs and (production) taxes (*less* subsidies) are deducted from the value of goods and services produced. Thus, **gross operating surplus** includes

- **interest** payable to lenders of financial assets,
- **rent** payable to owners of non-produced assets, such as land and sub-soil assets and
- **profit** payable to share-holders and undistributed profits.

Mixed Income (MI)

There are unincorporated enterprises that are owned by households like proprietorship & partnerships. The owners/ family members work without wages & salaries. The earnings of the owners and family members of such enterprises are partly **compensation for their labour** and partly **operating surplus**. The earnings of the owners and family members are called mixed income (MI). It is the balance or residual in household enterprise, after netting out (i) intermediate consumption (ii) all production taxes (*less* subsidies) paid by the enterprise and (iii) payments made to paid employees from the value of output.

Final Consumption of Expenditure

Final consumption includes goods and services which are used by households or the community to satisfy their individual wants and social needs. Thus, final consumption is broken down into:

- a) Final consumption expenditure of households;
- b) Final consumption expenditure of general government;
- c) Final consumption expenditure of non-profit institutions serving households.

Note that, in the SNA, ‘final consumption’ by the corporate sector is not admissible.

Household Final Consumption Expenditure (HFCE)

All goods and services consumed by the households, whether durable (cars, refrigerators, air-conditioners etc.) or non-durable (food, clothes), are part of final consumption, with the exception of purchases for own-construction or improvements of residential housing, which are treated as part of gross capital formation.

Includes:

- i) All goods and services bought for final consumption by households;
- ii) All goods produced for own final consumption by households, including those goods and services produced by household enterprises and retained for final consumption;
- iii) Domestic services produced for own final consumption by employing paid staff, such as servants, cooks, gardeners and chauffeurs;
- iv) Services of owner-occupied dwellings (whose imputed values are equivalent market rentals);
- v) All goods and services acquired by households in barter transactions for final consumption;
- vi) All goods and services received by households as payment in kind from producers;
- vii) Expenditures incurred in “do-it-yourself” decoration, maintenance and routine repairs of own dwellings and personal goods;
- viii) Payment to government units to obtain various kinds of licenses, permits, certificates, passports etc., which are regarded as payment for purchase of services.
- ix) Purchase of services at prices that are not economically significant, e.g. entrance fees for a museum.
- x) Gifts received in kind.
- xi) Insurance services
- xii) Explicit and imputed service charges on household uses of financial intermediation services provided by banks, insurance companies, pension funds etc.
- xiii) Pension funding services.

Excludes:

- a. Social transfers in kind
- b. Items treated as intermediate consumption or gross capital formation:
 - i. Expenditures by households owning unincorporated enterprises

-
- ii. Expenditure that an owner-occupier incurs on the maintenance and repair of the dwelling
 - iii. the purchase of dwellings (treated as gross fixed capital formation)
 - iv. expenditure on valuables (treated as gross capital formation)
 - c. Purchase of land
 - d. Payments of taxes, such as licences to own vehicles, boats or aircraft and also licences to hunt, shoot or fish
 - e. Subscriptions, contributions, voluntary transfers and dues paid by households to NPISHs and other charities, relief and aid organizations.

Government Final Consumption Expenditure (GFCE)

Included in the final consumption expenditure of general government and non-profit institutions serving households are:

- a) Non-market output other than own-account capital formation, which is measured by production costs less incidental sales of government output;
- b) Expenditure on market goods and services that are supplied without transformation and free of charge to households (referred to by SNA as social transfers in kind)

In the expenditure approach, the entire non-market output of the Government is considered to be consumed by the Government itself.

Government Final Consumption Expenditure,

$$\begin{aligned}
 \mathbf{GFCE} &= \text{Total Government output} \\
 &+ \text{ goods \& services purchased to be provided free to the population} \\
 &\mathbf{minus} \text{ receipts from sale of goods \& services.}
 \end{aligned}$$

Final Consumption Expenditure of NPISH: As for the government, the entire non-market output of the NPISH (net of receipts from sale of goods & services) constitutes the final consumption expenditure of the NPISHs.

Gross Domestic Capital Formation (GDCF)

Gross capital formation in SNA is the same as the concept of *investment in capital goods* used by economists. It includes only produced capital goods (machinery, buildings, roads, artistic originals, research & development activities etc.) and improvements to non-produced assets.

Gross fixed capital formation (GFCF) is the resident producers' acquisitions *less* disposals of non-financial produced fixed assets *plus* additions to certain non-produced assets like:

- major improvement of non- produced assets
- cost of transfer of ownership of non- produced assets

Note that non-produced assets, such as land, natural resources and intellectual property products, are also be used assets for production in an establishment or enterprise. In business accounting, investment includes acquisitions less disposals of non-produced assets, but these are not in gross capital formation in SNA. The non-produced assets do not affect the value of investment in capital goods since the sale of a non-produced asset by one economic entity is offset by a purchase of the same asset by another economic entity.

Gross domestic capital formation includes:

- a) Gross fixed capital formation;
- b) Changes in inventories;
- c) Acquisition *less* disposals of valuables (such as jewelry and works of art).

Gross Domestic Capital Formation (**GDCF**) is defined as

GFCF + change in inventories (**CII**) + acquisition *less* disposals of valuables.

i.e. **GDCF** = **GFCF** + **CII** + acquisition *less* disposals of valuables.

Gross Fixed Capital Formation (**GFCF**)

GFCF is acquisition *less* disposal of produced assets that are used repeatedly for production, including produced assets acquired by purchases, barter, capital transfers and produced for own use. It also includes animals, plants, etc. used repeatedly for production. These are treated as

- addition to inventory while growing
- fixed assets once production starts
- **CFC** in case of death and reduction of productivity.

Gross fixed capital formation includes:

- a) Acquisition less disposal of new or existing produced assets, such as dwellings, other building structures, machinery & equipment, cultivated assets (trees and livestock), mineral exploration, computer software, entertainment, literary/ artistic originals, and other intangible fixed assets like intellectual property products.
- b) Costs of ownership transfers on non-produced, non-financial assets, such as land.
- c) Major improvements to produced and non-produced, non-financial assets that extend the lives of assets (e.g. reclamation of land from sea, clearance of forests, rock etc., draining of marches or irrigation of forests, and prevention of flooding or erosion);
- d) Household durables for household operated activities.

Acquisition can be in terms of purchase, own-account production, barter, capital transfer in kind, financial leasing, natural growth of cultivated assets and major repairs of produced assets. Disposal can be in terms of sale, barter, capital transfer in kind or financial lease. Exceptional losses, such as those due to natural disasters, are not recorded as disposal.

It excludes:

- Household durables for household's own use should be allocated to HFCE
- Purchase of non-produced assets like land.

Change in Inventories (**CII**)

Inventories include:

- unsold finished products
 - goods for sale with the traders
 - unused raw materials (inventories) - materials and supplies
 - work-in-progress (growing crops, maturing trees and livestock, uncompleted structures, uncompleted other fixed assets, partially completed film productions and software).
-

Enterprises have stocks of these at the beginning and end of an accounting period. In National Accounts, the difference between the stocks at the end and at the beginning of the accounting period is called “*Change in Inventories*”.

Exports / Imports

Exports and imports between the domestic economy and the rest of the world are transactions between residents and non-residents of an economic territory, regardless of whether there are corresponding physical movements of goods across borders.

Exports – flow of goods and services from resident units to non resident units

Imports – flow of goods and services from non resident units to resident units

Imports and exports of goods are valued free on board at the border of the exporting country (f.o.b.):

- basic prices
- *plus* the related transport and distributive services up to that point of the border, including the cost of loading on to a carrier for onward transportation
- *plus* any taxes less subsidies on the goods exported.

Exports are valued free on board (*f.o.b.*), which, by definition, should be equivalent to purchasers' prices since they include domestic transport and trade costs to bring the good to the ports, and also include taxes *less* subsidies on products paid by the purchasers or received by the producers.

Imports must also be valued f.o.b. but are valued at the prices at the foreign custom frontier. To derive imports *f.o.b.*, cost of freight and insurance services between the two borders must be estimated and deducted from imports *c.i.f.* Freight and insurance services on imports may be provided by either residents or non-residents.

Box: 13

Exports/ Imports - exceptions

However, there are some exceptions that require imputation of change of ownership:

- (a) transactions in land, buildings and non-movable non-produced assets. [These are still used for production purposes in the domestic economy, even if these changes hands between a resident and a non-resident.]
- (b) transactions in financial assets (stocks, bonds, money, monetary gold etc.). [Financial assets are neither goods nor services]
- (c) financial leasing,
- (d) deliveries between affiliated enterprises
- (e) goods sent for significant processing to order or repairs and
- (f) goods bought from non-residents and sold to non-residents by commodity dealers within the same accounting period are not recorded as exports or imports.

Test Your Knowledge

Exercise – 3.1: Main Macro-economic Aggregates

Indicate which of the following flows for the institutional sectors / sub-sectors are admissible (√) and inadmissible (x).

Flows /Transactions	Non-Financial Corporation	Financial Corporation	General Government	NPISH	Households		Rest of the World
					Non- entrepreneurial	Entrepreneurial	
a. Final Consumption							
b. Market production							
c. Non-market production							
d. Production for own use							
e. Services of owner-occupied dwellings							
f. Intermediate consumption (IC)							
g. Production tax - payable							
h. Mixed Income – receivable							
i. Generation of Operating surplus							
j. Property income - payable							
k. Property income - receivable							
l. Compensation of employees - payable							
m. Compensation of employees -receivable							
n. Taxes on income & wealth - payable							
o. IC of FISIM							
p. FISIM as final consumption							
q. Social benefits (not in kind) - receivable							
r. Fixed capital formation							
s. Change in Inventories							

Note: Entrepreneurial households are those with some production activities for the market and non-entrepreneurial households are those without any market production activity.

Additional notation to be used for filling in the cells:

O.D. – relating to own dwelling only.

x (√) – mostly not, but possible.

ISIC 97 – only on account of wages paid to domestic help etc.

Test Your Knowledge

Exercise 3.1: Calculation of output

The following are the simplified data for a firm producing cars. Sales of cars: 1 353 500. Purchases: raw materials: 540 000; temporary employment services: 350 500; machine tools: 264 000. Inventories of finished products at the start of the period: 245 000; at the end of the period: 346 700. Inventories of raw materials at the beginning of the period: 73 200; at the end of the period: 43 000. Calculate the output, the intermediate consumption and the value added.

Solution: Gross value of output = ; Intermediate consumption =
Gross value added =

Exercise 3.2: Calculation of output: the non-market case

The following are simplified data for a unit of general government. Civil servants' gross wages and salaries: 562 980; employers' social contributions: 65 450; purchases of materials: 85 340; tax revenue: 485 770; *CFC*: 124 320. Calculate output and value added.

Solution: Gross value of output = ; Gross value added =

Exercise 3.3: Calculation of output: the case of banks

The following are the simplified data for a bank: foreign exchange commissions: 32 980; stock-market trading commissions: 23 430; interest received: 357 850; interest paid: 204 650; purchases of materials: 34 520; purchases of IT consultancy services: 32 890; purchases of software: 12 590; inventory of materials at the start of the period: 7 420; inventory of materials at the end of the period: 3 860. Calculate the output, the intermediate consumption and the value added. Assume the figure for FISIM is interest received minus interest paid.

Solution: Gross value of output = ; Intermediate consumption =
Gross value added =

Exercise 3.4: Calculation of output: the case of distributors

The following are the simplified data for a retail chain: sales: 4 567 800; total purchases: 4 120 500 (of which, goods for resale: 3 987 350); inventories of goods for resale at start of period: 476 000; at end of period: 548 400; inventories of materials at start of period: 120; at end of period: 3 250. Calculate the output, the intermediate consumption and the value added. Inflation is assumed to be negligible.

Solution: Gross value of output = ; Intermediate consumption =
Gross value added =

Exercise 3.5: Calculation of output: the case of insurance companies

The following are the simplified data for an insurance company: premiums received: 210 400; indemnities paid out on claims: 187 500; income from the investment of reserves: 34 270; purchases of consumables: 24 320; inventories of materials at the start of the period: 5 630; at the end of the period: 20. Calculate the output, the intermediate consumption and the value added.

Solution: Gross value of output = ; Intermediate consumption =
Gross value added =

V. RELATIONSHIP BETWEEN SNA AGGREGATES - MAIN IDENTITIES

Market Prices

So far, we have dealt with the SNA aggregates and their interrelationships without taking into consideration the production taxes and subsidies. We will now re-establish the relationships between the main aggregates, applying different prices for valuation of goods & services.

Prices paid by consumers are different from what the producers perceive as their receipts. This is because the taxes on products that are passed on to government are not included in the receipts of the producers. Further the trade and transport margins, which are output of the traders and transporters, are included in the prices of goods that consumers pay, but do not form part of the receipts of the producers of the goods.

In national accounts, the prices at which products are sold by the producers and those at which they are purchased by the consumers are defined as the ‘market prices’. Use of products is always recorded at purchasers’ prices. Thus, the macro-economic aggregates like final consumption expenditure or capital formation or intermediate consumption are always valued at purchasers’ prices. Output of products is always recorded at basic prices and the value of the economy’s domestic production is derived at ‘market prices’.

GVA at Basic Prices

An enterprise’s earnings from production is the GVA at basic prices

$$\begin{aligned}
 &= \text{Receipts from sale of its products} \\
 &\quad \textit{minus} \text{ (all product taxes – all product subsidies)} \\
 &\quad \textit{minus} \text{ payments made for purchase of inputs} \\
 &= \text{Gross value of output at basic prices (} GVO_{bp} \text{)} \\
 &\quad \textit{minus} \text{ IC at purchasers prices (} IC_{purp} \text{)}
 \end{aligned}$$

GVA at basic prices, $GVA_{bp} = GVO_{bp} - IC_{purp}$

Since, IC is always measured at purchasers’ prices, we will henceforth exclude the subscript and just use ‘ IC ’. This the value of income generated in the production process and gets distributed as

$CE + OS + MI + \text{other production (} t-s \text{)}$

GDP at Market Prices

GDP is the measure of production of an economy. This is valued at market prices.

GDP at market prices is defined as (1993 / 2008 SNA),

$$GDP_{mp} = \sum GVA_{bp} + \text{product (} t-s \text{)} + (t-s) \text{ on imports}$$

GDP_{mp} represents the primary income generated from the production undertaken within the domestic economy.

Commodity Balance Identity

The equivalence of supply and use of goods & services lead to the *commodity balance identity*:

The gross value of output measured at purchasers’ prices is equal to the sum of all expenditure-side aggregates. Thus,

$$\begin{aligned}
 GVO_{purp} &\equiv IC + PFCE + GFCE + GFCE + CII \\
 &+ \text{acquisition less disposal of valuables} \\
 &+ X - M,
 \end{aligned}$$

exports and imports are both valued at f.o.b., which excludes taxes and subsidies on imports.

Note that **PFCE** stands for Private Final Consumption Expenditure, which is composed that of the household and NPISHs sectors.

Expenditure-side Identity

$$\begin{aligned}
 \text{Thus, } GVA_{mp} &\equiv GVO_{purp} - IC \\
 &= PFCE + GFCE + GFCE + CII \\
 &+ \text{acquisition less disposal of valuables} \\
 &+ X - M,
 \end{aligned}$$

This is the expenditure-side identity. In this the (tax-subsidies) on imports are not deducted, though actually incurred. Thus on the production-side (taxes-subsidies) on imports are added.

$$\begin{aligned}
 GDP_{mp} &\equiv \Sigma GVA_{bp} + \text{product } (t-s) + (t-s) \text{ on imports} \\
 &= GDP_{bp} + \text{product } (t-s) + (t-s) \text{ on imports.}
 \end{aligned}$$

Income-side Identity

On the income-side,

total income of the residents of the economy

$$\begin{aligned}
 &\equiv \text{primary income generated within the economy } (GDP_{mp}) + \\
 &\quad \text{(net) primary income earned from RoW} \\
 &\equiv CE \text{ paid by domestic enterprises} \\
 &\quad + OS \ \& \ MI \text{ generated in the domestic economy} \\
 &\quad + \text{production } (t-s) + (t-s) \text{ on imports} \\
 &\quad + CE \text{ from RoW (net) } + PI \text{ from RoW (net)}
 \end{aligned}$$

$$\equiv \text{Gross National Income (GNI)}$$

Gross Disposable Income

From the income, taxes on income & wealth are paid both to the governments of the country and abroad. The Government similarly earns such taxes both from the domestic economy as well as abroad.

Further, there are current transfers made both within country and across the border. Thus,

Gross National Disposable Income,

$$\begin{aligned}
 GNDI &\equiv GNI \\
 &\quad - \text{Taxes on income \& wealth payable to RoW} \\
 &\quad + \text{net current transfers receivable from RoW}
 \end{aligned}$$

[Note that the transfers within the economy get cancelled out.]

Gross Savings

(Gross) Savings of the domestic economy is defined as

$$\begin{aligned} \text{Gross savings} &= \text{disposable income} \textit{ minus} \text{ private final consumption expenditure} \\ &= \text{GNDI} - (\text{PFCE} + \text{GFCE}) \end{aligned}$$

Using the expenditure- and income-side identities and taking capital transfers into account, this reduces to

$$\begin{aligned} \text{Gross Savings} \\ = \quad \text{GDCF} \\ &+ \text{acquisition} \textit{ less} \text{ disposal of valuables} \\ &+ \text{acquisition} \textit{ less} \text{ disposal of non-produced non-financial assets} \\ &- (\text{net}) \text{ Capital transfer receivable} \\ &+ \text{net lending (to RoW)} \end{aligned}$$

Main Identities – A sum up

Commodity balance:

$$\begin{aligned} \text{GVO}_{mp} &\equiv \text{IC} + \text{PFCE} + \text{GFCE} + \text{GFCF} + \text{CII} \\ &\quad + \text{acquisition} \textit{ less} \text{ disposal of valuables} + X - M \dots \quad [1] \end{aligned}$$

where *PFCE* stands for *private final consumption expenditure*, which is *HFCE* and final consumption expenditure of the NPISHs

and *GFCE* stands for *Government final consumption expenditure*.

Production-side identity:

$$\text{GDP}_{mp} \equiv \text{GVO}_{bp} - \text{IC} + \text{product (t-s)} + \text{(t-s) on imports} \dots \dots [2]$$

- Main Identities (Contd.)

Income-side identities:

$$\begin{aligned} \text{GDP}_{mp} &\equiv (\text{CE} + \text{OS} \ \& \ \text{MI}) \text{ generated in domestic enterprises} \\ &\quad + \text{product (t-s)} + \text{(t-s) on imports} \dots \dots [3] \end{aligned}$$

$$\begin{aligned} \text{GNI} &\equiv (\text{CE} + \text{OS} \ \& \ \text{MI}) \text{ generated in domestic enterprises} \\ &\quad + \text{product (t-s)} + \text{(t-s) on imports} \\ &\quad + \text{CE from RoW (net)} + \text{PI from RoW (net)} \dots \dots [4] \end{aligned}$$

$$\begin{aligned} \text{GNDI} &\equiv \text{GNI} + (\text{net}) \text{ current transfers} \\ &\quad + (\text{Net}) \text{ taxes on income} \ \& \ \text{wealth from RoW} \dots \dots [5] \end{aligned}$$

- Main Identities (Contd.)

Expenditure-side identities:

$$\begin{aligned} \text{GDP}_{mp} &\equiv \text{PFCE} + \text{GFCE} + \text{GFCF} + \text{CII} \\ &\quad + \text{acquisition} \textit{ less} \text{ disposal of valuables} + X - M \dots \dots [6] \end{aligned}$$

$$\text{Gross Savings} \equiv \text{GNDI} - \text{PFCE} + \text{GFCE} \quad \dots \dots \dots [7]$$

implies

Net lending from RoW \equiv

$$\begin{aligned} & \text{Gross Savings} + (\text{net}) \text{ Capital transfer receivable} \\ & \text{minus } (\text{GFCF} + \text{CII} + \text{acquisition less disposal of valuables}) \\ & - \text{acquisition less disposal of non-produced non-financial assets} \\ & \dots \dots \dots [8] \end{aligned}$$

Supply & Use Tables

The SNA framework basically reflects the economic processes through sequence of accounts that

- provides an overview of a given economy
- is the core of the accounting framework and
- is structured by institutional sectors (incl. RoW) and the accounts.

In the SNA framework, supply & use tables (SUTs) are the first set of global tables.

These are based on the commodity balance identity:

$$\begin{aligned} \text{GVO}_{mp} + M = \text{supply} \equiv \text{use} = & \text{IC} + \text{PFCE} + \text{GFCE} + \text{GFCF} + \text{CII} \\ & + \text{acquisition less disposal of valuables} + X \end{aligned}$$

There are as many commodity balance identities as the number of product categories used in national accounts compilation. SUTs are a combined presentation of all these identities that help in verification and reconciliation of the estimates and estimating the missing values.

Sequence of the Accounts

The SNA framework consists of three groups of accounts:

- ❖ Current accounts
- ❖ Accumulation accounts and
- ❖ Balance sheet

Current Accounts

Current accounts – record production, income generation, distribution and redistribution of income.

This group consists of

Production account	based on	identity [2]
Income accounts		
– <i>Generation of income account</i>	based on	identity [3]
– <i>Allocation of primary income account</i>	based on	identity [4]
– <i>Secondary distribution of income account</i>	based on	identity [5]
– <i>Use of income account</i>	based on	identity [7]

Accumulation Accounts & Balance Sheet

Accumulation accounts – record all changes in assets and liabilities:

- ❖ *Capital account* based on identity [8]
- ❖ *Financial account*
- ❖ *Other changes in assets account*
 - » *Other changes in volume of assets account*
 - » *Revaluation account*

Balance sheets – record the stocks of assets and liabilities and the difference between them.

Test Your Knowledge

Exercise 4.1: SNA Identities

Based on various sources of data, the following estimates were obtained for the whole economy for an accounting year:

Macro-economic aggregates (for the whole economy)	Estimates (in bill. RD)
Final Consumption expenditure of	
Government (GFCE)	11,000
Households	75,100
NPISHs	3,200
Capital Formation	
Gross Fixed Capital Formation (GFCF)	34,500
Change in Inventories (CII)	400
Acquisition of Valuables	300
Disposal of Valuables	0
Consumption of Fixed Capital (CFC)	4,000
Exports of goods and services	7,300
Imports of goods and services	3,900
Import duties	780
Taxes <i>less</i> of subsidies on products	12,900
Production taxes <i>less</i> of subsidies other than on products	1,100
Compensation of employees (CE) paid by resident enterprises to	
Resident employees	66,500
Non-resident employees	500
Residents' income from the rest of the world (RoW)	1,400
(net) taxes on income & wealth receivable from the RoW	200
(net) other current transfers receivable from the RoW	-510

[Note that estimates not mentioned above, if can not be derived, may be assumed to be 0.

Final consumption expenditure of households and NPISHs together is PFCE.]

1. Compute the following:

- (i) GDP by expenditure approach
- (ii) GDP at basic price
- (iii) Gross national income and net national income
- (iv) Operating surplus *plus* mixed income
- (v) Gross disposable income (GDI) and
- (vi) Gross savings

2. Also state which aggregates mentioned in question 1 would change if the following are revised?

- (a) Only the estimate of household final consumption
- (b) Export is revised upwards by 200 and household final consumption downwards by 200.
- (c) All employees thought to be non-resident are found to qualify as residents.
- (d) Government decides to waive of all production taxes and subsidies other than on products for the accounting year.

Worksheet for solution of Part 1
Exercise 4.1

(i) GDP by expenditure approach	
Final Consumption expenditure (FCE) of	
Government (GFCE)	
Households (HFCE)	
NPISHs	
Gross Domestic Capital Formation (GDCF)	
Gross Fixed Capital Formation (GFCF)	
Change in Inventories (CII)	
Acquisition of Valuables	
Disposal of Valuables (-)	
Exports of goods and services (X)	
Imports of goods and services (M)	
$GDP = GFCE + HFCE + FCE \text{ of NPISHs} + GDCF + X - M$	
(ii) GDP at basic prices	
Import duties	
Taxes <i>less</i> of subsidies on products	
$GDP \text{ at basic prices} = GDP - \text{import duties} - \text{product (t-s)}$	
(iii) GNI	
CE paid to Non-resident employees	
Property Income to RoW	0
Residents' income from RoW	
$GNI = \text{net CE and PI from RoW}$	
CFC	
$NNI = GNI - CFC$	
(iv) Operating surplus <i>plus</i> mixed income	
(v) Gross national disposal income (GNDI)	
(net) taxes on income & wealth receivable from the RoW	
(net) other current transfers receivable from the RoW	
$GDI = GNI + (\text{net}) \text{ taxes \& current transfer from RoW}$	
(vi) Gross savings (= GNDI – FCE)	

VI. SEQUENCE OF ACCOUNTS

Accounting Structure – a Brief Overview

In the system of national accounts, all transactions taking place in the economy are recorded in a consistent and systematic way, by making use of identities discussed in the earlier section. The three most important ones are:

- Total supply (domestic production and imports) and total use (domestic uses and exports) should be equal for each product.
- Total output of an industry should equal its inputs *minus* intermediate consumption *plus* the value of factor inputs.
- Total income generated in the domestic economy should equal the value of factor inputs.

These three rules form the basis for estimation of *gross domestic product* (GDP) by what are called the *production, expenditure and income approach*.

The accounting structure of the SNA also entails other identities relating financial and non-financial transactions. These are used for integrating data from a large variety of basic sources. Although GDP in current prices can be approached from the output side, the expenditure side or the income side, in the end there should be only one GDP. Balancing the data from the three approaches is essential to ensure their consistency and completeness. The SNA helps balancing the data.

In 1993/2008 SNA framework the main sets of accounts are:

- Current accounts:
 - *production account*
 - *income accounts*
 - *Generation of income account*
 - *Allocation of primary income account*
 - *Secondary distribution of income account*
 - *Use of income account*
- Accumulation accounts:
 - *capital accounts*
 - *financial account*
 - *other changes in assets account*
 - *other changes in volume of assets account*
 - *revaluation account*
- Balance sheet

All the accounts of the SNA, except *Balance Sheets* and the *Other Changes in Assets Accounts*, are constituted of the values of items representing transactions. This set of accounts is also described as “transaction accounts”. The transactions are linked to the basic economic activities of production, income generation and distribution, consumption and capital formation.

Since, the transactions in the SNA framework is carried out between institutional units and assets are owned by institutional sectors, all these accounts and the balance sheets are compiled for the nation, each institutional sector and the rest of the world.

Besides these accounts, *supply and use tables* are compiled, only for the whole economy. This shows the sources of supply goods and services – industry-wise domestic production or imports - and different uses of these goods and services – exports or consumption or capital formation. It provides GDP estimate of the economy from production, income and distribution angles.

All the accounts of the SNA, except *Balance Sheets* and the *Other Changes in Assets Accounts*, are constituted of the values of items representing transactions. This set of accounts is also described as “transaction accounts”. The transactions are linked to the basic economic activities of production, income generation and distribution, consumption and capital formation.

General Features of the Accounts

Like business accounts, each of these accounts of SNA have two sides, called

- ‘resources’ and ‘uses’ for **current accounts**
- ‘changes in liability & net worth’ and ‘changes in assets’ for **accumulation accounts**
- ‘liabilities & net worth’ and ‘assets’ for **Balance sheet**

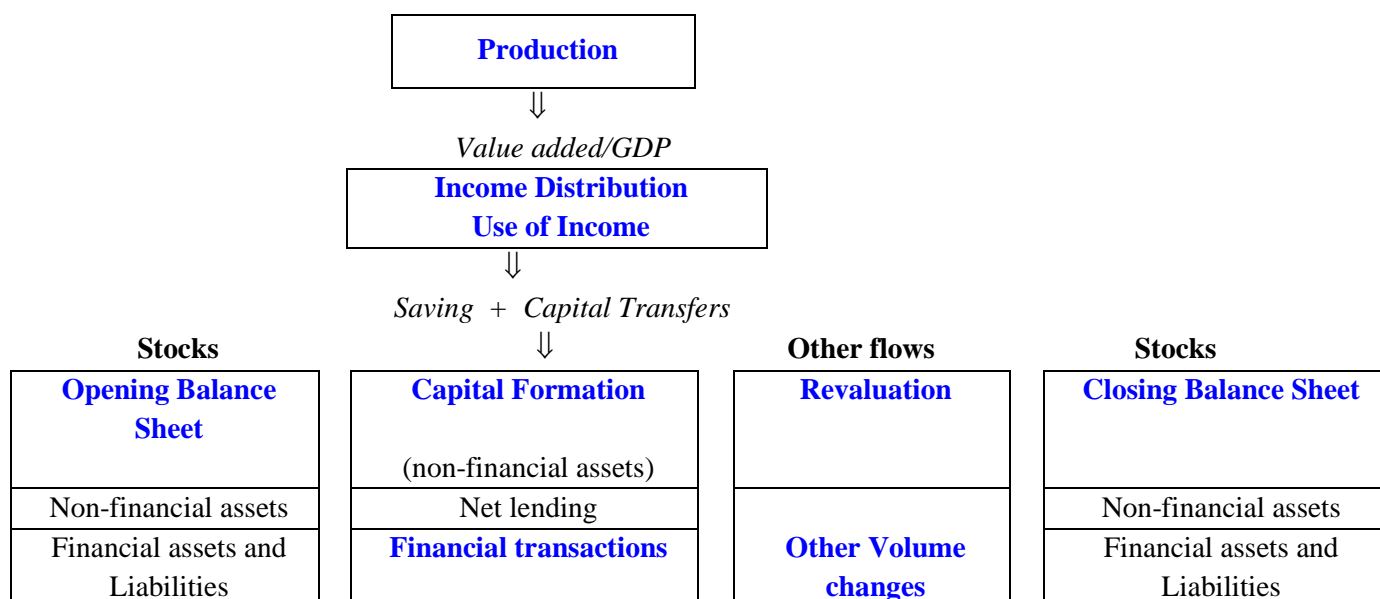
Entries made in these accounts are based on the principle of double accounting, thus permit checking consistency.

The accounting structure - a complete set of flow accounts and balance sheets - applies to all institutional units / sub-sectors / sectors and total economy. However, all transactions are not relevant for all sectors.

Each account has a balancing item that is significant as a macro-economic aggregate like

- gross / net domestic product (GDP / NDP)
- gross / net national income (GNI/ NNI)
- disposable income
- saving and
- net lending/borrowing.

Interconnection between the accounts: The balancing item of an account is a residual from the transactions recorded on the two sides – ‘resources’ and ‘uses’ – of the account. The balancing item from one account is carried forward as the first item in the following account. The sequence of accounts thus provides an integrated view of the entire economy.



Goods and Services Account

The **Goods and Services Account** serves to capture all transactions in goods and services. It shows the sources of goods and services (production and imports), and the uses (intermediate and final consumption, investment in fixed capital and inventories, and exports). The goods and services account may be viewed as a combined *Supply-Use Table (SUT)*, aggregated over all commodities and industries.

This account is founded on the identity:

$$\begin{aligned}
 GVO_{mp} &= IC + PFCE + GFCE + GFCF + CIS \\
 &\quad + \textit{acquisition less disposal of valuables} \\
 &\quad + X - M \text{ [discussed earlier]} \\
 \Rightarrow GVO_{bp} + (t-s) \text{ on products} + M \\
 &= IC + PFCE + GFCE + GFCF + CIS \\
 &\quad + \textit{acquisition less disposal of valuables} + X
 \end{aligned}$$

Goods and Services Account	
Resources	Uses
Output, basic prices	Intermediate consumption
Taxes <i>less</i> subsidies on products	<u>Final Consumption expnd:</u>
Imports of goods & services	Households & NPISHs
	<u>Gross Capital Formation</u>
	GFCF
	Changes in Inventories
	Acquisition less disposal of valuables
	Exports of goods & services
Total supply	Total use

Transaction Accounts

All the accounts of the SNA, except *Balance Sheets* and the *Other Changes in Assets Accounts*, are constituted of the values of items representing transactions.

This set of accounts is also described as “transaction accounts”.

The transactions are linked to the basic economic activities of production, income generation and distribution, consumption and capital formation.

Integrated Transaction Accounts of 2008 SNA – in Brief		
	Uses / changes in assets	Resources / changes in liability & net worth
Production Account	Intermediate Consumption (P.2) GVA / GDP (B.1)	Output (P.1), of which: Market output (P.11); Output for own final use (P.12) and 'Other' non-market output (P.13). (Taxes-subsidies) on products & imports (D.21 – D.31)
Generation of income Account	Compensation of employees (D.1) (Taxes – subsidies) on production & imports (D.2 – D.3) Mixed income (B.3) + Operating surplus (B.2)	GVA / GDP (B.1)
Primary Distribution of Income	Property Income (D.4) Gross National Income (B.5)	Mixed income (B.3) + Operating surplus (B.2) Compensation of employees (D.1) (Taxes – subsidies) on production & imports (D.2– D.3) Property Income (D.4)
Secondary Distribution of Income	Taxes on income & wealth payable (D.5) Social contributions & other social benefits payable (D.6) Other current transfers payable (D.7) Gross Disposable income (B.6)	Gross National Income (B.5) Taxes on income & wealth receivable (D.5) Social contributions & other social benefits receivable (D.6) Other current transfers receivable (D.7)
Use of Income Account	Final Consumption Expenditure (P.3), of which: Household FCE; Government & NPISHs FCE Adjustments for hhds' pension funds (D.8) Gross Savings (B.8)	Gross Disposable income (B.6) Adjustments for hhds' pension funds (D.8)
Capital Account	Gross Fixed Capital Formation (P.51) Change in Inventories (P.52) Acquisition less disposal of valuables (P.53) Acquisition less disposal of non-produced non-financial assets (K.2) <u>Minus</u> CFC (K.1) Net lending / borrowing (B.9)	Gross Savings (B.8) Capital transfers receivable <i>minus</i> capital transfers payable (D.9)
Financial Account	Net acquisition of financial assets (F.1 to F.7) Net lending / borrowing (B.9)	Net lending / borrowing (B.9) Net incurrence of liabilities (F.2 to F.7)

The main aggregates of interest are *gross domestic product* (GDP) and its components, *gross national income* (GNI), *gross disposable income*, final consumption expenditures and capital

formation. Some these aggregates are derived as balancing items in the sequence of accounts. Thus, it is sufficient to estimate the other aggregates to compile the full sequence of transaction accounts.

Production Account

- Provides *Value added* – ‘gross’ and ‘net’ basis
- This is compiled for each institutional sector. For entire economy, the balancing item is GDP / NDP – sum of GVA / NVA for each sector.
- Estimates of industry breakdown of GDP and its components are traditionally provided by the NSOs.
- The data required for compiling the industry-wise production account can be obtained from SUTs.

Uses	Resources
Intermediate consumption	Output
Gross Value Added/ GDP	

to Generation of Income

Income Accounts

There are three main income accounts viz.

- Generation of Income account
- Allocation of Primary Income
- Secondary Distribution of Income.

In addition, there are

- The Entrepreneurial Income Account
- The Redistribution of Income in Kind Account

Generation of Income Account

- This gives the *primary incomes* that originate from the production process.
- *Primary income* accrues to units from their involvement in production or ownership of assets used for production.
- The GVA (on the resource side) is used to meet the charges to
 - Government – taxes less subsidies on production
 - Employed labor – compensation of employees.
- The balancing item is *operating surplus / mixed income*.

from Production Account

Uses	Resources
Compensation	Gross value added/ GDP
Taxes on production and imports	
less subsidies	
Gross operating surplus	
Consumption of fixed capital	
Net operating surplus	
Mixed income	

to Allocation of Primary Income Account

Allocation of Primary Income Account

Also called Primary Distribution of Income Account records distribution of primary income – called *property income* - to the owners of

- Financial assets
- Land & subsoil assets.

Flows of property income are resources for some sectors and uses for others. Thus they appear on both sides of the account. At one end of some of these transactions there could ‘use’ or ‘resources’ of non-resident units. The system therefore provides for a separate set of accounts for ‘rest of the world’.

Note that CE is recorded in both Generation and Allocation of Income accounts. Generation of Income account records CE paid to residents and non-resident households. Allocation of Income account records CE receivable by the resident household sector.

For the total economy the balancing item of this account is *gross/ net national income*. Recall that, *GNI*

= Income generated within the economy (GDP_{mp}) + *net primary income receivable from the RoW*.

= CE paid by domestic enterprises

+ OS & MI generated in the domestic economy

+ product (t-s) + (t-s) on imports

+ CE from RoW (net) + PI from RoW (net).

Uses	Resources
	from Generation of Income Account
	↓
	Gross operating surplus
	Mixed income
Compensation to ROW	Compensation (including from ROW)
Property Income payable	Property Income receivable
	Taxes on production and imports
	<i>less</i> subsidies
Balance of Primary Income (GNI)	
	to Secondary Distribution of Income Account
	↓

Secondary Distribution of Income Account

This shows how the national income is transformed into *disposable income*.

- This records the receipts and payments of current transfers – including those from / to RoW.
- Current transfers also include taxes income, wealth etc., as well as social contributions and benefits.
- These are resources for some sector and uses for others.
- Thus they appear on the both sides of the account.
- There are current transfers made both within the country and across the border.

This account is founded the identity:

Gross Disposable Income

= GNI + Taxes on income & wealth receivable by the government

- Taxes on income & wealth payable to RoW
- + net current transfers receivable from RoW.

Gross Disposable Income (GDI) is the balancing item of this account.

Uses	Resources
Current transfers payable	Balance of Primary Income (GNI)
	Current transfers receivable
Gross National Disposable Income (GNDI)	

from Allocation of Primary Income Account

to Use of Disposable Income Account

Use of Disposable Income Account

This shows how

- national disposable income is allocated between final consumption and savings
- households, government units and NPISHs allocate their disposable income between final consumption and savings.

Note that the financial and non-financial sector have no final consumption expenditure. Thus for them,

net disposable income = net savings

(but for adjustments made for pension funds).

This Account is based on the identity:

$$\text{Gross Savings} = \text{disposable income} \text{ minus } (\text{PFCE} + \text{GFCE})$$

Gross (or net) savings is balancing item of this account.

Uses	Resources
Final consumption expenditure	Gross National Disposable Income (GNDI)
Change in pension entitlements	Change in pension entitlements
Gross Saving	
Consumption of fixed capital	
Net saving	

from Secondary Distribution of Income Account

to Capital Account

Accumulation Accounts

Capital Account

This records transactions – acquisitions and disposals – of non-financial assets and Capital transfers.

It is founded on the identity [discussed earlier]:

$$\begin{aligned} & \text{Gross Savings} + (\text{net}) \text{ Capital transfer receivable} \\ & = \text{Capital Formation} + \text{acquisition less disposal of valuables and non-produced non-financial} \\ & \text{assets} + \text{net lending (to RoW)} \end{aligned}$$

Changes in net worth due to saving and capital transfer is not a balancing item, but forms an important entry in the Balance Sheet. In the Capital account, if *Changes in net worth due to saving and capital transfer* > *net acquisition of non-financial assets*, then *net lending* (to RoW) > 0, i.e. economy is in surplus. On the other hand, if *Changes in net worth due to saving and capital transfer* < *net acquisition of non-financial assets*, then *net borrowing* (from RoW) > 0, i.e. economy is in deficit.

from Use of Disposable Income	
Changes in assets	Changes in liabilities and net worth
Gross fixed capital formation Consumption of fixed capital Net fixed capital formation	Gross saving Capital transfers received net of capital transfer paid
Changes in inventories Valuables Non-produced non-financial assets (‘contracts, leases & licenses’ and ‘goodwill & marketing assets’ only)	<i>Changes in net worth due to saving and capital transfer</i>
Net lending(+)/net borrowing(-)	

Financial Account

This is different from other accounts – it reflects inflows/ outflows of financial assets. This shows how the economy undertakes *lending* or *borrowing* thru transactions in financial assets and liabilities. Note that financial account is not really a regular account giving rise to a new balancing item; it has the same balancing item (net lending/net borrowing) as that of the capital account. It just presents the account of changes in financial assets and changes in the financial liabilities.

The entries of acquisition of assets and liabilities are classified by a number of financial instruments which the users are interested in like – Monetary gold and SDRs, Net acquisition of financial assets, Monetary gold and SDRs, Currency and deposits, Securities other than shares, Loans, Insurance technical reserves and Other accounts payables.

Changes in assets	Changes in liabilities and net worth
Net acquisition of financial assets	Net lending(+)/net borrowing(-) Net incurrence of liabilities
Net lending(+)/net borrowing(-)	

Other Changes in Assets Accounts

This consists of two sub-accounts :

- *Other changes in Volume of Assets Account*
- *Revaluation Account*

The first includes changes brought about by events like discovery of new oil reserves, natural catastrophes etc. *Revaluation account* records holding gains and losses owing to price changes in the assets and liabilities during the accounting period.

Other Volume Change

Changes in assets	Changes in liabilities and net worth
Addition/reduction of non financial (produced and non-produced) and financial assets due to other changes in volume of assets	Addition/reduction due to other changes in volume of liabilities Change in net worth due to other changes in volume of assets

Revaluation Account

Changes in assets	Changes in liabilities and net worth
Addition/reduction of non financial and financial assets due to price change	Addition/reduction due to price change of financial liabilities Change in net worth due to price change (nominal, neutral and real holding gains/losses)

Balance Sheets

The Balance Sheet accounts comprise Opening Balance Sheet, Changes in Balance Sheet, and Closing Balance Sheet. Balance Sheet shows the stock of economic assets, both non-financial and financial assets on the left side and the stock of financial liabilities and net worth on the right side of the account. Closing Balance Sheet of an accounting period becomes the Opening Balance Sheet of the next accounting period. Closing Balance Sheet is obtained by adding the Changes in Balance Sheet to the Opening Balance Sheet.

The Balance sheets show the values of the stock of assets and liabilities of institutional units/ sectors/ economy at the beginning and end of an accounting period. They show

- the type of assets owned and
- the structure of debt and other liabilities.
- *Net worth* of the economy = total stock of assets *minus* total stock of liabilities.
- The values of the assets and liabilities change with every transaction or change in price or other changes affecting the volume of assets or liabilities.
- These changes are recorded in the transaction accounts and accumulation accounts.
- The change in the balance sheets between the opening and closing positions is explained fully by
 - transactions in capital / financial account (*changes in net worth due to saving and net capital transfers*) and
 - The other economic flows (*changes in net worth due to other changes in Volume of Assets and nominal holding gains / loss*).
- Change in net worth = *changes in net worth due to*
 - *saving and net capital transfers*
 - *other changes in Volume of Assets and*
 - *nominal holding gains / loss*.

Opening Balance Sheet

Asset	Liabilities and net worth
Non financial assets	Financial liabilities
Financial assets	Net worth

Changes in Balance Sheet

Net acquisition of assets	Net lending and addition to net worth
Change in value of non financial assets	Change in financial liabilities
Change in value of financial assets	Change in net worth
	Due to transaction
	Volume change
	Holding gain

Closing Balance Sheet

Asset	Liabilities and net worth
Non financial assets	Financial liabilities
Financial assets	Net worth

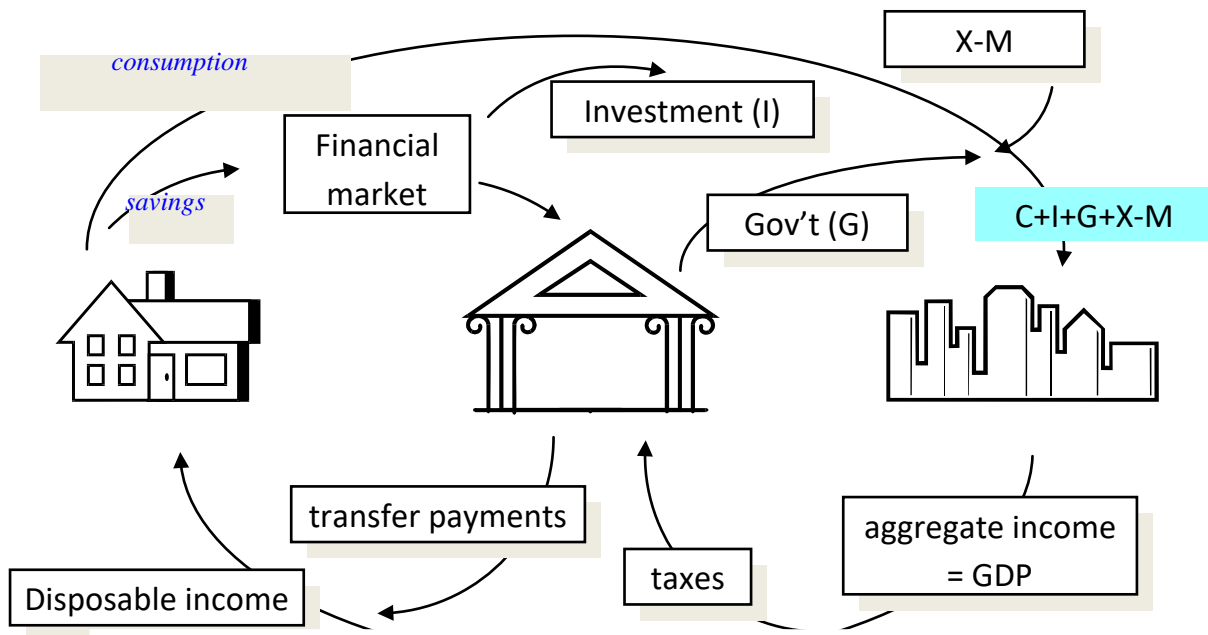


Figure 2:
Circular Flow of Money an Exchange Economy

