# 5.0 Measuring GDP by Expenditure Approach (Module 5)

## **Contents**

Introduction – Supply and Use of Goods & Services

* + Equivalence of GDP and Final use
		- Valuation – a closer look
		- Commodity Flow Identity
	+ Goods and Services account

In Module 3, we have seen that GDP can be measured using three different, but inter-related, approaches – production approach, income approach and expenditure approach. Measuring GDP by production approach is already discussed in Module 3. In this module – Module 4 – we will see how the GDP can be measured by the expenditure approach.

First, in this session, we will take a relook at the concept of circular flow and understand how the GDP and final use are related in the SNA framework. We will also have a brief overview of the Goods and Services Account in this session.

## 5.1 Equivalence of GDP and final use

Recall that “Income earned by the residents from participation in the production process is, in turn, spent on purchasing the goods and services produced in the economy.” The circular nature of the real and monetary flows establishes the equivalence of production, income generated from domestic production and expenditure.

We have seen that all goods and services for *final use* (as against goods & services for intermediary use as inputs) are bought by households, corporate sector enterprises, general government and the NPISHs. In the SNA framework, *final use* also includes the transactions with the RoW, i.e. exports and imports.

Also recall that, by aggregating the income generated in the production process over all the enterprises of an economy, we get the GDP.



The sum of factor compensations and the production taxes net subsidies on the right-hand side of the identity represents the income generated by domestic production. Adding “*Primary Income from RoW (net)”* to this gives, we get the measure of income of the residents of an economy, which is called the gross national income (*GNI*).

Total taxes flow to (total subsidies flow from) 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.

The taxes on income & wealth are paid by the residents of an economy both to the governments of the country and abroad. The Government on the other hand earns such taxes both from the domestic economy as well as abroad. Further, there are current transfers made both within the country and across the border. Thus, the gross disposable income of the resident of the economy is arrived at as follows:

*Gross National Disposable Income* (*GNDI*) ≡ *GNI* - Taxes on income & wealth payable to RoW + net current transfers receivable from RoW

*[Note that all the transfers made by one resident to other within the economy get cancelled out.]*

The *GNDI* is spent on acquiring domestically-produced goods and services for final use and imports. A part of the goods & services produced by the domestic enterprises is purchased by the rest of the world (exports). Exports serve as an addition to (and imports a subtraction from) total demand for domestically-made products. Thus, we have the following components of uses of goods and services by the residents of the economy:

final use comprising final consumption and capital formation from domestic production, and

*net* exports.

Also recall that, in national accounts, use of products – final use, intermediate consumption – is always valued at purchasers’ prices. On the other hand, output of products is always recorded at basic prices and the value of the economy’s domestic production is derived at ‘market prices’, i.e. the prices at which producers sell their products and those at which they are purchased by the consumers (either for final or intermediate use).

Thus, an enterprise’s earnings from production is the GVA at producers’ prices defined as

*GVApp* = *GVOpp* –*ICpurp* and

*GDP* at market prices is defined as the sum of GVA at producers’ prices of resident enterprises in the economy, including the traders and transporters.

 *GDPmp* = $\sum\_{i}^{}(GVA at producers^{'} prices)\_{i}$ + (*t-s*) on imports.

In other words,

*GDPmp*= Σ*GVAbp* + product (*t-s*) + (*t-s*) on imports

The *GDPmp* is, in fact, the value of domestic production, which is used either for final use or for net exports.

Now, the *GDPmp* is the sum of *GVApp* of the domestic enterprises, while the final use of the products are valued at purchasers’ prices. The latter, you may recall, is the sum of producers’ price and trade and transport margin (*TTM*). We will now establish that, in spite of the differing valuation standards, the *GDPmp* is equal to final use valued at purchasers’ prices and net exports.

**Valuation – a closer look**

First, note that there is no difference in prices of the output for own use on the supply and uses sides. The output for own use does not attract taxes and are neither traded nor transported. For the rest, i.e. market and non-market output, the prices paid by consumers and that received by the producers usually are different. This is because the taxes (less subsidies) 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 (freight) transporters, are included in the prices of goods that the consumers pay, but do not form part of the receipts of the producers of the goods.



To establish the equivalence of *GDPmp* and final use (consisting of final use from domestic production and net exports), let’s classify the total output as shown in *Figure 1*.

The classification distinguishes trade and freight transport activities from other activities. Since the trade and transport margins are the earnings of the enterprises engaged in these activities, these are kept separate. It is also necessary to distinguish between intermediate consumption and final use for this purpose.

First, we will establish the equivalence between the *GDPmp* and the sum of *G*$VA at producers^{'} prices$. For the present, let’s consider a closed economy to keep it simple.

Recall that *GVA* at producers prices

= Gross value of output at producers’ prices *minus* *IC* at purchasers’ prices

= *GVOpp* – *ICpurp*

Thus,

 $GDP\_{mp}= \sum\_{all enterprises}^{}GVO\_{pp} - \sum\_{all enterprises}^{}IC\_{purp} $

 $= \sum\_{all enterprises}^{}GVO\_{pp}- \sum\_{all enterprises}^{}IC\_{pp}- TTM\_{b} - TTM\_{a}$

where *TTMa* and *TTMb* are respectively the trade & transport margins of goods for intermediate consumption for activities [**A**] and that for activities [**B**].

Now, trade and transport margin (*TTM*) is the output of the trade and the freight transport activities at producers’ prices. A part of the total *TTM* is accounted for in the purchasers’ price of the *IC* of other activities [**B**] and another part in the trade and freight transport activities [**A**]. The rest of the *TTM* is included in the purchasers’ price of products for final use. Thus, we have

$TTM= \sum\_{A1}^{}GVO\_{pp} + \sum\_{A2}^{}GVO\_{pp}$

What is important to note is that the first component on the right-hand side is the *TTM* included in the purchasers’ price of the *IC* of the enterprises, which is *TTMa* + *TTMb*.

i.e. *TTMa* + *TTMb* = $\sum\_{A1}^{}GVO\_{pp}$

Also, $\sum\_{all enterprises}^{}IC\_{purp} = \sum\_{B1}^{}GVO\_{pp}+ $ $\sum\_{A1}^{}GVO\_{pp}$

Thus, we get

 $GDP\_{mp}= \sum\_{all enterprises}^{}GVO\_{pp} - \sum\_{B1}^{}GVO\_{pp} -\sum\_{A1}^{}GVO\_{pp} $

The right-hand side expression is the sum of GVA at producers’ prices of all the enterprises in the economy. The last term on the right-hand side represents the *TTM* and is a part of the intermediate consumption of the enterprises.

Now, let’s find out what is the value of *final use*, keeping in mind that the aggregates on the uses side are valued at purchasers’ prices.

The valueof the goods and services for final use at producers’ prices is $\sum\_{B2}^{}GVO\_{pp}$

We add the TTM for *final use* to it to get $\sum\_{B2}^{}GVO\_{pp}+ \sum\_{A2}^{}GVO\_{pp}$

This gives us the value of *final use* at purchasers’ prices.

Now, referring to *Figure 1*, we can write

 $\sum\_{B2}^{}GVO\_{pp}+ \sum\_{A2}^{}GVO\_{pp}= \sum\_{B}^{}GVO\_{pp}-\sum\_{B1}^{}GVO\_{pp}+ \sum\_{A}^{}GVO\_{pp}- \sum\_{A1}^{}GVO\_{pp}$

Or ***final use* =** $\sum\_{all enterprises}^{}GVO\_{pp}$ $- \sum\_{B1}^{}GVO\_{pp} -\sum\_{A1}^{}GVO\_{pp} $

 **=** $GDP\_{mp}$

*Example 1*: GDP at market prices (Currency units omitted)

Consider an economy with the following estimates for an accounting year:

 GVO at producers’ prices for all the production units: **12,000**

 *of which*

 that for trade and freight transport units: **3,000** *of which*, that used as IC: 1,000 and that for *final use*: 2,000 and for other production units: **9,000** *of which*, that used as IC: 3,000

 and that for *final use*: 6,000

Find out the values of

1. Value of TTM at producers’ prices
2. Value of intermediate consumption at producers’ prices.
3. Value of intermediate consumption at purchasers’ prices.
4. GVA at market prices.
5. Value of final use.

Ans:

*5.2* Commodity Flow Identity

Having established the equivalence of $GDP\_{mp}$ and *final use* in a closed economy, we will now extend the argument to open economy. What we have so far called ‘final use’ is, in fact, domestic final use of domestically-produced goods & services. In an open economy, the supply and use of goods and services are affected by exports and imports. Exports come on the uses side, while imports on the supply side. The final use also undergoes changes by these external transactions. We will henceforth refer to resultant final use as ‘*total final use*’.

*Total final use*=*final use* of domestically-produced goods & services – Exports (X) + Imports (M)

The final use has two main components: final consumption expenditure and capital formation. With external transactions taken into account, the total final consumption also includes exports net imports.

The households, government and NPISHs incur consumption expenditure on the produced goods and services are called *final consumption expenditure*. The term ‘final’ is used to distinguish it from ‘intermediate consumption’.

The *final consumption expenditure* consists of

* Households’ final consumption expenditure (*HFCE*)
* Government’s final consumption expenditure (*GFCE*) and
* Final consumption expenditure of NPISHs

The other component of final use is gross domestic capital formation. 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*).

Thus,

*total final use* =HFCF + GFCE + final consumption expenditure of NPISHs+GDCF+ Exports – Imports

Often, the combined consumption expenditure of the households and the NPISHs is referred as *private final consumption expenditure* (*PFCE*).

This when equated to GDP at market prices, we get the *Commodity Flow Identity*:

 $GDP\_{mp}= PFCE+GFCE+GDCF+X-M$

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

*Points to note*

* Output of products is always recorded at basic prices.
* The value of the economy’s domestic production is measured at ‘market prices’.
* Market prices mean the prices at which producers sell their products and those at which goods and services are purchased by the consumers (either for final or intermediate use).
* *GDPmp* is the sum of gross value added at producers’ prices (*GVApp*) of the domestic enterprises.
* The *final use* of the products is valued at purchasers’ prices.
* Purchasers’ prices are the sum of producers’ price and trade and transport margin (*TTM*).
* Trade and transport margin (*TTM*) is the output of the trade and the freight transport activities valued at producers’ prices.
* Only the output of freight transport services is included in TTM. It excludes the output of passenger transport services.
* A part of the total *TTM* gets used up as intermediate consumption of domestic enterprises and other part gets included in the final use.
* The *GDPmp* is equal to final use valued at purchasers’ prices and net exports.
* ***Final use* =** $\sum\_{all enterprises}^{}GVO\_{pp}$ $- \sum\_{B1}^{}GVO\_{pp} -\sum\_{A1}^{}GVO\_{pp} $**=** $GDP\_{mp}$
* The ‘final use’ is the domestic final use of domestically-produced goods & services.
* The total final use takes exports and imports into account.
* *Total final use* = *final use* of goods & services – Exports (X) + Imports (M)
* The combined consumption expenditure of the households and the NPISHs is referred to as *private final consumption expenditure* (*PFCE*).
* The *Commodity Flow Identity*: $GDP\_{mp}= PFCE+GFCE+GDCF+X-M$
* The resident enterprises’ expenditure on purchase of capital goods & services is called *gross domestic capital formation* (*GDCF*).
* Final consumption expenditure consists of *PFCE* and *GFCE*.

5.3 Good and Services Account

The sequence of accounts is all about an economy’s

* production;
* generation, distribution and redistribution of income;
* use of income for consumption;
* acquisition and disposal of assets and incurrence of liability; and
* savings.

The sequence of accounts also reflects the lending / borrowing resulting from higher or lower expenditure than the current income permits. The sequence of accounts for only the domestic economy does show the exports and imports separately.

An alternative view of the economy focuses less on income and more on the processes of production and consumption. Where do goods and services come from and how are they used?

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 is founded on one of the most basic identity in the SNA. It captures the idea that all output from within the production boundary, plus imports, must be accounted for in one of the other two basic activities of the SNA, consumption of goods and services or accumulation of goods and services. In other words, the basic premise on which the SNA is built is equivalence of supply and use:

supply of goods and services ≡ use of goods and services

during an accounting period.

Without the goods and services account, a supply and use table would not be fully articulated and exhaust all products available within the economy. Moreover, the whole sequence of accounts can be viewed as built around the goods and services account. Aggregating all transactions relating to the generation, distribution and redistribution of income and saving, across all sectors and the rest of the world, leaves us with only goods and services account. Thus, *Goods and Services Account* may be viewed as a combined *Supply-Use Table* (*SUT*)*,* aggregated over all commodities and industries.

The *Goods and Services Account* is founded on the identity:

Output + imports

= intermediate consumption + final consumption + capital formation + exports.

In our notation, this can be written more exactly as

***GVOmp*** = ***IC*** + ***PFCE + GFCE*** + ***GFCF + CII*** + *acquisition less disposal of valuables* + ***X*** – ***M***

* ***GVObp*** + (***t-s***) on products + ***M*** = ***IC*** + ***PFCE + GFCE*** + ***GFCF + CII*** *+ acquisition less disposal of valuables* + ***X***

This is called the *commodity balance* or *product balance identity*. By convention the resources are put on the left side and uses on the right of the goods and services accounts. The entries on left hand side of the identity represent the resources, in terms of goods & services, of the economy. Similarly, the entries on the right hand side of the identity represent the uses of goods and services.

The structure of a goods and services account is shown in Example 2. This is, in fact, a rearrangement of the estimates of macro-economic aggregates of Slovania for 2002 into the recommended structure of the goods and services account. The data are taken from the table Main Macroeconomic Aggregates at current and constant (2000) prices given at the end of Session IV of Module 3.

*Example 2*: *Goods and services account*

We can rearrange the estimates of macro-economic aggregates of Slovania in a Goods & Services account as follows:

|  |
| --- |
| **Goods and Services Account – Slovania 2002**  (at current prices) |
| **Resources** | **Uses** |
| Output, basic prices |  | Intermediate consumption |  |
| Taxes *less* subsidies on products |  | Final Consumption expenditure: Government |  |
| Imports of goods & services |  |  Households & NPISHs |  |
|  |  | Government |  |
|  |  | Gross Capital Formation |  |
|  |   |  GFCF |  |
|  |   |  Changes in Inventories |  |
|  |   |  Acquisition less disposal of valuables |  |
|  |   | Exports of goods & services |  |
| **Total supply** |  | **Total use** |  |

*Points to note***:**

* The *Goods and Services Account* provides an aggregated view of all transactions in goods and services.
* The *Goods and Services Account* is founded on product balance or commodity balance identity.
* Exports and imports are shown separately in *Goods and Services Account* and in no other SNA sequence of accounts for the domestic economy.
* The *Goods and Services Account* consists of only the transactions in goods and non-factor services.
* The aggregates relating generation, distribution and redistribution of income (except product taxes and subsidies) do not appear in the *Goods and Services Account*.

**Module 5, Session – I: Introduction – Measuring GDP by Expenditure Approach**

**Test Your Knowledge**

**Exercise – 5.1:**

1. State whether the following statements are true [T] or false [F].
2. The *GNDI* is spent on acquiring domestically-produced goods and services for final use and imports.
3. Goods and services produced in an economy is used for intermediate consumption, final use and exports.
4. Use of goods and servicesis evaluated at basic price.
5. The GDP at market prices is the sum of *GVApp* of the domestic enterprises. The *GDPmp* is less than final use valued at purchasers’ prices and net exports.
6. Trade and transport margin (*TTM*) is the output of the trade and all transport activities at producers’ prices.
7. Trade and transport margin (*TTM*) is the output of the trade and freight transport activities at basic prices.
8. Value of final use is equal to GVO of all enterprises at producers’ prices *less* GVO at producers’ price of trade and freight transport services used for intermediate consumption
9. *Total final use*=*final use* of domestically-produced goods & services – Exports (X) + Imports (M)
10. The combined consumption expenditure of the households and the NPISHs is referred to as *private final consumption expenditure* (*PFCE*).
11. The *Commodity Flow Identity*: $GDP\_{mp}= PFCE+GFCE+GDCF+X-M$
12. Final consumption expenditure consists of *HFCE* and *GFCE*.
13. The *Goods and Services Account* is founded on product balance or commodity balance identity.
14. The transactions in factor services are captured in the *Goods and Services Account*.
15. The aggregates relating generation, distribution and redistribution of income (except product taxes and subsidies) do not appear in the *Goods and Services Account*.
16. Using the following estimates of the aggregates for an economy in 2005, make Goods & Services Account

|  |
| --- |
| **Estimates of Main Macroeconomic Aggregates**  |
| **Aggregates** | **2005** |
| **Final consumption expenditure** | **1690** |
| Household  | 1200 |
| NPISHs | 50 |
| Government | 440 |
| **Gross capital formation** | **501** |
| Gross fixed capital formation (*GFCF)* | 455 |
| Change in inventories (*CII*) | 36 |
| Acquisition less disposal of valuables | 10 |
| **External balance of goods & services** | **472** |
| Exports (*X*) | 733 |
| Imports (*M*) | 261 |
| **Total Gross Value of Output (GVO) at basic prices** | **3164** |
| Market output | 3000 |
| Output for own final use  | 160 |
| Other non-market output | 4 |
| Total Intermediate Consumption (*IC*) | 803 |
| Taxes less subsidies on products & imports | 302 |

Ans.

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

## 5.4 Session II. Final Consumption

Components of Final Use

Final consumption Expenditure

* + Households Final Consumption Expenditure (HFCE)
		- Private Final consumption Expenditure (PFCE)
	+ Government Final Consumption Expenditure (GFCE)
		- Individual and Collective Final Expenditure

Actual Final Consumption

* + Social Transfer in Kind
	+ Actual Final Consumption and Final Consumption Expenditure

**COMPONENTS OF FINAL USE**

Goods and services produced during an accounting period are put to three broad kinds of uses. They are intermediate consumption, final consumption and capital formation. In Module 2A, we have seen that the domestically used goods & services that are not put to use as *intermediate consumption* constitute the goods & services for *final use*. It is composed of two main components: *final consumption expenditure* and *capital formation*.

Intermediate Consumption (***IC***) consists ofthe value of all goods (non-durable) and services that are entirely used up in the process of production. For an economy having external transactions during an accounting period, the sum of domestically produced goods and services and the imports constitute total supply of goods and services. A part of the total supply is exported. The rest are either put to intermediate consumption or domestic final use.

Generally, the term *final use* stands for

final consumption + gross capital formation + exports.

For our purpose, we will use the term *domestic final use* to mean

final consumption + gross capital formation.

Also recall that *CFC* is not treated as intermediate consumption. It is included in gross capital formation.

***Figure 2***

**Components of Final Use**

In this session, we will discuss the component ‘final consumption’ in some detail. Recall from Module 2A that only the three kinds of institutional units – households, general government and NPISHs – can make final consumption. In the SNA framework, ‘final consumption’ by the corporate sector is not admissible. We have seen that final consumption expenditure is broken down into:

a) Final consumption expenditure of households;

b) Final consumption expenditure of general government;

c) Final consumption expenditure of NPISHs.

In this session we will introduce the concept of actual final consumption.

**Final consumption**

Final consumption includes goods and services which are used by households or the community to satisfy their individual wants and social needs. We have defined consumption expenditures of households, government and NPISHs in Module 2A. In this session we will draw a distinction between final consumption and final consumption expenditure.

The estimate of household consumption expenditure is not a suitable indicator, when the main objective is to measure consumption of households. This is because the households make final consumption not only from their own final expenditure but also from the expenditure made by two other institutional sectors – government and the NPISHs. The government and NPISHs incur expenditure to provide certain services, such as free education and health services, directly to households. These are provided to benefit the households. For example, the expenditure made by the government to provide free education services to the households the benefits accrues to the households. These are actually consumed by the households but the expenditure is incurred by the government or NPISHs.

Thus, it is necessary to distinguish between final consumption expenditure and actual final consumption.

**Final consumption expenditure** consists of expenditure incurred by residents on final goods and services (goods and services that are not used for the purpose of production). The final consumption of an economy is measured as the sum of expenditures on final consumption made by the households, government and the NPISHs.

**Actual final consumption** measures final goods and services *consumed* by the sectors through the expenditure incurred by the sectors themselves or *social transfers in kind*received from other sectors. Though actual final consumption is defined for all sectors, it is meaningful for analysis only for the household sector.

In the rest of this session, we will fist revisit the definitions of consumption expenditures made by the households, government and the NPISHs and then discuss the concept of actual final consumption.

**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. However, the purchases of residential houses or the expenditure made for own-construction or improvements of residential housing are excluded for consumption expenditure if the households. These are included in gross capital formation.

HFCE Includes:

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

HFCE Excludes:

* 1. Social transfers in kind (defined later)
	2. Items treated as intermediate consumption or gross capital formation:
		1. expenditures by households owning unincorporated enterprises
		2. expenditure that an owner-occupier incurs on the maintenance and repair of the dwelling
		3. the purchase of dwellings (treated as gross fixed capital formation)
		4. expenditure on valuables (treated as gross capital formation)
	3. Purchase of land (non-produced asset)
	4. Payments of taxes, such as licenses to own vehicles, boats or aircraft and also licenses to hunt, shoot or fish
	5. Subscriptions, contributions, voluntary transfers and dues paid by households to NPISHs and other charities, relief and aid organizations. (These are treated as transfers)

**Government Final Consumption Expenditure (GFCE)**

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

a) Non-market output (which excludes 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)

The expenditure of the general government on services provided free to the households are included in ***GFCE***. Though these are actually consumed by the households, they do not make the expenditure and thus not included in the ***HFCE***. 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 is derived as follows:

***GFCE*** = total ***GVO*** of general government

 *less* ***GVO*** for own account capital formation

 *less* the value of sales of goods and services (at both economically insignificant prices and at economically significant prices)

*plus* the value of goods and services purchased from market producers for delivery to households free or at economically insignificant prices.

The final consumption expenditure of the NPISHs is also measured the same way.

### 5.4.1Individual and Collective consumption expenditure

The ***GFCE*** is divided into two components:



The individual consumption expenditure is in fact the social transfers in kind. Most of the non-market services produced by NPISHs are *individual* in nature, although some may have the character of collective services. By convention, there are no social transfers in kind with the *RoW*.

Recall that government is producer of non-market output. All non-market output is 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:

1. Intermediate consumption;
2. Compensation of employees;
3. Consumption of fixed capital;
4. Other taxes (*less* subsidies) on production.

Thus, Government Final Consumption Expenditure, ***GFCE***

= Intermediate consumption + Compensation of employees + CFC + other taxes less subsidies on production (if any)

– ***GVO*** for own account capital formation

+ goods & services purchased to be provided free to the population

* Receipts from sale of goods & services.

**Final Consumption Expenditure of NPISHs**

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.

*Private Final Consumption Expenditure (PFCE)*

Often the sum of final consumption expenditure of the households and NPISHs is called private final consumption expenditure.

**Actual final consumption**

Recall that there are two main accounts in the system relating to distribution of income and one main account relating to use of income. In Module 7, we will see how these accounts are actually related. Let’s note here that primary income generated in the domestic production process and net primary income from RoW together constitute the national income, i.e. the primary income of the residents of an economy.

The second type of claims on value added originates from *current* transfers. Still another kind of claims on value added, is the transfers from the government and NPISHs to the households made in kind, such as free education and health care services. These are called *social transfer in kind*. Households are the recipients of social transfers in kind, which actually represent a part of their consumption.

**Social transfers in kind**

Still another kind of claims on value added, sometimes referred to as tertiary distribution of income, concerns goods and services that government units (including social security funds), and *NPISH*s distribute for free to households for their individual consumption. These are called *social transfer in kind*. These consist of social benefits in kind and transfers of individual non-market goods and services provided to resident households by only government units (including social security funds) and NPISHs. All the free education and health services and goods (such as food & clothing distributed free as relief operations after a calamity) provided by the general government and the *NPISH*s fall in this category. The System records donations and receipts on account of this type of distribution in the *redistribution of income in kind account*.

The *social transfers in kind* has two components:

* non-market production by government and NPISHs of individual services (such as health and education services) that are actually consumed by individual households and
* purchase by government and NPISHs of goods and services for transfer to households free or at prices that are not economically significant (such as those distributed as relief to the victims of calamity).

By convention, non-financial and financial corporations do not make any social transfers in kind.

Social transfers in kind include:

a) **Individual final expenditure of the government sector less sales**. This includes the output of individual goods and services which are produced by the government sector and distributed free to individuals, such as education, health, social security and welfare, sports and recreation, culture, provision of housing, collection of household refuse and operation of transport. It excludes general administration and regulatory and research expenditures in each category.

b) **Social benefits in kind**, which include

i) Reimbursements from government’s social security funds to households on specified goods and services bought by households on the market;

ii) Other social security benefits in kind except reimbursement. This includes goods and services which are *not produced* by the government sector but bought and distributed free or almost free to households under the social security funds (any payment by household must be deducted);

iii) Social assistance benefits in kind. This includes goods and services similar to *other social security benefits* but not under social security schemes.

### 5.4.2 Final consumption expenditure and actual final consumption

The difference between final consumption expenditure of households and their actual final consumption consist of the social transfers in kind they receive from government and NPISHs. By convention, the value of actual final consumption of government units is equal to the value of the expenditures they incur on collective services.

Actual final consumption of households = ***HFCE*** + social transfers in kind from general government and NPISHs

Actual final consumption of government = ***GFCE*** - social transfers in kind from general government

Actual final consumption of NPISHs = ***FCE*** of NPISHs - social transfers in kind from them.

*Example 1*: *Actual final consumption of a Government (or NPISH) school*

The following are the expenditures made by a government (or a NPISH) school, during an accounting period (currency units are omitted):

|  |  |
| --- | --- |
| 1. Purchase of stationery:
 | 45 |
| 1. Purchase of sports (non-durable) goods:
 | 4392 |
| 1. Salaries paid to teaching and non-teaching staff:
 | 175 |
| 1. Payment of electricity and water charges:
 | 548 |
| 1. Local municipality tax on school building:
 | 25 |
| 1. Receipt of subsidies from the government:
 |  |
| 1. Receipts from students as sports fees:
 | 15 |
| 1. Estimated CFC:
 | 90 |
| 1. Purchase of books for giving prizes to students:
 | 50 |

The GVO of the school during the period

= Intermediate consumption + salary paid + other production taxes + CFC

=

The GVA of the school during the period

= =

Final consumption expenditure of the school

= =

 Actual Final Consumption of the school

 = =

Contribution to households’ actual final consumption

 = =

*Points to note*:

* Social transfers in kind is composed of two components: (i) individual services from non-market production and (ii) goods and services purchased from market producers and delivered free (or at economically non-significant prices) to the households.
* In the SNA framework, none of the receipts and payments from / to RoW are treated as *social transfers in kind*.
* Use of income accounts are relevant for only three institutional sectors – government, NPISHs and households – and the total economy.
* Final consumption expenditure of the general government and NPISHs is defined in the same way.
* Actual final consumption of the general government and NPISHs is also defined in the same way.
* Individual consumption expenditure is in fact the social transfers in kind.

**Module 5, Session – II: Final Consumption**

**Test Your Knowledge**

**Exercise – 5.2:**

1. State whether the following statements are true [T] or false [F].
	1. Social transfers in kind include all individual services from non-market production.
	2. Goods and services purchased from market producers and delivered free (or at economically non-significant prices) to the households is not treated as social transfers in kind.
	3. Final consumption expenditure of the general government and NPISHs is defined in the same way
	4. Actual final consumption of the general government and NPISHs is also defined in the same way.
	5. Collective consumption expenditure of the government is social transfers in kind.
	6. RoW can make social transfers in kind.
	7. Actual final consumption of a government school includes the salaries paid to teachers.
2. Which of the following are treated as household final consumption expenditure?
	* 1. expenditures by households owning unincorporated enterprises
		2. expenditure that an owner-occupier incurs on the maintenance and repair of the dwelling
		3. goods produced for own final consumption by households the purchase of dwellings (treated as gross fixed capital formation)
		4. expenditure on valuables
		5. domestic services provided by paid staff, such as servants, cooks, gardeners and chauffeurs
		6. purchase of residence
		7. services of owner-occupied dwellings
		8. payment of income tax.
		9. payments for licenses to own vehicles.
		10. midday meals received by household’s members as payment in kind from employers.
		11. payment to municipality for drinking water supply.
		12. payment of entrance fees for a museum.
		13. subscriptions to monasteries.
		14. fees paid to banks for money transfers.
		15. imputed service charges (FISIM) on households’ deposits in commercial banks.

# 5.5 Session III. Capital Formation

* + SNA Asset Boundary
		- Assets Classification
			* Fixed assets
		- Assets Valuation
	+ Components of Capital Formation
		- Gross Fixed Capital Expenditure (GFCE)
		- Change in Inventory (CII)
		- Acquisition and disposal of valuables
		- Consumption of Fixed Capital (CFC)
	+ Acquisition less disposal of non-produced non-financial assets

## 5.5.1 SNA asset boundary

Recall from *Module 2A* that the SNA defines an economic asset as an entity functioning as a store of value

* over which ownership rights are enforced by institutional units, individually or collectively; and
* from which economic benefits may be derived by its owner by holding it, or using it, over a period of time.

The economic benefits may be derived from use of an asset in the production process, or generation of property income by letting others use (interest, dividends, rent). Economic benefits are also derived from assets held as store of value, including possible holding gains/losses that could be realized by disposing of the asset or terminating it.

The first restriction in this definition serves to limit the concept of assets to items that are effectively claimed by an economic agent, excluding, for instance, international waters or wild birds; the second restriction says that only items with an economic value are taken into account.

**Asset classification** [as in 1993 & 2008 SNA]

***Box 5.1***

**Main extensions of Assets boundary in 2008 SNA**

The asset boundary has undergone a few significant changes in the 2008 SNA. These are briefly discussed below:

*Asset boundary extended to include R&D*: The output of the research and development activities (R&D) is capitalized as *intellectual property products* (*IPP*). However, in cases where it is clear that the activity does not entail any economic benefit to its producer (and hence owner), it is treated as intermediate consumption. *R&D* consists of the value of expenditure on creative work undertaken on a systematic basis in order to increase the stock of “gathered knowledge”, including knowledge of man, culture and society, and use of this knowledge to devise new applications.

In the 1993 SNA, patented entities were treated as separate asset category. With the inclusion of output of R&D in the asset boundary, it is no longer identified as a separate asset category. In the 2008 SNA, they form a part of the *IPP*. Treatment of R&D giving rise to produced assets has removed the 1993 SNA inconsistency of treating the patented entities as non-produced asset giving rise to property income.

*Government GCF to include expenditure on weapon systems*: Military weapon systems are seen to be used continuously in the production of defence services, even if their peacetime use is simply to provide ongoing services of deterrence against aggressors. The 2008 SNA, therefore, recommends that military weapon systems should be classified as fixed assets.

Single-use items, such as ammunition, missiles, rockets, bombs, etc., delivered by weapons or weapons systems are treated as military inventories. The 1993 SNA treated as gross fixed capital formation all expenditures by the military on fixed assets of a kind that could be used for civilian purposes of production.

In the 2008 SNA, the assets classification has undergone quite a few changes. The broad groups of classification have also been changed. The broad groups of assets classification in the 2008 SNA is as follows:

* + **Produced non-financial assets**
		- Fixed assets
		- Inventories
		- Valuables
	+ **Non-produced non-financial assets**
		- Natural resources
		- Contracts, leases and licenses
		- Goodwill & marketing assets

The main changes are in the fixed assets category. Only one sub-category “Military inventories” is introduced under “Inventories” in the 20008 SNA.

In the 1993 SNA, the groups ‘fixed assets’ and ‘non-produced non-financial assets’ were further divided into tangible and intangible. What is ‘natural assets’ in the 2008 SNA was called ‘tangible non-produced assets’ in the 1993 SNA. The group ‘intangible non-produced assets’ in the 1993 SNA is now divided into two groups: ‘contracts, leases & licenses’ and ‘goodwill & marketing assets’.

*Fixed Assets*

*Fixed assets are produced assets that are used repeatedly or continuously in production processes for more than one year.*

All durable goods are fixed assets. What is required is that it should be possible to be used repeatedly or continuously in production over a longperiod of time (conventionally more than one year). For example, coal which is highly durable physically but cannot be fixed assets because they can be used once only.

Fixed assets include not only structures, machinery and equipment but also cultivated assets such as trees or animals that are used repeatedly or continuously to produce other products such as fruit or dairy products.

Fixed assets may also be thing that not commonly considered physical. For example, fixed assets include intellectual property products such as software or artistic originals used in production. These assets do not take a physical form but represent knowledge or creativity that have value in exchange.

In the 2008 SNA, fixed assets are classified as follows:

* Dwellings
* Other buildings and structures [*land improvements* is included in this category]
* Machinery and equipment [*ICT equipment* introduced in 2008 SNA]
* Weapons systems [new category in 2008 SNA]
* Cultivated biological resources [ this is called ‘cultivated assets in 1993 SNA]
	+ *Animal resources yielding repeat products*
	+ *Tree, crop and plant resources yielding repeat products*
* Intellectual property products [new category introduced in 2008 SNA]

The acquisition *less* disposal of these is included in gross fixed capital formation (*GFCF*). Unlike the economic assets used as intermediate consumption, these assets are used up in the process of production over a long period of time. The value of the part of these assets used up or consumed in the production process during an accounting period represents depreciation and is called *consumption of fixed capital* in the SNA.

Costs of ownership transfer on non-produced assets [new category introduced in 2008 SNA] is also included in *GFCF*.

**Valuation of Assets**

As elsewhere in the System, items in the *accumulation accounts* are recorded at current market values. In the case of produced assets used as fixed capital, this implies that allowance should be made for consumption of fixed capital. Exceptionally, consumption of fixed capital may also apply to non-produced assets, namely in so far the value of these assets incorporate produced goods and services (for instance, improvements made to land).

The liability associated with shares in corporations is valued at the market value of the shares, even if there is no formal obligation of the corporation to make any payments. In enterprise accounting, shares are recorded at nominal value or issue value instead of current market value.

Current market value is defined as the value at the prices at which a particular asset or liability should be valued as if it were being acquired on the date to which the balance sheet relates plus any associated costs of ownership transfer (for non-financial assets). Major methods for valuation of assets are

* *observable prices*; such as for dwellings, land, equipment, livestock, marketable securities, inventories;
* *current value of cumulative capital formation*, such as for major construction, cultivated assets, mineral exploration;
* *present value of future income*, such as for intangible assets, subsoil assets; and
* *insurance value*, such as for valuables.

*Points to note*:

* In the SNA, only the economic assets are included in the assets boundary.
* All assets have ownership rights established on them.
* Economic benefits are derived from assets.
* An economic asset can only be a store of value.
* The two broad classes of non-financial assets are: produced and non-produced non-financial assets. In 2008 SNA, there is no classification as intangible produced assets.
* Fixed assets are produced assets.
* All durable goods are not fixed assets.
* Cultivated trees and domesticated animals that are used for production of other produce are included in fixed assets.
* Only the fixed assets can have *CFC*.
* Stock of raw materials, goods for trading and output of finished and semi-finished goods (and some services) are included in inventories.
* Stock of fixed assets is not considered as inventories.

## 5.5.2 Components of Capital formation

Five categories of changes in non-financial assets are distinguished in the Capital Account: (i) Gross fixed capital formation, (ii) Consumption of fixed capital, (iii) Changes in inventories, (iv) Acquisition less disposals of valuables, and (v) Acquisition less disposals of non-produced non-financial assets.

*Gross fixed capital formation*

Gross Fixed Capital Formation (*GFCF*) is measured by the value of resident producers’ acquisitions, less disposals, of fixed assets during a given period plus certain additions to the value of non-produced assets realized by the productive activity of producer or institutional units. Fixed assets are tangible or intangible assets produced as outputs from processes of production that are themselves used repeatedly, or continuously, in processes of production for more than one year. *GFCF* can be positive or negative depending upon the value of acquisition and disposition of assets by the resident producer.

The *GFCF* includes:

***Box 5.2***

**Fixed Capital Formation – Main changes in 2008 SNA**

*Costs of ownership transfer*: As in the 1993 SNA, the 2008 SNA continues to treat the costs of ownership transfer (*COT*) as fixed capital formation. The *COT* on acquisition of an asset should be written off over the period the asset is expected to be held by the purchaser. The *1993 SNA recommended writing off COT over the whole life of the asset*. The *COT* on the disposal of an asset should also be written off over the period the asset is held but recorded when they are actually incurred. Recognising the difficulty in implementation of this recommendation for lack of adequate data, the 2008 SNA recommends that these costs should still be recorded as gross fixed capital formation but written off as *CFC* in the year of acquisition.

*Mineral exploration and evaluation*: A Further specification of capital formation in the 2008 SNA relates to mineral exploration and evaluation. The 2008 SNA maintains the distinction between the act of exploring for mineral resources (treated as a produced asset) and the mineral resources themselves (treated as non-produced assets). The term “mineral exploration” has been renamed as “mineral exploration and evaluation” to match the term used in the International Accounting Standards. The 2008 SNA gives guidance that mineral exploration and evaluation should be valued at market prices if purchased or at the sum of costs plus an appropriate mark-up if undertaken on own account.

*Land improvements*: As in the 1993 SNA, land improvements continue to be treated as gross fixed capital formation. The 2008 SNA recommends treating land improvements as a category of fixed assets distinct from the non-produced land asset as it existed before improvement. In cases where it is not possible to separate the value of the land before improvement and the value of those improvements, the land should be allocated to the category that represents the greater part of the value. The costs of ownership transfer on all land are to be included in the land improvements.

* 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.
* Costs of ownership transfers on non-produced, non-financial assets, such as land.
* 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);
* 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 included in *HFCE*
* Purchase of non-produced assets like land.

Broadly there are three types of *GFCF*

* 1. Acquisitions, *less* disposals, of (tangible) fixed assets: Examples: dwellings, other buildings and structures, machinery and equipment, cultivated assets, e.g. trees and livestock. In the 2008 SNA,
		1. a sub-category for *land improvements* has been added within ‘building & structures’. This replaces the 1993 SNA term "major improvements to non-produced non-financial assets". The costs of ownership transfer on all land are included with land improvements;
		2. the information, computer and telecommunications (ICT) equipment has been included as a new category under machinery and equipment;
		3. weapon systems are recognized as produced assets and classified separately.
	2. Acquisitions, less disposals, of intellectual property products: The knowledge products were previously called “intangible produced assets”. The 2008 SNA rechristened this group of assets as “intellectual property products” and clarified that it should be treated as produced assets for accounting purposes. The 2008 SNA defines intellectual property products to comprise the result of research, development, investigation or innovation leading to knowledge that the developers can market or use to their own benefit in production because use of the knowledge is restricted by means of legal or other protection. Four distinct and well-defined categories of intellectual property products are identified in the SNA:
1. outcome of research and development;
2. results of mineral exploration and evaluation;
3. computer software and databases; and
4. entertainment, literary and artistic originals.

There is a fifth category mentioned in the SNA – “other IPPs”. But it is difficult to think of an IPP that falls outside the four categories specified above. Examples of Intellectual Property products are mineral exploration, entertainment, literary or artistic originals.

***Box 5.3***

**Intellectual property products – a few examples**

In the 1993 SNA, these were called *intangible produced assets*. These represent establishment of property rights over “knowledge” in one form or another. The institutional unit creating “knowledge” may chose to retain the right to use or sell the right to use to others or give users’ right to others for a specified period against a payment (service charges).

These are classified in the 2008 SNA as follows:

* *Research and development*, such as development of engineering designs for use in production process – whether for own use or sale or operating lease (i.e. letting others use the design under developer’s patent).
* *Mineral exploration and evaluation* - Expenditure incurred on mineral exploration is treated as expenditures on the acquisition of an intellectual property product and included in the enterprise’s gross fixed capital formation.
* *Computer software and databases*
	+ *Computer software*,such as development of software – whether for own use or for sale of its copies.
	+ *Databases*
* *Entertainment, literary or artistic originals*, such as original films, sound recordings, manuscripts, tapes, models, etc., radio and television programming, musical performances, sporting events, literary and artistic output, etc., are recorded or embodied
* *Other intellectual property products*.

Note that, in the 2008 SNA

* the term "intangible fixed assets" has been renamed as "intellectual property products". The word "products" is included to make clear that it does not include third party rights which are non-produced assets in the SNA.
* R&D products are included within intellectual property products
* the item "mineral exploration" of 1993 SNA has been renamed as "mineral exploration and evaluation" to emphasise that the coverage conforms to the international accounting standards
* “other intangible fixed assets” of 1993 SNA is replaced by the term "other intellectual property products".
	1. Cost of ownership transfer of non-produced assets.

*Changes in inventories* (*CII*)

Changes in inventories are measured as the value of the entries into inventories less the value of withdrawals and the value of any recurrent losses of goods held in inventories. Types of inventories involved are materials and supplies, work-in-progress, finished goods, and goods for resale.

For valuation of changes in inventories,

* the output of finished goods is valued as if they were sold at the moment of entering into inventories at current basic prices;
* additions to work-in-progress - in proportion to the estimated current basic price of the finished product;
* reductions in work-in-progress as withdrawn from inventories when production is finished - valued at current basic prices of the unfinished product;
* goods for resale - at actual or estimated purchasers’ prices of the trader; and goods for resale withdrawn - at the purchasers’ prices at which they can be replaced at the time they are withdrawn.

The only change made in the 2008 SNA to inventories is to show military inventories separately.

*Acquisition less Disposal Valuables*

Valuables are goods that are not used primarily for production or consumption, do not deteriorate (physically) over time under normal conditions and that are acquired and held primarily as stores of value. Types of valuables are precious stones and metals such as diamonds, non-monetary gold, platinum, silver; antiques and other art objects, such as paintings, sculptures, etc.; and other valuables, such as jewellery fashioned out of precious stones and metals and collectors’ items.

Valuation of valuables for acquisition is done at the purchasers’ prices paid for them, including any agents’ fees or commissions and trade margins when bought from dealers; and for disposals - at the prices received by sellers, after deducting any fees or commissions paid to agents or other intermediaries.

*Consumption of fixed capital* (*CFC*)

*CFC* is recorded as a change in assets on the left side of the capital account. It represents the amount of fixed assets used up, during the accounting period, as a result of normal wear and tear and foreseeable obsolescence, including a provision for losses of fixed assets as a result of accidental damage. *CFC* should be distinguished from the depreciation allowed for tax purposes or the depreciation shown in business accounts and should be estimated on the basis of the stock of fixed assets and the probable average economic life. The perpetual inventory method (*PIM*) is recommended for the calculation of the stock of fixed assets. The stock of fixed assets should be valued at the purchasers’ prices of the current period.

*Some Borderline issues*

There are a few borderline issues. Particularly, there is no clear boundary line between Intermediate Consumption (***IC***) and Gross Fixed Capital Formation (***GFCF***). The guiding principles for determination are based on practical considerations of using information coming from various sources. In concept, *IC* measures the value of goods and services that are transformed or entirely used up in production, the *GFCF* measures the acquisition of fixed assets for use repeatedly in the production process. Some examples of borderline issues are as under.

*Small tools*: Small tools are to be treated as intermediate consumption when expenditures are made regularly and are small when compared to machinery and equipment.

*Maintenance and repairs*:Regular maintenance and repair to keep the fixed assets in good working order constitutes the intermediate consumption. However, major overhaul and renovation that enhances the efficiency or capacity, or prolongs the expected working life of assets is *GFCF*.

*Mineral exploration*: All expenditures on mineral exploration, whether successful or not, are shown as *GFCF*.

*Military equipment:* As per 1993 SNA, the military weapons and delivery equipment, such as ships and aircraft are treated as *IC*. Only those military equipment (assets) that could have a civilian use, such as buildings, roads, airfields, trucks are to be treated as Gross fixed capital formation.

As per 2008 SNA, however most single use weapons such as ammunition, missiles, rockets, bombs, etc. are treated as military inventories but certain types of ballistic missile with a highly destructive capability, may provide an on-going service of deterrence against aggressors and therefore meet the general criterion for classification as fixed assets.

Weapons acquired by police are also considered as fixed assets.

### 5.5.3 Acquisition less disposal of non-produced non-financial assets

Non-produced non-financial assets consist of land and other tangible non-produced (subsoil assets, non-cultivated biological resources and water resources) assets that may be used in the production of goods and services. Though these are used for production of goods & services, these do form part of capital formation being non-produced assets.

Land does not include the following items: buildings or other structures on the land or through it (roads, tunnels), vineyards, orchards, or other plantations of trees, subsoil assets, non-cultivated biological resources, and water resources below the ground.

*Non-produced non-financial assets* (2008 SNA) include the following three types:

* *Natural resources* - the "tangible non-produced assets" of the 1993 SNA are renamed as "natural resources", adding other natural resources such as the radio spectrum.

[The "intangible non-produced assets" of the 1993 SNA has been spilt into two sub-categories:

* contracts, leases and licences and
* goodwill and marketing assets]
* *Contracts, leases and licences*: these are the contracts, leases and licenses which provide price advantage to the holders and the holder is legally permitted to realize the advantage. This category of non-produced assets has four sub-categories:
* *marketable operating leases*, such as lease of a building that can be sublet at a higher rental
* *permissions to use natural resources*, such as rights to use radio spectra for mobile phones
* *permissions to undertake specific activities*, such as licenses for retail sales of liquor
* *entitlement to future goods and services on an exclusive basis*, such as publisher’s exclusive rights to publish new works or television broadcasting rights to telecast sporting events.
* *Goodwill and marketing assets*: these are the contracts, leases and licenses which provide price advantage to the holders and the holder is legally permitted to realize the advantage.
* *Goodwill*: The premium offered (or might be offered) above the net value of the assets and liabilities.
* *Marketing assets*: Items like brand names, mastheads, trademarks, logos and domain names

Goodwill and marketing assets are only recognized as assets in the SNA when they are evidenced by a sale, i.e. only when there is an actual sale and purchase. The value of goodwill and marketing assets, in case of sale of an ongoing unit, is defined as:

the value paid for an enterprise as a going concern

*minus* the sum of its assets

less the sum of its liabilities of each item separately identified and valued.

*Points to note*:

* The gross capital formation consists of fixed capital formation, change in inventories, acquisitions less disposals of valuables.
* GFCF is mainly of three types: acquisitions *less* disposals of fixed assets, acquisitions *less* disposals of intellectual property products and costs of ownership transfers on non-produced assets.
* Costs of ownership transfer and land improvements are included in GFCF.
* The output of the own-account research and development activities (R&D) is capitalized as *intellectual property products* (*IPP*).
* Acquisition of *IPP*, such as computer software, databases, *Entertainment, literary or artistic originals* is treated as fixed capital formation.
* Expenditure on mineral exploration is treated as expenditures on the acquisition of an intellectual property product.
* Military weapon systems are classified as fixed assets. However, the one-time use ammunitions are treated as military inventories.
* Small tools are to be treated as intermediate consumption.
* CII includes change in inventories of raw materials, finished goods, work-in-progress and goods for resale.
* There three main types of *non-produced non-financial assets* (2008 SNA): natural resources, *contracts, leases and licences* and *Goodwill and marketing assets*.
* Goodwill and marketing assets are only recognized as assets in the SNA when they are evidenced by a sale.
* Exceptional payments from government to public quasi-corporations should be treated as capital transfers.

**Module 5, Session – III: Capital Formation**

**Test Your Knowledge**

**Exercise – 5.3:**

1. *Which of the following are in fixed capital?*

1. Payment of commission to an agent for purchase of land.
2. Normal repair and maintenance expenditure.
3. Purchase of land.
4. Expenditure on own-account R&D activities.
5. Expenditure on construction of a workshop.

 2. *Which of the following are TRUE?*

1. The value of *goodwill* of an on-going enterprise is recorded only when it is sold.
2. When no mineral deposit is found, the cost of mineral exploration is treated as intermediate consumption.
3. Cost of ownership transfer of non-produced assets is NOT included in gross capital formation.
4. Purchase of building is included in GFCF
5. Purchase of land is included in GFCF.
6. *Permissions to use natural resources*, such as rights to use radio spectra for mobile phones, are included in *non-produced non-financial assets*.
7. The output of the own-account research and development activities (R&D) is capitalized as *intellectual property products* (*IPP*).
8. Acquisition of *IPP*, such as computer software, databases, *Entertainment, literary or artistic originals* is treated as fixed capital formation.
9. Small tools with long life are usually treated as fixed assets.
10. One-time use ammunitions are classified as fixed assets.
11. CII includes change in inventories of raw materials, finished goods, work-in-progress and goods for resale.
12. Natural resources are classified as *non-produced non-financial assets* in SNA 2008.

## 5.6 Session IV. Data Needs and Sources

## **Contents**

 Data Needs

* + Final Consumption
	+ Capital Formation

We will discuss the data needs separately for final consumption and capital formation. Recall that final consumption is made by only the three institutional sectors: households, Government and NPISHs. Moreover, there are two sets of macro-economic aggregates relating final consumption, viz. final consumption expenditure and actual consumption. We will first identify the data needs for estimating final consumption expenditure of each of the three sectors.

Recall that the final consumption expenditure of government (and NPISHs)

= Intermediate consumption + Compensation of employees + CFC + other taxes less subsidies on production (if any)

– ***GVO*** for own account capital formation

+ goods & services purchased to be provided free to the population

 – receipts from sale of goods & services.

The first four elements actually constitute the GVO of government. (NPISHs). The data needed to estimate the GVO has already been discussed in Module 3. So the data on the last three elements are required for obtaining its final consumption expenditure.

The most desirable method of estimating *HFCE* directly from household consumption expenditure surveys (HCESs) conducted annually. But, in most of the countries, such surveys are not conducted every year. In such cases, the results of such a survey conducted last are used as benchmark and the estimates for subsequent years are obtained by extrapolating the benchmark estimates.

For the monetary transactions, which are all in principle observable, national accountants rely on data available from the administrative records, business accounts and statistical surveys. Estimation of aggregates relating to non-monetary transactions is solely the responsibility of the national accountants but should also be based on observed facts. In what follows, we will try to identify the information required for estimating aggregates relating to non-monetary transactions as well as the data required for the monetary transactions.

The records of transactions maintained by businesses are the main source of information for compiling production and income generation accounts. However, before discussing the needs, it is necessary to note that for production and income generation accounts by industrial sector, data available from companies’ accounts alone are not sufficient. Usually, the annual accounts of the companies engaged in production of different kinds do not provide data by industrial classification. Often the NSOs are required to conduct survey of the establishments to generate the data required for compiling production accounts by ISIC categories. It is also necessary to convert the companies’ accounts data into statistics consistent with the national accounts concepts.

*Covering non-observed economy (NOE)*

Besides the companies’ accounts, it is necessary to conduct statistical surveys (and censuses) to obtain production-related data for the market production units that are not included in the corporate sectors. The developing economies are characterised by presence large informal sectors. These form the major part of the NOEs in the respective economies. The large NOEs pose a serious problem in GDP estimation.

The part of the economy difficult to measure has become known as the Non-Observed Economy (NOE). The handbook *Measuring the Non-Observed Economy* (Organisation for Economic Co-operation andDevelopment, International Monetary Fund, InternationalLabour Organisation and CIS STAT (2002).

The most important prerequisite for measuring GDP is to ensure complete or exhaustive coverage of all economic activities carried out in the economy. The SNA productive activities that are excluded from basic statistical data collection program constitute the NOE. It consists of:

* Underground production
* Illegal production
* Informal sector production
* Household production for own final use
* Missed due to deficiencies in basic statistical data collection program

Collecting data from these unincorporated units is often very costly and thus the surveys for this purpose are not conducted regularly – say once in five years. For compilation of annual accounts from these survey results, we need other indicators. The following table indicates the main data needs under all the stated circumstances:

[See Chapter IV of *International Recommendations for Industrial Statistics, 2009*, UNSD, for detailed data items recommended to be collected for industrial statistics. Also refer *Links Between Business Accounting and National Accounting*, UNSD (2000), Series F, No. 76.]

The *use of income accounts* consist of entries that include non-monetary transactions, viz. final consumption of goods & services produced for own use and those that are non-market output. The valuation of these goods & services are invariably done at the stage of compiling *production* account. As final consumption in the *use of income accounts* only the values of these non-market and ‘for own use’ of products are transferred from the *production* account.

In spite of representing monetary transactions, many entries of distribution of income accounts are not directly observable. Obtaining the value of these transactions are derived from observed actual transactions and are often imputed by partitioning, rerouting and reallocation.

Here, we will indicate the data needs separately for the entries (other than the balancing items) of *allocation of primary income*, *secondary distribution of income* and *use of disposable* income accounts. As the data needs for these accounts (that are not obtained from the *production* account) relate to monetary transactions, national accountants rely on data available from the administrative records, business accounts and statistical surveys. We will try to identify the data required for estimating aggregates relating to these in the following table.

Also note that since all these accounts are relevant only for institutional units and sectors, the records of transactions maintained by businesses at the corporate level are sufficient for compilation of these accounts. Thus, the main sources of data are the business records, administrative records of the government and the Central bank and statistical surveys (and censuses). The last source is important for covering the transactions of the households and unincorporated enterprises. Note that for compilation of annual accounts from the results of periodic surveys on households and unincorporated units are usually based on other indices and indicators. The following table indicates the main data needs (that are not already covered under data needs for production account) under all the stated circumstances:

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| **Main Data Needs for Capital Account**  |
| **SNA Aggregate** | **Segment of economy** | **Main Data Needs** |
| 1. Fixed capital formation  | All sectors | * Purchase and sale of dwellings, other buildings and structures, machinery and equipment, cultivated assets, e.g. trees and livestock.
* Purchase and sale of weapons systems.
* Purchase of intellectual property products.
* Expenditures on land improvement. [from *production account*]
* Expenditure on R&D and other IPP, such as mineral exploration, film making, music recording etc. [from *production account*]
* Costs of ownership transfers.
 |
| 2. Change in Inventories | All sectors – mainly market producers | * Opening & closing stock of finished goods [also required are corresponding basic price to eliminate the effects of holding gains / losses – not covered in this course]
* Additions and reductions to work-in-progress
* Opening & closing stock of goods for resale.
* Opening and closing stocks of raw materials for intermediate consumption, including military ammunitions.
 |
| 3. Valuables | All sectors | * Purchase and sale of precious stones and metals; antiques and other art objects, and other valuables. The sale figures are required for those not producing the valuables.
 |
| 4. CFC | All sectors | * Opening & closing stocks of all fixed assets by detailed category and age , in current market value.
* Average life of each category of fixed assets.
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| **Main Data Needs for Capital Account** (Contd.) |
| **SNA Aggregate** | **Segment of economy** | **Main Data Needs** |
| 5. Transactions of Non-produced non-financial assets | All sectors | * Purchase and sale of land, subsoil assets, non-cultivated biological resources and water resources for production purposes.
* Payments for & receipts from marketable operating (long-term) leases of produced & non-produce assets
* Payments for & receipts from permits for use of natural resources
* Payments for & receipts from special permits – government the recipient.
* Payments for & receipts from exclusive rights of publications and broadcasting.
* Purchase and sale of goodwill & marketing assets with explicitly stated prices.
* In case of sale of an ongoing enterprise, purchase value and its net worth.
 |
| 6. Capital Transfer | All sectors | * Receipts and payment of capital transfers.
* Receivable and payable capital taxes
* Exceptional payments from government to public quasi-corporations
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