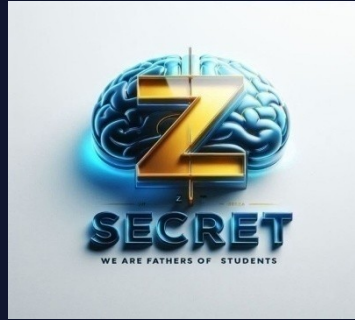




Grade 11 Economics

Unit 3 National Income Accounting

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■ **Part III**

■ **Part I**

- Nature of National Income Account and Its importance
- The Concept of GDP and GNP

■ **Part II**

- Approaches of Measuring National Income (GDP/GNP)

- Circular Flow of Income and the GDP
- Problems with GDP Measurement
- Nominal and Real GDP Values

■ **Part IV**

- The GDP Deflator and other Measures of General Price
- Other Measures of National Income Account
- GDP and Income Distribution

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Part-1

- Nature of National Income Account and Its importance
- The Concept of GDP and GNP

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Nature of National Income Account and Its Importance

- **National income accounting** is the **accounting system** that is used to measure aggregate economic activities.
 - It is an official measurement of the flow of income and product in each economy.
 - An aggregate economic activity or total output (income) of an economy for given period can be represented..... by GDP or GNP.

- Benefits (importance) of National income accounting:
 1. To know the **level of output of an economy**.
 2. To observe the long-run trend of the economy.
 3. It helps in policy formulation since it can be used as evidence.
 4. It makes cross-country comparison easier.

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The concepts of Gross Domestic Product and Gross National

- **Gross Domestic Product (GDP)** is the total market value of all final goods and services produced annually within a country's borders.

1. **Total Market Value:** the monetary value of all goods and services
2. **All Final Goods and Services:** Goods purchased for their end use and not for further processing or resale.
3. **Produced Annually:** GDP is calculated over a specific period, annually.
4. **Within a Country's Borders:** GDP only accounts for goods and services produced domestically.

- Hence,
 - GDP captures
 - the value of all current final products.
 - Goods and services produced within the boundary of a country without considering the ownership of the products.
 - GDP measurement is time specific.
 - GDP represents
 - the total income of everyone in the economy or
 - the total expenditure made on the economy's goods and services by different agents.

- **Gross National Product (GNP)** is the **total market value** of **all final goods and services** which are **produced by the nationality of a given country** **for a given period**.
 - **Total market value:** Monetary worth of all goods and services.
 - **All final goods and services:** Products purchased for end use.
 - **Produced by the nationality of a given country:** Output created by the country's citizens or businesses.
 - **For a given period:** Measured over a specific timeframe, typically a year.

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- Hence, GNP
 - captures final goods and services but produced by nationals of a country wherever they are.
 - excludes the output produced by foreigners even though they operate in the country in question.
- Example: A Ethiopian who own apartments in New York earn rental income from his building.
 - This income earned is included in the GDP of USA.
 - But it is included in GNP of Ethiopia.

- The major difference between **GNP and GDP** is how **they treat income that is received by foreign resources and national resources.**
- The concept of **Net Foreign Factor Income (NFFI)** captures this deviation between GDP and GNP.
 - **NFFI** is sometimes written simply as **Net Factor Income (NFI).**

- **NFI = Income received from abroad (inflows) - Income paid to foreign entities (outflows)**
 - **NFI** = Factor payment (wage, profit, and rent) from abroad - Factor payment to abroad.
- NFI represents the **net flow of income from the rest of the world** due to factors of production like labor and capital.

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- NFI could be generally considered **not to be substantial in most nations**.
- Since payments which are earned by citizens and those paid to foreigners more or less offset each other.
- Therefore, **GNP can be obtained from GDP by adding net factor payment to GDP**.

$$\text{GNP} = \text{GDP} + \text{NFI}$$

- If $\text{NFI} > 0$, then $\text{GNP} > \text{GDP}$
- If $\text{NFI} < 0$, then $\text{GNP} < \text{GDP}$
- If $\text{NFI} = 0$, then $\text{GNP} = \text{GDP}$

Concepts of Stock VS Flow

- GDP is a **flow concept** and not a **stock** measure.
 - Stock: is a **quantity which is measured at a given point in time**
 - A stock shows the **total accumulated value of something**.
 - Flow: represents the change in the stock.
 - A flow is a **quantity measured per unit of time**.
 - A flow shows the **amount of new addition** to the existing value.

Examples

■ A bathtub

- **Stock:** Water level, measured at a specific point in time
- **Flow:** Water flowing in, measured over a period of time.

■ Income and Wealth

- **Stock:** Wealth
- **Flow:** Income ... Income adds to wealth over time.

■ Population and Population growth

- **Stock:** Population
- **Flow:** Population growth rate, determines the change in population over time



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- Stock and flow are interconnected concepts in economics.
 - Understanding the distinction between stock and flow is crucial for economic analysis.
 - When building theories to explain economic variables, it is often useful to determine whether the variables are stocks or flows.

Stock measure	Flow measure
A person's wealth	Income and expenditure
The number of unemployed people	Number of people losing their jobs
The amount of capital in the economy	Amount of investment
The government debt	Government budget deficit

Summary Part-1

- National income accounting is the accounting system that is used to measure aggregate economic activities.
- Total output (income) of an economy for given period can be represented by GDP or GNP.
 - GDP is the total market value of all final goods and services produced annually within a country's borders each year.
 - GNP is the total market value of all final goods and services which are produced by the nationality of a given country for a given period.
- GDP is a flow concept and not a stock measure.

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Part-2

- Approaches of Measuring National Income (GDP/GNP)

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Approaches of Measuring National Income (GDP/GNP)

- There are three ways to compute GDP.
- These are:
 - the expenditure,
 - the income, and
 - the value added approaches

The Expenditure Approach

- **Expenditure approach** of measuring GDP involves adding the market value of all final products in the economy over a given period of time.
 - GDP is obtained by adding the amount of money that is spent by buyers on **final goods and services**.

- The words “**final goods and services**” are important in computing GDP

- A **final good (or service)** is a good in the hands of the final user, or ultimate consumer.
 - They are ready for consumption or use by the end consumer.
 - They are the
 - Completed items that fulfill consumer needs, such as food, clothing, or
 - Completed services like haircuts or car repairs.
 - They are not intended for further processing or resale.

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- Not all goods are final goods.

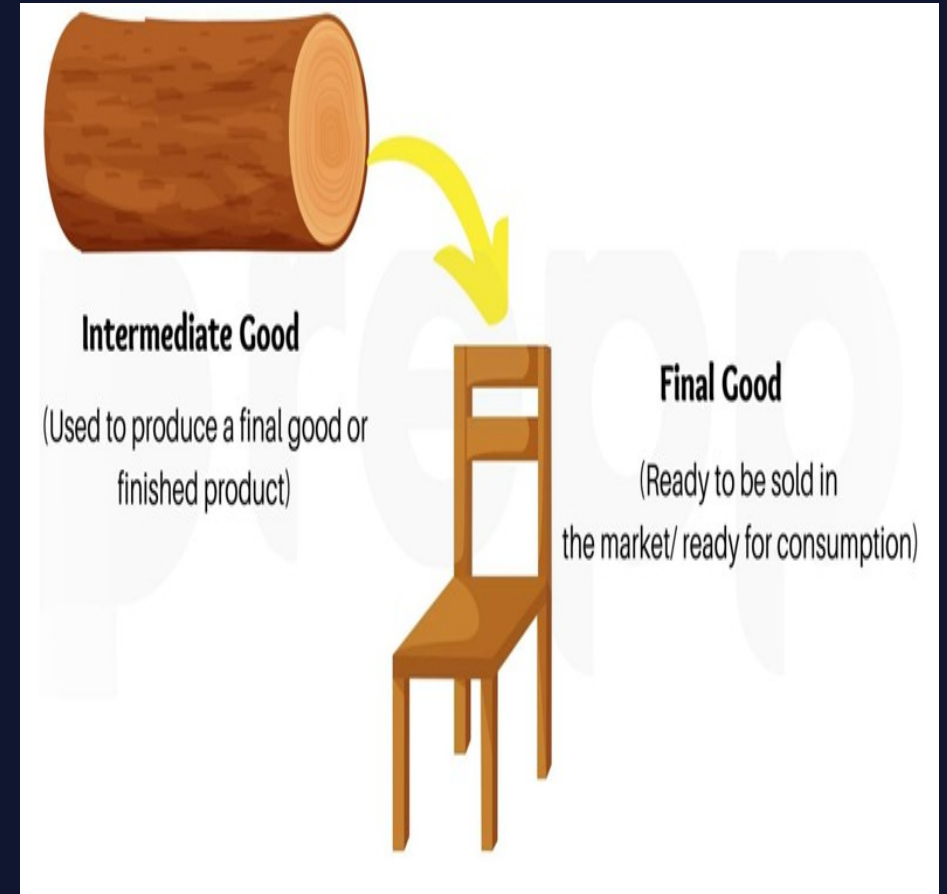
- This is because some goods are **intermediate goods**.

- **Intermediate goods** are goods that are used as inputs in the production of other goods.

- Intermediate good is an **input in the production of a final good**.

- These **goods are not sold directly to consumers**

- Example: Oil, steel, wood etc



- Example : Production of wheat flour could be both a final and an intermediate good.
 - **It is a final good**: when it is bought by final consumer
 - **It is an intermediate good**: when it is used by a bakery to make a bread or cakes from the flour.
 - In this case, the bread or cakes should be taken as final products.
- The **classification** of wheat flour as **a final or intermediate good** depends on **its end use**.

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- There is high risk of double counting in GDP measurement.
 - **Double counting** is counting a good more than once when computing GDP.
 - This can happen because goods and services often go through **multiple stages of production** before reaching **the final consumer**.
 - If we measure the expenditure on both the wheat flour produced and the cakes in GDP computation, we will **overestimate the GDP** since we are **double counting**.

- The expenditure approach of GDP accounting represents the **demand for final goods and services**.
- According to this approach, GDP has four main components:
 - Consumer expenditure (C),
 - Business investment (I),
 - Government expenditure (G) and
 - Foreign expenditure or net export (NX).



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Consumption spending (C)

- Spending made on **domestically produced final goods and services by household.**
- It is divided into three major subcategories.
 - **Expenditure made on durable goods:** Durable goods are goods whose life span is expected to be more than 3 years, examples include household equipment such as sofas, beds, tables, etc.

- 
- **Expenditure made on non-durable goods:** Non-durable goods are goods which last for a short time such as cloth and food.
 - **Expenditure made on services:** Services include the work done for consumers by individuals and firms, such as haircutting, cleaning, training and doctor visiting.

Business Investment Spending (I)

- Spending on goods and services which are used for production of other goods.
- It includes:
 - **Business fixed investments:** spending on new machineries, plants, and equipment by firms for production process
 - **Residential investment:** the purchase of new housing by households.
 - **Inventory investment:** changes in the value of inventories of goods held by businesses, including raw materials and finished goods.

Government purchase or spending (G)

- It is spending made on domestic goods and services by federal, state and local government.
- It includes investment made by government on different types of infrastructures, military equipment and spending made for services of government employees.

Net Export (NX)

- Net export is sometimes called the “**trade balance**”.
 - The net export is the difference between exports and imports.
- It represents the value of goods and services that are exported minus the value of purchases from the rest of the world.

$$NX = E - M$$

- Exports (X): Foreign residents, firms and governments purchase of Ethiopian-produced goods and resources.
- Imports (M): Purchases made by Ethiopians from other countries.

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- Net exports (NX) can be positive or negative depending on the relative magnitudes of X and M.
 - If exports are greater than imports, then NX is positive...
Trade surplus
 - If imports are greater than exports, then NX is negative..Trade Deficit
 - If imports equal exports, then NX is zero.....Balanced Trade

- Finally, the GDP by expenditure approach can be computed as the sum of the four major expenditures in the economy.
- The contribution of each of these elements depends on country-specific situations but the **personal consumption expenditure (C)** takes a lion's share.

$$\text{GDP} = \text{C} + \text{I} + \text{G} + \text{NX}$$

Calculate the GDP
by using
expenditure
approach



GDP data of a hypothetical country

GDP and the Components of Expenditure: 2010 in million ETB	
Consumption Expenditure	6000
Non-durable goods	4000
Durable goods	500
Services	1500
Investment	1000
Non-residential fixed investment	600
Residential fixed investment	300
Inventory investment	100
Government Purchases	4500
Federal	2500
Regional and local	2000
Net Exports	-1500
Exports	2500
Imports	4000

The Income Approach

- In the case of income approach, we add the returns (income) to factors of production such as labor, land, capital and profits in the economy.
- In this approach, depending up on the owner of factor input, the components of GDP include the following:
 - **Employment compensation** payment made for labor in the form of wages and salaries.
 - **Rent payments** for use of land, building and other capital inputs.

- **Interest income** which is received by households on their saving deposit.
- **Profit payments** made to the owner of firms in return for the output produced after deduction of the cost of production.
- Aggregating the above returns to factor input gives the **national income** of an economy.
 - So, to arrive at GDP, we add back **indirect business taxes (IBT)** and **depreciations** to the national income.

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- **Indirect business taxes:** are taxes levied on goods and services, rather than directly on income or wealth.
 - They are often **included in the price of a product or service** and are paid by consumers.
 - They represent the difference between what buyers pay for final product and what sellers receive.
 - **Examples of indirect business taxes: Sales tax, VAT**
 - They are income to the government.

■ Depreciation

- is capital consumption allowance (CCA)
- represents consumption of fixed capital which can be considered as a cost of production.
- represents the wear and tear of capital goods.
- It's a cost incurred in production, but it's not directly related to the factors of production (labor, capital, land).

- Depreciation and IBT are added as **non-factor incomes** in the income approach of measuring GDP.
- **Non-factor incomes:**
 - Non-factor incomes are additional sources of income that are not directly related to the factors of production.
 - They are added to the factor incomes to get a more comprehensive measure of GDP.

Product or Value-added Approach

- Production of goods and services typically involves distinct stages.
 - In each stage of production, there is a **market transaction** and a **flow of income**.
 - **Income Generation:** *At each stage, income is generated for the individuals or businesses involved in the production process.*
 - **Market Transactions:** *Each stage involves a buying and selling activity.*

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■ Example:

- There are four different stages having their own market transaction in production of bread.
 - The farmers first grow the wheat and then sell it to the miller.
 - Next, the miller converts to flour and sells to a baker.
 - Finally, the baker sells the bread to the consumer.

Wheat
Farming.....Milling.....Baking.....Cons
umption



- GDP can be estimated by calculating the value added at each stage of production.
 - Value addition at a given stage is the difference between the price of the final good and the price of the intermediate input bought.

Value Addition = Price of Final Good - Price of Intermediate Input

- We simply sum up the value added at each stage of production.

Example

- **Wheat Production**

- Total value of wheat produced is \$1,000.

- **Flour Production**

- The flour produced from the wheat is worth \$1,500.

- **Bread Production**

- The bread produced from the flour is valued at \$2,500.

- **Product Approach**

Final Market Price=

- **Value Added**

VA=

❑ In summary:

- **Income approach:** Focuses on income generated.
- **Expenditure approach:** Focuses on spending.
- **Product approach:** Focuses on product or value added.

❑ All three approaches should, in theory, yield the same GDP figure.

- However, in practice, there may be slight differences.
- Due to data collection issues and measurement errors.

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Summary Part-2

- There are three ways to compute GDP.
 - The **expenditure approach**: GDP is obtained by adding the amount of money that is spent by buyers on final goods and services.
 - The **income approach**: we add the returns (income) to factors of production such as labor, land, capital and profits in the economy.
 - The **value added approach**: GDP can be estimated by calculating the value added at each stage of production.

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Part-3

- Circular Flow of Income and the GDP
- Problems with GDP Measurement
- Nominal and Real GDP values

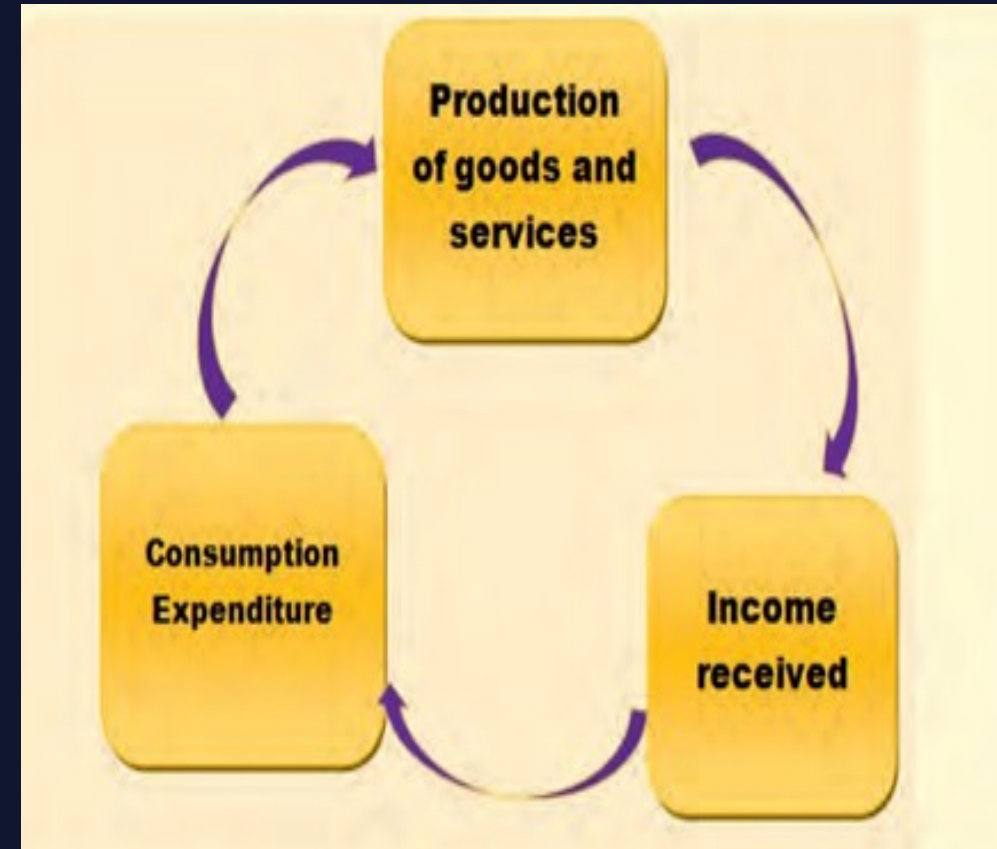
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Circular Flow of Income and the GDP

- In any economy, we have a **continuous circulation of production, income generation and expenditure** involving different sectors of the economy.
- The **expenditure of one agent** becomes an **income for the other** and vice versa.
- There is a **circular flow of income and expenditure** in the economy.



- For the purpose of measuring the GDP, economists recommend aggregating the relevant expenditures or incomes.
 - Adding up all the spending on the current final goods is the same as adding all the relevant incomes.
- Every transaction that affects expenditure must affect income and every transaction that affects income must affect expenditure.

Problems with GDP Measurement

- GDP measurement has some common problems.
- **Double counting**
 - We may wrongly record the value of one good due to the existence of several value adding activities at various stages.
 - Sales of used items
 - does not represent **current production**
 - hence, are excluded from GDP measurements except for the **services of the sellers or agents.**

■ Informal sector/economy

- The existence of a **large informal sector or the underground economy** is also a major problem in developing countries like Ethiopia.
- The informal sector **is part of the economy** on which the **government does not have data**.
- Examples: street trade, fixing things in your house or apartment, improving your



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■ **Unpaid workers** in family businesses are also good examples.

- These tasks are not associated with payments, but they show value addition in the economy.
- Hence, GDP values do not include these activities.



■ **Non-productive transactions**

- There are several **non-productive transactions** such as public transfer payments, unemployment compensations, monetary payments to the poor and social security and subsidy.
- These transactions do not directly involve **purchase of current production directly**, they are excluded from GDP measurements.
- Other problems are that **some goods are not traded**
 - e.g. voluntary works do-it-yourself activities etc.
 - It is also difficult to account for improvement in quality.

- The solution to these problems is
 - To **take care while registering the sale of used items.**
 - The service of the broker or the agent is new and should be registered but the used time is already registered during its production period.
 - **Non-productive transactions** should not be registered.
 - The values of **informal sector activities and goods and services** for own consumption or self-service **should be estimated and included** in the GDP.

Nominal and Real GDP Values

Nominal and Real GDP Values

- GDP is the sum of market values ($P_i * Q_i$) of all current final goods for all consumers.
 - There are two types of GDP values: **Nominal GDP and Real GDP**.
- **Nominal GDP** is the value of goods and services measured at current prices.
 - **Real GDP** values goods and services at constant prices.

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- Real GDP rises only when the **amount of goods and services** has increased.
 - Nominal GDP can rise either because **output has increased** or because **prices have increased**.
- The difference between nominal and real GDP is which **price to use to evaluate the quantities**.
 - Real GDP is GDP adjusted for price changes.
 - It is GDP computed using a **base year price**.
 - Nominal GDP rises much more rapidly than real GDP since prices tend to move upwards over time.

- For the base year, real GDP equals nominal GDP since they both use the same price and quantity.
 - The deviation of the nominal GDP from the real GDP would be larger during inflation.



- The **growth rate of the real GDP** is the most common and better indicator of changes in macroeconomic performance over time.
 - **Growth in real GDP** is associated with **changes in real factors** such as changes in available amount of capital and labor resources in the economy.
 - **Changes in the efficiency** with which factors of production work is another **source of productivity change** and hence causes real GDP changes.
 - Through productivity change, same factors produce more output.

Summary Part-3

- There is a circular flow of income and expenditure in the economy.
 - The expenditure of one agent becomes an income for the other and vice versa.
 - Every transaction that affects expenditure must affect income and every transaction that affects income must affect expenditure.

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- GDP measurement has some common problems: Double counting, Informal sector, unpaid works, non-productive transaction, and non-traded activities.
- GDP: nominal and real GDP
 - Nominal GDP is the value of goods and services measured at current prices.
 - Real GDP values goods and services at constant prices.
- The **growth rate of the real GDP** is the most common and better indicator of changes in macroeconomic performance over time.

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Part-4

- The GDP Deflator and other Measures of General Price
- Other Measures of National Income Account
- GDP and Income Distribution

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The GDP Deflator and the other measures of Price

- Policy makers use change in the general level of price to measure the performance of an economy in combination with the level of GDP.
- To measure the general price of an economy, they use:
 - GDP deflator
 - Consumer's price index (CPI) and
 - Producer price index (PPI).

■ GDP Deflator

- The GDP deflator is a broad measure of changes in general prices in the economy.
- It is sometimes called the “**implicit price deflator**”.
- It is defined as the ratio of nominal GDP to real GDP.

$$GDP\ deflator = \frac{\text{Nominal GDP}}{\text{Real GDP}} * 100 = \sum_{i=1}^n \frac{PQ_i}{P_b Q_i} * 100$$

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- The GDP deflator measures the **price of output (goods)** which are relative to its price in the base year.
 - It shows whether the price of goods increases or decreases in reference to the base year price.
- Note that: if there was no increase (no change) in general price,
 - $NGDP = RGDP$ and
 - GDP deflator equals to 1.

- For the hypothetical economy, assume that NGDP = 950m USD and RGDP = 750m USD.

- Hence, the GDP deflators will be:

$$\text{GDP deflator} = \frac{950,000,000}{750,000,000} * 100 = \frac{95}{75} = 127$$

- This means that **27%** of the change (increase) in GDP is due to a rise in general price compared to the base year price of 100.

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■ Consumer Price Index (CPI)

- The CPI is the most used price index to measure the general price level of an economy.
- CPI for the indicated goods shows how much the basket of goods' costs currently relative to what it costs in the base year.

$$CPI = \frac{\text{Cost of a basket of goods in current year}}{\text{Cost of the same basket of goods in the base year}} * 100$$

$$10 \times \text{base year price of banana} + 3 \times \text{base year price of coffee}$$

■ **Producer Price Index**

- As an alternative to the consumer price index, sometimes the cost of producer goods is measured by the producer price index.
- Producer price index measures the price of typical basket of goods which are bought by firms.

■ Important Remarks:

- Firstly, the GDP deflator measures the price of both consumer and producer goods which are produced in the economy,
 - Whereas CPI measures the prices of goods and services that are bought by consumers only.
 - Thus, an increase in the price of goods bought by firms or the government will show up in the GDP deflator but not in the CPI.

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- Secondly, the GDP deflator includes only those goods which are produced domestically;
 - imported goods are not part of GDP and do not show up in the GDP deflator.
 - Hence, an increase in prices of imported goods affects CPI, but not the GDP deflator.
- Lastly, CPI is computed using a fixed basket of goods
 - whereas the GDP deflator allows the basket of goods to change overtime as the composition of GDP changes.

- The CPI is used to measure a change in general price (inflation) level in the economy.
 - Inflation is the rate of growth in the CPI between two periods.
- Mathematically,

$$\text{Inflation rate} = \left(\frac{CPI_{t2} - CPI_{t1}}{CPI_{t1}} \right) * 100\%$$

Example

- Using the year 2000 as **the base year**, compute: nominal GDP, real GDP and the GDP price deflator for the year 2000 and 2021.

Table 3.4

	Year	
	2000	2021
Price of 100kg of wheat	1000	2000
Price of one automobile	80000	300000
Quantity of wheat produced	2000	2400
Number of cars assembled	1000	1500

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- **Base Year: 2000**
- **Nominal GDP in 2000:**
- **Real GDP in 2000 :**
 - **(Same as Nominal GDP, as 2000 is the base year)**
- **GDP Deflator in 2000**
 - **Always 100 for the base year**

Table 3.4

	Year	
	2000	2021
Price of 100kg of wheat	1000	2000
Price of one automobile	80000	300000
Quantity of wheat produced	2000	2400
Number of cars assembled	1000	1500

- **Base Year: 2021**
- **Nominal GDP in 2021:**
- **Real GDP in 2021 :**
- **GDP Deflator in 2021**

Table 3.4

	Year	
	2000	2021
Price of 100kg of wheat	1000	2000
Price of one automobile	80000	300000
Quantity of wheat produced	2000	2400
Number of cars assembled	1000	1500

Other Measures of National Income Account

- We have also common measurements other than the GDP in economics.

- Two of them are worth mentioning: **net domestic product (NDP)** and **national income (NI)**.

- **Net Domestic Product (NDP)**

- NDP equals GDP minus the capital consumption allowance (depreciation). Mathematically, it is written as follows.

$$\text{NDP} = \text{GDP} - \text{Capital consumption allowance}$$

■ National Income

- National income equals the sum of payments which are received by resource owners.
 - It is the sum of the payments for resources (land, labor, capital, and entrepreneurship).
 - It equals income that is received by workers (wage), rent payment, profit and net interest rate.
- **National income of Ethiopia:** It is total income earned by Ethiopian citizens and businesses, no matter where they reside or are located.

National Income = Compensation of employees + Proprietors' income + Corporate profits + Rental income of persons + Net interest

- **Compensation of employees:** consists of wages and salaries paid to employees plus employers' contributions to social security and the monetary value of other forms of benefits.
- **Proprietors' income:** includes all forms of income that is earned by self-employed individuals.

- **Corporate profits:** include all the income that is earned by the shareholders of corporations.
- **Personal rental income:** the income that is received by individuals for the use of their non-monetary assets such as land, houses and offices.
- **Net interest:** the interest income which is received by Ethiopian households and government minus the interest they paid out to the rest of the world.

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■ **Personal Income**

- Personal income is a measure of the income that people actually receive.
 - In economics, there is distinction between income earned and income received.
- People may not be able to receive some part of their earned income.
 - A simple example is social security contributions and tax deductions from income.
 - Taxes are deduction from people's income and introduce difference between income earned and income received.

- On the contrary, there are incomes received but not earned.
 - Example: Social security benefits or support to poor or needy people by government and non-governmental organizations.
 - This is usually called “**transfer payment**”.

- In order to estimate personal income from national income, we take these and other adjustments into consideration.

- Hence,

$$\text{Personal Income} = \text{National income} - \text{Undistributed corporate profits} - \text{Social insurance taxes} - \text{Corporate profits taxes} + \text{Transfer payments}$$

Personal Income – National Income – Undistributed corporate profits – Social insurance taxes – Corporate profits taxes + Transfer payments

- **Personal Income:** *Income received by individuals and households.*
- **National Income:** *All the income earned by factors of production*
- **Undistributed Corporate Profits:** *Portion of corporate profits not paid out as dividends.*
- **Social Insurance Taxes:** *Taxes for programs like Social Security.*
- **Corporate Profits Taxes:** *Taxes on corporate profits.*
- **Transfer Payments:** *Government payments to individuals (e.g., Social Security).*

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■ **Disposable Personal Income**

- It is the portion of personal income that can be used for consumption or saving.
- It is equal to personal income minus personal taxes (especially income taxes)..... Disposable income = Personal income – Personal taxes
- Sometimes, disposable income is referred to as **spendable income, take-home pay**, or **after-tax income**.

■ Per capita GDP

- Per capita GDP shows the amount of GDP per person.
- It shows what an average individual earns in the economy for a given year.
- It is computed by taking the ratio of the GDP to the total population.

$$\text{Per capita GDP} = \frac{\text{GDP}}{\text{Population}}$$

- We can compute two types of per capita GDP based on the type of GDP we use in this formula.

- **Per capital real GDP** is the ratio of real GDP to population.

$$\text{Per capita real GDP} = \frac{\text{RGDP}}{\text{Population}}$$

- **Per capita nominal GDP** is the ratio of nominal GDP to the population.

$$\text{Per capita nominal GDP} = \frac{\text{NGDP}}{\text{Population}}$$

- GDP is usually measured by using market price, but sometimes people use factor cost to measure it.
- **Factor cost** refers to the **total cost of factors of production**.
 - i.e. land, labour, capital and entrepreneurship.

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- The market price of the goods and services will include **indirect taxes** such as product taxes.

Market Price = Factor Cost + Net Indirect Taxes

**Market Price = Factor Cost + Indirect Taxes -
Subsidies**

- NB: Net Indirect Tax= Indirect Taxes - Subsidies.

GDP and Income Distribution

- Income distribution has been one of the key challenges in many economies.
- Economists have made a move to go beyond the study of GDP to capture income distributions.
 - **Income distribution** refers to how income is divided among different groups.
 - Inequality measures, poverty analysis, and other development indicators are now common in government economic policy analysis.

- Although GDP is a good measure of economic performance over years, it does not show income distribution.
 - The best we can do is to study average earnings like per capita GDP.
- Hence, from GDP values we compare average values such as changes in per capita GDP or per capita income to trace changes in the economy.

Summary Part-4

- To measure the general price of an economy, we use:
 - GDP deflator: It is sometimes called the “implicit price deflator”. It is defined as the ratio of nominal GDP to real GDP.
 - Consumer’s price index (CPI): measures the prices of goods and services that are bought by consumers
 - Producer price index (PPI): measures the cost of producer goods

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- We have also common measurements other than the GDP in economics.
 - Two of them are worth mentioning: net domestic product (NDP) and national income (NI).
 - $NDP = GDP - \text{Capital consumption allowance}$
 - National income: the sum of payments which are received by resource owners.
 - Personal income: is a measure of the income that people actually receive.
 - Disposable Personal Income: is the portion of personal income that can be used for consumption or saving.

- Per capita GDP shows the amount of GDP per person.
 - It shows what an average individual earns in the economy for a given year.
- **Income distribution** has been one of the key challenges in many economies and economists have made a move to go beyond the study of GDP to capture income distributions.



THANK YOU!