# 2.0 Overview of economic statistics (Module 2)

**Objective**: This module provides a brief overview of the economy and the statistical system that we use to measure the activities in the economy. The focus is on what are macroeconomic statistics, why we need them. The SNA provides a framework for viewing the economy. This module provides an overview of the major concepts, definitions, and guidelines that we use. Major focus of economic planners on GDP and inflation, as is ours in this set of training notes. Core concepts such as residence/economic territory, institutional units and groupings (classifications) into industries and institutional sectors, production/consumption/accumulation, transactions/supply- use/distribution/, accounting rules (time of recording, valuation, double and quadruple accounting), boundaries of production, consumption, assets , formal and informal, non-observed economy and others are covered. Material is also presented in power-point slide form .The notes below give specific details of the slides.

**SLIDE 2 introduction**

This summarises the main points of the presentation.

In this module, we will discuss what an economy is and how we measure it statistically. We can look at individual company, household or person data (called unit record or micro-data) or we can aggregate data from individuals into meaningful groupings, for example, at industry or economy level (called macro-economic statistics).

Notes for the trainer:

1. when group information about data is produced (such as data on frequencies or averages), this is described as macro-data.
2. between micro- and macro- level data, there are also meso-data, referring to data on groups of agents, such as data about commercial companies or groups of individuals as sub-population level.

The SDGs have a macro-economic statistics component and we want to ensure that as part of our system of statistics, we can provide some appropriate indicators of progress towards the goals.

We need a framework to shape and regulate the production of statistics about economies. We want to aggregate the microdata in ways that give us meaningful and manageable statistics. We do this by grouping together things with similar characteristics and keeping separate those with differing characteristics. For example, in industry statistics we group together industries with similar production functions and separate those that are different (compare for example mining and quarrying with manufacture of chemical products or the production of transport services.

We use the *System of National Accounts 2008* (SNA) as the framework for measuring the economic activities that occur, and also to show the economy’s economic position – its stocks of assets and liabilities. The SNA provides the framework for us to put together robust, comprehensive, consistent, and integrated statistics that meet the need of a wide range of users.

It does this by providing a set of concepts, definitions, classifications, accounting rules and boundaries based on economic principles. These are the building blocks for producing statistics about the economy.

This module describes the major points of the overall SNA framework. Some of these are elaborated in the modules of this course (for example the development of estimates of gross domestic product (GDP) in modules 3, 4, 8 and 9), the development of supply-use tables (module 5) and the development and use of price indexes (modules 16 to 19). However, much of the full SNA is beyond the scope of this course, where we are focused on the skills and knowledge needed to produce these very useful economic variables. We also look at tools for grouping up micro-data, such as in module 10 about classifications and module 20 on statistical techniques).

We will also take a quick look at the links to the other macro-economic statistics datasets (external sector, government finance, monetary and finance, and prices statistics) and some uses of the statistics.

Useful reading: *2008 SNA* chapters 1 particularly and chapter 2

**SLIDE 3: An economy**

This is intended as a layman’s (non-SNA) description of an economy. It demonstrates the broad nature of the activities that occur and the entities that undertake them.

An economy has many activities taking place between many economic agents (or transactors or entities) – these may be individuals, households, businesses of all sorts, governments, non-profit organisations and so on.

DRAW a picture of this and leave in view.

**SLIDE 4: Measuring an economy**

This slide explains in non-SNA language that we want to understand and measure what is happening in the economy.

As statisticians we want to collect information about the economy and organise it in such a way as to make a meaningful picture (or story) about what is happening in the economy. A single snapshot tells us some things, but in order to get a more complete idea of what is happening in the economy, we need to produce a series of pictures to show how things change over time – we call this a time series.

To provide a reliable or robust time series we need to ensure that we are consistent in how and what we measure each time we do so (in each period – usually a year or a quarter), and so we need a set of rules to help us do this.

The rules that we choose to use are those of the *System of National Accounts*, which provides a set of concepts, definitions, boundaries, classifications and accounting rules. We use these in all of our observations and measurements about the economy. This includes not only the gross domestic product (GDP) estimates, but other parts of the national accounts (GNI, GNDI, national savings etc), and other economic statistics including: price indexes; labour statistics (where, for example, we want to use the same industry groupings as we use for production-based GDP); external sector statistics (where we want to ensure we use the same definition of the economy and residence and ensure consistency with imports and exports of goods and services); and various of the data sources that we use.

**SLIDE 5: More formally** – **what is an economy?**

Macro-economics studies the behaviour and performance of a whole economy. It is concerned about how the various pieces of an economy interact and fit together.

An economy is a physical territory under the control of a government, along with the various entities that are resident in the territory – these may be individuals, businesses, government and other organisations. In an economy the various entities produce, distribute (or trade) and consume goods and services. We call these various entities economic agents, or transactors.

We say that entities are resident if their centre of economic interest is in the territory. This usually but not always means that they have a physical presence, and there are other criteria that we also use. The module on concepts, definitions and rules will cover this in more detail.

Refer to the diagram of the economy on the board.

These entities can also accumulate goods and services and other forms of wealth such as land, buildings or money in the bank. They carry out these activities using available resources – land and other natural resources, labour, man-made capital, entrepreneurial ability and other goods and services.

In later slides, you will see the definition of the national boundary, which describes what is included and what is not included in a particular economy, and thus defines the economy. In theory, all activities within this boundary are included – be they part of the formal or the informal[[1]](#footnote-1) economy, and whether or not they are legal (with the provision that illegal activities must take place between willing economic agents[[2]](#footnote-2)). In practice, it may not be possible (or you may choose not) to include all informal or all illegal activities. It is important that you tell people (in the metadata – the information about the data) what you do in practice.

FIRST REMINDER about documentation – you must document what is included in the economy (and how everything is classified, and what is left out and why, and any problems, and so on…) so that others know what you have done, and they do not repeat your investigations unnecessarily.

**SLIDES 6/7: Why measure?**

A lot of things happen all of the time in an economy – there is production, buying and selling of goods and services, inventories are increased and run down, there is retailing, transport of people and goods, people are working and receiving salaries and wages and buying goods and services, there is construction of buildings, exporting and importing of goods and services, the government is taxing things and providing services, and so on…

When we produce macro-economic statistics, we are describing what has taken place in the economy. We can describe the activities that take place during a particular period that create, transform, exchange, transfer or extinguish economic value (we call these *flows,* split into *transactions* and *other flows*), and we can also describe an economy at a particular point in time (we call these *stocks* – of *assets* (or things we own) and *liabilities*(what we owe)). This is discussed in more detail in SLIDES 27-29.

*Transactions* show how goods, services, assets and liabilities are exchanged between institutional units by mutual agreement. So for example the selling of a loaf of bread by the baker to a final consumer is a transaction between two economic agents – the baker and the final consumer. There is another related transaction – the consumer of the bread pays money to the baker. If we are measuring everything about the economy, we measure both of these transactions. If we are just measuring gross domestic product, or GDP, we just measure the first transaction.

If the final consumer does not pay in cash, but instead the final consumer provides shoes for the baker’s daughter, this is the activity of barter – two transactions that we want to measure.

*Gifts* are also transactions – so for example if one government provides emergency aid in the form of food to another economy, this is a transaction.

*Other flows* are things that happen that change the total assets or liabilities of an economy but do not involve two economic entities. Examples include the loss of buildings in an earthquake or a flood, or the loss of a ship at sea, or when one economic agents takes something from another without agreement – such as if one country takes land from another.

Comprehensively measuring both the flows (during a period) and stocks (at the beginning and end of a period) will go a long way towards meeting the demand for robust statistics for informed decision making and also for monitoring and evaluating outcomes.

The users of the statistics want to do a variety of things, including monitoring the performance of the economy over time – possibly at a very aggregated level (through the use of the growth in GDP in volume or constant price terms, the GDP deflator and the CPI – these are basic indicators of economic performance),

*but* possibly at a more disaggregated level for various different activities (industries, as in production-based GDP) or through the expenditure components of household consumption, consumption by government, gross fixed capital formation and changes in inventory (as in expenditure-based GDP). They may be interested in the size of salaries and wages compared to the operating surplus of businesses.

These are all of interest to government policy makers, and to those who monitor and evaluate government policy performance. There are also economic observers, domestic and international, as well as aid agencies from other countries, who are interested in these things

Businesses want to make informed rational decisions about their activities, for example should they expand their business by increasing current activity, should they move into new areas of the economy, how does their cost structure with that of the total of all similar businesses, and so on. This information is needed in a regular and timely manner.

**SLIDE 7: What do we do?**

When we produce macro-economic statistics, we are describing what has taken place in the economy. There are many economic agents making economic decisions resulting in transactions, which may be related to production, consumption, or accumulation (and in turn, lead to the accumulation of assets and liabilities). As statisticians, we want to measure this. We want to package up all of this economic activity in a way that provides useful information about the activities to those who want the information. We aim to provide a comprehensive picture (or tell a comprehensive story) about the economy.

We do this by grouping together those entities that are similar in their behaviour and objectives, and separating those entities with very different motivations and objectives. For example, a government entity which exists to put into practice government policy objectives has very different objective than those of a profit-motivated private sector company manufacturing machinery. We also group together transactions and activities that are similar and keep separate those that are very different. So we differentiate the different types of activities, for example provision of transport services from retailing and from manufacturing. We have a system of classifications that allows us to do this. There is a separate module on classifications, which are an important tool in helping us to manage all of the economic information and present it in meaningful ways.

**SLIDE 8: Sustainable Development Goals (SDGs)**

Before we look at the SNA in a bit more detail, we will talk about two initiatives that help guide us when we decide which parts of the statistical system to focus on.

The sustainable development goals, or SDGs, have replaced and extended the millennium development goals (MDGs). While the MDGs were focused on developing nations, the SDGs are intended for implementation by all nations and have a much broader scope.

Sustainable development encompasses the idea that development meets the needs of the present without compromising the ability of future generations to meet their own needs. This may be seen in terms of three interdependent pillars – economic development and growth, social inclusion and environmental protection – and applies at local, national, regional and global levels.

There are 17 SDGs; they interconnect, which means that success for one goal affects success for others. For example, increasing pharmaceutical production for improved health may lead to the degradation or depletion of natural resources such as clean water. Similarly, increasing employment and wages can work against reducing the cost of living. There are targets for each goal and a total of 232 indicators for the monitoring of progress toward these goals. Governments may also develop their own national indicators.

The goals are also universal – they are relevant for all countries in the world.

In September 2015, member countries of the United Nations adopted the 2030 Development Agenda, which includes the SDGs and their targets, and so are committed to working towards these goals. The last of the goals is to ‘*strengthen the means of implementation and revitalise the global partnership for sustainable development*’. This means that countries and organisations have committed to working together co-operatively to achieve goals 1 to 16. They need to develop indicators to measure progress towards the goals.

Information about the SDGs, and their targets and indicators may be found at the website of the UN Statistics Division <https://unstats.un.org>.

**SLIDE 9: The Core Set of Economic Statistics**

ESCAP aims to assist member countries to improve the soundness of their economic analysis and related decision making through the increased availability and effective use of timely, reliable and comparable economic statistics. The Core Set of Economic Statistics describes a minimum set of economic statistics that countries should be able to produce by 2020; countries may prioritise their statistics development within this framework.

The stronger the statistical evidence that we have, the better the policy decisions that can be made. ESCAP supports statistical development of the Core Set (and ultimately beyond it) through its Regional Programme of Economic Statistics (RPES) in the member countries. RPES allows countries to share expertise and resources. Alongside this, ESCAP has also defined a set of skills that statisticians need in order to produce the core set.

Refer to slide for website reference.

**SLIDE 10: What is included in the Core Set?**

The components in the core set are listed in the slide.

**Prices and costs** comprises:

* consumer, producer and product price indexes for the analysis of price changes;
* average and unit labour costs and earnings/wages;
* terms of trade; and
* exchange rates/purchasing power parities.

In this course, there are modules that focus on the development and compilation of CPIs, PPIs and there is a discussion in later module on terms of trade.

**Demand and output** comprises:

* GDP production and expenditure accounts in current and constant prices (or value and volume terms);
* external trade; industrial structure statistics;
* short term indicators (industry output and demand); and
* productivity

In this course, we focus on the estimation of production- and expenditure-based GDP estimates in value and volume terms, along with supply and use tables, and the index of industrial production.

**Income and wealth** comprises:

* national accounts for the economy and by sector to measure income, savings, investment, accumulation and wealth;
* balance of payments to measure international income and financial flows; and
* international investment position and external debt.

In this course, we will talk about how gross national income (GNI), gross national disposable income (GNDI), and national savings may be derived. Later in this module we will look at the full sequence of accounts as part of the SNA framework, but there are no modules on data collection and compilation for the parts of the system beyond GDP.

Development and compilation of external sector statistics (external trade statistics, balance of payments statistics, external debt statistics and international investment position statistics) are not covered in depth in this course, although they are described in the module on data sources. Information may be found in *the International Merchandise Trade Statistics Concepts and Definitions* and *Compilers Manual, Balance of Payments and International investment Position Manual sixth edition* (BPM6) and *External Debt Statistics: Guide for Compilers and Users (2013).*

**Money and banking** comprises:

* assets and liabilities of the banking sector;
* monetary measures; and
* interest rates.

Development and compilation of monetary and financial statistics are not covered in this course, although they are described in the module on data sources. Information may be found in the *Monetary and Financial Statistics Manual and Compilation Guide 2016*.

**Government** comprises:

* revenue and expenditure; and borrowing and lending; and
* is based on the SNA and/or Government Finance Statistics.

Development and compilation of statistics about the various levels of government are not covered in this course, although they are described in the module on data sources. More information may be found in the *Government Finance Statistics Manual 2014*.

**Labour market** comprises:

* labour supply and demand;
* characteristics of the labour force;
* employment
* unemployment
* underemployment
* hours worked
* employment in the formal/informal sector;
* job creation; and
* job vacancies.

Development and compilation of labour market statistics are not covered in this course, although they are described in the module on data sources.

**Natural resources and environment** comprises:

measures of sustainable economic growth; and

discovery, depletion and degradation of natural resources.

There is a module in this course that gives an overview of the Framework for the Development of Environmental Statistics, or FDES, which was completed in 2013. It defines the scope of environmental statistics and provides a structure to guide the collection and compilation of environment statistics at the national level.

Altogether the Core Set describes a set of statistics that, if produced in a robust and timely manner, will provide a country with statistics for informed policy and decision making, monitoring and evaluation. We will be studying a subset of these in this course.

Note that the SNA provides the basic framework – the concepts, definitions and so on – that are used in all of these statistics.

Refer to slide for website reference.

**SLIDE11: Skill domains for statisticians**

Statisticians require a set of skills to develop the Core Set of Statistics. This course provides training in the development of some of the skills needed – in particular this course is focused on national accounts and prices and the skills needed to produce GDP in value and volume terms and the relevant price indexes needed to provide information about the performance of the economy.

Refer to slide for website reference.

**SLIDE 12: GDP and more**

We are now going to look at the System of National Accounts as a framework. But first:

GDP in value and volume terms are central statistics in an economy. They tell us, in very summarised form, about the size of an economy (value GDP) and about the growth rate of the economy (changes in volume GDP). From these we derive an important price measure – the GDP deflator, which tells us about the general level of price changes in an economy. The other important summary price statistic is of course the CPI.

But there is much more to the national accounts – from detailed GDP estimates we can see production by industry or by institutional sector, or the demand from the various sectors of the economy. We show how incomes are generated and how they are distributed and redistributed. We show where the economy’s savings arise, and what happens to the savings. We can see how an economy borrows to meet shortfalls in savings. We can further see how the size and structure of the economy’s assets and liabilities change over time.

And the CPI is a central statistic about price changes is an economy, as is the GDP deflator.

The following slides introduce the SNA framework in its entirety, even though for many economies, the focus remains on how to best estimate GDP.

**SLIDE 13:The System of National Accounts**

The SNA framework allows us to describe how an economy functions. It describes production, consumption, income, expenditure, accumulation and wealth.

The definition on the slide is drawn from the 2008 SNA. READ through this.

This framework is internationally agreed as the appropriate framework for economies/countries to use to produce macro-economic statistics.

The standards/recommendations provide a framework within which we can organise and condense a great amount of information in a way that can be understood by both compilers and users in a wide range of uses.

The SNA includes the measure of GDP; changes in GDP in volume terms, or ‘growth’ is probably the most frequently used economic indicator. The SNA has much, much more.

Countries cannot hope to implement the whole SNA at once. Priorities differ from country to country, but begin with production- (by industry) and expenditure-based GDP, value and volume, then quarterly estimates, GDP by sector (and subsector if this is important), then capital and financial accounts and so on.

Data sources, collection methods and estimation procedures also differ among countries. Statisticians are guided by focusing appropriately on the larger and more quickly growing or declining parts of the economy. They are also guided by the statistical needs of users. It is very important to know the users, and to know what they use the statistics for.

In this course we will not be looking at the full set of accounts in detail, but we will look at an overview of the full system.

**SLIDE 14: SNA general principles**

These three principles are very important in ensuring that the resulting statistics are sufficiently robust that users might rely upon them.

*Comprehensiveness* means that whatever we have agreed should be covered in our statistics is indeed included. Depending on the data sources, this may require adjustments to the estimates for under-reporting, over-reporting and mis-reporting. So in theory the whole economy is covered – the legal/market economy, non-market activity, and also the illegal and informal parts of the economy.

*Consistency* is about ensuring all of the parts of a single transaction are recorded in the same way. The SNA has consistency in the concepts, definitions, and accounting rules. In practice this may not be the case as there may be different data sources or the data sources may be incomplete. For example:

A manufacturer produces a piece of equipment and sells it. We measure this production in the goods and services account.

Assuming the manufacturer sells the piece of equipment to another producer, then the other side of the sale transaction is gross fixed capital formation. (It may also be exported or if not sold, it will become part of the manufacturer’s inventory of finished goods.) If the sale is for cash, we also see the cash balances of the buyer decrease and the cash balance of the seller increase. These latter transactions are shown in the financial account. More about this later. Similarly, if the buyer borrows to make the purchase, we would see the buyer’s liabilities increase and the sellers cash balances increase. The point is that all of these transactions should be exactly the same value, but in practice may not be. And in many cases, the financial account transactions may not be measured at all.

**And an important note** about consistency: consistency is important not only in measuring transactions to give balanced accounts (so there is consistency within the national accounts dataset). It also ensures that the statistics are consistent over time, between macro-economic statistics datasets (for example the external sector statistics) because all of the macro-economic data sets use the same concepts, definitions, classifications and accounting rules.

*Integrated* statistics means that all of the consequences of a single action are captured in a way that ensures the system of accounts is closed, or balanced. Everything fits together. We will look at the whole integrated system a little later.

DON’T FORGET TO DOCUMENT!

**SLIDE 15: Information identified in the accounts**

SNA addresses a whole range of questions about the economy

* Who? are the players/transactors? They are establishments grouped into industries (for production, generation of income), institutional units grouped into sectors
* Does what? And in exchange for what? The three economic activities – production, consumption, accumulation (shown as transactions and other flows)
* Concerning what? Products (goods and services) and assets/liabilities
* With whom? Counterpart transactors. There are usually two transactors for each transaction (such as a seller and a buyer).
* For what purposes? What is the function or purpose? Production, consumption…
* When? Time of recording is important. We want to measure all parts of a transaction at the same value at the same time.
* How to measure? Market value, but we have several pricing levels. Do we want to measure values, volumes, both?
* How does this affect the stocks of non-financial assets and financial assets and liabilities of the economy? Transactions modify levels of assets and liabilities.

Note that not all transactions in the system involve production – for example the use of cash balances to buy shares is the exchange of one asset for another. Another example is the provision of aid in kind or in cash by another government. We also show how income is allocated, redistributed and used – not directly involving production.

**SLIDE 16 : Main structure**

The accounts in the SNA are structured to show

1. the production of goods and services – shows the transactions in goods and services
2. the current accounts of the system – show how income is generated, allocated, redistributed and used
3. the accumulation accounts – balance is net lending/borrowing of the economy
4. the balance sheets – show the real and financial assets and the financial liabilities of the economy

The full sequence of accounts can be found in Annex 2 of the 2008 SNA.

This is the flow of the accounts (below) in more detail PUT ON BOARD, and the balancing items that are derived from these. The shaded accounts at the right of the current account picture show an alternative presentation of the redistribution and use of disposable income accounts. We will not be looking at this during the course – they are here for completeness.

Also beyond the scope of this course are the institutional sector accounts – all of the accounts and the balance sheets can be produced by institutional sector. This includes the production account, although mostly we tend to focus on production by industry.

This course does not look at most of the accounts – we focus on the production account (for production-based GDP), and will also look at the use of disposable income account and the capital account (for expenditure-based GDP).

**SLIDE 17: The goods and services account**

Goods and services produced in the economy must be consumed, used for capital formation or exported while all goods and services used within the economy must be produced in the economy or imported. From this, once suitable allowance is made for the effect on prices of taxes and subsidies on products, the goods and services account is derived and thence GDP.

|  |  |
| --- | --- |
| uses | resources |
| intermediate consumption | output |
| final consumption expenditure | imports of goods and services |
| gross capital formation |  |
| gross fixed capital formation | taxes on products |
| changes in inventories | *less* subsidies on products |
| acquisitions less disposals of valuables |  |
| exports of goods and services |  |

Resources add to the amount of economic value, uses reduce the amount of economic value available to institutional units.

Taxes on products (less subsidies) are included on the resource side of the account. The coverage of this item varies according to the way output is valued (basic or producers’ prices). The part (possibly the total) of taxes on products (less subsidies on products) that is not included in the value of output does not originate in any specific sector or industry; it is a resource of the total economy.

We can rearrange this to show the familiar identity: **GDP is identically equal to expenditure on GDP** DEMONSTRATE ON BOARD

**SLIDE 18: Three approaches for measuring GDP**

The production account shows how GDP is estimated using the identity:

output less intermediate consumption is equal to value added

This applies to individual economic entities and to groups of entities.

Depending on the pricing level at which output is valued, we make an adjustment for taxes and subsidies on products to give gross domestic product for the whole economy. These various pricing levels are mentioned in a later slide, and will be discussed in more detail in the module about *production-based GDP* (Module3).

*Expenditure-based GDP* measures GDP from the perspective of how output is used.

By adjusting the items in the goods and services account we showed the identity GDP is identically equal to expenditure on GDP (see above).

The expenditure approach, and the components of expenditure-based GDP will be further explored in Module 4.

*GDP may also be measured as the incomes* arising from production – it looks at the ‘returns to the factors of production’, that is to land and other natural resources, labour, man-made capital, and enterprise (sometimes called entrepreneurship).

In this approach, GDP is the sum of the earnings of these factors of production. The return to labour is called compensation of employees; the return to capital is called consumption of fixed capital; and the return for enterprise is operating surplus/mixed income. In addition, we include (for the whole economy) the taxes less subsidies levied on production (which can be seen as the government’s share). The sum of these is also GDP.

Note that if we do not include an estimate for consumption of fixed capital, we have a measure called net domestic product (NDP).

The return to resource owners for the use of their resources is called rent. This is not separately identified as part of GDP. Where owners pay rent, it is paid out of the operating surplus/mixed income that they earn and is shown in the primary income account.

These three approaches to measuring GDP will be discussed further in Module 5 which is concerned with supply and use tables.

A wide assortment of data sources is used for estimating GDP/NDP from these three approaches. Because the data sources do not perfectly measure the national accounts concepts, and because we do not gather information about every entity in the economy, there will be imbalances among these estimates.

Modules 5 introduces the supply and use tables (SUT). Balanced SUT give balanced estimates of GDP. If an SUT is not possible, or if data sources are too weak, module 6 explores further the imbalances among the estimates.

**SLIDE 19: Accounts of the system**

Refocusing back to the accounts of the system (slide 16), these measure:

*Production* is the process in which labour and assets are used to transform inputs of goods and services into outputs of other goods and services. These goods and services are provided to households, businesses and other organisations, government, and the rest of the world. They may be for current consumption or capital formation.

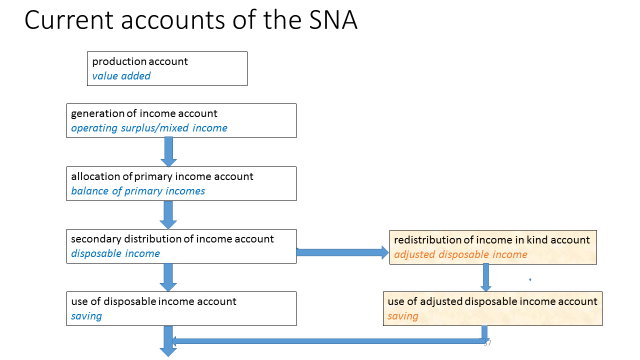
*Consumption* is the use of goods and services to provide for immediate needs (final consumption) or as inputs into the production and supply of goods and services in the future (intermediate consumption, capital formation).

*Accumulation* is the process of retaining goods, services and assets for future use OR incurring liabilities.

Our focus is on production, consumption and capital formation. We need to determine more clearly what units we are including in our statistics. So we define the national boundary and the units that are resident in the economy. Following this we will define the production and consumption activities that are included, as well as the assets and liabilities.

We see the current accounts in the next slide.

**SLIDE 20: Current Accounts**



Each account is a T-account (coming in a minute), showing the resources of the economic unit or sector on the RHS and the uses on the LHS. Each account has a balancing item (resources less uses) shown on the LHS and carried through to the next account. The goods and services account on slide 17 in an example of a T-account.

The *production account* shows how output arises from the use of goods and services (also called intermediate inputs), labour and capital. Value added (VA) is calculated as output less intermediate inputs and is the balancing item in the production account. VA is carried forward to the generation of income account as a resource.

The generation of income account then shows how value added is allocated to compensation of employees and taxes less subsidies on production (that is, taxes payable and subsidies receivable on goods or services relating to production such as those payable on labour, machinery, building or other assets used in production, but not taxes and subsidies relating to per unit output. Operating surplus/mixed income as the residual carried forward to the allocation of primary income account.

And so on. All of the accounts of the system have a similar format, with resources on the right and uses on the left, and each allows for the derivation of a *balancing item*, which is carried forward on the opposite side in the next account. All of the balances can be shown gross or net of consumption of fixed capital.

The process of distribution and redistribution of income is so important that the SNA distinguishes various steps in the process and shows them in separate accounts, thus identifying the balancing items that are useful, meaningful concepts of income.

The shaded accounts show an alternative presentation of the derivation of saving when we use an adjusted definition of household consumption.

How does this relate to what we do in practice when compiling GDP and expenditure on GDP?

The production account in its most simple form looks like**: PUT ON BOARD AND LEAVE UNTIL SLIDE 23 AS AN EXAMPLE OF A T-ACCOUNT**

|  |  |
| --- | --- |
| **uses** | **resources** |
| intermediate consumption | output |
|  |  |
| gross value added |  |
|  |  |
| less consumption of fixed capital |  |
| equals net value added |  |

From this we can derive: output less intermediate consumption equals value added. When appropriately adjusted for the taxes and subsidies on products that are not included in the value of output, we have, for the whole economy:

output plus taxes on products less subsidies on products

less intermediate consumption

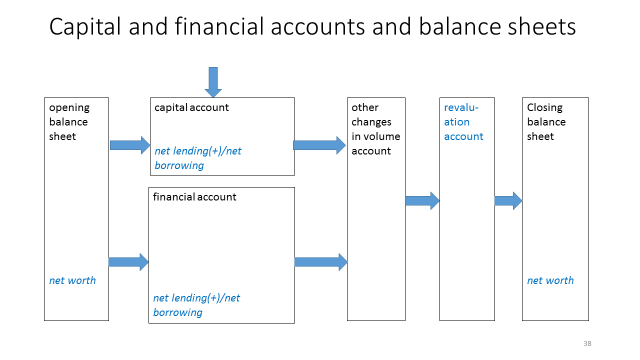
equals GDP.

NOTE: this is a standard presentation with uses and resources as the headings. Resources are transactions adding to the amount of economic value of an economic unit or sector, or of the economy (for example, wages are a resource for the unit or sector that receives them), shown on the right hand side of the T-account; while uses are reductions to the amount of economic value of an economic unit or sector.

The production account records the activity of producing goods and services. The balancing item, *gross value added*, is defined as the value of output less the value of intermediate consumption. It measures the contribution to GDP made by an individual producer, industry or sector. Gross value added is the source from which the primary incomes of the SNA are generated and is therefore carried forward into the primary distribution of income account.

Value added and GDP may also be measured net by deducting consumption of fixed capital, a figure representing the decline in value during the period of the fixed capital used in a production process.

For expenditure-based GDP estimates, we are estimating items (as in the goods and services accounts) that are also in the use of income account and the capital account. There is a separate module on expenditure-based GDP estimates.

**SLIDE21:** 

Savings is the balancing item from the current accounts (coming in at the top of the capital account box). It is one of the ways that we finance capital formation, we show this, along with other forms of financing, in the capital account, as well as the accumulation of capital.

The balancing item is *net lending/borrowing*. In the full set of national accounts we separately develop the financial accounts, and the balance there is also *net lending/borrowing.*

Changes from the opening balance sheet to the closing balance sheet are accounted for by transactions in the capital account (for real (or non-financial) assets) and the financial account (for financial assets and liabilities), along with other changes in volume and revaluations (both of which may involve non-financial assets and financial assets and liabilities).

**SLIDE 22: The integrated accounts – a picture**

Presents a summary of the accounts of the system from the previous two slides. It is here to give the overall picture. To emphasise:

1. this is in theory a closed, balanced system
2. in practice a variety of measurement issues mean we introduce measurement errors
3. the transaction accounts flow from one to the next, with a number of balancing items

The boxes ringed in brown are where we have our focus.

Note: *integrated* means that we use common concepts, definitions and accounting rules throughout the system, so that in theory, the multiple transactions associated with an economic action are measured consistently.

This diagram is the summary of the SNA framework. Even though you are not compiling all of it, it is helpful for you to take a little time to ensure that you understand it (and the more detailed version in the notes above) and reproduce it in sketch format.

**SLIDE 23: SNA presentation**

This applies both to internal analysis and for publication.

We are producing time series – so providing the same picture for period after period after period (annual or quarterly). This means we can compare period to period. For example a single number, say 128 for GDP is not meaningful by itself. It has meaning when I say last period it was 122 (so positive growth) or maybe 131 (so negative growth).

Note that this is one reason why consistency in compilation is very important.

We present:

1. in monetary values – value (current price terms), volume (constant price) terms.

Current prices is the only way we have to combine diverse economic events – money is the common denominator in economic transaction.

Constant prices (usually in index form) remove the effects of changes in prices, allowing us to better understand the effect of price changes on growth.

1. as indexes – this makes it easier to see or describe changes over time. Useful where changes over time is the main focus.
2. as growth rates – percentage changes

A T-account is a two column presentation. The one above (SHOULD BE ON THE BOARD) for the production account is a T-account. We can produce more detail when using this format (for single or for multiple periods). It is useful for giving or gaining a more in-depth understanding of what is happening. In the SNA, the sequence of accounts is a series of T-accounts.

Again, resources are things that add to the economic value of the producers; uses subtract from the economic value of the producers.

Note, these presentation conventions apply to the production, income generation and income distribution and redistribution accounts.

Balancing items are accounting constructs of analytic interest – such as value added, GDP, GNI, balance of disposable income, saving.

Because this course does not cover the financial accounts and balance sheets, we will not look at the presentation of these.

The matrix format can be used to describe relationships in much more detail. For example, supply and use tables use the matrix format.

Table format is a common way to present numbers.

Graphs and other pictorial presentations are a great way to provide an overview of data. This can be very informative, but be careful, it can also be very misleading. Make sure the pictorial, whatever it is, is meaningful and adds something that isn’t provided by the other methods.

**SLIDE 24: National boundary**

We already, in an earlier slide, talked about what an economy is. Now to formalise and introduce the SNA concepts, definitions, and accounting rules in the next slides.

What do we include in our economy? And in our macro-economic statistics? This definition of the national boundary defines the residents of the economy. We want to clearly distinguish what is in our economy and include all of the economic activity of all of the residents consistently over time.

This slide defines the *residents o*f an economy by defining the national economy as all of the economic units that are resident in an *economic territory*. The economic territory is the area under the *effective control of a single government*. A *resident* is a unit with a centre of predominant economic activity/interest in the economic territory. We measure all of the production activities of resident units to obtain GDP.

While the SNA is our primary source of definitions (and residence is discussed in paragraphs 4.10 to 4.15), BPM6 provides a much more in-depth discussion of residents in chapter 4. The definition used in BPM6 is exactly the same as that used in the 2008 SNA.

All of the macro-economic datasets use this same definition – so the definition must be agreed by external sector statistics compilers in particular, but also monetary and financial statistics and government finance statistics should use this same definition. This consistency is important – it means all of the macroeconomic statistics are making their pictures of the same economy.

Related to the Rest of the World (anything outside the national boundary), there are two important considerations when measuring production:

1. all imports of goods and services must either be used (intermediate of final consumption, capital formation including increases in inventories) or exported; and
2. all exports of goods and services must either arise from domestic production or directly from imports.

Note that for production, we measure the production attributed to resident units, which may not be the same as all production taking place in the economic territory.

***MAYBE HELPFUL TO DRAW A PICTURE***

**SLIDES 25/26: Economic units**

What are these economic units within the national boundary and how do we recognise them? They are the fundamental decision-making units of the statistical system. (**SLIDE 24**)

These fundamental units are *institutional units*:

1. they are capable of engaging in the full range of economic activities and transactions with other economic units;
2. are capable of owning assets and incurring liabilities; and
3. are legally responsible for their own actions; so in other words
4. they are centres of decision making for all aspects of economic behaviour.

**SLIDE 25** They are grouped into *institutional sectors* on the basis of their principle functions and economic behaviour.

In the special cases of production and generation of income, we partition institutional units into *establishments, local units, and kind-of-activity units*, which are grouped into *industries* (or economic activities).

We need this special case of a more detailed and different grouping for homogeneous production units, so that we can have a more precise recording of the production process.

This is a good place to emphasise the importance of classification systems. We group together units that behave in similar ways and have similar motives and separate those with different motives and behaviours (for example we separate government from profit-making businesses).

In the case of industries, we group together units with similar cost structures and production techniques, and separate those that are different from one another. So for example, we separate businesses primarily engaged in transporting things from those engaged in retailing. At a more detailed level, we can differentiate businesses transporting goods from those transporting people. We might also differentiate those providing transport services by truck from those providing transport services by sea or by air.

IMPORTANT NOTE: as you make decisions on how to classify units, document your reasons (especially for the complicated ones).

**Move to SLIDE 26.**

We already talked about the definition (with slide 25)

For the most part, institutional units engage in economic activities and transactions with other units in their own right (through their own decision making). They are legally responsible for their own actions.

Institutional units may be:

legal entities or households (first level of distinction)

legal entities may be corporations, non-profit institutions, government units…

and we may further subdivide each of these.

The 2008 SNA has a very good diagram in chapter 4 (figure 4.1) has a decision tree that demonstrates how you might go about classifying institutional units to institutional sectors.

Again consistency among the macro-economic statistics systems is important – all should be treating the same units in the same way.

**SLIDE 27: Flows and stocks**

Reminder: the accounts of the SNA comprise all of the activities in a particular time period among the economic entities that are residents of an economy.

The definitions of flows and stocks are given on the slide. READ.

This measurement comprises the flows that take place during a period of time, and we also want to measure the stocks at particular points in time. These flows and stocks are inter-linked:

1. stocks result from the accumulation of previous transactions and other flows; and
2. stocks are changed by transactions and other flows in each period.

We can refer back to the diagram showing the picture of the integrated accounts (SLIDE 22) to indicate stocks and flows, then transactions and other flows.

**SLIDE 28: Transactions**

Read through the slide. Note the importance of the idea of mutual agreement. There are a wide range of transactions, and there are places for all of these in the accounts of the SNA.

While most transactions take place between institutional units, there are times when it is analytically useful to include transactions that take place within a unit. For example, an electricity supply company may have a unit that produces concrete poles for carrying electricity by wire. These poles are entirely for its own use in replacing existing poles and extending the electricity supply grid. We may decide it is most appropriate to measure (and classify) this activity separately as it is unlike the other activities of the electricity company (and of course because we can get separate data on the production). We would show the production, and the purchase by the electricity company of the output. This is called *production for own consumption.*

Note: transactions may be in monetary terms (they usually are), but it is not necessary that they are. Examples where there is no monetary value are barter transactions, or transfers such as aid-in-kind. If there is no monetary measure, we need to value the transactions.

**SLIDE 29: Other flows**

Other flows show how changes in assets (non-financial and financial) and liabilities change other than through transactions. These can arise through volume changes (recorded as *other changes in the volume of assets*) or through price changes (shown as *revaluations*). REFER BACK TO THE INTEGRATED ACCOUNTS DIAGRAM SLIDE 22.

Some actions may take place unilaterally by one party without the consent of the other party, and give rise to changes in the assets of different sectors of the economy. For example the government may seize the assets of a private sector company.

Other non-transaction changes may be due to non-economic actions. For example, a natural disaster may destroy real assets such as an earthquake destroying buildings, or a flood damaging land improvements. Another cause of the unilateral destruction of assets is war. These are examples of *other changes in the volume of assets*.

Examples of revaluations: changes in share prices or the price of bonds give rise to changes in the value of these assets. Changes in exchange rates affect the value of financial assets and liabilities that have their value expressed in foreign currencies.

**SLIDE 30: Accounting rules**

We’ve looked briefly at the sequence of accounts, transactors, flows and stocks, the national boundary, so now we need some rules for accounting for transactions – in particular for valuation and timing.

Consider the example of the sale of a good for cash DRAW ON BOARD:

We have a seller A and a buyer B. There is the exchange of the good for cash. So seller A will record in the books of account the sale of the good and the receipt of cash (an increase in cash holdings). These are the two activities from the perspective of seller A. Buyer B has received the good and paid with cash; again there are two things that happen – Buyer B obtains the good and Buyer B’s cash holdings will fall. Again there are two transactions. So a total of four actions are recorded. This is *quadruple accounting.*

If all four transactions are correctly (consistently) recorded, the system will be in balance. When we are focused just on production and expenditure, we do not measure all four actions – we (hopefully) will measure two – the sale and the purchase, that is, one transaction for each of Seller A and Buyer B. If we measure well, these two – one half of each transaction - will be equal. NOTE THAT if we are measuring the financial account transactions, the cash parts would be measured there.

The SNA recommends following the *accrual principle* of recording transactions – transactions should be measured at the time of change of ownership, which means at the time at which the buyer and seller record the transaction in their books of account. If we do this, transactions are recorded at the same time by both parties.

EXTEND the example: instead of paying cash, Seller A may offer 30 days credit to Buyer B. in this case, instead of cash being the other side of each transaction, there would be an increase in accounts receivable (an asset) for Seller A and an increase in accounts payable (a liability) for Buyer B. When the account is settled we would see one asset decrease (accounts receivable) and another increase (cash) for Seller A, and for Buyer B we would see one liability decrease (accounts payable) and one asset decrease (cash).

For *valuation*, again both parties should record the transaction at the same price, the *market price* which is the price that a willing buyer will pay a willing seller when the transaction takes place at ‘arm’s length’.

BUT

we have three pricing levels in the national accounts, related to the point at which we obtain the data:

*basic prices* – prices received by sellers before taxes on products are added and subsidies on products are subtracted;

*producers’ prices* equal basic prices plus taxes on products less subsidies on products (except for value-added type taxes); and

*purchasers’ prices* – the amount paid by purchasers excluding the deductible part of value-added type taxes and including any transport charges and other distribution costs paid by the purchaser in order that the purchaser can take delivery at the required time and place. We must be careful to correctly allocate transport and other distribution activities and correctly measure the taxes on subsidies on products (the adjustment for these is made at the level of the economy and will be further discussed in a later module).

**SLIDE 31: Boundaries**

Going back to the slide that looked at the current accounts of the system (SLIDE 19), we identified the three kinds of economic activities of production, consumption and accumulation, and we already noted that our focus in this course is on production, consumption and capital formation.

*Production* is the process in which labour and assets are used to transform inputs of goods and services into outputs of other goods and services. These goods and services are provided to households, businesses and other organisations, government, and the rest of the world. They may be for current consumption or capital formation.

*Consumption* is the use of goods and services to provide for immediate needs (final consumption) or as inputs into the production and supply of goods and services in the future (intermediate consumption, capital formation).

*Accumulation* is the process of retaining goods, services and assets for future use OR incurring liabilities.

Each of these has a boundary that allows us to determine what is included in and what is excluded from the statistics.

*Non-monetary transactions* may occur without the exchange of financial assets – examples are barter, transfers in kind, and transactions internal to an institutional unit that we choose to include (production for own consumption or capital formation). These goods and services are produced by activities that are not different from those used to produce goods for sale, and so are included in the accounts.

**A NOTE ABOUT IMPUTATION**: In the SNA, we do not impute transactions where none exist. We do however sometimes impute values for transactions that do not have a monetary value. A classic example is that we impute a value for the provision of financial services that are not directly charged for. This includes for example, imputing a value for the provider of foreign currency exchange services, or the provision of banking services that are not explicitly charges.

**SLIDE 32: Production boundary**

The production boundary defines what is included and what is excluded from production. The SNA includes all production that is destined for the market, whether for sale or for barter. It also includes all goods or services provided free to individual households or collectively to the community by government units or by non-profit institutions serving households.

Refer to the various points of the slide.

All goods produced by households either for own use or for sale or barter are included. Examples include agriculture production by household enterprises for own consumption, the production of other goods for own final use such as the production of foodstuffs and clothing or construction of dwellings.

Production of services for own consumption by households is generally excluded with the EXCEPTION of the rental services of owner-occupied dwellings, which is included.

The production of domestic and personal services by one household for another one is included.

NOTE that for goods, the production takes place before any decision is needed on who will consume. Whereas the recipient of the production of services is determined before the provision of the service takes place.

The production boundary is a compromise – we want to be able to analyse market-type behaviour in the analysis of the economy.

The production boundary determines what will and will not be included in measures of GDP and expenditure, and hence the amount of income generated by production. We need to ensure that we use the same definition of both. For example, if illegally brewed alcohol is included in household consumption, it must be included in production.

In theory, both legal and illegal activities are within scope (although it may not be possible to estimate illegal activities). The *illegal economy* may include both

1. production, distribution and consumption of goods and services which are forbidden by law
2. production of goods and services deliberately concealed from the public authorities for example to avoid taxes (also called underground activities)

*Informal activities* occur when the units engaged in the production of goods and services primarily to generate employment and income for the people concerned. These may require little or no capital or skills (such as street vendors) OR they may require investment and/or a level of expertise (for example car repair, tailoring).

The term *non-observed economy* refers to activities that are underground/hidden, informal or undertaken by households for their own use.

Both the formal economy and informal activities should be measured. The formal economy may be more easily covered using the main data sources, and it may be necessary to make separate estimates of the informal economy. This will be important in many cases where a lot of production and other activity takes place outside of the formal economy. It is also important because the growth rates in the two parts of the economy might be very different, as might the effects of government policy initiatives.

NOTE lack of coverage of the non-observed and informal economies (and illegal ones) will lead to misleading information:

1. on GDP levels
2. biased growth rates
3. misleading information on the structure of the economy
4. biased international comparisons
5. distortions in the internal consistency of the national accounts – for example production is not measured but consumption is measured.

**SLIDE 33:Consumption boundary**

The range of goods and services included in household consumption is determined by the production boundary:

1. a product cannot be consumed if it has not been produced (or imported)
2. everything that has been produced must be used, but is not necessarily household consumption (other uses are government final consumption, fixed capital formation, increases in inventories, and exports).

NOTE as an example, shoes provided by a shoe manufacturer to its employees, or free or subsidised housing provided to employees by an employer are considered to be part of their remuneration and also part of household consumption.

There are three possible measures of household consumption

1. what is paid for
2. what is acquired, either paid for or free of charge
3. what is used – products that are acquired in one period may be used over many periods (consumer durables) – for example a washing machine, a car – but are included in household consumption when purchased. For businesses, we measure the services of such item over the periods in which they are used, but for households we consider the purchase and use to take place at the same time.

**SLIDE 34: Asset boundary**

The balance sheets of the economy (and for institutional units and sectors) record the value of assets (real and financial) owned and the value of financial liabilities incurred.

What is an asset? (or a liability – the SNA uses ‘asset’ to cover both)

1. assets must be owned – there must be an entity or entities with rights of ownership;
2. these economic owners derive economic benefits from holding or using the assets over a period of time.

Included are financial assets and liabilities and real, fixed assets such as machinery, equipment and buildings, which have all been produced as outputs in the past are covered. Also mention the distinction of repairs and maintenance (intermediate consumption) vs major improvements (assets).

However the ownership requirement (point 1 above) is very important – it determines which natural assets we will include in the asset boundary.

Many such assets are included in the asset boundary; we rely on the ownership criterion to determine which natural assets are included.

Natural resources such as land, mineral deposits, fuel reserves, uncultivated forests and so on are included in the asset boundary provided that there are institutional units exercising effective ownership rights over them (so can receive economic benefits from them).

Mineral or fuel reserves that are unworkable or have not yet been discovered and do not provide any benefits to their owners given existing technology and prices are excluded from the asset boundary.

Ownership need not be individual – assets could be owned by the government on behalf of the population or a community within the whole population.

Some interesting things to note:

1. resources such as the high seas (international waters) over which ownership rights cannot be exercised are excluded from the asset boundary
2. if natural resources are used up in production, we show this depletion in the *other changes in the volume of assets account*, as also for losses of fixed assets due to destruction by for example floods or earthquakes.
3. when deposits or reserves are discovered and are workable, their appearance into the economy is also recorded in the *other changes in the volume of assets account*.

The next two slides are about price indexes and the SNA.

**SLIDE 35: Guidelines for developing price indexes**

The 2008 provides the framework and guidelines for building price indexes that cover major economic activities. It also provides a methodology for developing and extending the core system of price indexes to meet specialised needs whilst maintaining consistency of approach, both in concepts and practical measurement, and coherence in terms of the definition, classification and measurement of flows and stocks of goods and services (such as for time of recording and valuation). This also means common concepts and definitions among different price indexes.

A good understanding of the behaviour of prices is essential for understanding the behaviour of an economy. Four of the principal price indexes in the system of economic statistics—*the PPI, the CPI,  
and the export and import price indexes*—are well known and closely watched indicators of macro-economic performance. These distinct price indexes are associated with different domains of goods and services, such as production, household consumption, investment, and foreign trade flows.

**SLIDE 36: Price Indices**

***PPIs*** measure changes in the prices of domestically produced goods and services - either as they leave the place of production or as they enter the production process (that is as outputs and intermediate inputs of the production process). They are used to deflate nominal measures of goods and services produced, consumed, and traded to provide measures of volumes, or to reflate volumes measures to produce current price values.

We can also use PPI indexes to deflate values of capital goods or goods held in inventories.

There are several pricing levels used in measuring domestic production – basic and producer’s prices for output and producer’s prices for intermediate inputs to the production process.

This will be discussed in some detail in the module on PPIs, but compilers need to decide such things as:

1. what set of prices should be covered by the index? Depends on the purposes to which the index will be put. Separate price indexes can be compiled for different flows of goods and services, such as household production, government production, investment, or foreign trade flows.
2. what is the most suitable way in which to average their movements?

**IMPORTANT:** PPIs are primarily designed to fit with national accounts needs for deflation and revaluation.

**The *consumer price index*** measures changes over time in the general level of prices of goods and  
services that households acquire, (use or pay for) for the purpose of consumption.

The CPI may be used as a macroeconomic indicator of inflation, as a tool by governments and central banks for inflation targeting and for monitoring price stability, and for deflation in the national accounts.

Historically, CPIs were introduced in many countries to provide a measure of the changes in the living costs faced by workers, so that wage increases could be related to the changing levels of prices. Over the years, the scope has widened, and nowadays CPIs are widely used as a macroeconomic indicator of inflation, as a tool by governments and central banks for inflation targeting and for monitoring price stability, and as deflators in the national accounts, including for household final consumption expenditure.

***Export and import price indexes (XMPIs)*** for a country measure the overall change in the prices of  
exported and imported goods and services.

XMPIs are important economic indicators in their own right, but an important use of XMPIs is as deflators of series of nominal values of exports and imports to contribute to the derivation of volume estimates of GDP by the expenditure approach.

Principles for valuation and time of recording follow from the *2008 SNA*.

Basic questions for compilation of these indexes include:

1. Exactly what sets of prices should be covered by the price index and how should they be collected?
2. What is the most suitable way in which to average their movements?

The answer to the first question depends largely on the purposes of the index, and the availability and reliability of data.

The compilation of these various price indexes, and the existence of others, will be covered in much more detail in later modules.

**References:**Chapters 1 and 2 of *Practical Guide to Producing Consumer Price Indices* provide a good introduction. Also can look at *Producer Price Index Manual*, *Export and Import Price Index Manual Theory and Practice.*

**SLIDE 37: Summary and documentation**

The SNA describes a framework for accounting for the activities and balance sheets of an economy (see slide number 22) – we have:

1. the national boundary;
2. we define what activities and economic entities or agents are included in the economy;
3. we define what is included in the asset boundary for inclusion in the balance sheets;
4. we have concepts, definitions and accounting rules;
5. price indexes, particularly the CPI and the PPI use the SNA as a framework for their coverage and pricing levels; and
6. there are presentation options.

This gives us our framework. We want a comprehensive picture (or to tell a comprehensive economic story) about the economy. We can do this in several ways:

1. at a particular point in time – that is, present the position balance sheet of the economy (showing its assets and liabilities, and thus its net worth; and
2. for a period of time (usually a year or a quarter) show what has happened, leading to changes in the position of an economy.
3. In a very simplified system, we focus on gross domestic product (GDP). Developing the system further provides much more information about the economy.

As we develop our statistics, there are many decisions that are made about inclusions and exclusions, how we define and classify institutional units and establishments, how we go about measuring all of the activities…. It is very important to document all of this.

There are two kinds of documentation – that for internal use (so that someone can come along and take over the compilation of the statistics, and that for users (so they know whether you did or didn’t follow the SNA) so they understand what they are looking in the presentation. There will be more about this in the module on dissemination of statistics.

There will be more about documentation in Module 22.

**SLIDE 38: SNA as a co-ordinating framework**

We will now look at some uses of the SNA in the next two slides.

The SNA provides a framework for coordination of micro level statistics and macro level statistics and also provides a framework for using the statistics.

The SNA is the framework BOX 3 that allows us to observe the economy BOX 1 and organise these observations into a form useful to those who wish to understand the economy.

The observations are formed into the basic economic statistics BOX 2 that are the building blocks from which we form the national accounts.

NOTE that the arrows show the relationships between these boxes – they are two way relationships.

BOXES 4 and 5 describe the types of basic economic statistics that are inputs into the national accounts (and are formed by observing the economy). There are two types – Box 4 shows the basic statistics and Box 5 shows the other macro-economic datasets that feed in to the national accounts.

The bottom part of the diagram is about uses/users of the statistics. The bottom box is a final, very important result of the use of national accounts and of the basic economic statistics – for decision and policy making, also the monitoring and evaluation of the results.

The final box is about other uses of national accounts – for model building, development of economic theories and testing them on the data available from the national accounts, and for carrying out analysis of the whole economy and its various parts. And many other things too.

Leading on to:

**SLIDE 39** :Uses of the SNA

We have already covered most of these points throughout the lecture, but to summarise: national accounts statistics organise and summarise information about the economy in a way that provides statistics that are understood by users (because you have provided metadata along with publishing the statistics).

There is input to informed decision making by both businesses and the government.

For businesses, examples of use include: they can see how their industry is performing, and compare their own performance with that of the whole industry; they may also choose to identify new business opportunities. Businesses want to understand the economy to make good production and investment decisions.

Governments may use the information from both the national accounts and, as appropriate, from the basic statistics that inform these, to formulate government policies, and also monitor the effects of these policies on the economy, and thus evaluate how well the policies are working. Non-government observers can also monitor and evaluate government policy.

Users want to understand how the economy works – they look at causal mechanisms, relationships among variables and the SNA also provides the framework for building economic models for macro-economic analysis and forecasting by the government and the private sector.

For example, in a downturn we know production falls and we want to know which parts of the economy are affected and how. Does investment fall? Does consumption/demand fall? Do export receipts fall? How are imports affected? Where in the economy should government policies be targeted? We might want to look at reliance on imports – how do these feed into the economy and how much reliance is there on imports? What would happen if the country is unable to pay for its imports? For example, if the economy cannot pay for its imports, how will this affect tourism? Other export earning industries?

The SDGS are goals covering a wide range of objectives for government. Goal 8, about decent work and economic growth and goal 9, about industry, innovation and infrastructure, are of particular relevance. Goal 8 lists indicators including GDP per capita and GDP per employed person (A SIDE NOTE: this demonstrates the need for consistency in classifications and coverage among the various statistics). Goals 8 and 9 list other indicators that requires robust measures of GDP levels.

Using the SNA also provides statistics that allow for international comparisons of economic performance. Other governments that provide aid to a country use the national accounts to determine the effectiveness of their aid, and also to determine to which countries they will provide aid and under what conditions. Often it is the levels that matter for these decisions – GDP, GDP per capita, GNI and GNDI total level and per capita are all of interest for, for example, decisions on aid grants and loans at concessionary rates.

SO both levels and changes in economic indicators are important.

NOTE: the national accounts in general do not measure welfare. Specifically, GDP does not measure welfare even though people want it to.

USE an example appropriate to the country. For example, in the case of earthquakes or floods, people are worse off after BUT the clean-up and rebuilding adds to GDP.

**SLIDE 40: Links to other statistics**

As national accountants and price statisticians, we are not working in isolation. The external sector statistics (balance of payments, international investment position, and external debt statistics), the government finance statistics, and the monetary and finance statistics follow the same concepts, definitions and accounting rules. They elaborate for particular parts of the economy, but follow the same structure as we see in slide 22. By following the same guidelines, they allow for the production of statistics for these particular parts of the economy that fit together with the national accounts, and they provide a more complete, more detailed view of the economy.

Labour statistics have moved (and are moving) towards closer consistency with the SNA. This is important for input into the compilation of the national accounts statistics, and also so that we can, for example, produce reliable labour productivity measures. This is also important for indicators for Goal 8 of the SDGs.

SNA data are obtained from a variety of sources including administration and business records, as well as from specially conducted surveys and from other statistical datasets. BUT accounting conventions/valuation/business accounts/administrative sources are not normally in SNA format and do not use SNA concepts and definitions, so we need to adjust micro data to fit our needs.

SNA accounting rules and procedures are based on those of business accounting, but there are differences. For example, the national accounts concept of consumption of fixed capital is not the same as the accounting term depreciation. In the national accounts, we use market value as our valuation point, but business accounts may well value their assets and liabilities at historic cost. The SNA does not have a concept of profit, but this is quite central to market-oriented businesses (and profit may be the data that businesses can supply).

There are a range of satellite accounts that aim for consistency with the SNA, including environmental accounts, tourism accounts, health accounts. These expand upon important areas of the economy to meet particular needs, such as government policy making.

**SLIDE 41: Summary of this module**

We have looked at what an economy is. Also at what the SDGs are, and the RPES and Core Set of Statistics.

The SNA is an internationally agreed framework (concepts, definitions, accounting rules and so on – SLIDES 24-34) for describing an economy, and thus a tool for analysis. It allows us to compile statistics that are:

*integrated* with other macro-economic statistics datasets (ESS, GFS and MFS) and price indexes and builds on these and other datasets that cover parts of the economy. The consistency of concepts and definitions, coverage and accounting rules is very important.

*consistent* – within datasets, over time, between data sets, internationally – are all essential. The SNA guides us to do this.

*comprehensive*, although in practice it is difficult, if not impossible, to capture everything. There are a very wide range of users, both inside and outside of the economy. They would like not just robust, timely numbers, but also metadata (information about the statistics that we produce).

We compile GDP estimates and price indexes within this framework, along with a range of other statistics that also use this framework (as in the Core Statistics).

**TO INTRODUCE THE NEXT MODULE:**

**Concepts etc** will be discussed in more detail in the next module. They include**:**

* economic territory, centre of economic interest and residence (consistency with ESS, GFS, MFS), but also with coverage of surveys – of businesses and of households)
* consumption, production, accumulation
* enterprises, establishments
* institutional units and groupings of units into sectors and (for production and primary distribution of income) into industries
* economically significant prices, valuation
* accounting rules

**SLIDE 42: Exercise**

This is an exercise to be undertaken at the end of the module. It aims to consolidate the messages of the module and identify those places where the compilation of your national statistics deviates from the 2008 SNA. The answers here should form part of the metadata (information about the statistics) that should be made available to all users.

**GO THROUGH THE QUESTIONS ON THE SLIDE.**

As you work through the modules, you may add to this as you identify deviations from the standards and any weaknesses in your statistics. This should lead to a plan to improve the statistics over time.

1. That part of the economy that reflects the efforts of people without formal jobs to engage in some form of monetary economic activity. [↑](#footnote-ref-1)
2. Included illegal activities for example might be the sale and purchase of drugs where both parties willingly participate in the transaction. Robbery of cash or goods is not included because one of the parties has not agreed to the activity). [↑](#footnote-ref-2)