Macroeconomics W3 Part 1

Gross Domestic Product (GDP)

Learning objectives

In this part, you will learn about how we define and measure:

- Gross Domestic Product (GDP)

Gross Domestic Product

Two definitions:

Total expenditure on domestically-produced final goods and services

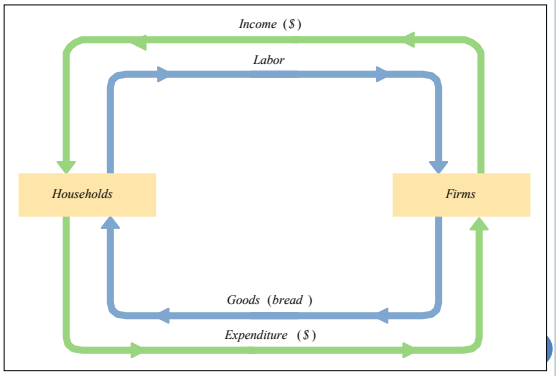
Total income earned by domestically-located factors of production

Why expenditure = income

In every transaction,
the buyer's expenditure becomes the seller's income.

Thus, the sum of all expenditure equals
the sum of all income.

The Circular Flow



Consumption (C)

def: the value of all goods and services bought by households. Includes:

- ***durable goods***
  last a long time
  ex: cars, home appliances
- ***non-durable goods***
  last a short time
  ex: food, clothing
- ***services***
  work done for consumers
  ex: dry cleaning, air travel.

Investment (I)

def1: spending on [the factor of production] capital.
def2: spending on goods bought for future use.
Includes:

- ***business fixed investment***
  spending on plant and equipment that firms will use to produce other goods & services
- ***residential fixed investment***
  spending on housing units by consumers and landlords
- ***inventory investment***
  the change in the value of all firms' inventories

Investment vs. Capital

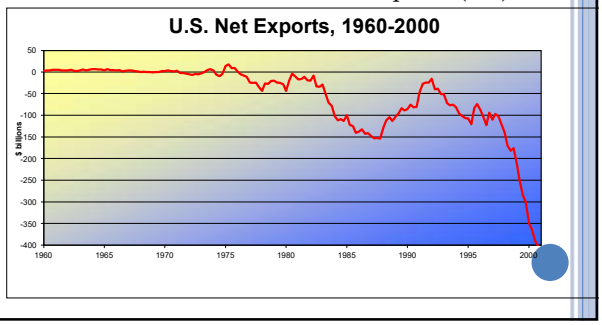
- Capital is one of the factors of production.
  At any given moment, the economy has a certain overall stock of capital.
- Investment is spending on new capital.

Government spending (G)

- **G** includes all government spending on goods and services.

Net exports (NX = EX - IM)

def: the value of total exports (**EX**)
minus the value of total imports (**IM**)



Why output = expenditure

- Unsold output goes into inventory, and is counted as "inventory investment"…

…whether the inventory buildup was intentional or not.

- In effect, we are assuming that firms purchase their unsold output.

An important identity

$$Y = C + I + G + NX$$

where
Y = GDP = the value of total output
C + **I** + **G** + **NX** = aggregate expenditure

GDP:
An important and versatile concept

We have now seen that GDP measures

- ✓ total income
- ✓ total output
- ✓ total expenditure
- ✓ the sum of value-added at all stages in the production of final goods

Exercise 1: GDP / per Capita GDP/ Well-Being

1) If GDP is a good measure of well-being, why is Switzerland's GDP so much lower than India's GDP or China's GDP?

2) What measures would be better to compare the well-being of different countries?

3) How do you expect these direct measures (from question number 2) to correlate with per capita GDP?

Real vs. Nominal GDP

- GDP is the value of all final goods and services produced.
- **Nominal GDP** measures these values using current prices.
- **Real GDP** measure these values using the prices of a base year.

Real GDP controls for inflation

Changes in nominal GDP can be due to:

- ✓ changes in prices
- ✓ changes in quantities of output produced

Changes in real GDP can only be due to

- ✓ changes in quantities

Because real GDP is constructed using constant base-year prices.

Ex1. Two goods are being produced: hot dogs and hamburgers.

Year	Price of Hot Dogs	Quantity of Hot Dogs	Price of Hamburgers	Quantity of Hamburgers
2017	$1	100	$2	50
2018	$2	150	$3	100
2019	$3	200	$4	150

Nominal GDP: the production of goods and services valued at current prices.

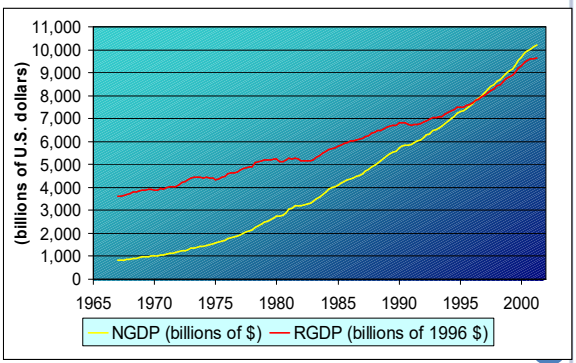
Nominal GDP for 2017 = ($1 × 100) + ($2 × 50) = $200.
Nominal GDP for 2018 = ($2 × 150) + ($3 × 100) = $600.
Nominal GDP for 2019 = ($3 × 200) + ($4 × 150) = $1,200.

Real GDP: the production of goods and services valued at constant prices.

Let's assume that the base year is 2017

Real GDP for 2017 = ($1 × 100) + ($2 × 50) = $200.
Real GDP for 2018 = ($1 × 150) + ($2 × 100) = $350.
Real GDP for 2019 = ($1 × 200) + ($2 × 150) = $500.

U.S. Real & Nominal GDP, 1967-2001



GDP Deflator

- The **inflation rate** is the percentage increase in the overall level of prices.
- One measure of the price level is the **GDP Deflator**, defined as

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

EXERCISE 2

1) Refer to Ex1, please find GDP Deflator of in year 2017 2018 and 2019 and explain the result