Unit 2: Macroeconomics

RIDLEY COLLEGE

SINCE 1889

Assessment Objectives

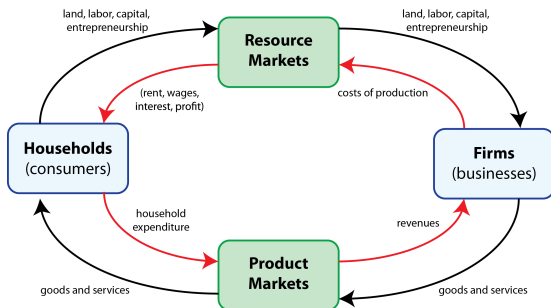|	**Specific Expectations**
AO1	Define how GDP is measured and its components.
AO2	Review the circular flow of income model and draw a diagram of this model.
AO2	Explain the expenditure, income, and output approaches to measuring GDP in national income accounting, and show their equivalence using the circular flow of income model.
AO2	Explain nominal gross domestic product (GDP), nominal gross national income (GNI), real GDP and real GNI per person (per capita), real GDP and real GNI per person (per capita) at purchasing power parity (PPP).

Circular flow of income

- **Circular flow of income model** is a model showing the flow of resources from consumers (households) to firms, and the flow of products from firms to consumers.

  ▶ Demonstrates how an entire country's economy operates at the most basic level.

  ▶ Shows that in any given time period, the **value of output** produced in an economy is equal to the **total income generated** in producing that output, which is equal to the **expenditure** mad to purchase that output.

  ▶ In the model two agents interact in the factor and the product market.

    1. Households as the owners of the factors of production (land, labour, capital, and entrepreneurship) sell these to firms and buy the products that firms produce.

   2. Firms buy the factors of production, and sell the goods and services they produce to consumers

- The outer flow of the model depicts the exchange of factors of production and goods and services between households and firms. The inner flow illustrates the flow of money between households and firms.

- Households receive income when they sell their factors of production to firms in the form of rent (for land), wages (for labour), interest (for capital) and profit (for entrepreneurship).

Circular flow of income (Continued)

- ▶ Consumers then have **household expenditures** which is the money they spend to buy goods and services.

- ▶ Firms on the other hand have **costs of production** when they buy the factors of production, and they receive **revenues** when they sell their goods and services.

- ▶ The **income flow** from firms to households is equal to the **expenditure flow** from households to firms.

Circular flow of income: Leakages and injections

- **Leakages/Withdrawals** from the circular flow of income (saving, taxes, and imports) are matched by **injections** into the circular flow of income (investment, government spending, and exports), though these need not be equal to each other.
  - ▶ If injections are smaller than leakages, the income flow becomes smaller
  - ▶ If injections are larger than leakages, the income flow becomes larger
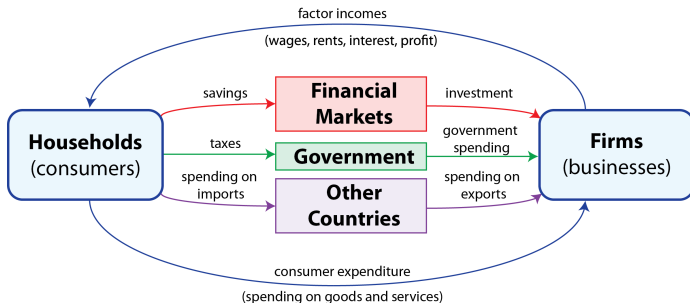
Gross domestic Product (GDP)

- **National income accounting** involves measuring an economy's national income or value of output. The output of an economy is referred to as **national output** or **aggregate output**.

  - ▶ Assess an economy's performance over time
  - ▶ Make cross-section comparisons of income and output performance with other economies
  - ▶ Establish a basis for making policies that will meet economic objectives

- **Gross Domestic Product (GDP)** is a measure of the value of aggregate output on an economy, it is the market value of all final goods and services produced within a country during a given period, usually a year.

  - ▶ One of the most commonly used measures of the value of **aggregate output (national income)**.

Measures of economic activity

- There are three ways to measure the value of national output (or aggregate output) suggested by the circular flow of income model, all giving right to the same result.

1. **Expenditure approach:** adds up all spending to buy final goods and services produce within a country over a time period.

   - GDP $= C + I + G + (X-M)$
   - **Consumption (C)** purchases by households on final goods and services in a year.
     - **Durables** are generally goods bought and used on a ongoing basis over months or years
     - **Non-durables** are bought and consumed over a short time.
   - **Investment (I)** includes all business spending on capital equipment and technology and household spending on new housing or real estate.

Measures of economic activity (Continued)

- ▶ **Government spending (G)** includes all public sector (national, regional, local) spending on final goods and services in the economy.
- ▶ **Net exports (X − M)** refers to the value of all exports minus the value of all imports.
  - ■ Exports are goods and services produced within the country and so must be included in the measurement of aggregate output.
  - ■ Imports involve domestic spending on goods and services that have been produced in other countries, and so must be subtracted from expenditures measuring aggregate output.

2. **Output approach:** calculates the value of all final goods and services produced in a country over a time period.

   - ▶ Measures the amount spent during each stage of the production of an economy's output, adding up the value added at each stage of production.

Measures of economic activity (Continued)

3. **Income approach:** adds up all income earned by the factors of production that produce all goods and services within a country over a time period.

   - GDP = W + I + R + P
   - **Wages (W) + Interest (I) + Rental income (R) + Profits (P)**

Distinction between GDP and GNP/GNI

- **GDP** is the total value of all final goods and services produced within a country over a time period (usually a year), regardless who owns the factors of production.

  - ▶ GDP is sum of all economic activity within the geographical boundaries of a country.
  - ▶ It includes the output and incomes generated by foreign firms operating there.

- **GNI** is the total income received by the residents of a country, equal to the value of all final goods and services produced by the factors of production supplied by the country's residents regardless where the factors are located.

  - ▶ GDP focuses on incomes made in a country while GNP focuses on earnings of the countries firms, both abroad and domestically

Distinction between GDP and GNP/GNI

▶ GNP incorporates income of foreign owners of property. Foreign companies will send interest, rent and profit payments to shareholders abroad.

▶ Likewise, property income earned abroad has to be added to domestic income, GNP.

   ■ **GNP = GDP + Net property income from abroad**

▶ The term "net property income from abroad", takes the sum of income from domestically owned assets abroad, minus the income from foreign-owned assets within the country.

▶ Countries with higher GNP than GDP may have significant foreign presence, in either workers or companies.

▶ They suffer a net income loss when GDP is compared to their GNP

▶ Net income is reduced by the outflow of foreign-earned income on the county's soil

Distinction between GDP and GNP/GNI
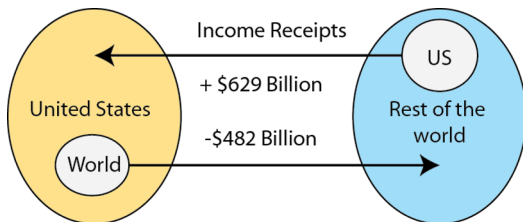
- ▶ If GDP > GNP then there is a strong foreign presence, in either workers or companies, in the domestic market.

- ▶ If GDP < GNP then there is a strong foreign presence abroad, in either workers or companies.

Distinction between nominal values and real values

- **Nominal GDP** measures how much is spent on a country's output in a year.

  - ▶ Is measured in terms of current output valued at current prices, which does not account for changes in prices.

  - ▶ Nominal GDP increases when either the quantity of output increases or when prices increase.

  - ▶ Because nominal GDP can change when prices change, it is not a very good indicator of how much a country's real output of goods and services changes from year to year.

  - ▶ The nominal GDP growth rate (the rate of increase in nominal GDP) is the percentage change between two years being measured.

- **Real GDP** measures the value of a nation's output in prices from a base year.

Distinction between nominal values and real values

▶ It measures the value of current output valued at constant prices so a relative comparison can be made to the base year.

▶ By doing so, changes in the price level are ignored and the GDP figure only reflects whether actual output has increased or decreased over time.

▶ It is a measure of economic activity that eliminates the influence of changes in price.

▶ When a variable is being compared over time, it is important to use real values.

▶ The real GDP growth rate (the rate of increase in real GDP) is the percentage change between two years being measured.

1. If the price level increases (inflation), real GDP will be lower than the nominal GDP.

2. If the price level decreases (deflation), real GDP will be higher than nominal GDP.

Example: Nominal GDP

Example: The table below provides price and output data for Dairyland in 2019 and 2020:

Output in 2019	Quantity produced in 2019	Price in 2019	Total value of output in 2019
Butter	10	$2	$20
Cheese	20	$2	$40
Yogurt	5	$10	$50
Nominal GDP in 2019			$110

Output in 2020	Quantity produced in 2020	Price in 2020	Total value of output in 2020
Butter	12	$2.50	$30
Cheese	25	$3	$75
Yogurt	5	$11	$55
Nominal GDP in 2020			$160

Example: Real GDP

Example: The table below provides price and output data for Dairyland in 2019 and 2020:

Output in 2020	Quantity produced in 2020	Price in 2019	Total value of output in 2020
Butter	12	$2	$24
Cheese	25	$2	$50
Yogurt	5	$10	$50
Real GDP in 2020			$124

GDP Deflator

- **GDP Deflator price index** is a measure of the inflation indicating how much the average price level has change since the base year.

$$\text{GDP deflator price index} = \frac{\text{Nominal GDP}}{\text{Real GDP}} \times 100$$

$$\text{Real GDP} = \frac{\text{Nominal GDP}}{\text{GDP deflator price index}} \times 100$$

  ▶ The GDP deflator price index can be used to adjust a nation's nominal GDP for changes in the price level.

  ▶ The deflator is an indicator of how much prices have changed between two years.

  ▶ For the base year, the deflator always equals 100, since the real GDP is the nominal GDP in the base year.

Distinction between total and per capita values

- **GDP per capita** is the gross domestic product divided by the number of people in the population. It is an indicator of the amount of domestic output per person in the population.

  ▶ Total measures of the value of output and income (such as GDP and GNI), provide a summary statement of the overall size of an economy.

  ▶ Per capita figures are useful as a summary measure of the standard of living in a country, because they provide an indication of how much of total output or total income in the economy corresponds to each person in the population on average.

  ▶ The distinction between total and per capita measures is important for two reasons:

    1. **Differing population sizes across countries**
    2. **Population growth:** changes in the size of GDP (or GNI) per capita over time depend on the relationship between growth in total GDP (or GNI) and growth in the population).

Real GDP/GNI per capita at purchasing power parity (PPP)

- **Purchasing power parity (PPP)** allows for economists to compare economic productivity and standards of living between countries.

  ▶ Different countries have different price levels which means the same amount of money in a low-price country has greater purchasing power (can buy more things) than in a high-price country.

  ▶ Comparisons of GDP per capita (or GNI per capita) across countries require measurement of per capita output or income based on conversions of national currencies into US$ by use of purchasing power parities (PPPs).

  ▶ Eliminates the influence of price differences on the value of output or income.

Summary

- **Enduring Understanding**
  - ▶ An economy's performance can be measured by different indicators such as gross domestic product (GDP), the inflation rate, and the unemployment rate.

- **Essential Knowledge**
  - ▶ GDP is a measure of final output of the economy.
  - ▶ GDP as a total flow of income and expenditure can be represented by the circular flow diagram.
  - ▶ There are three ways of measuring GDP: the expenditures approach, the income approach, and the value-added approach.
  - ▶ Nominal GDP is a measure of how much is spent on output. Real GDP is a measure of how much is produced.
  - ▶ Nominal GDP measures aggregate output using current prices. Real GDP measures aggregate output using constant prices, thus removing the effect of changes in the overall price level.

Summary

- One way of measuring real GDP is to weigh final goods and services by their prices in a base year. Because this can lead to overstatement of real GDP growth, statistical agencies actually use different methods.

- Nominal GDP can be converted to real GDP by using the GDP deflator.