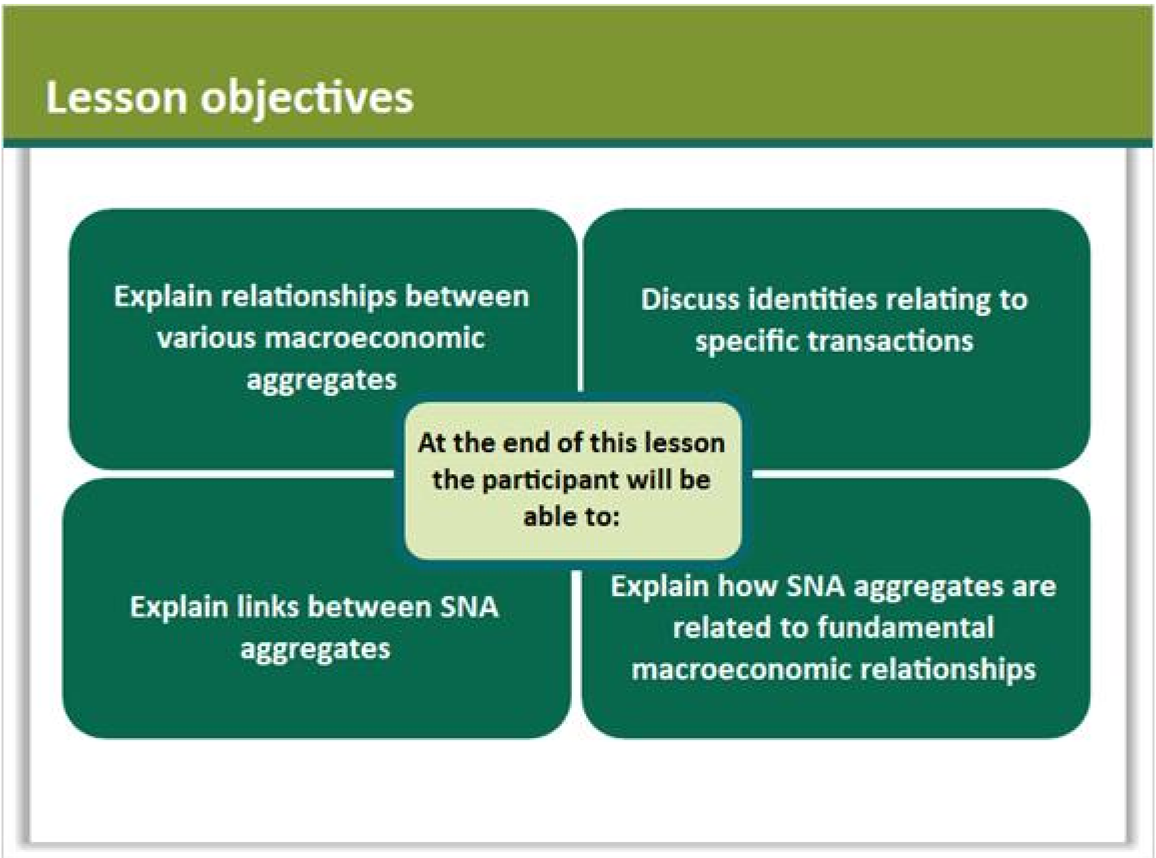
SNA Basic Level: Lesson 5- Relationship between SNA Aggregates – Main Identities

5.1 Main Identities

Notes:

Welcome to the fifth lesson of the System of National Accounts Basic Course. This lesson will present the relationships between SNA main aggregates.

5.2 Lesson objectives



Notes:

The lesson introduces the production and generation of income accounts components.

5.3 Summary

Notes:

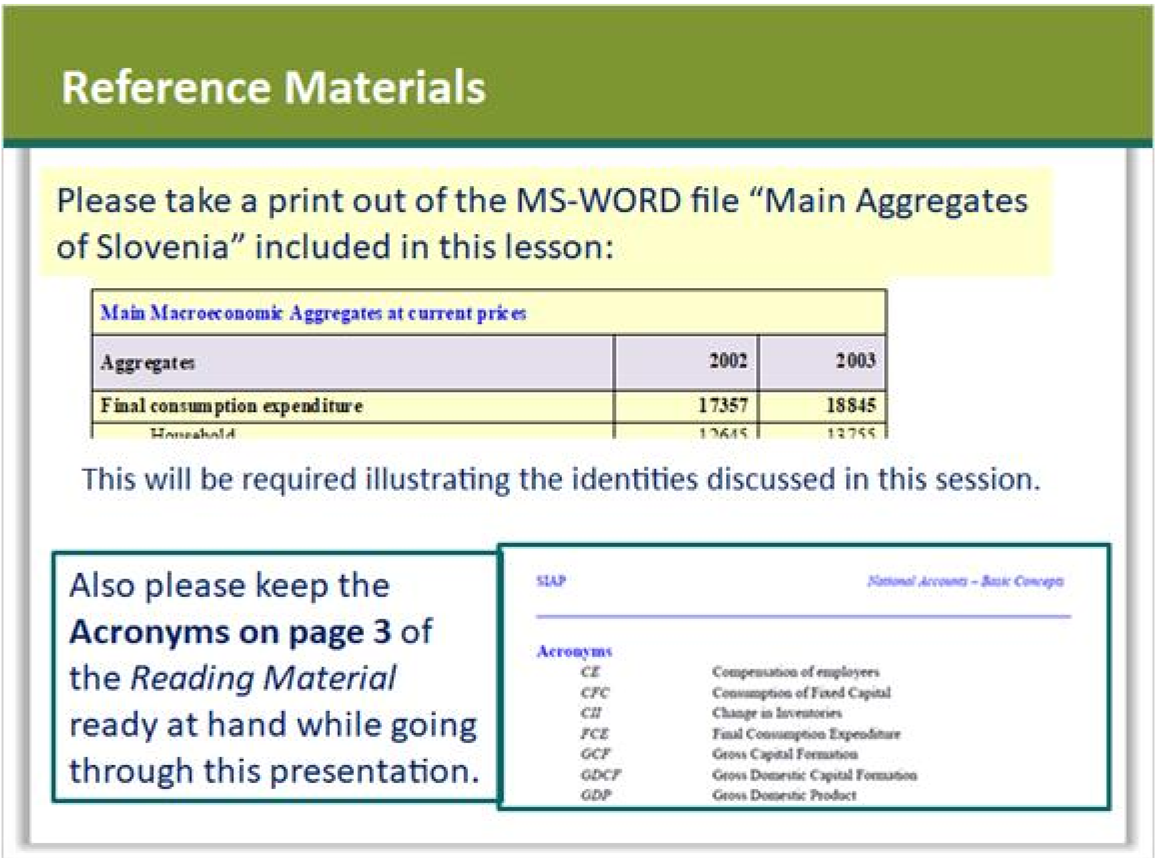
This lesson is divided into 3 different parts. You can directly access each section through the provided menu.

5.4 Relationships between Macroeconomic aggregates

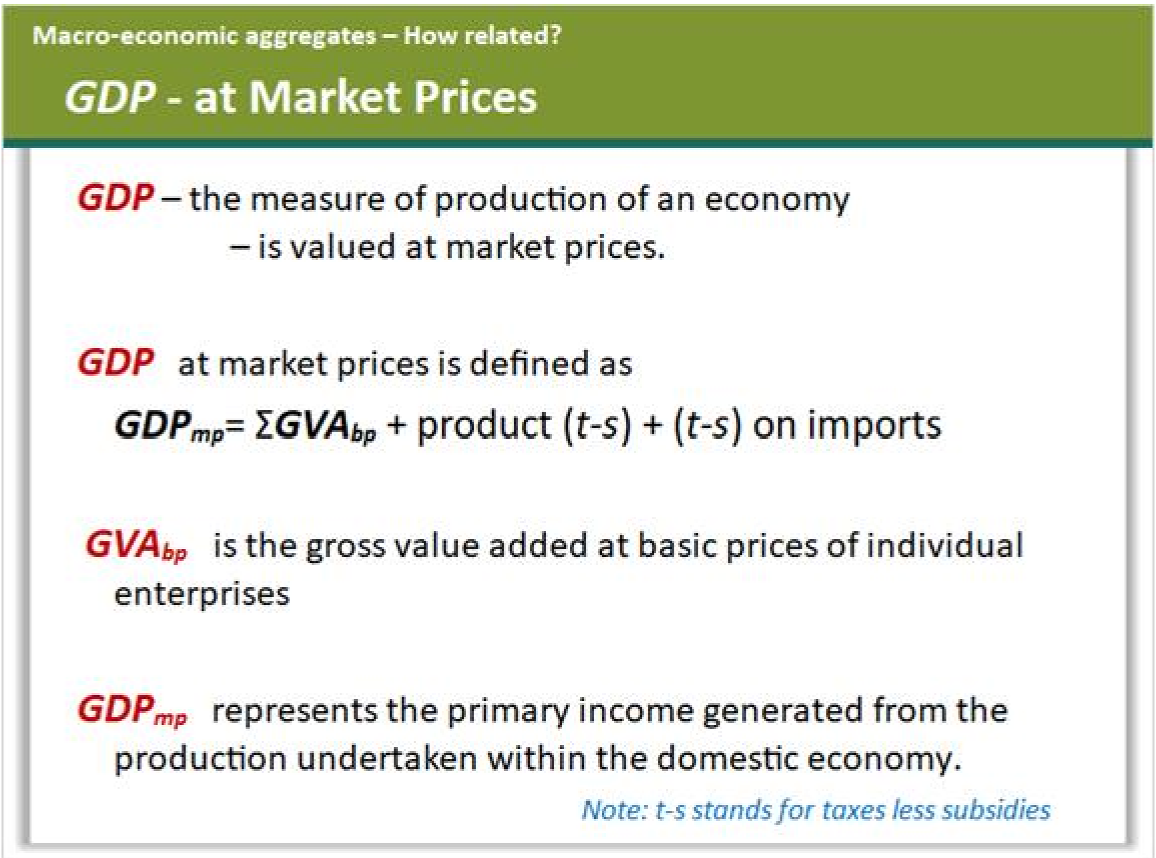
Notes:

This first section discusses relationships between macroeconomic aggregates.

5.5 Reference Materials



5.6 GDP - at Market Prices



Notes:

GDP is the measure of production of an economy. This is valued at market prices. GDP_{mp} represents the primary income generated from the production undertaken within the domestic economy.

5.7 GVA at Basic Price

Macro-economic aggregates – How related?

GVA at Basic Price

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

= Gross value of output at basic prices (GVO_{bp})

minus *IC* at purchasers prices (IC_{purp})

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

Of which, the enterprise distributes:

CE	to the employees
other production (*t-s*)	to the government

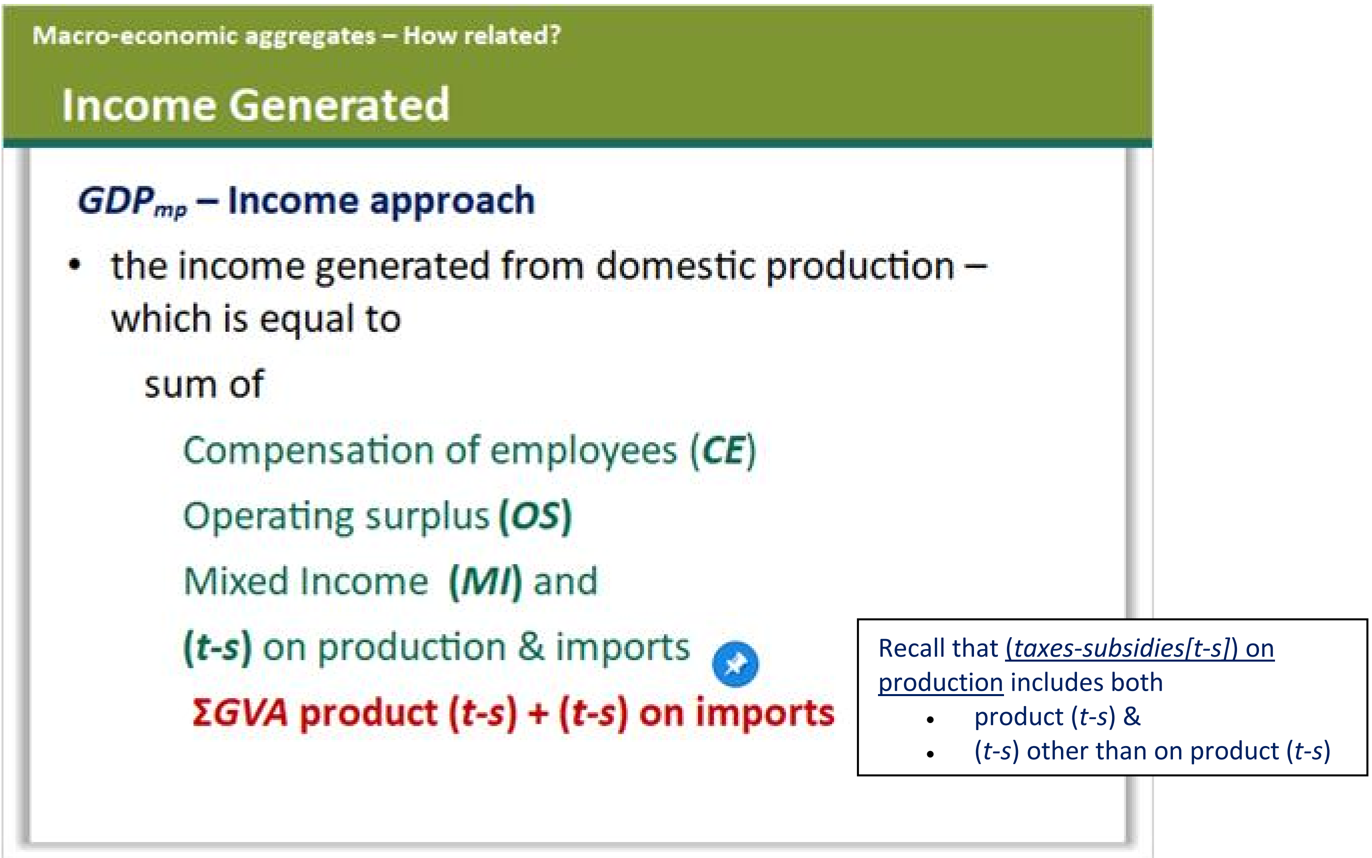
What remains with the enterprise is

Operating surplus (*OS*) or Mixed Income (*MI*)

Notes:

The earnings by a firm or enterprise are essentially its gross value added at basic prices. Gross value added (GVA) is estimated as the difference between gross value of output at basic prices and intermediate consumption at purchasers prices. The value added is distributed as compensation of employees to workers, taxes less subsidies to government and what remains with the enterprise is operating surplus/mixed income.

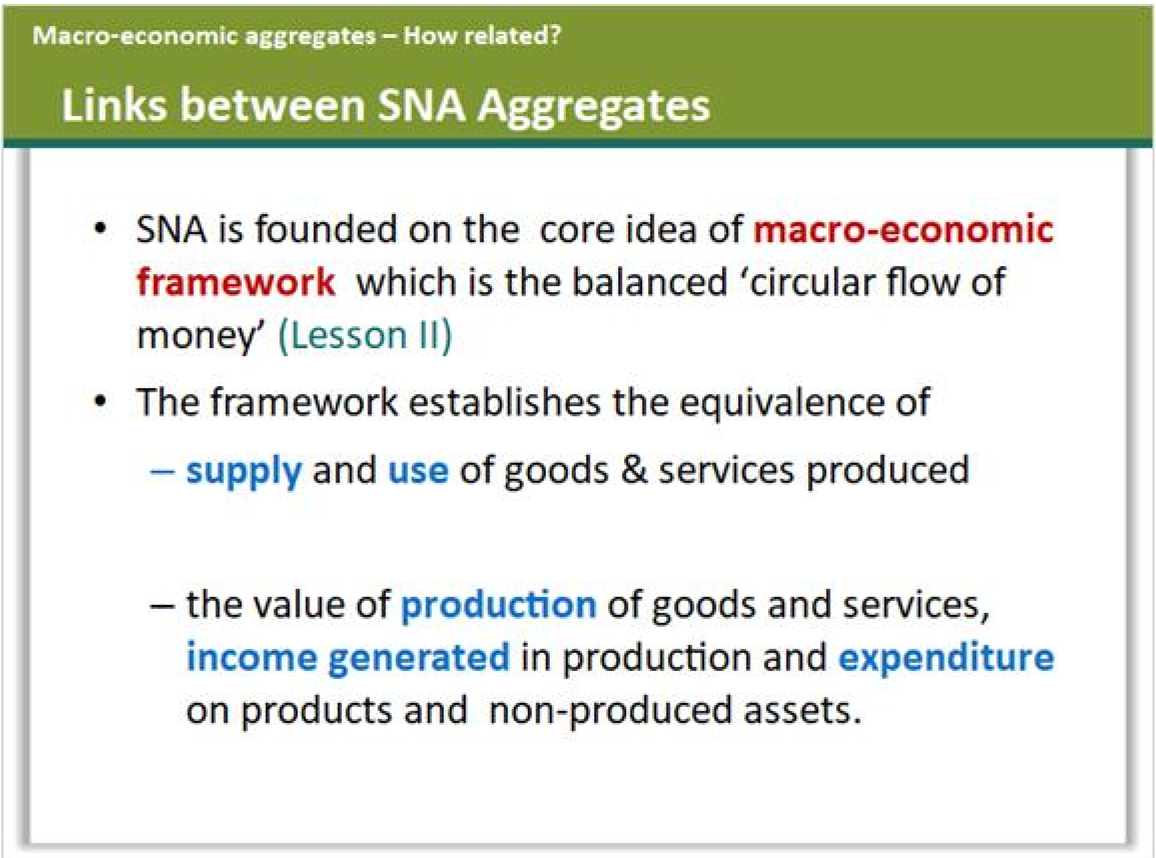
5.8 Income Generated



Notes:

Gross value added (GVA) represents GDP from production. Since GVO is represents earnings to employees and enterprises in the form of compensation of employees and operating surplus/mixed income respectively, GDP by Income is simply a sum of CE, OS/MI and taxes less subsidies on production and imports.

5.9 Links between SNA Aggregates



Notes:

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

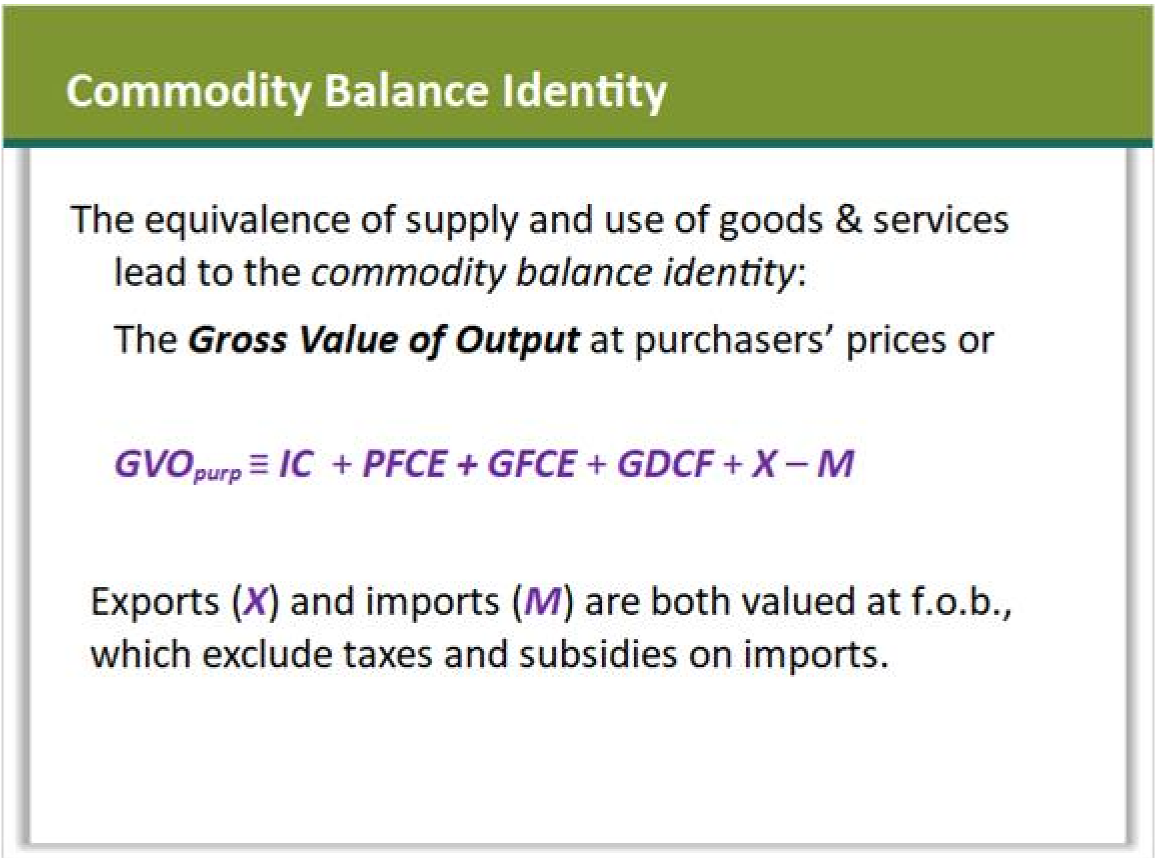
The equivalence of **supply** and **use** of goods & services produced however breaks if the supply- and use-side aggregates are valued at different prices. To retain the equivalence, therefore, we use the same prices for all the aggregates. This leads to what is called **Commodity-balance identity where supply of an individual commodity must be exactly equal to its uses.**

5.10 Identities Relating to Transactions

Notes:

This part discusses identities relating to transactions.

5.11 Commodity Balance Identity



Notes:

The equivalence of supply and use of goods & services lead to the *commodity balance identity*: The gross value of output measured at purchasers' prices is equal to the sum of all expenditure-side aggregates. Thus,

exports and imports are both valued at f.o.b., which excludes taxes and subsidies on imports. Note that ***PFCE*** stands for Private Final Consumption Expenditure, which is composed that of the household and NPISHs sectors.

5.12 Commodity Balance Identity for Slovenia

Commodity Balance Identity for Slovenia

Please refer to *Main Macro-economic Aggregates of Slovenia*

For 2002,

GVO_{bp}		= 21 346	and
(*t-s*) on production & imports		= 2 983	

Thus, ***Gross Value of Output*** at purchasers' prices

GVO_{purp}	= 21 346 + 2 983		= 24 329
IC	= 1 200		
PFCE	= 12 645 + 291		= 12 936
GFCE	= 4 422		
GDCF	= 5 500		
X	= 12 775	*M*	= 12 504

Verify that,

$1\,200 + 12\,936 + 4\,422 + 5\,500 + 12\,775 - 12\,504 = 24\,329 = GVO_{purp}$

Notes:

Use the reading material to see the illustration of the commodity balance identity of Slovenia.

5.13 Commodity Balance Identity

Commodity Balance Identity

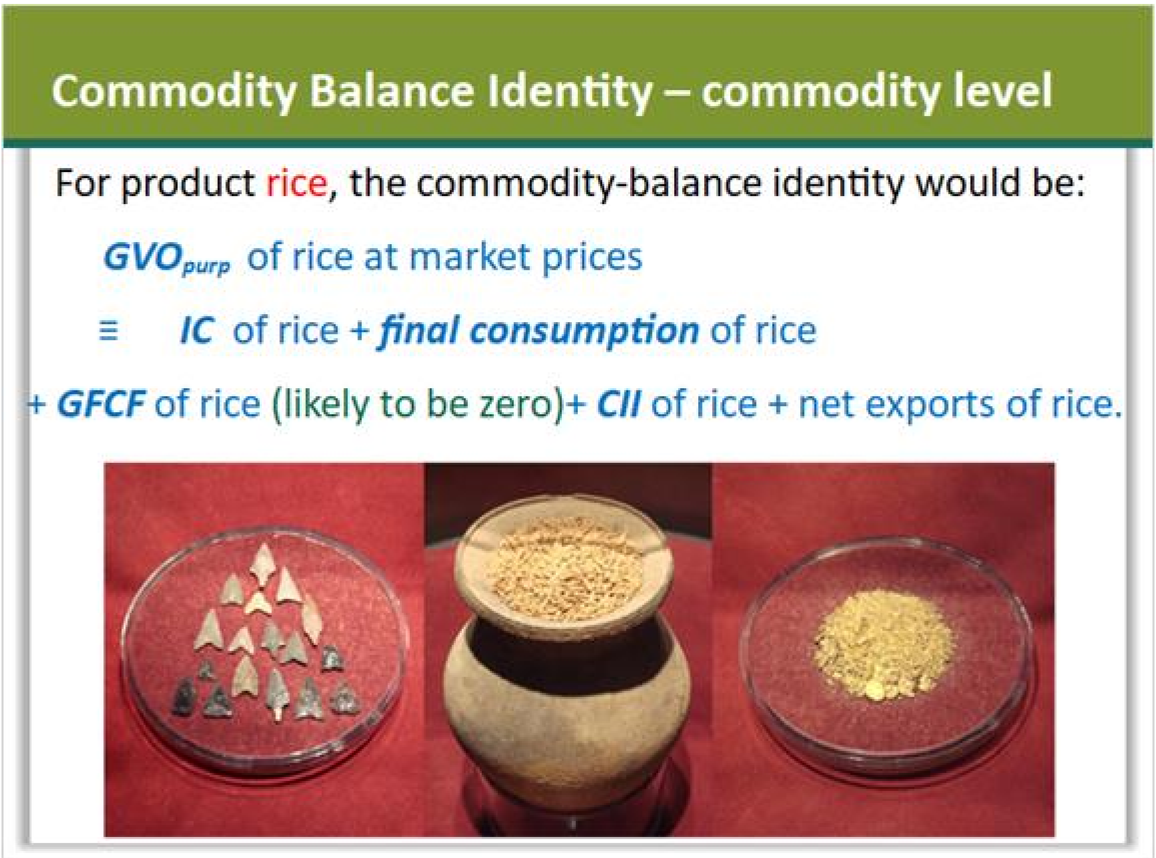
We can rewrite the *commodity balance identity* showing the components of capital formation (*GDCF*) as

$$GVO_{purp} \equiv IC + PFCE + GFCE + GFCF + CII + \textit{acquisition } \underline{\textit{less}} \textit{ disposal of valuables} + X - M$$

Notes:

The commodity balance identity can be rewritten to show components of gross capital formation. Gross capital formation is the sum of gross fixed capital, change in inventories and acquisitions less disposal of valuables. Refer to the reading material for acronyms.

5.14 Commodity Balance Identity – commodity level



Notes:

This identity holds for each individual commodity or commodity-group. But while considering the identity for an individual commodity (say rice), it is necessary to note that the ***IC*** in the identity represents use of rice in production of other products. Similarly, all the aggregates on the right-hand side of the identity relate to rice.

5.15 Commodity Balance Identity – commodity level

Commodity Balance Identity – commodity level

Thus for rice, the commodity-balance identity would be:

GVO_{purp} of rice at market prices

≡ ***IC*** of rice + ***final consumption*** of rice

+ ***GFCF*** of rice (likely to be zero)**+** ***CII*** of rice

+ net exports of rice.

Notes:

The commodity or product identity for our example, rice, comprises of supply and use. The supply side consists of the gross value of output (GVO) of rice at purchasers price. The use side consists of intermediate consumption of rice, its final consumption, gross fixed capital formation, change in inventories of rice and net exports.

5.16 Commodity Balance Identity

Commodity Balance Identity

The identities for each individual commodity or commodity-group if aggregated gives us the economy-level identity:

$$(1)\ \Sigma GVO_{purp} \equiv \Sigma IC + PFCE + GFCE + GFCF + CII$$
$$+ \textit{acquisition } \underline{\textit{less}} \textit{ disposal of valuables}$$
$$+ X - M$$

which can be re-written as

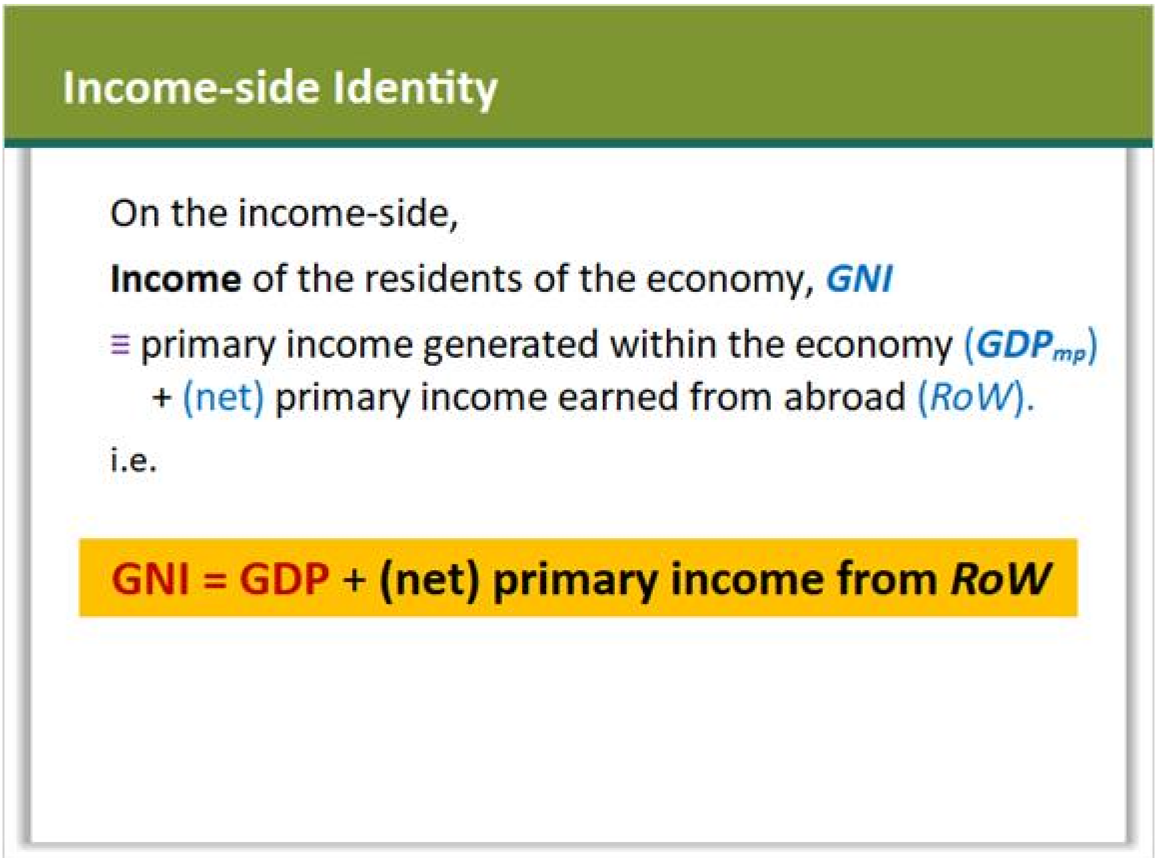
$$(2)\ \Sigma GVO_{purp} - \Sigma IC \equiv PFCE + GFCE + GFCF + CII$$
$$+ \textit{acquisition } \underline{\textit{less}} \textit{ disposal of valuables}$$
$$+ X - M$$

This leads to the expenditure-side identity-GDP by Expenditure

Notes:

The commodity identities can be aggregated for the entire economy that results into the Expenditure identity. The left side of equation 2 is GDP or gross value added resulting into the expenditure approach to measuring GDP. This identity reflects the equality between GDP by production and expenditure.

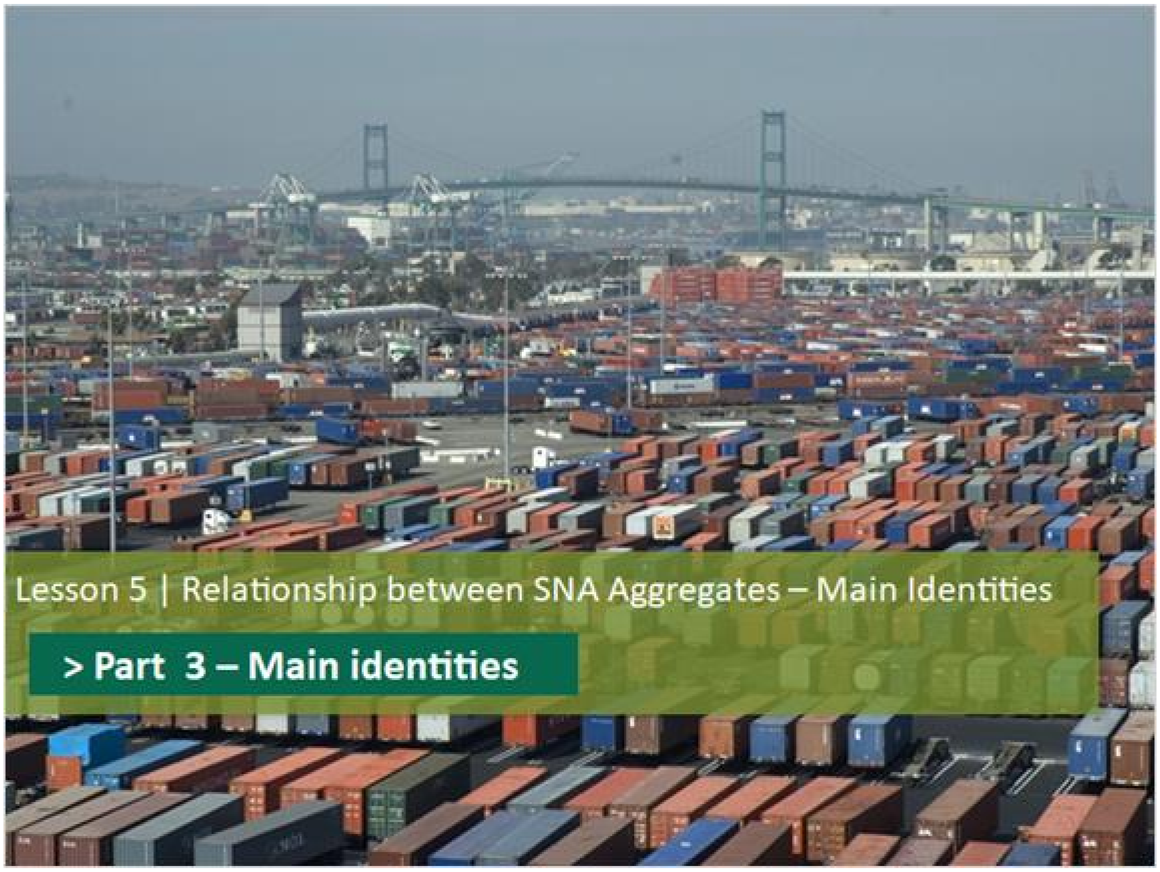
5.17 Income-side Identity



Notes:

The income identity reflects the total income earned by residents of an economy.

5.18 Main identities



Notes:

This session discusses the main identities.

5.19 Main Identities

Main Identities

Commodity balance: [1]

$$GVO_{mp} \equiv IC + PFCE + GFCE + GFCF + CII$$
$$+ \text{acquisition } \underline{\text{less}} \text{ disposal of valuables} + X - M$$

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

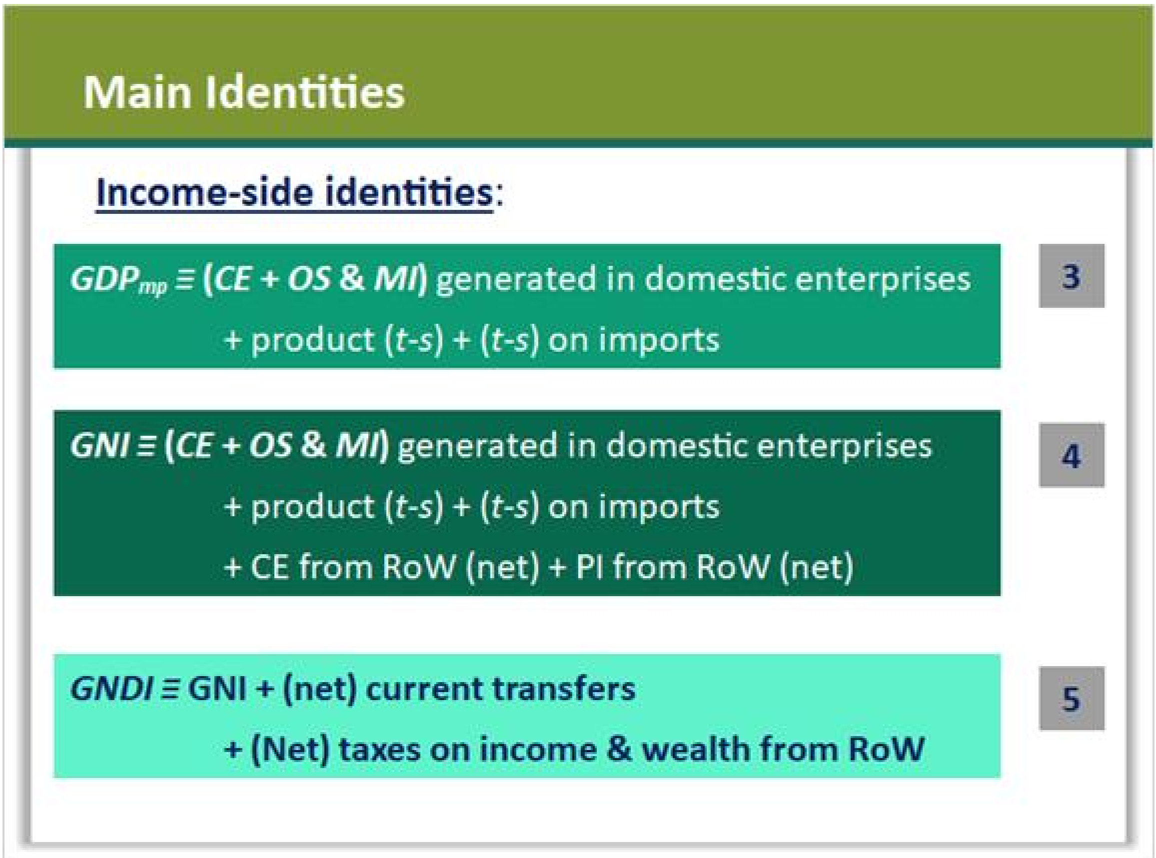
Production-side identity: [2]

$$GDP_{mp} \equiv GVO_{bp} - IC + \text{product (t-s)} + \text{(t-s) on imports}$$

Notes:

These identities form the basis of the sequence of transaction accounts of the system. The commodity balance identity expresses the relationship between total production of an individual product and the way it is used. Its uses include intermediate consumption, household consumption expressed as PCFE, capital formation and net exports.

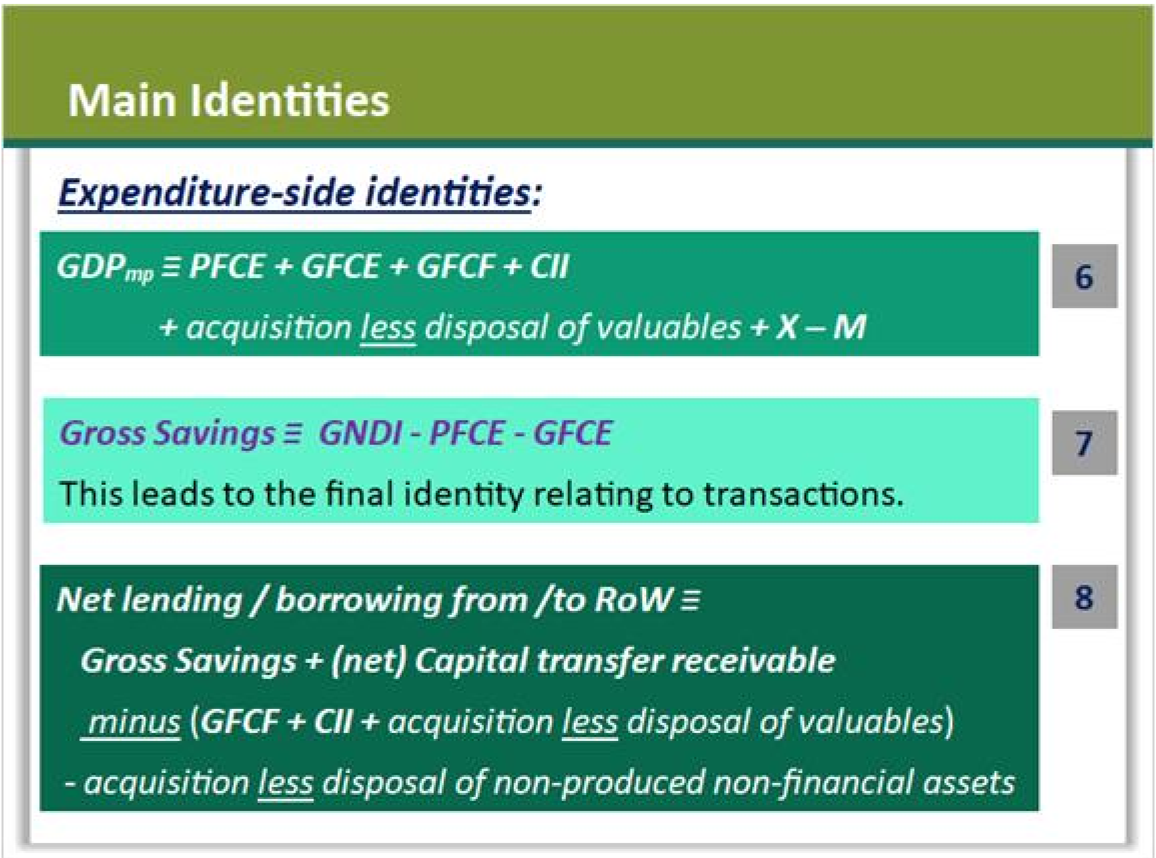
5.20 Income-side identities



Notes:

The income identities start from the generation of income account. GDP is a sum of incomes generated from the process of production in the form of compensation of employees and operating surplus/mixed income. Operating surplus/mixed income represent return to capital or loosely known as profit in financial accounting. The term mixed income is used for unincorporated/household enterprises that may not have a set of accounts. Gross national income adds net property income from the rest of the world and appears in the primary distribution of income account in the SNA. Gross national domestic income is GNI plus current transfers including net taxes on income and wealth from the rest of the world recorded in the secondary distribution of income account.

5.21 Expenditure-side Identities



Notes:

Expenditure side identities present GDP by expenditure approach, derivation of savings. Expenditure side equations are part of the capital account with their balancing item as net lending. More detail is presented in lesson 6.

5.22 Main SNA Indicators – A sum up

Main SNA Indicators – A sum up

GDP

plus (net) primary income from RoW

= ***GNI***

plus (net) current transfer from RoW

plus (net) taxes on income & wealth from RoW

= ***GDI***

minus final consumption expenditure

= ***Gross Savings***

plus (net) capital transfer [incld. capital taxes] from RoW

minus gross capital formation

minus acquisition *less* disposal of *valuables* from RoW

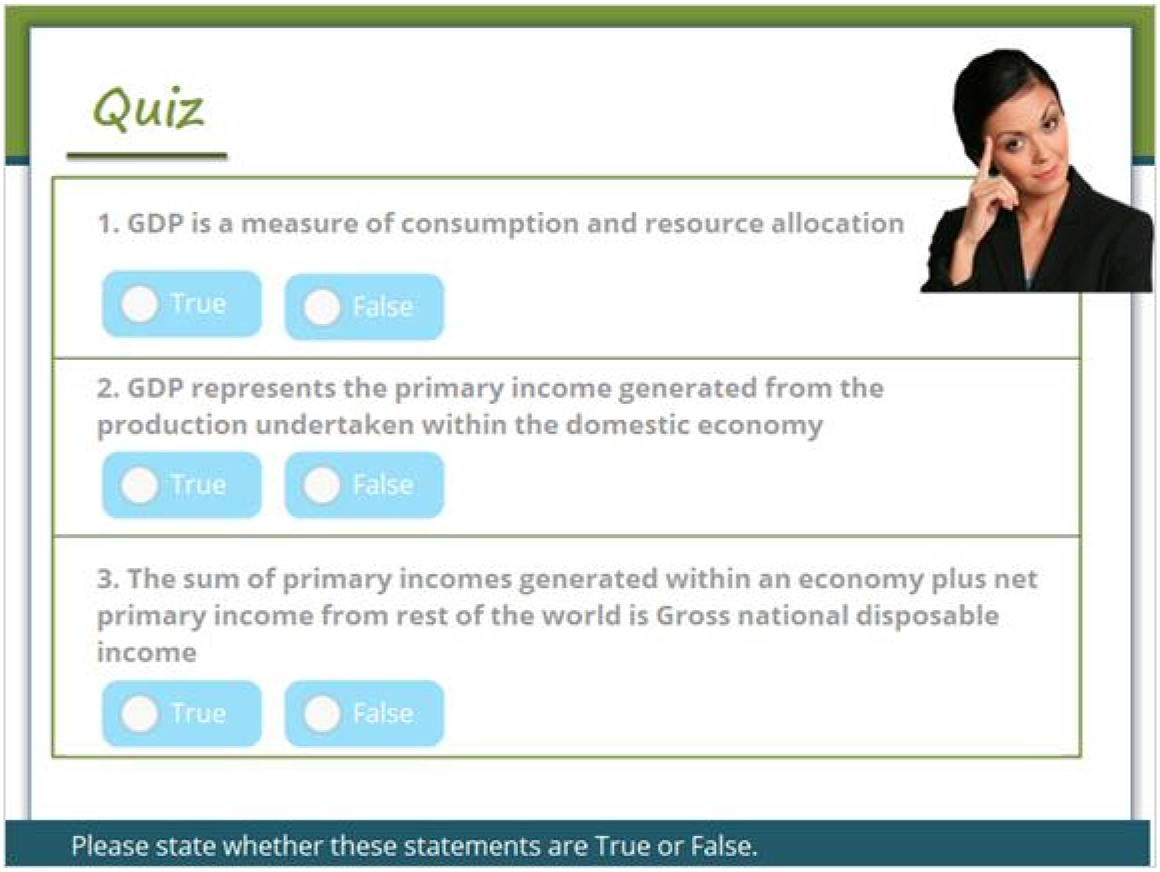
minus CFC

= ***Net lending / borrowing from /to RoW***

Notes:

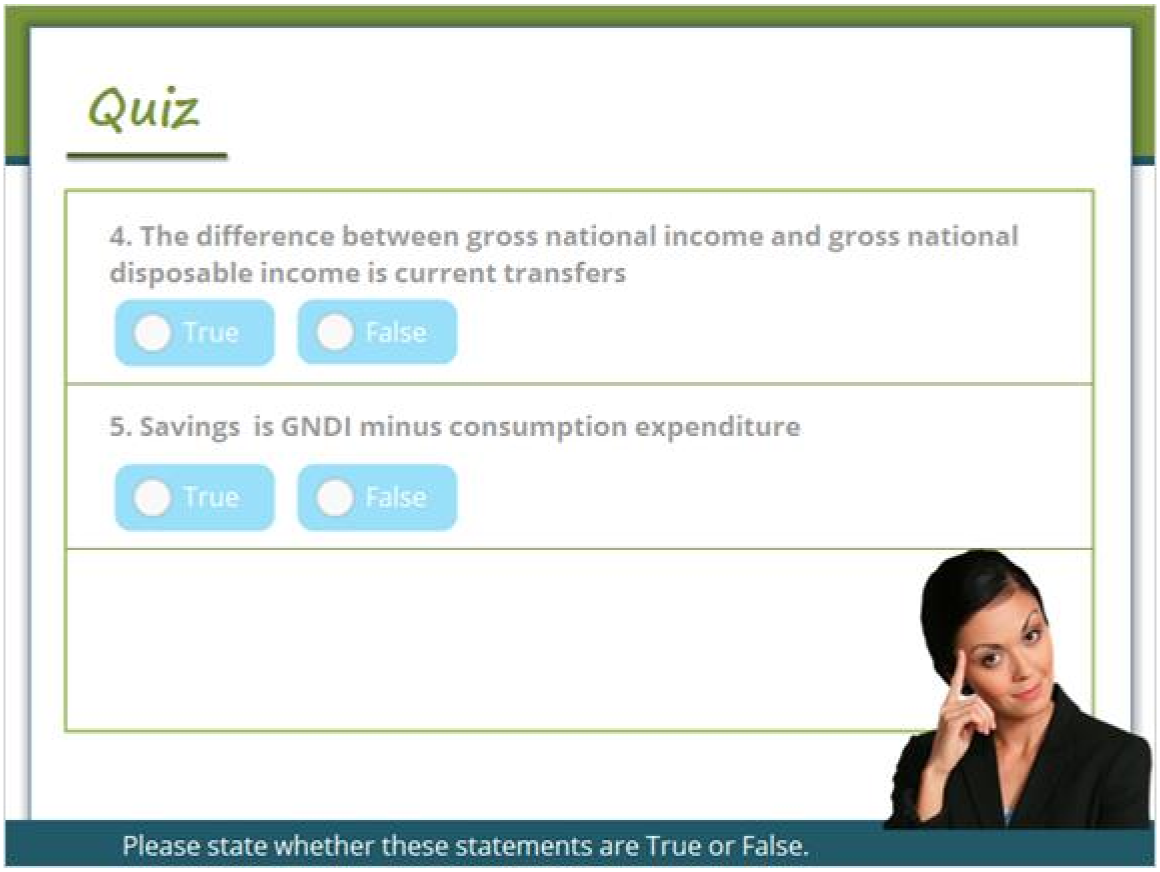
The main SNA indicators can be summarised as GDP, GNI, GDI, Gross savings and Net lending/borrowing from/to the rest of the world. These reflect current (production &income), capital and financial accounts.

5.23 Answer the Quiz



1. GDP measures all production in the economy including consumption (False)
2. GDP reflects the value of primary incomes such as compensation of employees and operating surplus generated within the domestic economy (True)
3. The sum of primary incomes generated within an economy plus net primary income from rest of the world is gross national income. (False)

5.24 Answer the Quiz



Notes:

4. Current transfers are the difference between GNI and GNDI. *(True)*
5. Savings is GNDI minus consumption expenditure. *(True)*

5.25 End of Lesson

Notes: